

MEASURING CLAS12 $D(E, E'\Pi^\pm)$ CROSS SECTIONS FOR $E4NU$

by

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ABSTRACT

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Neutrino experiments need neutrino event generators such as GENIE to simulate neutrino-nucleus (νA) interactions in order to measure neutrino oscillations. We need eA data to validate GENIE. GENIE $d(e, e')$ cross sections do not match data in the pion production region. Further analysis of this region can help constrain GENIE models. The goal of this project was to compare 4.244 GeV CLAS12 $d(e, e'\pi^\pm)$ cross sections to GENIE predictions. We analyzed data from the Fall 2019 run period of Run Group B (RG-B). We applied particle identification, fiducial, and vertex cuts on electron and charged pion candidates. We compared the measured data with events generated with GENIE and another generator called onepigen. We used onepigen to simulate single charged pion production and to calculate radiative corrections for the data. We submitted GENIE and onepigen events to the GEant4 Monte-Carlo (GEMC) simulation of CLAS12 and applied the same cuts we used on the data. We plotted cross sections as functions of W and binned the events in Q^2 , $\theta_{\pi q}$, and P_π . We used 2D (Q^2), 3D (Q^2 with $\theta_{\pi q}$ or P_π), and 4D (Q^2 , $\theta_{\pi q}$, and P_π) binning schemes. We found GENIE describes $d(e, e'\pi^\pm)$ cross sections better than expected. GENIE describes the data remarkably well in the 2D bins and some 3D and 4D bins. There are many discrepancies between GENIE and data in the other 3D and 4D bins. The results show that, relative to data, GENIE cross sections increase as Q^2 increases, decrease as P_π increases, and fit best at low $\theta_{\pi q}$. These results will help guide improvements to GENIE in order to reduce the

systematic uncertainties in neutrino-oscillation experiments.

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This dissertation is dedicated to God the Father, Almighty Maker of Heaven and Maker of Earth; Jesus Christ, His only begotten Son, our Lord; and the Holy Spirit, Who guides those of the Way. May this dissertation reveal a little bit of God's vast wisdom.

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CHAPTER 1

INTRODUCTION

Ever since the discovery of neutrinos, physicists have worked hard to uncover their secrets. Neutrinos have an incredibly low mass and interact only via the weak and gravitational forces. These leptons have their own antiparticles called antineutrinos, though theoretically, neutrinos could be their own antiparticles (i.e., they could be Majorana particles, see [3]). Neutrinos come in three flavors: electron, muon, and tau. The name of the flavor refers to the lepton produced when the neutrino interacts with matter [4]. Each neutrino flavor has a different mass which is actually a superposition of mass eigenstates [4]. Because of this superposition of neutrino masses, the neutrino flavor oscillates as neutrinos travel, so a pure beam of one flavor changes into a mixture of all flavors. The probability of muon neutrinos oscillating into electron neutrinos (given the existence of tau neutrinos) is given by:

$$P_{\nu_\mu \rightarrow \nu_e}(E, L) \approx A \sin^2 \left(\frac{\Delta m_{13}^2 L}{4E} \right) - B \cos \left(\frac{\Delta m_{13}^2 L}{4E} + \delta_{CP} \right) \sin \left(\frac{\Delta m_{13}^2 L}{4E} \right), \quad (1)$$

where L is the distance the neutrinos traveled, E is their energy, $A = \sin^2 \theta_{23} \sin^2(2\theta_{13})$, $B = -\frac{\sin(2\theta_{12}) \sin(2\theta_{23})}{2 \sin \theta_{13}} \sin(\frac{\Delta m_{21}^2 L}{4E}) \sin^2(2\theta_{13})$, $\Delta m_{13}^2 = m_{\nu_1}^2 - m_{\nu_3}^2$ is the neutrino mass difference squared, and δ_{CP} is a phase that might break CP symmetry. If we ignore the tau neutrinos, this equation simplifies into the following:

$$P_{\nu_\mu \rightarrow \nu_e}(E, L) \approx \sin^2(2\theta_{13}) \sin^2 \left(\frac{\Delta m_{13}^2 L}{4E} \right), \quad (2)$$

which is the first quantity in equation (1). The neutrino mass difference determines the oscillation wavelength as a function of L/E . Measuring the details of neutrino oscillations allows us to determine the oscillation parameters such as Δm_{13} and θ_{13} .

To reveal some of the hidden aspects of neutrino oscillations, physicists use neutrino scattering experiments. These experiments consist of a neutrino source, a near detector, and a far detector. The neutrino source generates a neutrino beam primarily of one flavor, typically muon neutrinos [2]. The near detector measures the flux and flavor composition of this neutrino beam. The far detector measures the flux and flavor of the beam after it travels some hundreds of kilometers such as in the NOvA and T2K experiments [1, 3]. Both detectors are filled with particle detectors and a material the beam can interact with; NOvA

uses PVC and a liquid scintillator setup for its detectors [3]. T2K uses two near detectors, the scintillator and iron plate sandwich based INGRID and the scintillator and gas time projection chamber based ND280, and a far detector reused from a previous neutrino experiment, the Super-Kamiokande 50 kton water based Cherenkov detector [1]. An incoming neutrino interacts with a nucleus in the detector which produces various particles that shoot out. The particle detectors observe these particles. By determining the outgoing particles from an event, it is possible to determine the flavor and energy of the neutrino which interacted with the nucleus. One can then compare the flux of one flavor of neutrino observed in each detector. Since neutrinos oscillate, the far detector flux $\Phi_\alpha(E, L)$ is different than the near detector flux $\Phi_\alpha(E, 0)$:

$$\Phi_\alpha(E, L) = (1 - P_{\nu_\alpha \rightarrow \nu_\beta}(E, L)) \Phi_\alpha(E, 0), \quad (3)$$

where $P_{\nu_\alpha \rightarrow \nu_\beta}(E, L)$ is the probability of an α neutrino oscillating into a β neutrino. Fig. 1 shows the far detector and near detector fluxes and their ratio from the T2K experiment. One can extract neutrino mixing parameters from this change in flux. The far detector flux is related to the measured events:

$$N_\alpha(E_{rec}, L) \propto \sum_i \int \Phi_\alpha(E, L) \sigma_i(E) f_{\sigma_i}(E, E_{rec}) dE, \quad (4)$$

where $N_\alpha(E_{rec}, L)$ is the neutrino interaction rate for reconstructed energy E_{rec} and distance between detectors L , $\sigma_i(E)$ is the interaction cross section for process i on the target, and $f_{\sigma_i}(E, E_{rec})$ is the probability to reconstruct the incident neutrino energy as E_{rec} from a collision of type i . To extract $\Phi_\alpha(E, L)$ from $N_\alpha(E_{rec}, L)$, we need to know $\sigma_i(E)$ and $f_{\sigma_i}(E, E_{rec})$. Unfortunately, two problems with the neutrino beam make it difficult to measure $\sigma_i(E)$ and $f_{\sigma_i}(E, E_{rec})$. One problem is that neutrino beams have a large energy spread. This means one cannot know E . The other problem is that neutrinos have a small nuclear scattering cross section. This means neutrinos rarely interact so to measure a reasonable number of events, the experiment has to use an intense beam, a large detector, and run for a long time. Physicists use neutrino event generators to encapsulate our knowledge of these neutrino-nucleus interactions.

Event generators use our knowledge of interactions to calculate $\sigma_i(E)$ and $f_{\sigma_i}(E, E_{rec})$. This means event generators can simulate neutrino-nucleus scattering experiments to extract the flux (see Fig. 2). We use information from νA scattering measurements, nuclear theory, and eA scattering measurements to construct event generators. One such event generator

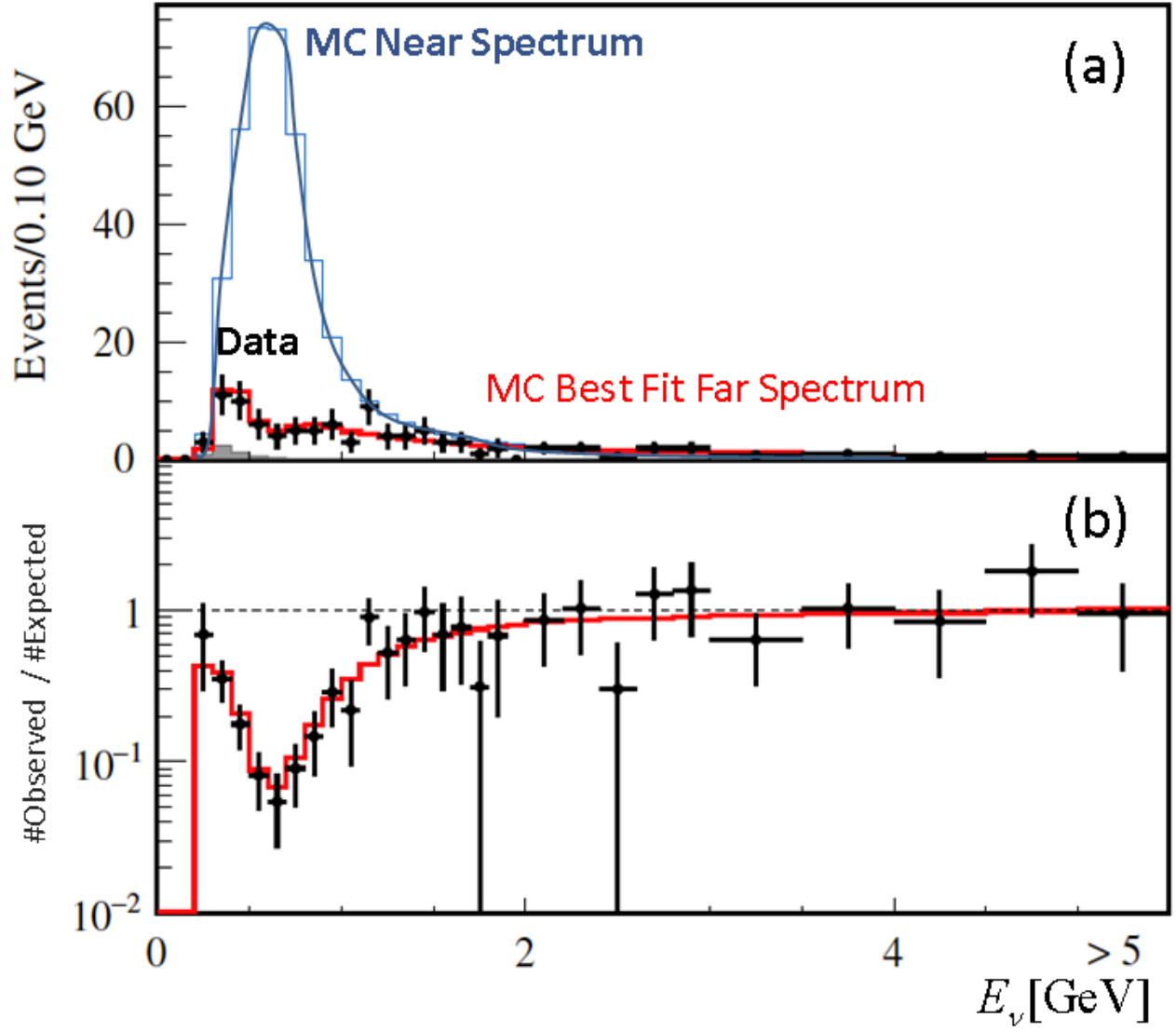


FIG. 1. Comparison between near and far flux (a) and the ratio of far over near (b) as functions of neutrino reconstructed energy from the T2K experiment [1]. Note the large beam energy spread in the near spectrum.

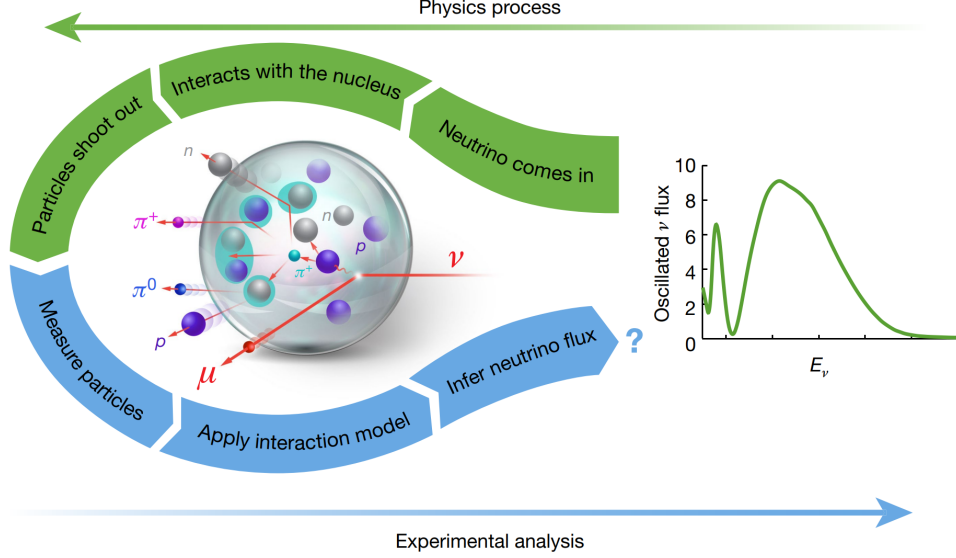


FIG. 2. A visual summary of the neutrino experimental process from [2]. With a plot of observed far detector flux vs. reconstructed neutrino energy, one should be able to, knowing the neutrino interactions and properly analyzing the experiment, extract the real far detector spectrum. The difficulty is in applying the proper interaction models; this places a great deal of importance on validating those models.

is GENIE [5], which stands for Generates Events for Neutrino Interaction Experiments. GENIE attempts to simulate neutrino-nucleus scattering across all nuclear targets and the three neutrino flavors for beam energies from 1 MeV to 1 PeV [5]. However, because of the difficulties of measuring neutrino scattering cross sections, these event generators use phenomenological models in their simulations. These models simulate different processes such as quasi-elastic (QE) scattering, resonance production, and others. They are tuned to reproduce the near detector data, but their accuracy for a specific energy is uncertain [2]. This leads to a paradox in that neutrino experiments need event generators to understand the data while the event generators need experimental data to validate the simulations. Since there is not enough neutrino data to validate the models, we have to find some other way to validate them. Fortunately, physicists have studied another lepton whose data they can use to validate neutrino event generators like GENIE.

Experimentalists can help validate GENIE with electrons. Electrons have many advantages over neutrinos. Firstly, electron beams are monoenergetic. This means one can know the energy of the incident electron. This allows one to measure eA scattering for different energies, angles, and processes. Secondly, electrons have larger interaction cross sections

than neutrinos. This means one can get better statistics on an eA scattering experiment than a νA scattering one. Finally, electrons have similar interactions to neutrinos. Both undergo single boson exchange with nucleons. Electrons transfer their momentum with a photon while neutrinos transfer momentum with either a Z or W boson (see Fig. 3). Electrons and neutrinos also have similar currents. For spin-1/2 particles u and anti-particles $\bar{u}$ [2], the electromagnetic (EM) current j_{EM} of the electron:

$$j_{em}^\mu = \bar{u}\gamma^\mu u, \quad (5)$$

is very similar to the charge-coupling weak current's vector component of the neutrino:

$$j_\pm^\mu = \bar{u} (\gamma^\mu - \gamma^\mu \gamma^5) u \frac{-ig_W}{2\sqrt{2}}, \quad (6)$$

where $\bar{u}\gamma^\mu u \frac{-ig_W}{2\sqrt{2}}$ is the vector component, $\bar{u}\gamma^\mu \gamma^5 u \frac{-ig_W}{2\sqrt{2}}$ is the axial-vector component, and g_W is the weak coupling constant [6]. If the GENIE νA scattering models are accurate, then they should model simpler eA scattering as accurately. Electrons are easier to model than neutrinos, so if GENIE can work with neutrinos, it can work with electrons. Conversely, if GENIE cannot describe electron scattering, then it certainly cannot describe neutrino scattering.

1.1 DISSERTATION DESCRIPTION

My dissertation describes a measurement of $d(e, e'\pi^\pm)$ cross sections and compares them to GENIE predictions. This will guide efforts to constrain GENIE models which badly describe $p(e, e')$ and $d(e, e')$ cross sections (see Section 1.6). Measuring $d(e, e'\pi^\pm)$ allows us to bin in both electron and pion kinematics. By binning in electron and pion kinematics, we can see how the models change across more independent variables than in $d(e, e')$. This allows us to see where the models agree and disagree with the data which helps determine how to change the models.

1.2 PIONS AND THEIR PRODUCTION

Before discussing pions, one should understand some terms. Whereas leptons, such as neutrinos and electrons, are elementary particles, hadrons are composites of quarks and/or antiquarks [7]. Baryons, such as protons and neutrons, are hadrons composed of three quarks while mesons, such as pions, are composed of one quark and one antiquark. Pions specifically

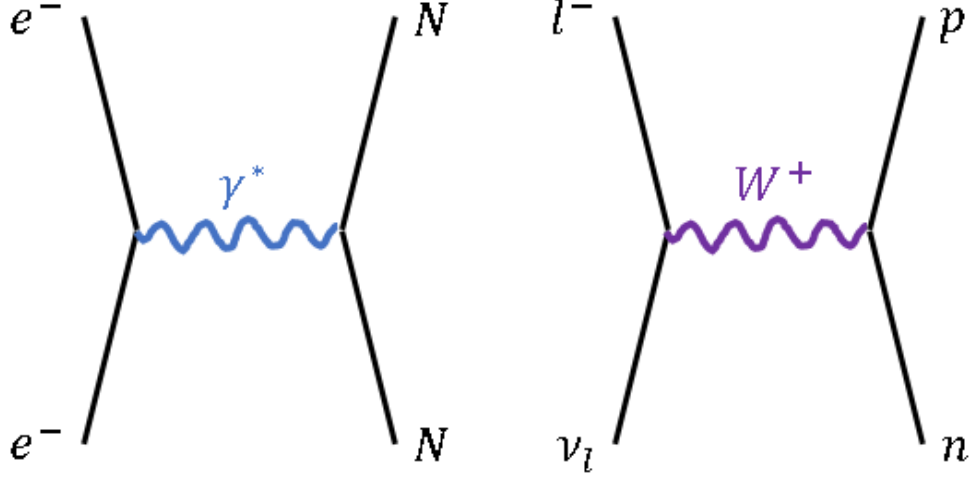


FIG. 3. A comparison between an electron-nucleus weak interaction (left) and a neutrino-nucleus weak interaction (right). In both cases, a lepton (electron e^- or neutrino ν_l) scatter off a nucleon (N or neutron n) via a single boson (virtual photon γ^* or W^+). Note the similarity between the two interactions.

have u and d quarks and antiquarks. Because u and d quarks have charges of $2/3 e$ and $-1/3 e$ respectively, pions can have charges of $+1 e$ ($u\bar{d}$), $0 e$ ($u\bar{u}$ or $d\bar{d}$), and $-1 e$ ($d\bar{u}$). These are referred to as π^+ , π^0 , and π^- , respectively. If they have a non-zero charge, they are called charged pions; otherwise, they are called neutral pions. Charged pions have a mass of $0.140 \text{ GeV}/c^2$ and a mean lifetime of $2.6 \times 10^{-8} \text{ s}$, while neutral pions have a mass of $0.135 \text{ GeV}/c^2$ and have a much shorter mean lifetime of $8.4 \times 10^{-17} \text{ s}$ [8]. They are commonly created in scattering experiments off protons and neutrons. There are four channels in single pion electroproduction [9]:

$$e + p \rightarrow e' + n + \pi^+ \quad (a), \quad (7)$$

$$e + p \rightarrow e' + p + \pi^0 \quad (b), \quad (8)$$

$$e + n \rightarrow e' + p + \pi^- \quad (c), \quad (9)$$

$$e + n \rightarrow e' + n + \pi^0 \quad (d). \quad (10)$$

Fig. 4 shows Feynman diagrams of Eqs. 7-10. Channels (b) and (d) produce neutral pions. My analysis will focus on charged pions because neutral pions are difficult to measure “due to more limited statistics and due to the presence of combinatorial backgrounds” [10].

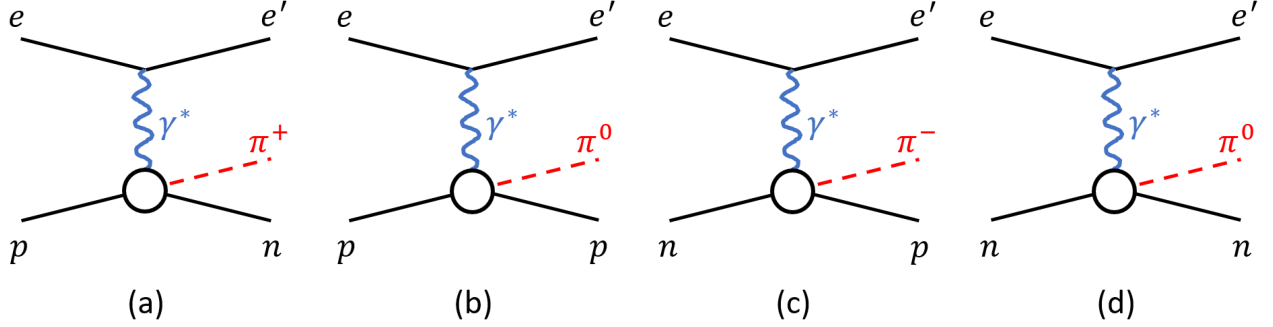


FIG. 4. Feynman diagrams of single pion electroproduction channels depicted in Eqs. 7-10. Channels (a) and (b) are when the electron e^- scatters off a proton via a virtual photon, producing a positively charged pion in (a) and a neutral pion in (b). Channels (c) and (d) are when the electron scatters off a neutron via a virtual photon, producing a negatively charged pion in (c) and a neutral pion in (d).

In addition to single pion production, there is also double pion production (see Fig. 5):

$$e + N \rightarrow e' + N' + \pi^\pm + \pi, \quad (11)$$

where π can be another charged pion or a neutral one. Double pion production has to occur at higher invariant mass W than single pion production since it takes more energy to produce two pions than one.

Lepton scattering can produce pions in three primary ways: resonance production, non-resonant production, and deep inelastic scattering (DIS). These forms of pion production cover a broad range in W (or energy transfer ω as depicted in Fig. 6). In resonance production, the lepton excites the nucleon into a resonant state, such as a delta particle which is an excited baryon consisting of u and/or d quarks and has isospin $3/2$. The nucleon deexcites via pion production; this process is represented by s -channel (see Fig. 7). Resonance production dominates between W of $1.2 \text{ GeV}/c^2$ and $1.9 \text{ GeV}/c^2$ in the appropriately named resonance region. In non-resonant production, the lepton-nucleon interaction is instantaneous, resulting in an outgoing pion. The t - and u -channels correspond to non-resonant production (see Fig. 7). In DIS pion production, the lepton strikes a quark in the nucleon, knocking it out. The large amount of energy involved allows the formation of quarks and antiquarks. Pions can be created in this process. In event generators, non-resonant and DIS production are often grouped together.

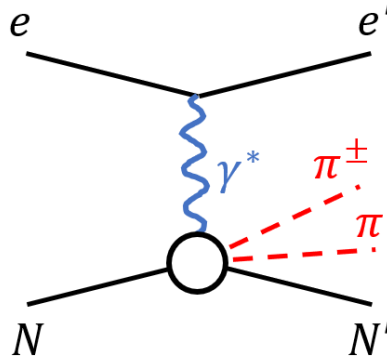


FIG. 5. Feynman diagram of double pion electroproduction as depicted in Eq. 11. Here an electron transfers its momentum via a virtual photon γ^* to a nucleon N with enough energy to produce two pions.

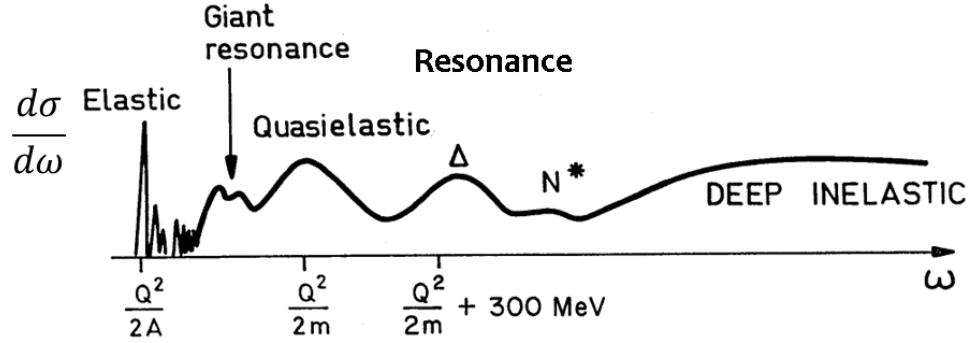


FIG. 6. Electron-nucleus interaction cross section as a function of energy transfer ω . In the elastic peak, an electron scatters off the nucleus without exciting the nucleus. In the quasielastic peak, the electron knocks out a nucleon without exciting the nucleon. In the resonance region, the electron excites a nucleon into a Δ or N^* resonance. In the deep inelastic region, the electron effectively “knocks out” a quark from the nucleon.

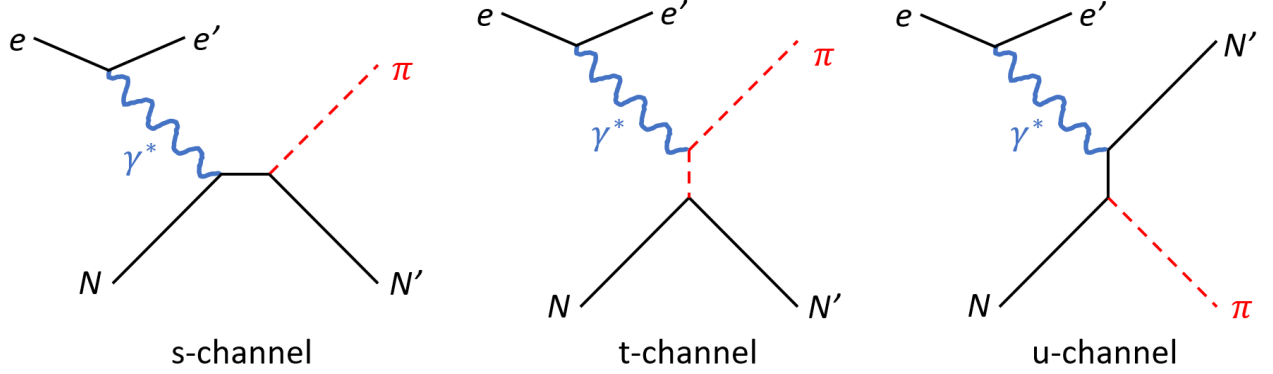


FIG. 7. Feynman diagrams of s -, t -, and u -channels for single pion electroproduction. The s -channel depicts resonance production where the virtual photon excites the nucleon which then deexcites by producing a pion. The t -channel depicts the virtual photon striking a virtual pion from the nucleon while the u -channel depicts the crossed nucleon pole [11]; both channels are forms of non-resonant production.

1.3 KINEMATICS

For electron scattering, an incoming electron has four-momentum $k = (E, \vec{k})$ where E is the initial energy and $\vec{k}$ the initial momentum. It scatters off a nucleon via a virtual photon. The electron scatters with an angle θ_e from the beam line and final four momentum $k' = (E', \vec{k}')$. The plane that contains the scattered electron is the scattering plane. If we detect the scattered electron, we can calculate the four-momentum of the virtual photon:

$$q = k - k' = (\omega, \vec{q}) = (E - E', \vec{k} - \vec{k}'), \quad (12)$$

where ω is the energy transfer and $\vec{q}$ is the momentum transfer. Depending on the reaction mechanism taking place, the virtual photon is absorbed by the nucleon or a virtual pion (see Fig. 7).

The produced pion travels at an angle $\theta_{\pi q}$ to the momentum transfer with energy E_π and momentum $\vec{P}_\pi$ while the nucleon recoils at angle θ_n with energy E_n and momentum $\vec{P}_n$. The plane containing the pion and outgoing nucleon is the reaction plane; it makes an angle ϕ_π with the scattering plane. The angle between the incoming electron and the pion is called θ_π .

The negative square of the virtual photon four-momentum is a useful invariant quantity

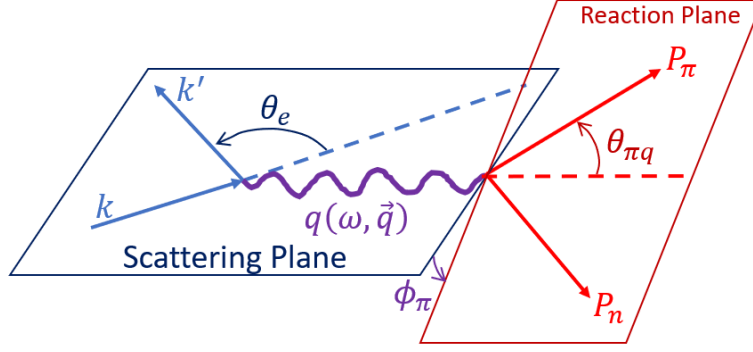


FIG. 8. Pion electroproduction reaction kinematics for an electron scattering off of a nucleon. The incoming electron with momentum $\vec{k}$ transfers momentum $\vec{q}$ and energy ω . The outgoing electron with momentum $\vec{k}'$ scatters at angle θ_e while the nucleon recoils with momentum $\vec{P}_n$ and the produced pion travels with momentum $\vec{P}_\pi$ at angle $\theta_{\pi q}$ with respect to the momentum transfer. The scattering plane contains the electron while the reaction plane contains the pion and outgoing nucleon; the planes have an angle ϕ_π between them. Adapted from [11].

called Q^2 :

$$Q^2 = -q^2 = (k - k')^2, \quad (13)$$

which corresponds to the resolution of the experiment; a higher Q^2 means the virtual photon is probing smaller structures. The invariant mass W is the energy of the initial nucleon and the virtual photon.

$$W = \sqrt{M_N^2 + 2M_N\omega - Q^2}, \quad (14)$$

where M_N is the mass of the struck nucleon.

1.4 GENIE PION ELECTROPRODUCTION MODELS

GENIE's electron-nucleus scattering version, sometimes referred to as *e*-GENIE, can generate events in the pion production region [5]. It uses a phenomenological semi-classical model for lepton-nucleus scattering. This model is made up of nuclear, cross section, and hadronization models. The cross section models simulate specific interactions, including quasi-elastic scattering, baryon resonance production, and non resonant production. All these models use parametrizations of electron scattering data. We can help improve these parametrizations by collecting more electron scattering data. This section shall describe these models in more detail.

1.4.1 Cross Section Models

GENIE describes lepton-nucleus interactions as the sum of quasi-elastic (QE) scattering, baryon resonance (RES) production, and Deeply Inelastic Scattering (DIS) cross section models. In QE scattering, an electron interacts with a single nucleon and knocks it out of the nucleus. In RES production, an electron excites a nucleon to a resonance state. DIS occurs when the electron effectively knocks a quark out of a nucleon while non resonant production occurs when the electron-nucleon interaction is instantaneous.

Quasi-elastic Scattering

For QE scattering, GENIE uses the Rosenbluth cross section [12] to simulate the lepton striking and knocking-out a nucleon from the nucleus. For the one-photon exchange approximation (OPEA), the elastic electron-nucleon scattering cross section is:

$$\left(\frac{d\sigma_N}{d\Omega}\right)_{elas} = \frac{\alpha^2 E_e' \cos(\theta_e/2)}{4E_e^3 \sin^4(\theta_e/2)} \left[G_{eN}^2 + \frac{\tau}{\epsilon} G_{mN}^2 \right] \left(\frac{1}{1+\tau} \right), \quad (15)$$

where E_e is the initial electron energy, E_e' is the final electron energy, θ_e is the electron scattering angle, G_{eN} and G_{mN} are the nucleon electric and magnetic form factors, $\tau = Q^2/(4M_N^2)$ (M_N being the nucleon mass), and ϵ is the virtual photon polarization [13]. GENIE uses the nucleon form factors “to parameterize the vector part of the elastic νA cross section” [13]. For deuterium, the QE scattering cross section is:

$$\sigma_{eD} = K' \times \left[\left(\frac{d\sigma_p}{d\Omega}\right)_{elas} S_p(K, E_S) + \left(\frac{d\sigma_n}{d\Omega}\right)_{elas} S_n(K, E_S) \right], \quad (16)$$

where K' is the final nucleon momentum, S_p and S_n are the spectral functions, K is the initial nucleon momentum, and E_S is the nucleon separation energy. The spectral function is the probability of finding a nucleon with K and E_S . GENIE uses the struck nucleon’s initial momentum to calculate the final nucleon kinematics.

Baryon resonance production

For RES production, GENIE uses the Berger-Rein-Sehgal (BRS) model [6]. It extends the Rein-Sehgal (RS) model [14] used to simulate single pion production, by including nonzero lepton (muon) mass in the formalism [15]. Neutrino oscillation experiments need the inclusion of nonzero mass to calculate the angle and momentum of leptons in neutrino scattering

experiments [15]. The RS model is based on the Feynman-Kislinger-Ravndal (FKR) model [15, 16], a relativistic harmonic oscillator quark model that calculates cross sections [6]. The RS model includes parameters for known resonances from $W < 2 \text{ GeV}/c^2$ [14]. In the BRS model, a lepton excites a single moving nucleon to one of the resonances [6]. The BRS model uses a modified version of the formalism developed by Kuzmin, Lyubushkin, and Naumov [17]. It defines the differential cross section as:

$$\frac{d\sigma}{dQ^2 dW^2} = \frac{G_F^2 \cos^2 \theta_c}{8\pi^2 M_N} \kappa \frac{Q^2}{|\vec{q}|^2} \sum_{\lambda=+,-} \left[\left(c_L^{(\lambda)} \right)^2 \sigma_L^{(\lambda)} + \left(c_R^{(\lambda)} \right)^2 \sigma_R^{(\lambda)} + \left(c_S^{(\lambda)} \right)^2 \sigma_S^{(\lambda)} \right], \quad (17)$$

where G_F is the weak coupling constant for strangeness conserving transitions [16], θ_c is the Cabbibo angle [17], M_N is the mass of the nucleon, $\kappa = (W^2 - M_N^2)/2M_N$ is the conventional “flux factor” [15], and $\sigma_L^{(\lambda)}$, $\sigma_R^{(\lambda)}$, and $\sigma_S^{(\lambda)}$ are the left-handed, right-handed, and scalar polarization helicity cross sections with amplitudes $c_L^{(\lambda)}$, $c_R^{(\lambda)}$, and $c_S^{(\lambda)}$ [15]. Checking at forward scattering, one finds $\sigma_L^{(\lambda)}$ is a helicity flip cross section while $\sigma_S^{(\lambda)}$ is a helicity-conserving cross section [15].

In the original RS model, the form factors were fit to elastic and quasielastic reactions [18]. The e4 ν collaboration calls this the dipole model. Many neutrino experiments use a 700-800 MeV beam where the fit on $\Delta(1232)$ excitation region is more important. The e4 ν collaboration calls this alternative method the Rarita model after the Rarita-Schwinger formalism used by it. Section 7.4 compares the predictions of the two models.

Deeply Inelastic Scattering and non resonant production

For DIS and non resonant production, GENIE uses the Bodek-Yang model [6]. According to the GENIE manual [5] it accounts for higher twist and target mass corrections “through the use of a new scaling variable and modifications to the low Q^2 parton distributions.” The manual further says that “[t]he default parameter values are those given in [19], which are determined based on the GRV98 LO parton distributions [20].”

For the non resonant contribution, GENIE does not use a stand alone model. Instead, it suppresses the Bodek-Yang model at $W < 1.93 \text{ GeV}/c^2$. Ultimately, GENIE models the resonant and non-resonant production below $W = 1.93 \text{ GeV}/c^2$, then switches to DIS for above. The GENIE Collaboration tuned these features with ν_μ and $\bar{\nu}_\mu$ scattering on deuterium [21]. The BRS model from the previous section also contains (through the RS model) an $I = 1/2$ non resonant background which is itself an “approximate treatment” [14].

1.4.2 Hadronization Models

GENIE uses two hadronization models to determine the final state particles. It uses the Andreopoulos-Gallagher-Kehayias-Yang (AGKY) [22] model at low W and the PYTHIA 6 [23] model at high W . As W increases, GENIE gradually transitions from the AGKY model to the PYTHIA model. At low W , final state hadron multiplicity dependent tunable parameters scale the differential cross section [6].

1.4.3 Final State Interaction Models

GENIE calculates final state interactions (FSI) between the outgoing hadrons and nuclei with two methods [6]. In the G2018 configuration, GENIE uses the hA FSI model. The hA model uses pion and nucleon cross sectional data with nuclei for energies below 1.2 GeV and the CEM03 calculation [24] for energies above.

1.5 ONEPIGEN

In addition to GENIE, we used onepigen, an event generator that simulates $d(e, e'\pi^\pm)$ with the MAID2007 cross section model [25]. MAID2007 is a unitary isobar model that is fit to world pion-electroproduction data below $W = 2 \text{ GeV}/c^2$ [26]. This gives onepigen a range of validity between $1 < W < 2 \text{ GeV}/c^2$ for single pion production. Onepigen also includes the CD-Bonn nucleon momentum distribution in deuterium and the Mo-Tsai model for radiative effects. We used onepigen to simulate single pion production for comparison to data and GENIE. We also used it to calculate radiative corrections for data; this is covered in Chapter 6.

1.6 MOTIVATION

The motivation for my dissertation is that GENIE badly describes inclusive electron scattering off of proton and deuteron targets in the pion production region. Fig. 9 shows $p(e, e')$ and $d(e, e')$ cross sections as functions of energy transfer (ω) for different beam energies. The data comes from [27]. The first peak is the delta resonance and the following peaks are N^* resonances. The delta and N^* peaks refer to the type of particle the struck nucleon excites into; delta and N^* particles are excited states of nucleons. GENIE describes the delta peak reasonably well. With increasing beam energy, GENIE's delta peak shifts to lower energy transfer relative to the data. It has a much greater cross section relative to data in deuterium than proton (hydrogen). GENIE over predicts cross sections significantly

in the N^* resonance region. Both the resonant and non-resonant contributions appear to be too large. These issues suggest that GENIE's phenomenological models need more than vector component constraints from neutrino data to predict both resonant and non-resonant production, especially in the N^* resonance region [6].

To solve this problem, we need to provide more data to constrain the GENIE phenomenological models. We measured $d(e, e' \pi^\pm)$ cross sections with CLAS12 to further improve GENIE. This dissertation describes the CLAS12 spectrometer used to measure the cross sections (Chapter 2), data analysis (Chapters 3 and 4), the resulting cross sections (Chapter 5), the correction factors and calculated uncertainties (Chapter 6), the data-model comparisons (Chapter 7) and conclusions (Chapter 8).

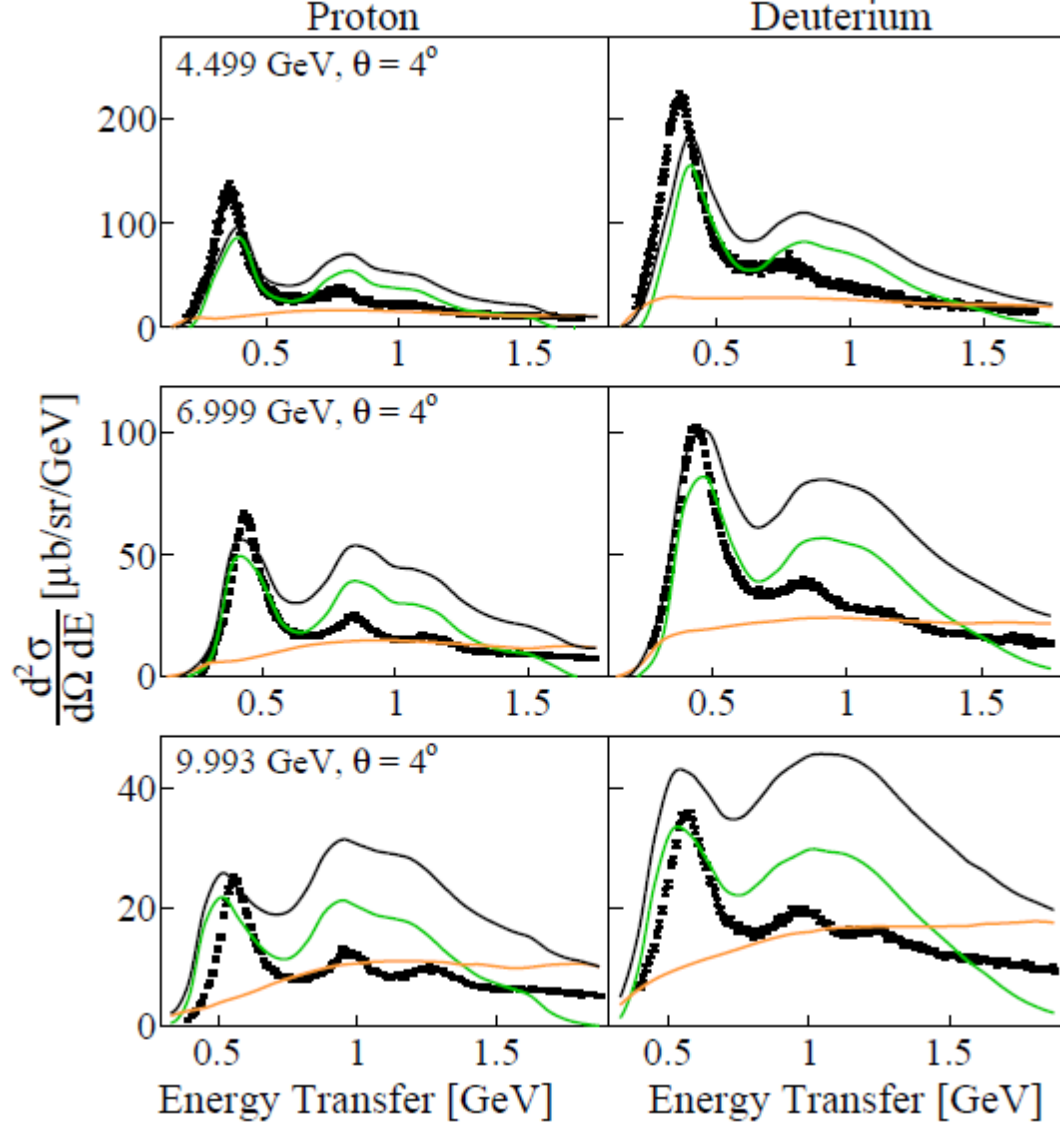


FIG. 9. Inclusive cross sections as functions of energy transfer for proton and deuterium targets and for different beam energies. The black line is the total GENIE simulation; the green and orange lines are respectively the resonant production and non-resonant production components of the simulation. The first peak is the delta peak; the region at higher energy transfer is the N^* resonance region. [6]

CHAPTER 2

EXPERIMENTAL SETUP

Our experiment took place at the Continuous Electron Beam Accelerator Facility (CEBAF) at the Thomas Jefferson National Accelerator Facility (JLab). CEBAF has four experimental halls; Hall B is home to the CEBAF Large Acceptance Spectrometer (CLAS12) which has been upgraded for JLab's 12 GeV electron beam. Multiple detectors make up CLAS12; we use them to identify and track particles. For my dissertation, we focused on particles detected by the Forward Detector (FD). The FD consists of detectors situated downstream of the target. These include the High Threshold Cerenkov Counter (HTCC), Drift Chamber (DC), Forward Time-of-Flight (FTOF), and Electromagnetic Calorimeter (ECAL). All FD detectors are divided into six sectors which surround the beamline.

2.1 CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY

CEBAF consists of an injector, two linear accelerators (Linacs) and two turns (also called arcs, see Fig. 10). The injector uses a 130 keV polarized gun to produce an electron beam which is accelerated up to 123 MeV [28]. Then the beam goes through the north Linac, the east turn, and the south Linac. For the first pass, the Linacs accelerate the beam up to 2.2 GeV. The beam could either go into one of the original halls (Halls A, B, and C), or go around the west turn back into the Linacs for further acceleration. CEBAF produces a 4.4 GeV beam with two passes, a 6.6 GeV beam with three passes, an 8.8 GeV beam with four passes, and a 11 GeV beam with 5 passes. Only Hall D (which branches off the north linac/east turn) can receive a 12 GeV beam.

2.2 THE CLAS12 DETECTOR

The CLAS12 detector (see Fig. 11) studies the reactions from electron-nucleus and electron-proton scattering experiments [29]. It covers a large fraction of the solid angle with the ability to detect charged and neutral particles for polar angles from 5° to 125° . It does so with two separate systems, the FD and the Central Detector (CD). The FD covers 5° to 35° while the CD covers 35° to 125° . The FD is divided into six independent sectors around the beamline [30]. It can reconstruct particle momentum with a resolution of $\sigma_p/p \approx 0.7\%$ [29]. CLAS12's trigger and data acquisition system can operate at a luminosity of $10^{35} \text{ cm}^{-2}\text{s}^{-1}$.

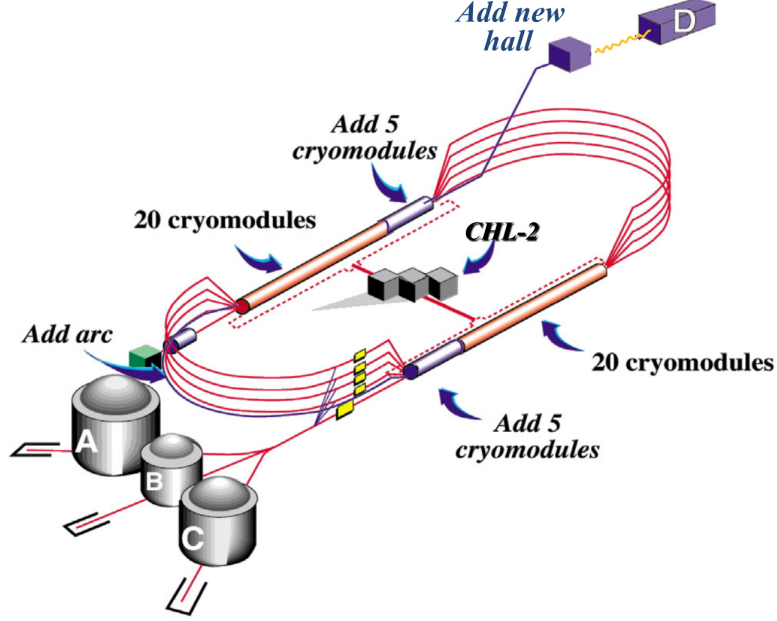


FIG. 10. A diagram of the Continuous Electron Beam Accelerator Facility (CEBAF) with highlighted upgrades for the 12 GeV program. The electron beam source is located at the green block above Hall A. The beam travels clockwise around the track; for each pass, it uses an arc calibrated to bend a beam of its energy. Image from [29].

CLAS12 has two superconducting magnets. Both are used by the FD which we used in this analysis.

2.2.1 The CLAS12 Superconducting Magnets

CLAS12 uses two superconducting magnets, a solenoid surrounding the target and a torus downstream of the target (see Fig. 12). These magnetic fields bend the paths of moving charged particles; the solenoid changes the azimuthal angle (ϕ) while the torus changes primarily the polar angle (θ). Fig. 13 shows the magnetic fields. The solenoid bends charged particles for the CD and controls Moller electrons [31]. By keeping the low energy Moller electrons from hitting the detectors, the CLAS12 spectrometer operates at high luminosity and measures high momentum particles with good resolution [29]. The torus bends forward going charged particles for the FD [31]. The FD uses the torus to distinguish positive, negative, and neutral particles from each other. The magnetic field of the torus causes positively and negatively charged particles to bend in opposite directions. The FD also determines the momentum of charged particles by measuring the curvature of

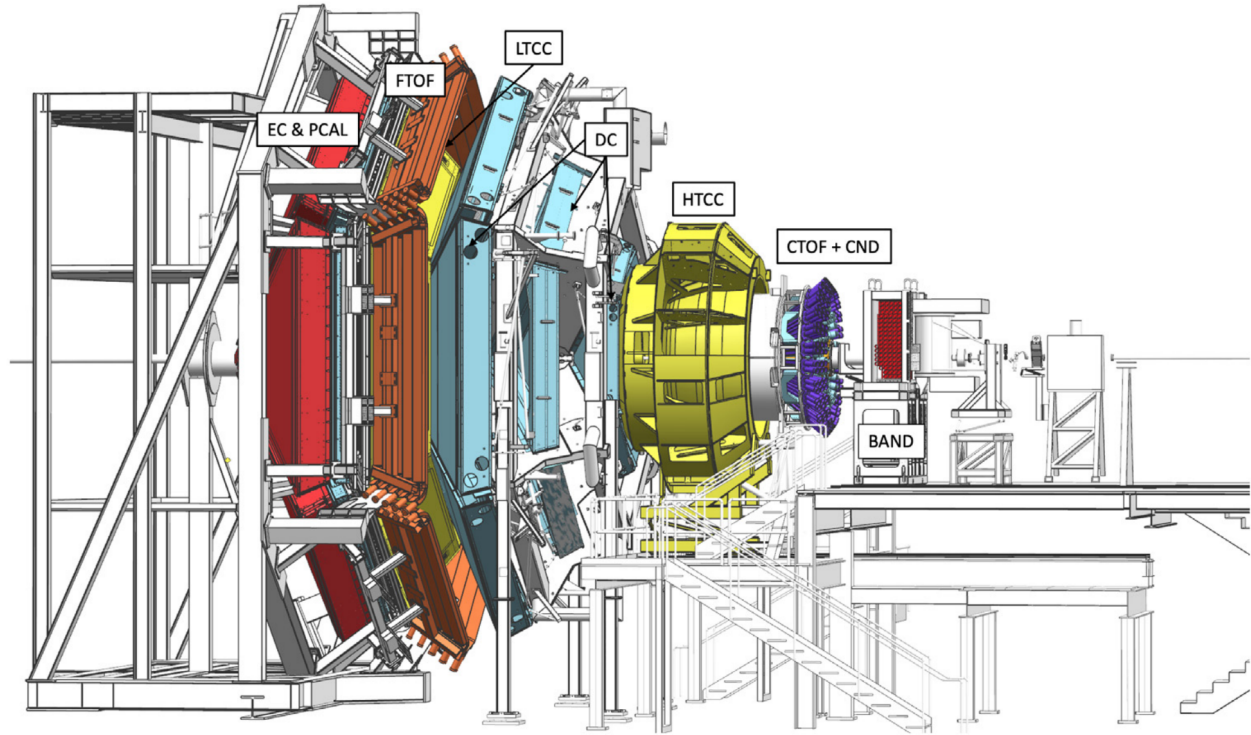


FIG. 11. A side view of CLAS12 with various detectors labeled. The various FD detectors are labeled EC & PCAL (the Electromagnetic Calorimeter and Pre-shower Calorimeter), FTOF (Forward Time-Of-Flight), LTCC (Low Threshold Cerenkov Counter), DC (Drift Chamber), and HTCC (High Threshold Cerenkov Counter). The electron beam travels from the right to the left in the image. The CTOF (Central Time-Of-Flight) and CND (Central Neutron Detector) are two detectors in the CD; BAND (Backward Angle Neutron Detector) is independent of the FD and CD. The solenoid is partly visible inside the HTCC; the torus is surrounding the middle layer of the DC. The target is inside the solenoid. Image from [29].

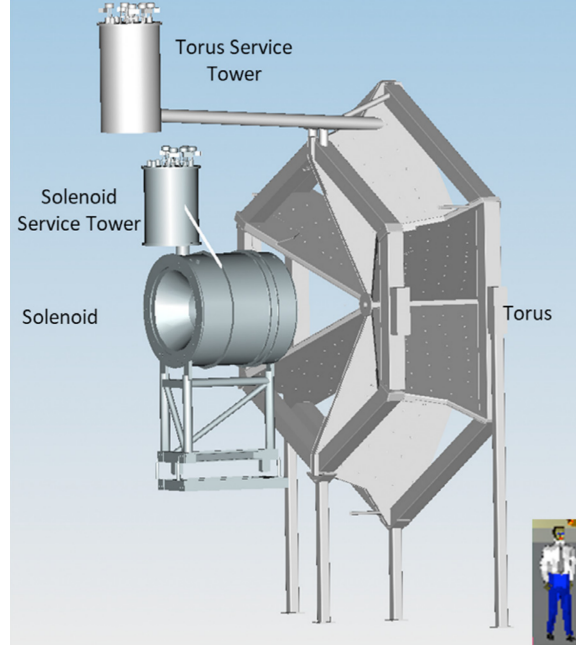


FIG. 12. The CLAS12 superconducting magnets. This is a “simplified view” of the magnets without the detectors. The electron beam travels from the left to the right in the image. Image from [31].

their trajectories in the Toroidal magnetic field.

2.2.2 High Threshold Cerenkov Counter (HTCC)

The HTCC (see Figs. 14 and 15) discriminates scattered electrons from other charged particles such as pions, kaons, and protons. It is built as one unit; however, it is still subdivided into six sectors. It has at its downstream end a multifocal mirror comprised of 60 ellipsoidal mirrors. It additionally has 12 half-sector mirrors and 48 PMTs. It is filled with CO_2 gas and located downstream of the target to measure forward going particles. It can detect electrons with a momentum of $15 \text{ MeV}/c$ or more, but charged pions need a momentum of at least $4.9 \text{ GeV}/c$ to produce Cerenkov light [32]. It can discriminate electrons from charged pions (with $P < 4.9 \text{ GeV}/c$) over 99% of the time [32].

A Cerenkov counter uses light produced by particles to identify particle type. When a charged particle exceeds the speed of light in a medium (typically a gas such as CO_2), it emits Cerenkov radiation. The Cerenkov light gets reflected by mirrors to a photomultiplier tube (PMT).

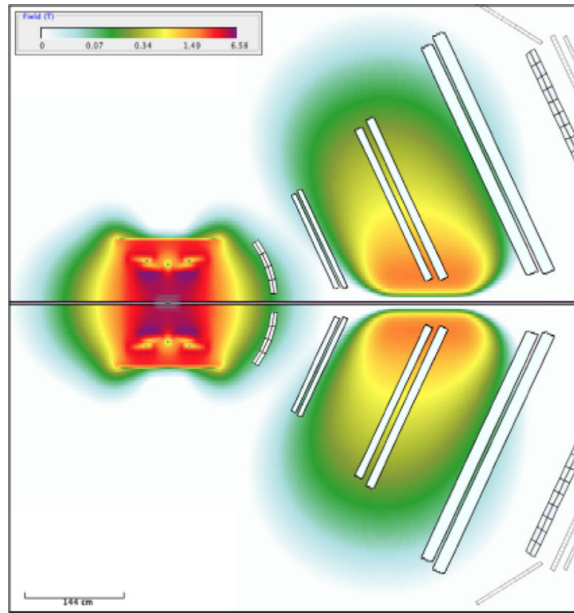


FIG. 13. A cross-sectional view of the CLAS12 detector showing the solenoid (left) and toroidal (center) magnetic fields. The electron beam travels from the left to the right in the image. The colors show the intensity of the magnetic fields at the full strength of the magnets. The open boxes are active components of the FD, the magnets themselves are not shown. Image from [29].

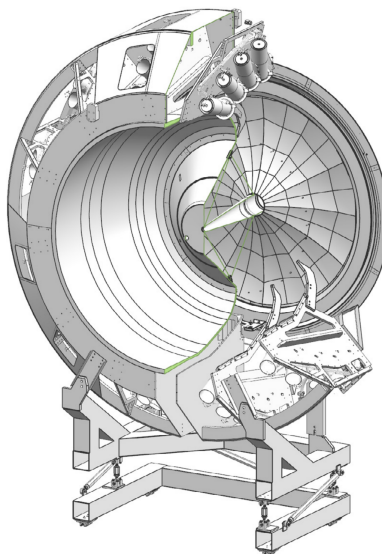


FIG. 14. A cutaway view of the HTCC. The electron beam travels from the left to the right in the image. Image from [29].

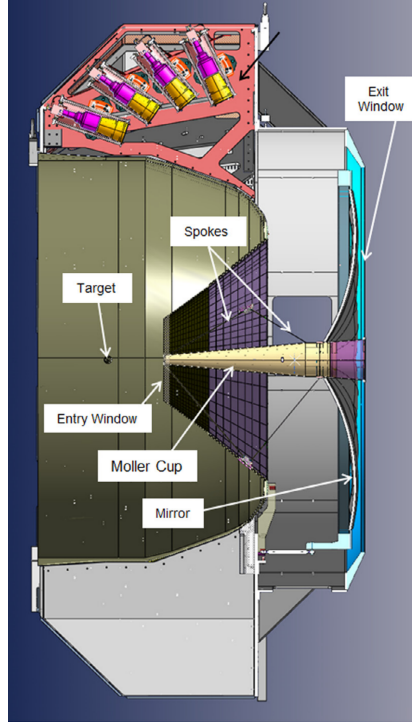


FIG. 15. A cross section of the HTCC. The components and target are labeled. The electron beam travels from left to right. Image from [29].

A PMT converts a light signal into an electrical signal readable by readout electronics. On the face of a PMT is a photocathode which converts the photons into electrons (specifically called photoelectrons) via the photoelectric effect. An electric field accelerates the photoelectrons thru a series of dynodes. When an electron hits a dynode, it releases more electrons. As a result, the dynodes amplify the electrical signal by multiplying the number of electrons. The final signal is sent to readout electronics. Because of their sensitivity to magnetic fields, PMTs are often surrounded by mu-metal shielding to prevent magnetic fields from affecting the acceleration of electrons inside them. For the HTCC, each PMT is surrounded by a magnetic coil which cancels out the magnetic fields produced by the nearby magnets.

The HTCC measures the signal strength in terms of the number of photoelectrons produced. The average signal strength depends on the energy of the electron; a 2 GeV electron produces an average of 17 photoelectrons [32]. A minimum photoelectron number cut is required to reject Cerenkov radiation from electrons knocked-out by charged pions [32].

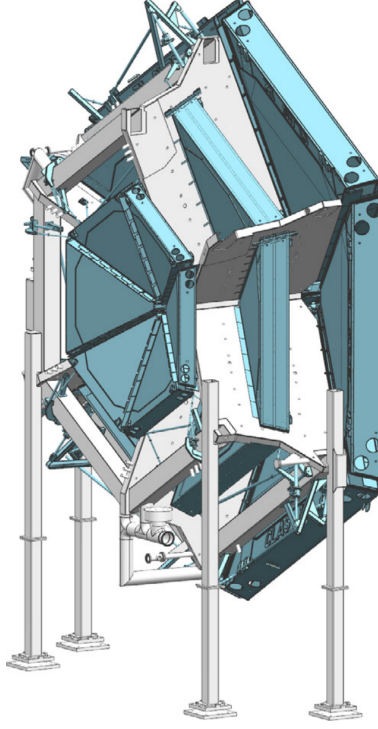


FIG. 16. The CLAS12 drift chamber (DC) system. The DC (light blue) is embedded without and within the torus magnet (gray). The electron beam travels from the left to the right in the image. The small R1 chambers sit upstream of the magnet, the medium R2 chambers sit between the magnetic coils, and the large R3 chambers sit downstream of the magnet. Image from [29].

2.2.3 Drift Chambers (DC)

The CLAS12 Drift Chambers (DC) are used to track charged particles [29]. The DC consists of 18 wire chambers divided into three regions: one upstream, one inside, and one downstream of the torus (see Fig. 16). Regions 1, 2, and 3 are located about 2 m, 3 m, and 4 m downstream from the target, respectively. Each of these regions has six chambers. Every wire chamber has 2 superlayers with one superlayer's wires at a stereo angle of $+6^\circ$ and the other at -6° with respect to the sector midplane. This configuration provides excellent polar angle resolution and good azimuthal angle resolution. Each superlayer consists of 6 layers with 112 sense wires in each layer for a total of 24,192 sense wires. The DC has an angular coverage of $5^\circ - 40^\circ$ and a momentum resolution of $dp/p < 1\%$. It has a θ angular resolution of 1 mrad and a ϕ angular resolution of $1 \text{ mrad} / \sin \theta$.

These drift chambers are filled with a gas mixture of 90% Ar and 10% CO_2 . The DC

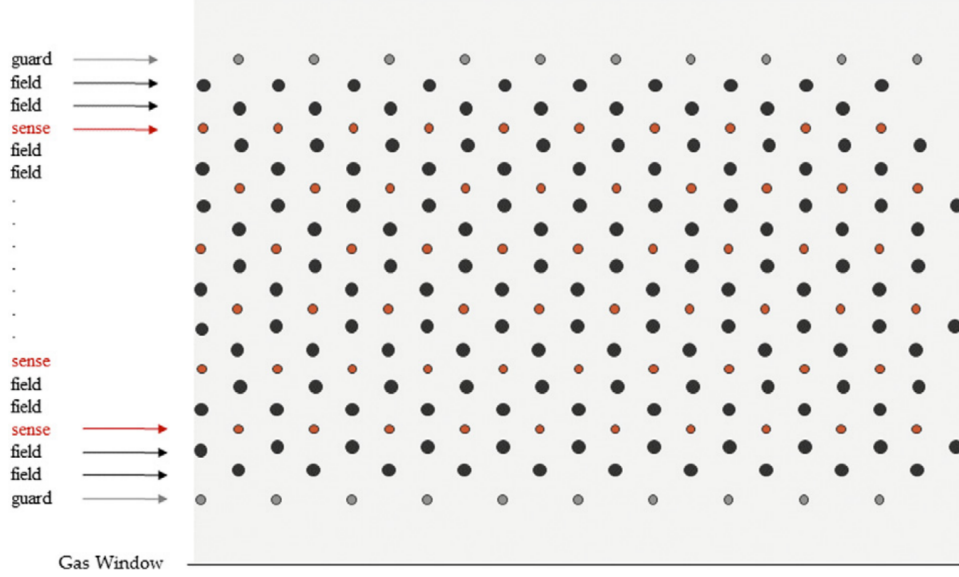


FIG. 17. The DC wire layout for a superlayer. This is looking along the wire direction (particles from the target region would pass through from bottom to top). The sense wires (orange-red) detect the electrons knocked out by the passing charged particle. The field wires (dark gray) maintain an electric field with the sense wires while the guard wires (light gray) keep the total charge on all the wires zero. Image from [33].

uses three types of wires: sense wires, field wires, and guard wires. Fig. 17 shows the wire arrangement in a superlayer. Sense wires are anodes that ultimately detect the signal. Field wires are cathode wires that maintain an electric field with the sense wires inside the chamber. The guard wires are anodes like the sense wires, but they make certain the total charge across all wires is zero [33]. The voltage ratio for the sense, field, and guard wires are $1 : -1/2 : 5/14$ [33]. This minimizes electrical effects from grounded surfaces [34]. A charged particle passing through the chamber ionizes the gas molecules in its path. The freed electrons travel toward the nearest sense wire while ionizing other gas molecules on its way. The resulting avalanche reaches the sense wire, which serves as an anode. The signal is sent to readout electronics. The stereo angles made by the wires provides azimuthal information [35].

The track a charged particle makes through the DC region is determined by the Distance-Of-Closest Approach (DOCA) of the particle to each of the hit wires [33]. The actual value recorded by the DC Time-to-Digital Converters (TDCs) is time, so one has to convert this to DOCA. One first corrects the raw TDC time, then uses a time-to-distance function to

convert the time to a DOCA.

The drift time (t_{drift}) is the time difference between the particle traversing the wire cell and the electrons reaching the sense wire. The drift time is related to the raw TDC time t_{tdc} by the following equation:

$$t_{drift} = t_{tdc} - t_{start} - t_0 - t_{flight} - t_{prop} - t_{walk}, \quad (18)$$

where t_{start} is the event start time (when the particle left the target), t_0 is the fixed-time delay for the wire, t_{flight} is the time the particle travels from the interaction vertex to the wire, t_{prop} is the signal propagation time along the wire, and t_{walk} is a time shift dependent on the ion density of the track and the distance of the track to the wire [33]. The event start time is determined by the Time-of-Flight (TOF, discussed Section 2.2.5) of the particle corrected by the flight time.

There are two DOCAs: TRKDOCA and DOCA. TRKDOCA comes from the fit value of the closest approach of the track while DOCA comes from the measured time for the wire hit [33].

We express the relationship between time $t(x)$ (in ns) to distance x (in cm) with a fourth order polynomial:

$$t(x) = ax + bx^2 + cx^3 + dx^4, \quad (19)$$

where the parameters a , b , c , and d are ultimately expressed as parameters of T_{max} , V_0 , r , and V_{mid} . T_{max} is the time when TRKDOCA is at its maximum value (D_{max}), V_0 is the saturated drift velocity near the wire for the gas mixture of the DC, r is the point between the sense wire to a neighboring field wire where the electric field is at a minimum, and V_{mid} is the velocity at r . Given the geometry of the DC, $r = 0.64D_{max}$ [33]. Because it has regions upstream, inside, and downstream of the torus magnet, the DC can track the path particles make through the magnetic field of the torus (see Fig. 18). Charged particle tracks make an arc through the DC; the momentum is extracted from the curvature of the track in the magnetic field.

2.2.4 Low Threshold Cerenkov Counter (LTCC) and Ring-Imaging CHerenkov (RICH) Detector

While not used in our experiment, the Low Threshold Cerenkov Counter (LTCC) and Ring-Imaging CHerenkov (RICH) detector are parts of CLAS12 and in the path of scattered electrons and produced pions. The LTCC detects charged pions with momenta greater than

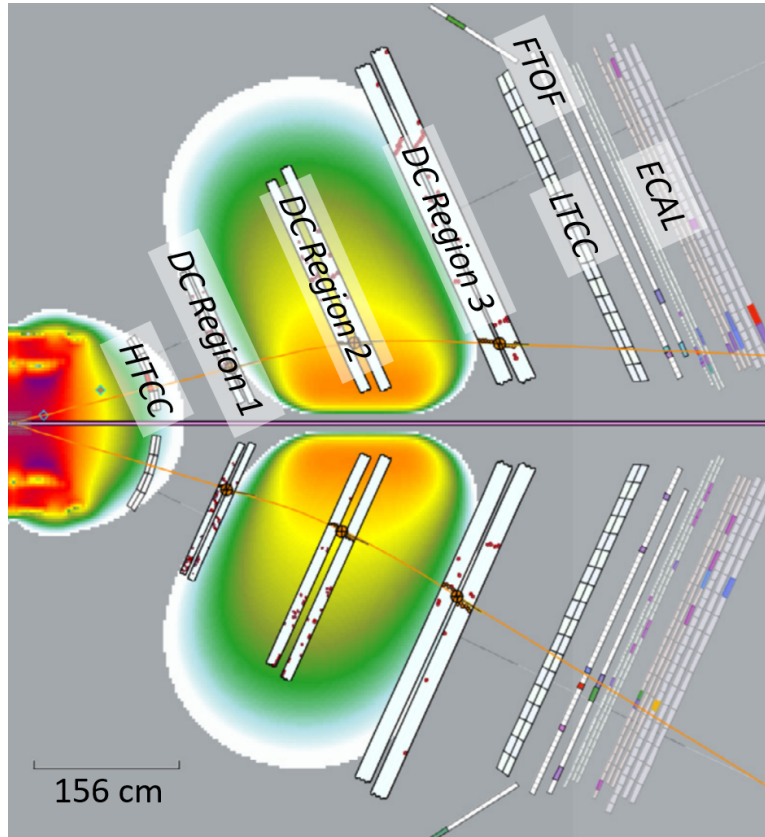


FIG. 18. The CLAS12 ced event display. This is a cross-sectional view of the CLAS12 detector showing the solenoid (left) and toroidal (center) magnetic fields, the various FD detectors, and two particle tracks. The tracks are an inbending electron (upper track) and an outbending positively charged particle (lower track). The electron beam travels from the left to the right in the image; the target is at the far left of the image inside the solenoid. Only half the solenoid is shown. The colors show the strength of the magnetic field and hits in the detectors. The incident electron scatters off the target nucleus. Outgoing particles travel through the magnetic field of the solenoid, pass through the HTCC, and through the DC regions. The torus bends the tracks of charged particles as they travel through the DC. The particles pass through the LTCC (or RICH), FTOF, and then the ECAL, which is the last detector in the FD. Image modified from [29].

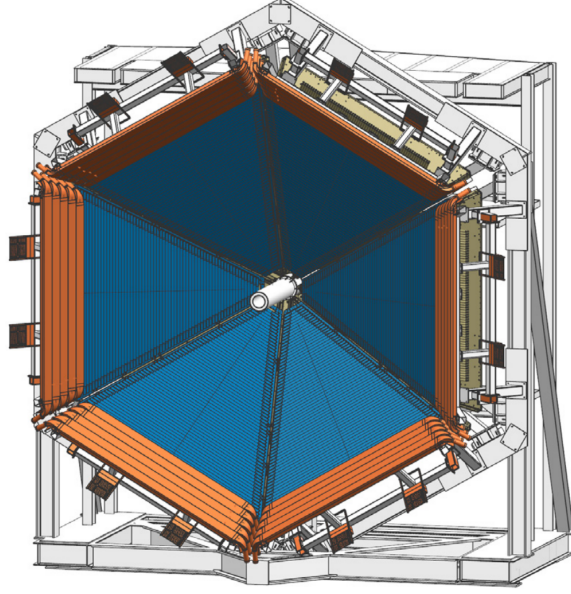


FIG. 19. The CLAS12 Forward Time-of-Flight (FTOF) system. The figure shows the panel-1b (dark blue) and panel-2 (orange) scintillators. The panel-1a scintillators are behind the panel-1b scintillators in this image. The electron beam travels into the page from the left to the right in the image (through the gray cylinder in the center of FTOF). Image from [36].

3.5 GeV/ c [29]. It originally covered all six sectors; however, only sectors 3 and 5 were installed and the RICH detector took the place of LTCC's sector 4 for the Fall 2019 Run Group B (RG-B) period. Each LTCC sector has 108 mirrors, 36 Winston cones, 36 PMTs, and 36 magnetic shields [29]. It is filled with C_4F_{10} gas for experimental operations. The RICH detector identifies particles with momenta between 3 GeV/ c to 8 GeV/ c . It does so with aerogel radiators, visible light photon detectors, a focusing mirror system, and multi-anode PMTs [29].

2.2.5 Forward Time-Of-Flight (FTOF)

The Forward Time-of-Flight (FTOF) measures the time-of-flight of charged particles. With a particle's time-of-flight, velocity (as calculated from the distance traveled over the time-of-flight), and momentum, one can calculate the rest mass of the particle, and therefore, its identity. FTOF consists of 540 plastic scintillators divided into six sectors (see Fig. 19). FTOF covers angles between 5° and 45° from the beamline (see Fig. 20). There are three sets of arrays: panel-1a and panel-1b arrays cover 5° to 35° while the panel-2 array covers

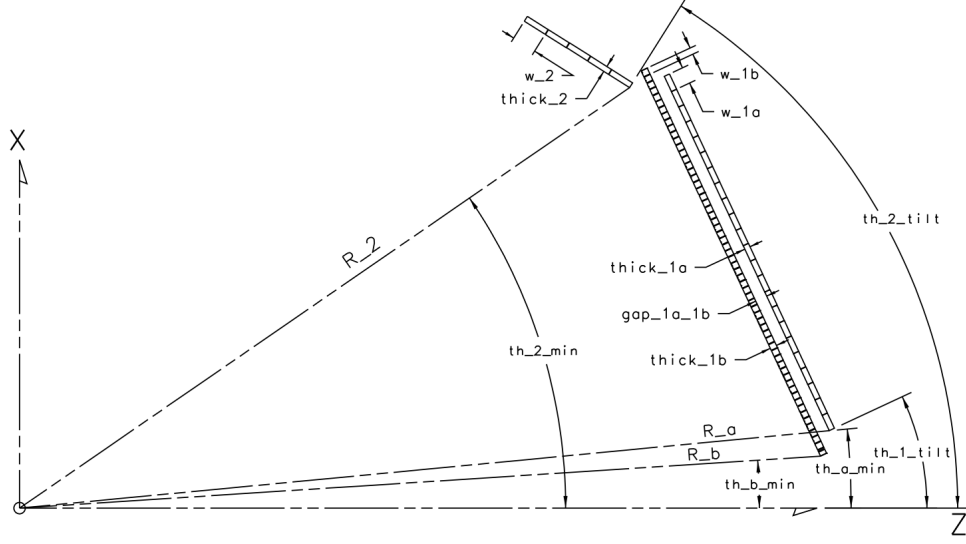


FIG. 20. A diagram of one sector of FTOF. It shows the FTOF panel-1a, panel-1b, and panel-2 scintillators. The origin is the nominal center of CLAS12 [37]. The beam travels from the left to the right along the z-axis. Image from [36].

35° to 45°. Panel-1a scintillators are 15 cm wide and 5 cm thick and have lengths from 32.3 cm to 376.1 cm. Panel-1b scintillators are 6 cm by 6 cm and have lengths from 17.3 cm to 407.9 cm. Panel-2 scintillators are 22 cm wide and 5 cm thick and have lengths from 371.3 cm to 426.2 cm. The average timing resolutions for panel-1a, panel-1b, and panel-2 are 125 ps, 85 ps, and 155 ps [29]. The timing resolution of FTOF is worse in the areas behind the LTCC (but not the RICH) because of multiple scattering of the charged particle [38]. For 4σ separation, FTOF can distinguish pions from kaons up to 2.8 GeV/ c , pions from protons up to 5.4 GeV/ c , and kaons from protons up to 4.8 GeV/ c . Because of the difficulty of calibrating panel-2, we chose to not use it in our analysis.

Scintillators are charged particle detectors. When a high-energy charged particle, such as an electron or pion, passes through the scintillant, it excites the atomic electrons in the material. When those electrons de-excite, they produce photons. This light travels in all directions. Some of these photons hit the sides of the scintillant at large angles and escape; others hit the sides at smaller angles and bounce off, just like photons in an optical fiber which undergo total internal reflection. This light then reaches the light guide and is funneled to a PMT. As discussed in Section 2.2.2, the PMT converts the light signal into an electrical signal and sends it to readout electronics.

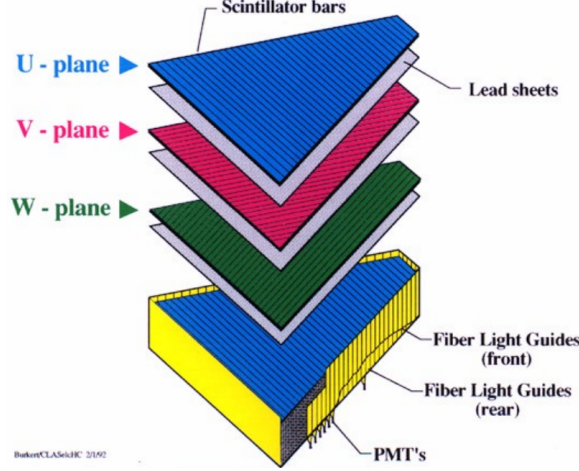


FIG. 21. A CLAS Electromagnetic Calorimeter (EC) module. The electron beam travels from the top to the bottom in the image. Image from [39].

2.2.6 Forward Electromagnetic Calorimeter (ECAL)

The CLAS12 Electromagnetic Calorimeter (ECAL) measures the electromagnetic showers created by particles to distinguish electrons, photons, and neutrons. It consists of two detectors: the CLAS Electromagnetic Calorimeter (EC) and the new Pre-shower Calorimeter (PCAL). The EC is divided into two regions: ECAL-inner and ECAL-outer. Both PCAL and EC form 6 triangular-shaped modules which surround the beamline. Both the PCAL and ECAL-inner have 15 layers of 1 cm thick scintillators between 2.2 mm lead sheets; ECAL-outer has 24 layers. Each layer of scintillators alternates among U, V, and W coordinates (see Fig. 21). This layering provides stereo information on the energy deposition location [39]. The width of the EC scintillators is 10 cm. For the PCAL, half its scintillators are 4.5 cm (single width) while the other half are 9.0 cm (double width) [40]. The overlap between the U, V, and W layers is such that the 4.5 cm wide scintillators (which have better resolution than the 9.0 cm scintillators) cover every area of the module (see Fig. 22). Optical fibers connect the scintillators with PMTs. The ECAL has an angular coverage from 5° to 35° and has an expected energy resolution of $10\%/\sqrt{E}$ for electrons and photons, a position resolution of about 1 cm, and a time resolution of 500 ps [40]. The PCAL extends the EC's 16 radiation lengths [39, 40] to 20.5 radiations lengths [29].

The PCAL and EC consist of alternating layers of lead and scintillant. Electrons and photons make electromagnetic showers in the lead. In one radiation length (about 5.6 mm

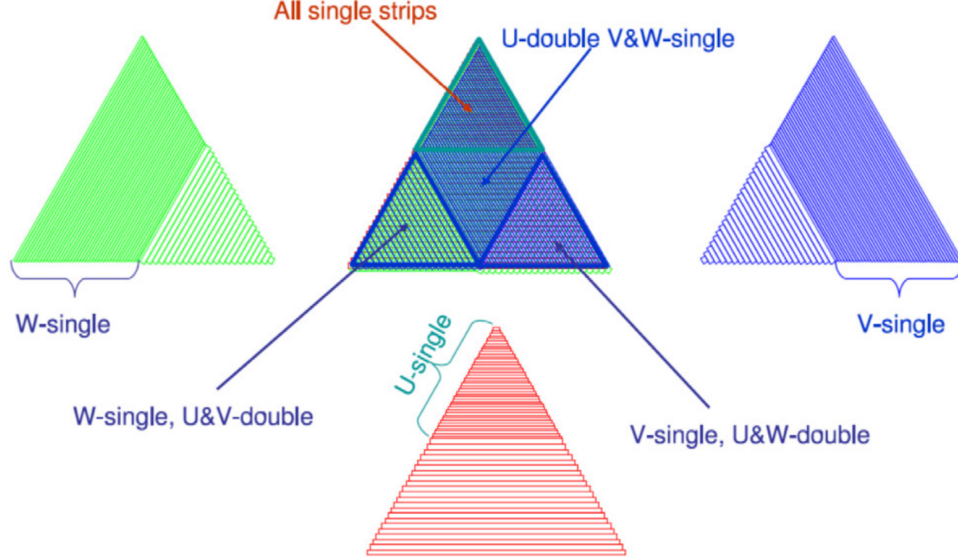


FIG. 22. The segmentation pattern of the PCAL U, V, and W scintillators. Notice that the single width (4.5 cm) scintillators cover every area of the module unlike the lower resolution double width (9.0 cm) scintillators. Image from [40].

of lead) an electron emits an average of one high energy photon and a photon pair-produces an electron-positron pair. The charged particles also lose energy by dE/dx in the scintillant and lead. The scintillators measure a total deposited energy proportional to the electron or photon total energy. Pions and other hadrons do not shower electromagnetically and thus do not deposit their total energy in the ECAL. This means we can distinguish between electron and pion hits in the ECAL. One can identify photon hits in the ECAL by their lack of DC tracks. We used the ECAL solely to identify electrons and reject charged pions.

2.2.7 Forward Tagger, Central Detector, and BAND

The FD also has the Forward Tagger (FT) which can detect electrons and photons at angles between 2.5° to 4.5° [29]. We did not use the FT for our analysis. We also did not use the CD which consists of the Central Vertex Tracker (CVT), Central Time-Of-Flight (CTOF), and Central Neutron Detector (CND) [29]. Additionally, the Backward Angle Neutron Detector (BAND) was used in the experimental run but not a part of our analysis.

2.2.8 Trigger

CLAS12 needs to determine the usefulness of the data it receives from the detectors.

Some detector hits can come from cosmic rays or activated radiation sources in the hall instead of physics events from the target. The CLAS12 Data Acquisition (DAQ) system can handle average trigger rates up to 20 kHz [29], so to maximize the amount of useful experimental data, one must determine whether a hit is useful or not before recording it. The CLAS12 trigger system determines whether to record the data or not.

The DAQ is a pipelined, networked-based system that collects data from more than 100 front-end components, assembles data into events, records it, and monitors the data quality [41]. The front-end components are referred to as Readout Controllers (ROCs) and consist of commercial VME/VXS crates with custom VME/VXS boards, Linux servers, and JLab designed VXS Trigger Processor boards (VTPs). A optic fiber system connects a 250 MHz clock to all the components, distributes synchronization reset and trigger signals, and collects busy signals from the front-end electronics. The front-end components connect to the Event Builder (EB) component which is a multi-threaded program on a multi-core Linux server. Built events are sent to the Event Transfer (ET) system which shares the information with data processing programs that process, filter, or monitor data quality. The Event Recorder (ER) receives information from the ET and records it.

The trigger system provides trigger signals for electron and photon nuclear interactions at a luminosity of $10^{35} \text{ cm}^{-2}\text{s}^{-1}$ [42]. It requires at least an $8 \mu\text{s}$ trigger latency to have time for logic processing. The HTCC, DC, FTOF, and ECAL (in addition to other CLAS12 components not part of the FD) provide information to the trigger system. The HTCC, FTOF, and ECAL use JLab VXS 250 MHz Flash Analog-to-Digital Converters (FADCs) while the DC uses 125 MHz discriminator/TDC boards (DCRBs). The trigger has three stages.

In the first stage, the VTPs collect data from the various detector subsystems. They analyze the data to determine which are valuable. For the HTCC, the trigger identifies clusters with “a 2×2 section sliding window” [42]. Depending on how it hits the mirrors, the cluster could be seen in only one PMT or as many as four, with one PMT having the lowest resolution. The DC trigger has two steps. In the first step, it searches for “segments” in the superlayers. For segment identification, the trigger requires at least four of the six layers in each superlayer to match. It uses a segment dictionary to identify segments. In the second step, the trigger identifies track candidates with help from a “road dictionary.” The trigger needs at least five superlayers to identify a track. The FTOF trigger uses panel-1b scintillators for triggering. If both PMTs register a signal above threshold, the trigger reports it as a hit. For the ECAL, the VTPs use a cluster finding algorithm to determine

electron showers and other particle hits. This algorithm first finds one-dimensional clusters in each of the ECAL coordinate systems (U, V, and W) that are above the threshold. Then it checks for overlaps between these one-dimensional clusters to identify two-dimensional clusters. After attenuation correction of the two-dimensional clusters, the algorithm sorts the clusters by energy and reports up to four of them.

In the second stage, the trigger system looks for coincidences between the events recorded from stage 1. It does this for the six FD sectors (in addition to the CD). In the third stage, the system collects all the streams into a module which combines them to generate trigger bits. The trigger bits have three conditions; the settings of these conditions form a trigger for the desired events.

We required the trigger to select electron scattering events with five parameters and cuts [38]. First, it must detect more than the minimum number of photoelectrons in the HTCC. Second, the energy deposition in the PCAL and EC must be between the PCAL and EC limits. Third, the sum of the PCAL and EC energy depositions must be between the energy sum limits. Fourth, it must have DC roads (a library of DC tracks matched to ECAL hit clusters). This correlates the momentum of a DC track with possible ECAL hit locations, which improves electron trigger purity. Last, the DC track coordinate and the U-hit in the PCAL must have a geometry match. Chapter 4 discusses the RG-B limits we used in this analysis.

CHAPTER 3

DATA COLLECTION AND CALIBRATION

Experimental runs in Hall B take place with specific run conditions in order to meet certain experimental goals. RG-B included six experiments that used a 10.2 - 10.6 GeV electron beam on a 5 cm long liquid deuterium target. It collected data in three run periods: Spring 2019, Fall 2019, and Winter/Spring 2020. During the Fall 2019 run period, RG-B also used an electron beam of 4.244 GeV from the 18th to the 19th of December 2019. This Low Energy Run (LER) period used the inbending configuration of the torus magnet. The period produced eighteen runs (11286-11300, 11302, 11308, and 11309), though many had DAQ and trigger problems, especially with sector 4. Most used the same trigger configuration (`rgb_inbending_v9_1_BAND_FT`); the latter three had different trigger configurations and were not considered for this analysis. The runs used the same DAQ configuration in principle (Run 11289 used the PROD66 DAQ configuration while the rest used PROD66_PIN). Table 1 includes the runs considered for this analysis as well as details of the runs. To determine which of these runs to use, we checked the ratio of the number of trigger electrons divided by the faraday cup charge for each sector for each run. As Fig. 23 shows, several runs had low ratios in at least one of the sectors. Since sector 4 typically had low ratios, we decided to remove it from our analysis and eliminate the runs that had problems in the other sectors. Given these criteria, we initially selected runs 11286, 11288, 11289, 11290, 11291, 11294, 11295, 11296, 11297, and 11299 for our analysis; however, we had to drop runs 11297 and 11299 because our sector-by-sector variance analysis (see Section 6.2.1) found that these runs had large variations in several sectors.

3.1 DETECTOR CALIBRATION

It is necessary to calibrate all subsystems of CLAS12. This procedure is discussed extensively in the RGA analysis note [38] from which this writeup summarizes. It has four steps; between each step, one recooks the data. First, we calibrate the DC and determine the beam position in x and y . The DC calibration is discussed in the DC section of Chapter 2. Second, we calibrate FTOF energy and time measurements. Third, we use pass-0 output files to calibrate run-dependent radio frequency (RF). Fourth, we calibrate the remaining detector subsystem's energy and time measurements. We check the EB PID constants and the ECAL electron and photon SF.

TABLE 1. The Low Energy Run (LER) list. This is a selection of 4.244 GeV runs. Runs used in this analysis are marked with an asterisk.

Run No.	Duration (HH:MM:SS)	Current	No. of events	Notes
11286*	00:06:09	30 nA	1 M	DAQ problem
11287	00:02:07	30 nA	200 K	trigger problem
11288*	00:06:37	30 nA	3 M	DAQ problem
11289*	00:38:51	30 nA	23 M	DAQ problem
11290*	02:45:51	30 nA	100 M	Production
11291*	00:56:49	30 nA	25 M	Production
11292	00:04:34	30 nA	2 M	DAQ problem
11293	00:12:16	30 nA	5 M	ROC problem
11294*	03:02:38	30 nA	101 M	Production
11295*	00:21:07	30 nA	10 M	Production
11296*	01:19:25	30 nA	39 M	Production
11297	01:22:54	35 nA	59 M	Production
11298	00:05:44	35 nA	3 M	ROC problem
11299	02:53:44	40 nA	118.5 M	FCup beam blocker in
11300	02:11:41	40 nA	98.5 M	



FIG. 23. The number of trigger electrons over the faraday cup charge for each of the runs considered for this analysis. Note the many runs with DAQ problems, especially with sector 4.

3.1.1 DC Position Calibration and Beam Offset

To determine the exact position of the DC chambers, one applies offsets to each of the eighteen chambers [30]. These offsets are either a 0.2 cm shift or a 0.2° rotation shift in the sector's local coordinate system. These offsets change the residuals of the reconstructed tracks; one places the differences between the shifted and unshifted residual means into a distortion table. One fits each sector across two ϕ bins (positive or negative) and four θ bins: $[0, 10)$, $[10, 15)$, $[15, 20)$, and $[20, 90)$. One aligns the sectors with each other by minimizing the residual distributions. By requiring the sectors point to the same vertex position, one can determine the z vertex position for the run period.

For the beam offset, CLAS12 extrapolates the path of a track from the DC to the nominal beam position [38]. It places the production vertex of the particle at the DOCA between the track and the beam position. If it uses the wrong (x, y) beam position in event reconstruction, CLAS12 can use the introduced azimuthal dependence on the z position to determine the beam offset to the actual beam position.

3.1.2 FTOF Calibration

FTOF calibration follows a nine step procedure which one can read in detail in [36]. First, one determines the left/right PMT time offsets and the ADC value to energy deposition calibration factor. The offset mainly comes from different transit times between the left and right PMTs in a given counter. One looks at the difference between the left and right TDC time difference and side hit times. One does this by dividing distance to the counter hit point by the effective speed of light. This computes a hit coordinate for determining particle velocity. Second, one determines the attenuation length and effective velocity. Third, one calculates the counter-to-counter time offset which involves correlating the counter time to the RF time and aligning each hit time to bins of the RF period. Fourth, one determines the time-walk correction by comparing the hit time to the measured ADC. Fifth, one repeats the left/right PMT time offset calibration to account for shifts from the time-walk correction. Steps six, seven, eight, and nine are repeats of the counter-to-counter time offset, time-walk, and two more counter-to-counter time offset calibrations.

3.1.3 Remaining Calibrations

At this point, we can calibrate the remaining detector subsystems. For this paper, we shall only focus on the detectors relevant for this analysis: the HTCC and ECAL.

HTCC calibration provides uniform efficiency and aligns the timing response over the detector. For signal strength calibration, one fits the PMT response to get the single photo electron peak, then one adjusts the trigger configuration file and ccdb gains to match the PMT responses to mirror hits. For timing calibration, one adjusts FADC configuration file delays to see if the signals from the channels are within the trigger readout window, then one adds delays in the ccdb to precisely match the channels.

ECAL timing calibration uses charged pion cluster hits. One adjusts the difference between the measured time and expected time by adjusting six parameters; the combination with the minimum χ^2 is selected. One needs to know the start time T_{start} , particle velocity β , path length from the target vertex to the cluster L , and the readout distances l_u , l_v , and l_w for each ECAL coordinate; these quantities are available after the DC, FTOF, and RF calibrations.

$$T_{u,v,w} = T_{start} + \frac{L}{\beta c} + \frac{l_{u,v,w}}{v_{eff}}. \quad (20)$$

For ECAL energy calibration, one normalizes each PMT with cosmic muons. One fits a , b , and λ in the following equation:

$$E_{u,v,w} = a + be^{-l_{u,v,w}/\lambda}. \quad (21)$$

To reconstruct electron showers, the ECAL requires summation from three or more PMTs.

CHAPTER 4

DATA ANALYSIS

Particles have different charges and masses; consequently, they travel differently through magnetic fields and deposit different energies into calorimeters. CLAS12 uses this to identify the different kinds of particles that are produced in events. This process was done by the CLAS12 Event Builder (EB). The EB labeled the particles with the Monte Carlo particle numbering scheme, so electrons have the number 11 while pions have the number ± 211 (“+” for positively charged pions and “−” for negatively charged pions).

RG-B used the same particle identification (PID) as RG-A. One can read more about RG-A’s PID in its analysis note [38]. For the sake of completeness, this dissertation will cover the fundamentals of RG-A’s PID. We applied further PID cuts to improve the EB identification.

4.1 ELECTRON PID

The EB requires electrons to pass several criteria. They must have a negative charge, produce more than 2 photoelectrons in the HTCC, deposit a minimum of 0.06 GeV in the PCAL, and have a sampling fraction vs. E_{dep} within $\pm 5\sigma$ of the mean (see Table 2). The EB lists it as the first particle in the particle bank REC::Particle and gives it a negative status [38].

4.1.1 Negative Charge Cut

The charge of the particle is determined by the path it makes through the magnetic field of the torus. Since the torus field was “inbending” for the 4.244 GeV RG-B runs, electrons

TABLE 2. EB electron ID cuts and their limits

Cut	Limits
Charge	-1
Number of Photoelectrons	$N_{phe} > 2$
Min. PCAL Energy	$E_{dep} > 0.06 \text{ GeV}$
Sampling Fraction vs E_{dep}	$\pm 5\sigma$

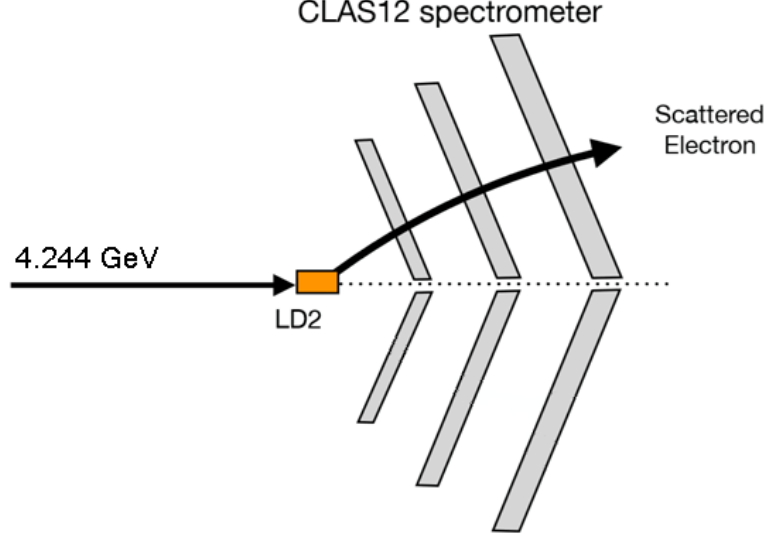


FIG. 24. A simplified view of an electron scattering off the target and “inbending” due to the magnetic fields in CLAS12 for the 4.244 GeV runs taken in the Fall of 2019 run period. An electron candidate must have an inbending track with an inbending magnetic field configuration of the torus.

and other negative particles have tracks that bend inward (see Fig. 24).

4.1.2 Detector Status Cut

The EB applied a status to particle tracks. The status is a number that contains information about the track’s detector topology and detector hits [38]:

$$status = 1000 \times FT + 2000 \times FD + 4000 \times CD + 100 \times N_{scint} + 10 \times N_{cal} + 1 \times N_{cher}, \quad (22)$$

where FT , FD , CD refer to the Forward Tagger, Forward Detector, and Central Detector respectively, and N_{scint} , N_{cal} , N_{cher} are the number of scintillator hits, calorimeter hits, and Cherenkov counts. For FT , FD and CD , each number is 1 if the system is used; otherwise, it is 0. Since we want electrons in the FD, we accepted events with a status greater than -4000 but no greater than -2000 (the negative sign implying the track was part of the trigger) [38].

4.1.3 HTCC Photoelectron Cut

To discriminate between electrons and negative pions, the HTCC measures the number

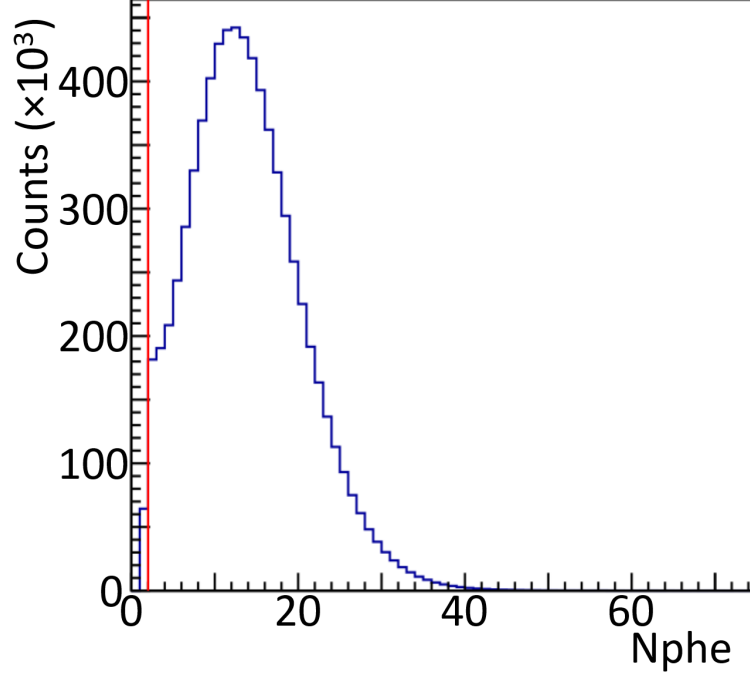


FIG. 25. The number of photoelectrons vs. the count of all negative tracks in sector 1 for RG-A. The red line shows the cut of 2 phe. The same cut was used for RG-B. Image modified from [38].

of photons produced by the charged particle via Cherenkov radiation. Electrons produce a greater number of photons than negative pions, so a cut on the number of photons produced by the electron candidate should reduce pion contamination. As mentioned before, the EB required an electron to produce more than two photons in the HTCC.

4.1.4 Minimum PCAL Energy Deposition Cut

To further remove pions, the EB required a minimum deposited energy in the PCAL. An electron produces a shower dependent on its momentum when traveling through a calorimeter. Pions do not shower electromagnetically; instead, they deposit a small amount of energy regardless of their momentum. By plotting the energy deposited in the EC versus the energy deposited in the PCAL (E_{dep}) for negative tracks (as seen in Fig. 26), one can see a large peak at low PCAL deposited energy. This peak corresponds to negative pions. A PCAL minimum energy deposition cut of 0.06 GeV removes most of these negative pions.

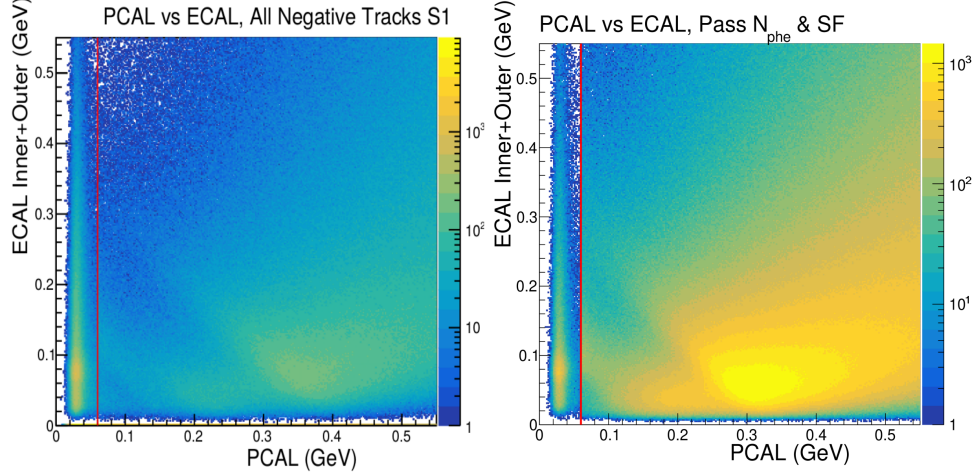


FIG. 26. Energy deposited in the EC (ECAL inner and ECAL outer) plotted versus energy deposited in the PCAL for sector 1 during RG-A. The red line is the $E_{dep} = 0.06$ GeV cut which removes negative pions. The same cut was employed for RG-B. Plot on the left is for all negative tracks while the plot on the right is for tracks that passed the HTCC and sampling fraction cuts. Image from [38].

4.1.5 ECAL Sampling Fraction Cut

Sampling Fraction (SF) cuts in the ECAL further remove negative pion tracks. The SF is the ratio of the total measured ECAL deposited energy (PCAL, ECAL inner, plus ECAL outer) to the reconstructed track momentum of the particle (as determined by the DC). This ratio is a constant for electrons because they electromagnetically shower and deposit all of their energy in the ECAL. For pions, the ratio decreases with increasing momentum since pions are typically minimum ionizing. A pion can deposit more energy than a minimum ionizing particle (MIP) if it hits a nucleon, thus forming a hadronic shower. However, the pion will not deposit all of its energy, so one can distinguish hadronic showers from electron showers. By plotting SF as a function of E_{dep} (see Fig. 27), the EB can divide it into momentum bins and make a gaussian fit of the resulting histograms. The EB parametrizes the energy dependence of the means and sigmas:

$$f(E) = a \left(b + \frac{c}{E} + \frac{d}{E^2} \right), \quad (23)$$

where E is the deposited energy in the ECAL and a , b , c , and d are fitting parameters. The

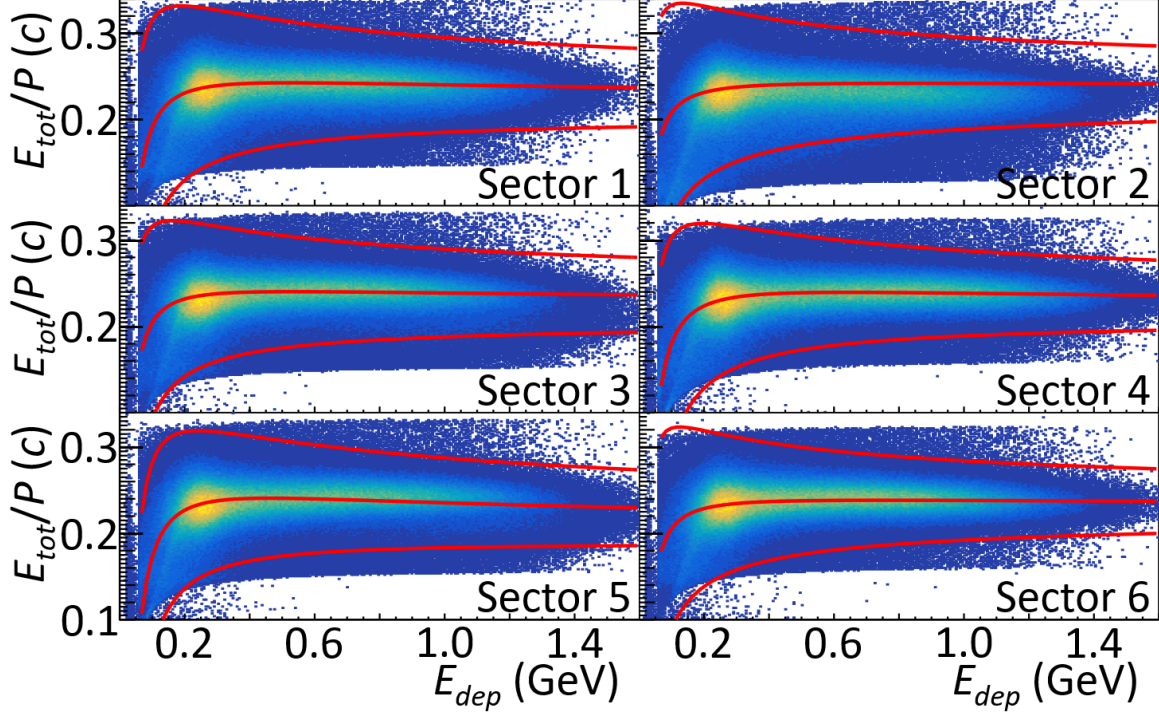


FIG. 27. The ratio of the total energy deposited in the ECAL to the reconstructed track momentum (SF) vs. the energy deposited in the PCAL for each sector. These RG-B plots are of the high energy runs but are typical of the procedure for calculating the 4.2 GeV SF cuts. The middle red lines are the fitted means while the outer red lines are $\pm 5\sigma$. Image modified from [43].

EB applied cuts of 5σ . The cuts are calculated by

$$SF(E) = \mu(E) \pm 5 \times \sigma(E), \quad (24)$$

The EB removes events outside of 5σ from the mean.

We wanted to refine the EB data, so we applied stricter SF cuts (see Fig. 28). We plotted SF as a function of reconstructed track momentum. We looked at a histogram of the y -axis (SF) projection of a bin in x (momentum) and fitted the histogram with a gaussian function. We did this in momentum bins from 1.4 GeV/ c to 4.0 GeV/ c . These fits gave us points in each bin that correspond to the mean (μ) and standard deviation (σ). Just as the EB parametrizes with energy, we parametrize μ and σ with the following function:

$$f(P) = a \left(b + \frac{c}{P} + \frac{d}{P^2} \right), \quad (25)$$

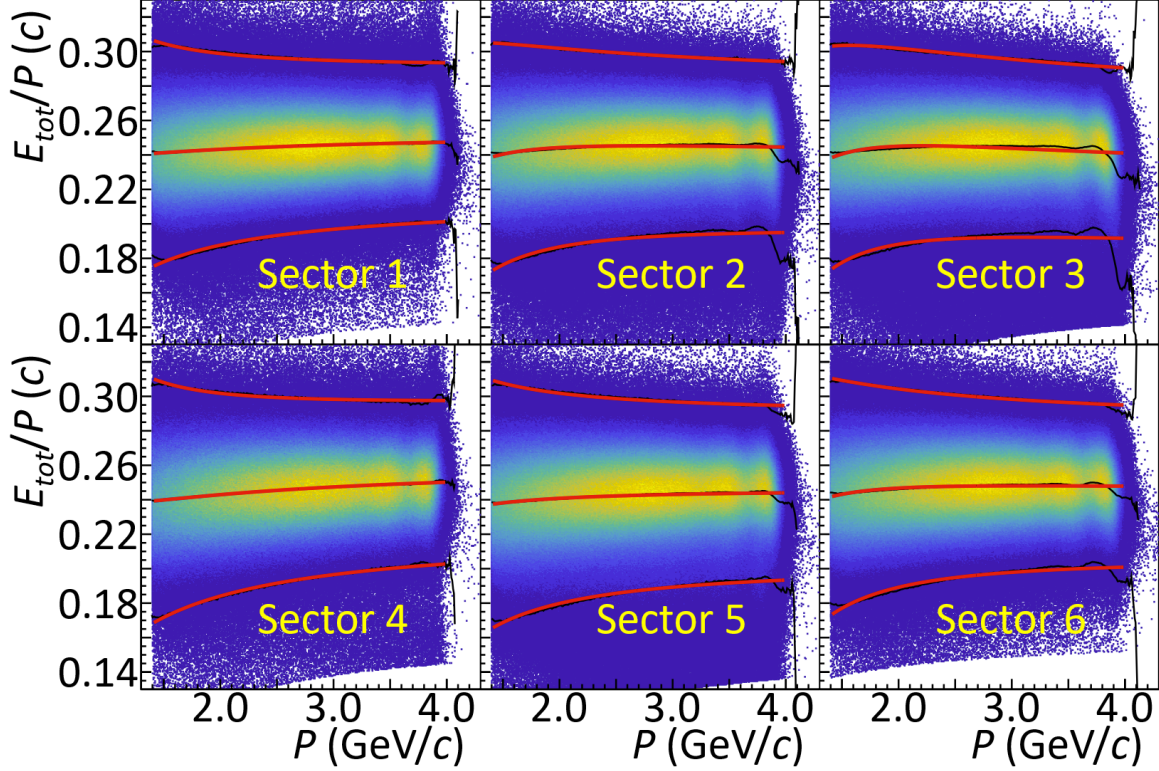


FIG. 28. The ratio of the total energy deposited in the ECAL to the reconstructed track momentum (SF) vs. the reconstructed track momentum for the sectors. These were used for calculating RG-B SF refinement cuts. In each plot, The middle red line is the fitted mean while the top and bottom red lines are $\pm 3\sigma$. The black lines represent the mean (middle) and 3σ (top and bottom) fits to the bins. A cut at $P = 1.4 \text{ GeV}/c$ was previously applied.

where P is the momentum and a , b , c , and d are fitting parameters. For the SF cuts themselves, they are calculated by

$$SF(P) = \mu(P) \pm w \times \sigma(P), \quad (26)$$

where w is how many standard deviations away from μ we apply our cuts (i.e., the “width” of our cuts). We ultimately chose 3σ cuts. These cuts removed about 6% of the events.

4.2 HADRON PID

While the EB has many cuts to select electrons, it only uses one criterion for hadrons: the difference between the TOF calculated by the DC (t_{DC}) and the TOF measured from

FTOF. The equation is below:

$$\Delta t = t_{DC} - [t_{FTOF} - t_{starttime}], \quad (27)$$

where t_{FTOF} is the FTOF particle hit time, and $t_{starttime}$ is the event start-time.

$$t_{DC} = \frac{L}{c\beta(p)}, \quad (28)$$

where L is the path length, c is the speed of light in vacuum, and $\beta(p)$ is the particle speed as a function of momentum p .

$$\beta(p) = \frac{p}{\sqrt{p^2 + m^2}}, \quad (29)$$

where m is the particle mass. The start-time comes from the accelerator RF signal of the beam bunch associated with the event [29]. This synchronizes the start-time with the RF pulse from which the incident electron came [38]. The difference between t_{FTOF} and $t_{starttime}$ corresponds to the time-of-flight of the particle. The calculated DC time depends on the mass of particle considered. The EB identifies the particle by whichever type minimizes Δt . Figures 29 and 30 show the positive and negative hadron β (from FTOF) vs. P (from DC).

To check the number of background particles that the EB might accidentally identify as pions, we plotted the calculated mass for positive (Fig. 31) and negative (Fig. 32) hadrons. We integrated the total number of events and the estimated background in the pion region ($0 < M_{hadron} < 0.25 \text{ GeV}/c^2$). We found that the background contributed about 0.2% and 0.3% for positive and negative pions respectively. While we did perform an analysis on them, we estimate the probability of the EB misidentifying π^- as e^- to be no more than 0.1%.

The EB also recorded the confidence in its selection by giving each particle a chi2PID value. The EB calculated chi2PID by fitting a gaussian to a distribution of Δt in momentum slices for a particle species (as identified by the EB). Each particle species has its own σ value; the chi2PID value is the distance between 0 and Δt in units of σ . We plotted the chi2PID values in histograms and fitted them with a gaussian fit. We determined the mean for π^+ was -0.061 and the mean for π^- was -0.019 . For the applied cuts, we took the absolute value of the chi2PID value minus the mean and cut results greater than 3.

$$|value - mean| < 3. \quad (30)$$

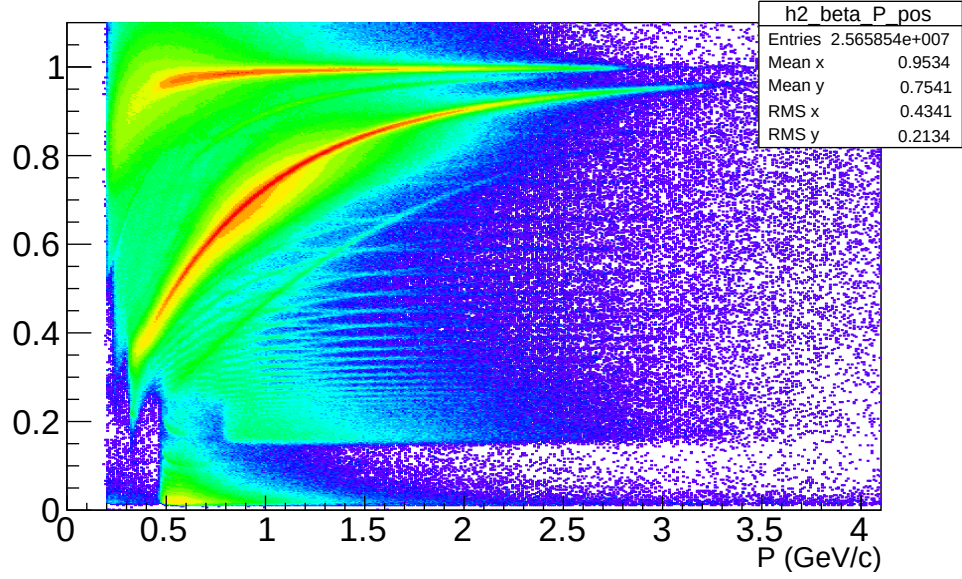


FIG. 29. Positively charged hadron β vs. P . The colors for the z -axis are in log scale. Pions are located just below $\beta = 1c$. The more prominent track consists of protons while kaons are sandwiched between them.

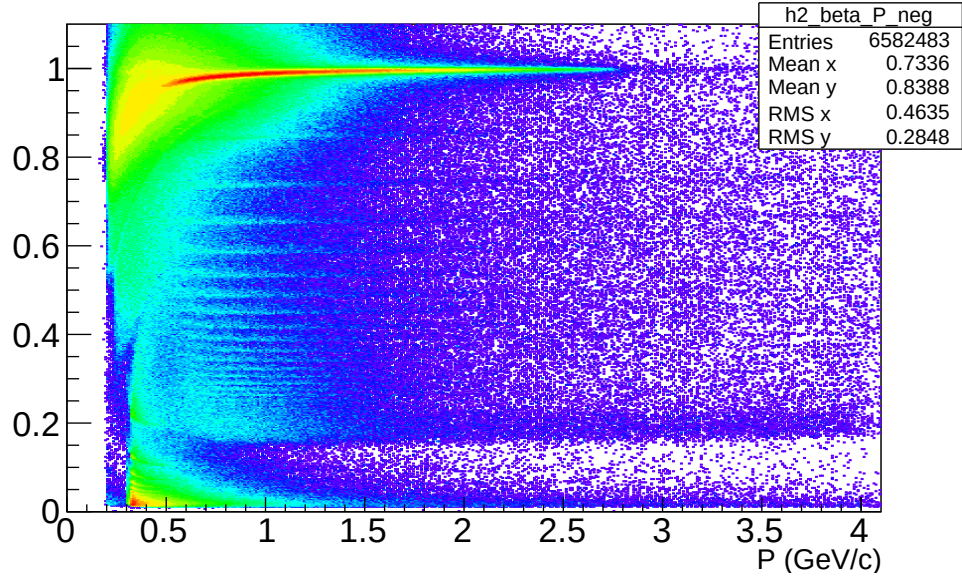


FIG. 30. Negatively charged hadron β vs. P . The colors for the z -axis are in log scale. Pions are located just below $\beta = 1c$.

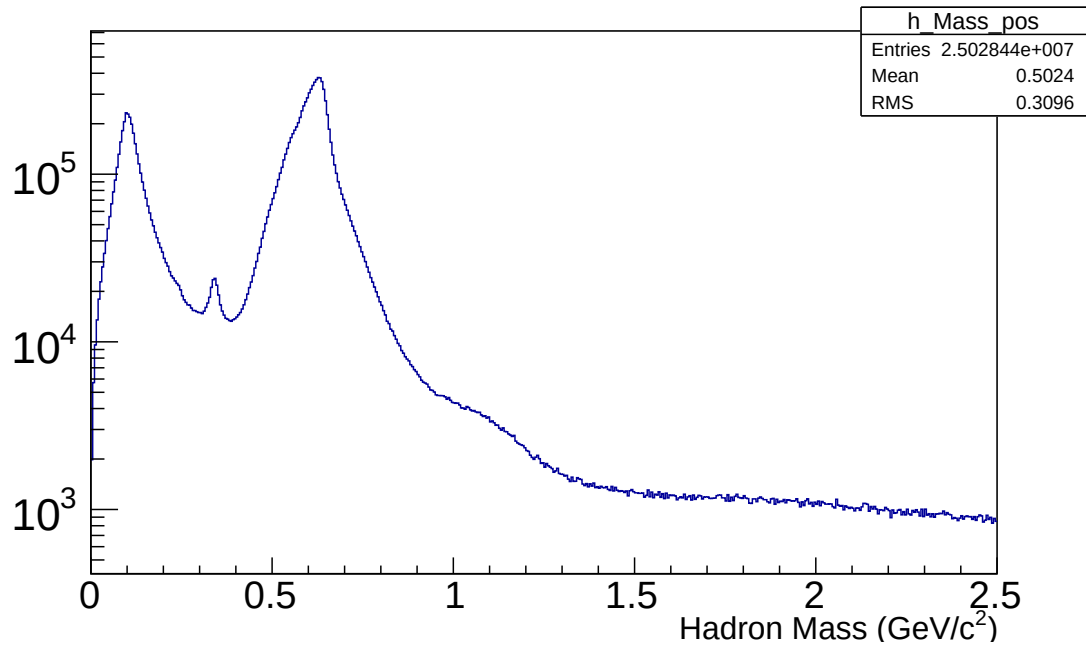


FIG. 31. Positively charged hadron mass from FTOF.

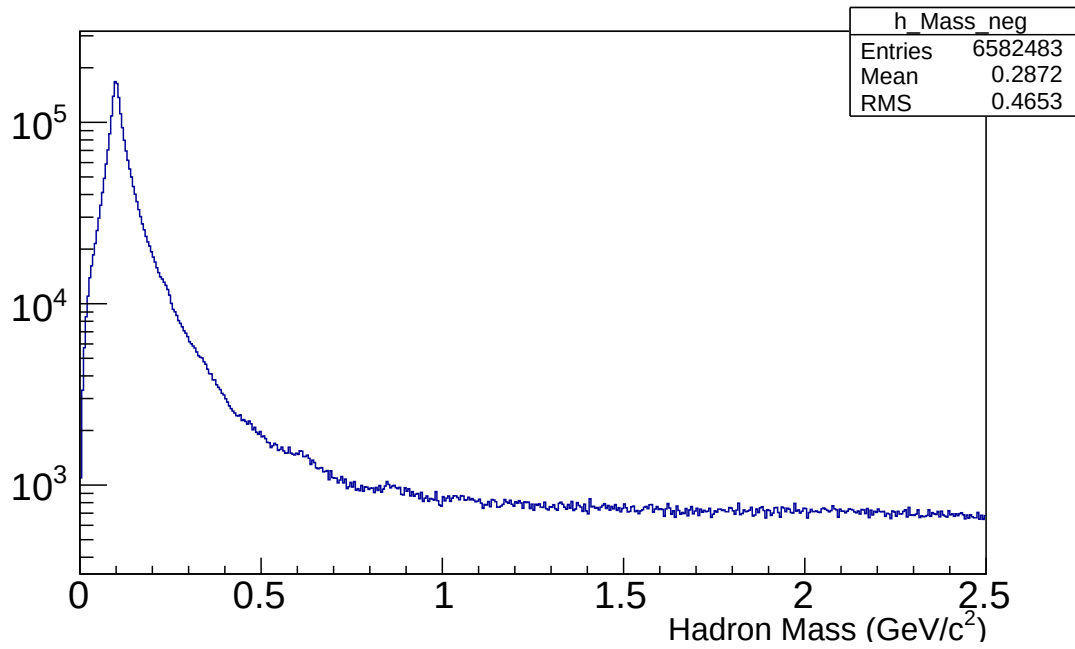


FIG. 32. Negatively charged hadron mass from FTOF.

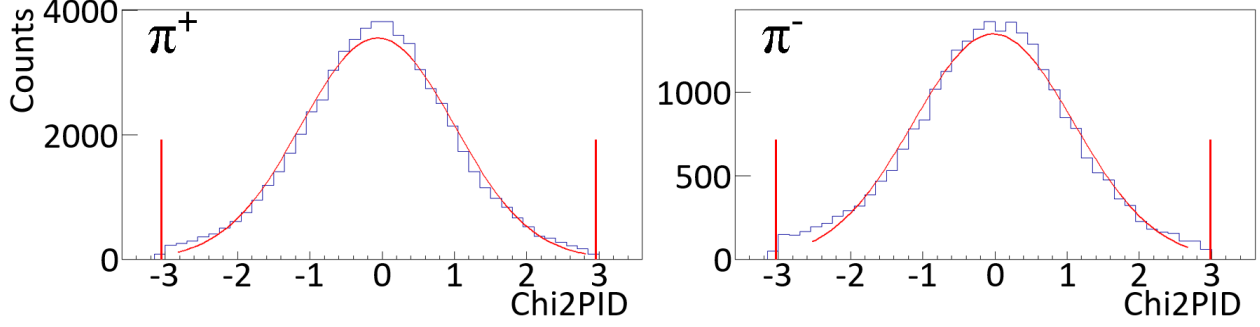


FIG. 33. Chi2PID histograms for π^+ (left) and π^- (right). The red lines are the gaussian fits to the histograms from which we determined the means and standard deviations for the cuts. Note that the histograms were generated after we applied the 3σ cuts.

4.3 FIDUCIAL CUTS

Fiducial cuts select detector regions that have close to 100% particle reconstruction and identification efficiency. Detectors have lower efficiencies near their edges. For example, particles from electromagnetic showers near the ECAL edge can exit the ECAL, reducing the deposited energy. Detectors also may not determine the cluster size correctly. The solution is to apply fiducial cuts to exclude the detector edges. Removing hits near those edges from experimental data improves PID and allows a better comparison with simulated data. We applied fiducial cuts on the DC and the ECAL.

4.3.1 DC

For the DC, we looked at the electron and charged pion tracks in the three DC regions. In the hall coordinate system, z points in the direction of the beam, x is horizontal and perpendicular to z , and y is vertical and perpendicular to z . For each sector, z is identical to the hall z , but local x runs perpendicular to and extends away from z (i.e., through the center of the chamber) while local y runs perpendicular to both the beamline and local x (see Fig. 34). To determine the fiducial cuts to use on the data, one needs to calculate where χ^2/ndf changes rapidly. To do this, one divides each DC sector into 15 bins of local x and calculates the average tracking χ^2/ndf for each bin as a function of local y . These bins are between x from 25.7 cm to 151.2 cm in region 1, 28.8 cm to 262.8 cm in region 2, and 31.8 cm to 355.8 cm in region 3. The program analyzes the y distribution of χ^2/ndf in each bin with the center fitted with a constant around at $y = 0$ cm. It determines the y values where

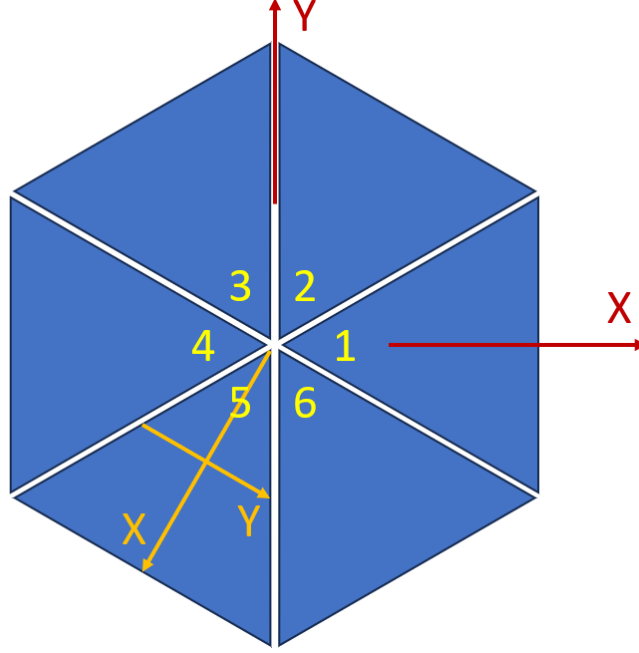


FIG. 34. A diagram of hall x and y coordinates (red) and the local x and y (orange) in sector 5. The blue sectors are numbered in yellow and the beam is coming out of the page.

there is a 20% increase or 50% decrease (whichever comes first) in χ^2/ndf compared to the constant. For region 1 electrons, these percentages are for a 5% increase or a 10% decrease. Fig. 35 shows one such bin fitting from [38]. These y values are used to determine the edges of the bin. One fits the points on each edge with a linear fit $y = a + b \times x$. One then uses the linear fits as fiducial cuts.

Fig. 36 shows the pions that pass through region 1 in hall coordinates x and y . The red points show all of the pions detected by the DC; the other points overlaid on the red ones show the pions that pass the fiducial cuts. One can see the plots for each sector of region 1 in Fig. 37. Note that x and y are the local coordinates for each sector. Here the red lines show the linear cuts to each sector. We exclude any track in a sector that falls outside those cuts.

4.3.2 ECAL

For the ECAL, we plotted the sampling fraction versus V (see Fig. 38) and versus W (see Fig. 39) to see where it decreased near the ECAL edge. We cut events that had electron ECAL hits with V and $W < 14$ cm. This meant we were cutting the two outermost ECAL

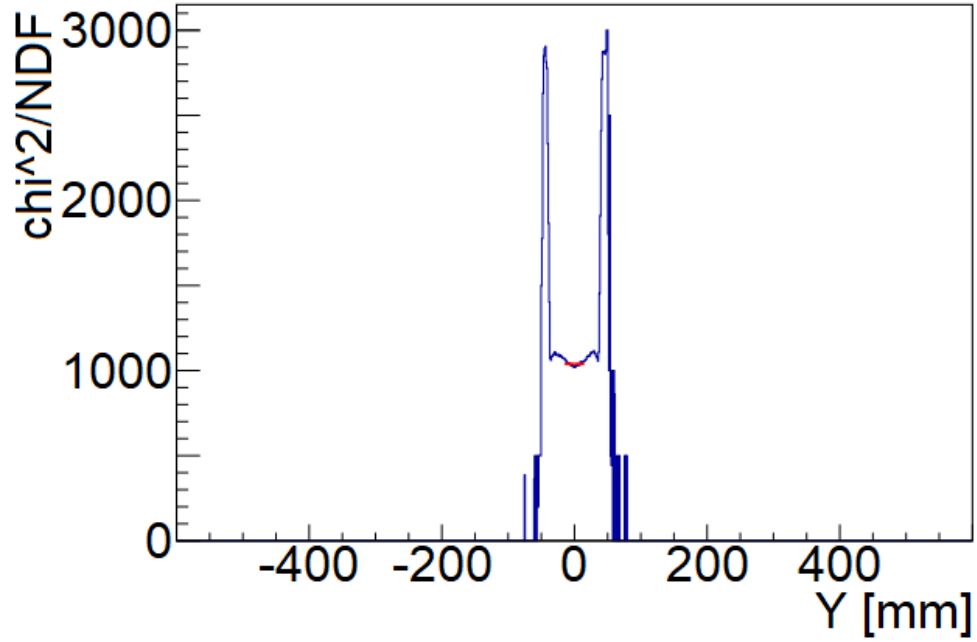


FIG. 35. A plot of tracking χ^2/ndf distribution (blue line) as a function of local y in the local $x = 84.3$ cm bin from DC region 1 sector 1. The bin width is from $80.1 < x < 88.5$ cm. The red line in the center is the constant fit around $y = 0$ mm. Image adapted from [38].

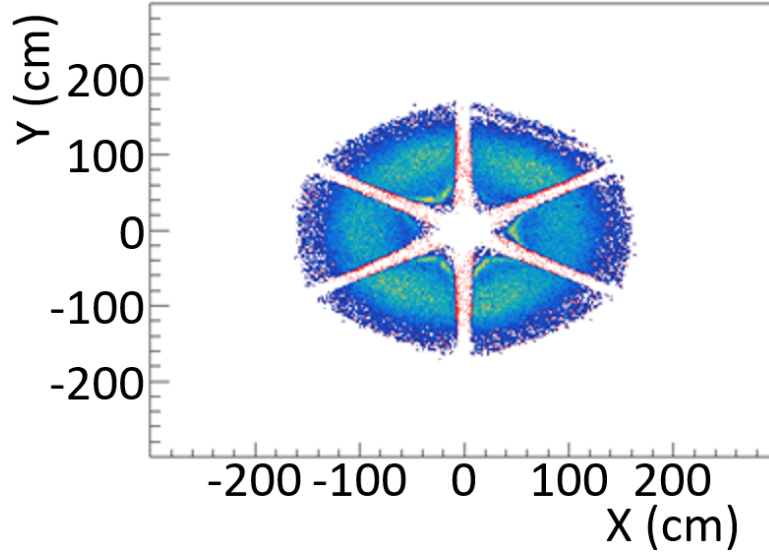


FIG. 36. Plot of DC tracks in region 1. X and Y are the DC coordinates. The red points are tracks outside the DC fiducial cuts (including tracks outside regions 2 and 3 but inside region 1).

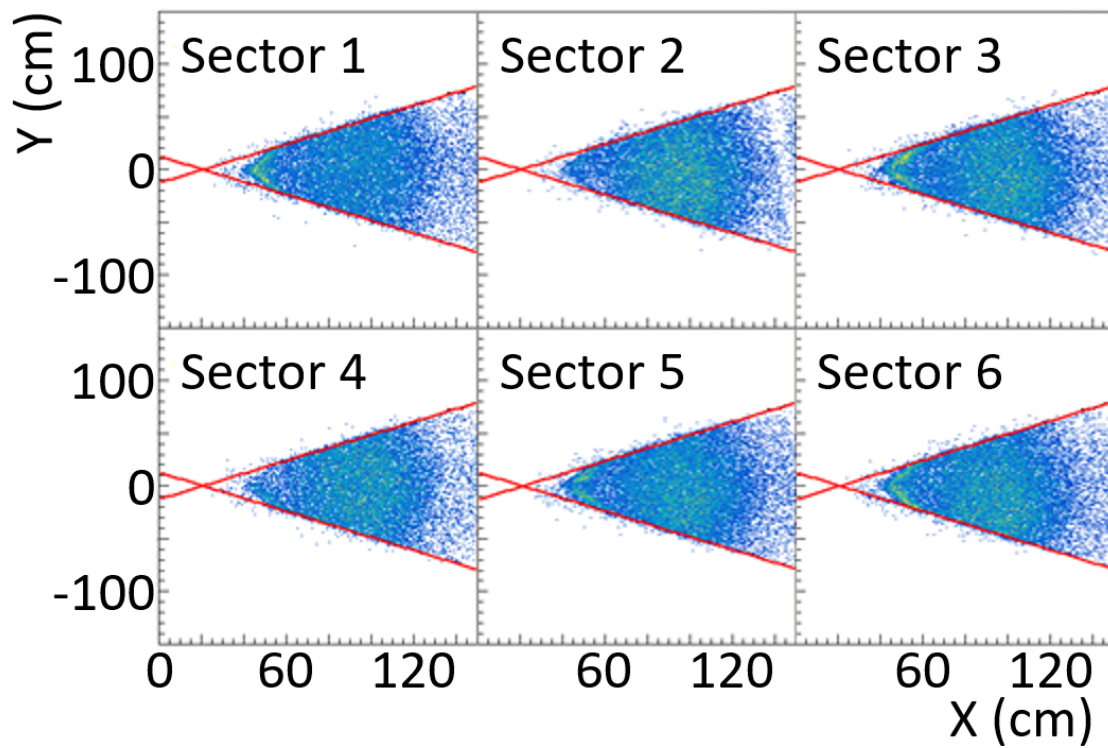


FIG. 37. Plots of DC tracks in the sectors of region 1. X and Y are the local sector coordinates. The red lines are the linear fiducial cuts applied to the DC; events that fall outside these cuts are excluded from the final analysis.

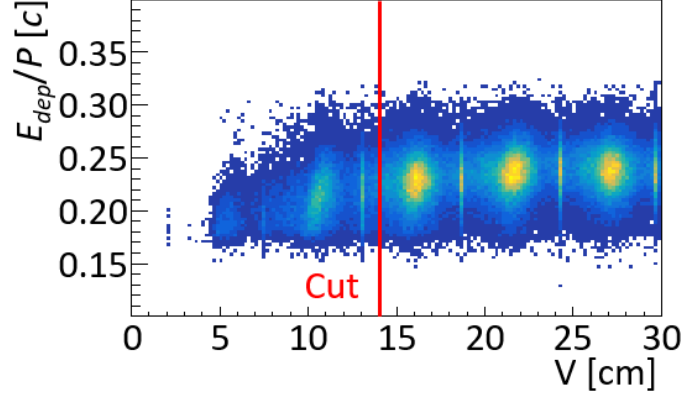


FIG. 38. Total deposited energy divided by particle momentum (SF) as a function of V . The red line shows the 14 cm cut. The black dashed line shows roughly the mean of the showers in each bar. Note that the high intensity regions decrease rapidly in E_{dep}/P as V decreases.

scintillators (or three for the PCAL) [38]. This ensures the showers do not leak out the edge which depresses the SF at low U . Fig. 40 shows the SF as a function of U before and after the ECAL fiducial cuts.

4.4 VERTEX CUTS

Vertex cuts remove electrons that have scattered in the beamline or at the target cell exit window [38]. These electrons either did not originate from the target (in which case, we have to remove them) or scattered too much for us to properly reconstruct the event. We applied cuts of $-8 < v_z < 2$ cm for the z vertex v_z (see Fig. 41).

We also applied cuts on the perpendicular distance from the vertex to the beamline (see Fig. 42). This vertex is equal to the square root of vertex x squared plus vertex y squared. This cut removes particles with poor tracks. We cut all events with a perpendicular vertex > 3.2 cm for electrons which resulted in the loss of about 5% of events.

In addition to electron vertex cuts, we also applied cuts on the perpendicular vertex of pions (see Fig. 43 and Fig. 44) and the vertex difference between electrons and pions (see Fig. 45 and Fig. 46). This latter cut removes pions produced outside the target region [38]. For these cuts, we binned events by the pion momentum $P < 0.5$ GeV/ c , $0.5 < P < 1.0$ GeV/ c , and $P > 1.0$ GeV/ c . We did this binning since high momentum pions have better track reconstruction and can have stricter cuts. To lose only about 5% per bin for positive pions, we applied cuts of perpendicular vertex > 10.5 cm for less than 0.5 GeV/ c , vertex

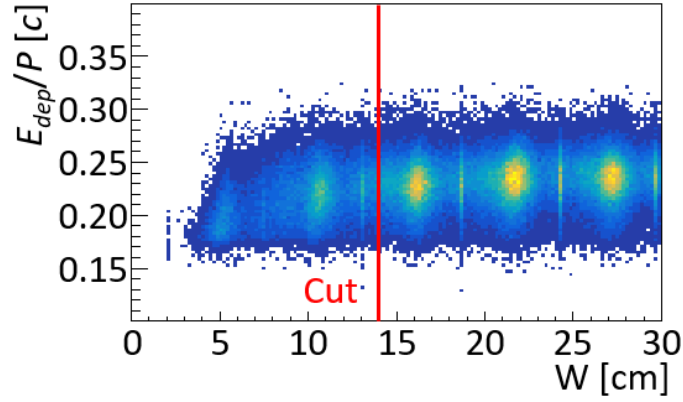


FIG. 39. Total deposited energy divided by particle momentum (SF) as a function of W . The red line shows the 14 cm cut. The black dashed line shows roughly the mean of the showers in each bar. Note that the high intensity regions decrease rapidly in E_{dep}/P as W decreases.

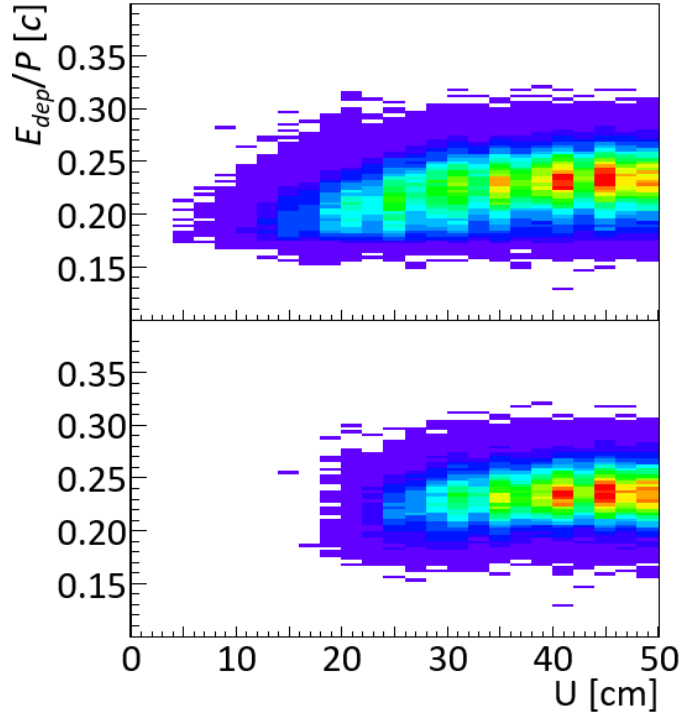


FIG. 40. Total deposited energy divided by particle momentum (SF) as a function of U before (top) and after (bottom) the application of fiducial ECAL cuts. Note the decrease in the average SF values before the cuts and how it is less apparent after.

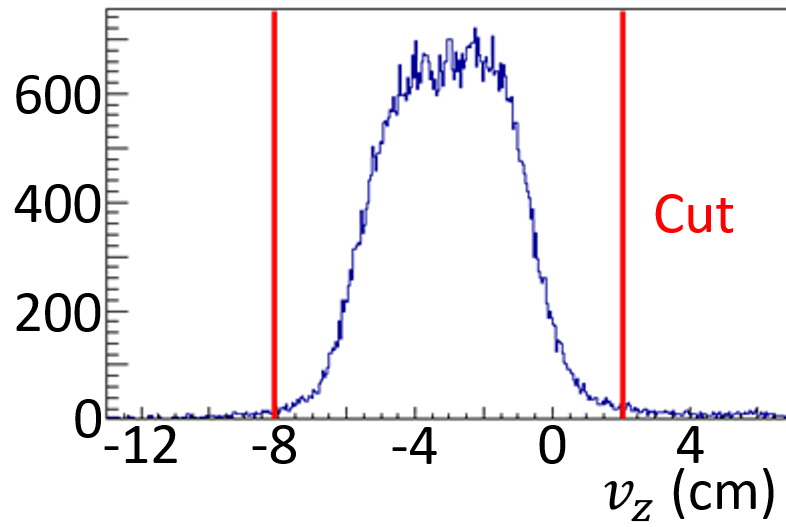


FIG. 41. Plot of electron vertex z . The red lines are the cuts applied.

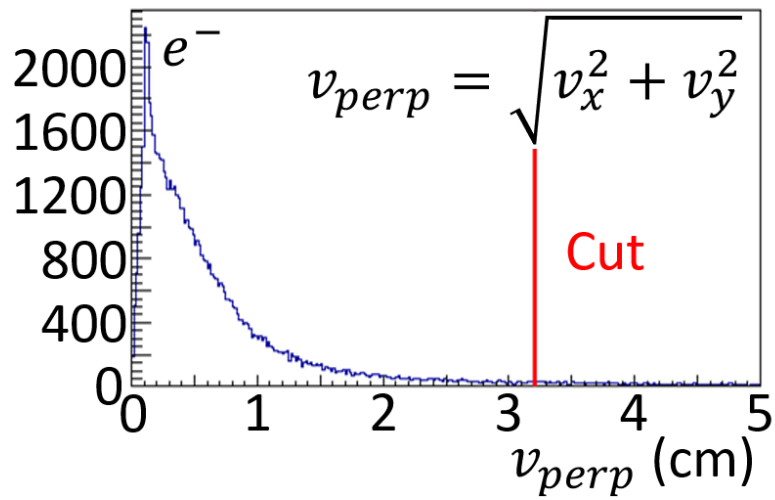


FIG. 42. Plot of perpendicular electron vertex. The red line is the applied cut.

TABLE 3. Vertex cuts

Cut	Value (cm)
Electron Vertex z	-8.0 to 2.0
Electron Perpendicular Vertex	3.2
Positive Pion Perpendicular Vertex ($P < 0.5$ GeV/ c)	10.5
Positive Pion Perpendicular Vertex ($0.5 < P < 1.0$ GeV/ c)	8.3
Positive Pion Perpendicular Vertex ($P > 1.0$ GeV/ c)	5.5
Negative Pion Perpendicular Vertex ($P < 1.0$ GeV/ c)	7.4
Negative Pion Perpendicular Vertex ($P > 1.0$ GeV/ c)	5.8
Positive Pion Vertex Difference ($P < 0.5$ GeV/ c)	-4.9 to 5.9
Positive Pion Vertex Difference ($0.5 < P < 1.0$ GeV/ c)	-4.0 to 5.6
Positive Pion Vertex Difference ($P > 1.0$ GeV/ c)	-3.4 to 4.4
Negative Pion Vertex Difference ($P < 1.0$ GeV/ c)	-4.8 to 4.8
Negative Pion Vertex Difference ($P > 1.0$ GeV/ c)	-3.8 to 4.0

> 8.3 cm for between 0.5 GeV/ c and 1.0 GeV/ c , and vertex > 5.5 cm for greater than 1.0 GeV/ c . To do the same for negative pions, we applied cuts of perpendicular vertex > 7.4 cm for lesser than 1.0 GeV/ c and vertex > 5.8 cm for greater than 1.0 GeV/ c .

When it came to the vertex difference cuts, we determined the best cuts with a gaussian fit. Using ROOT's fit function, we found a gaussian with a good χ^2/ndf . We placed the cuts such that events within 3σ of the mean would pass. Table 3 lists all the vertex cuts used in this analysis.

4.5 QUASIELASTIC PROTONS CUT

In our analysis, we noticed an unusual peak in the $d(e, e'\pi^\pm)$ data around $W = 0.94$ GeV (see Fig. 47). Charged pion production can only occur in $d(e, e'\pi^\pm)$ when $W_{min}^{\pi-prod} = m_p + m_\pi = 1.08$ GeV/ c^2 ($m_p = 0.938$ GeV/ c^2 is the proton mass and $m_\pi = 0.140$ GeV/ c^2 is the charged pion mass). Since these events occur below the minimum, we believe they are not pions coincident with the event. Since they appear in the QE region, we believe they are QE protons not related to the incident electron that the EB misidentified as pions from the event. Naturally, we had to remove such particles, so we cut events with $W < 1.08$ GeV/ c^2 .

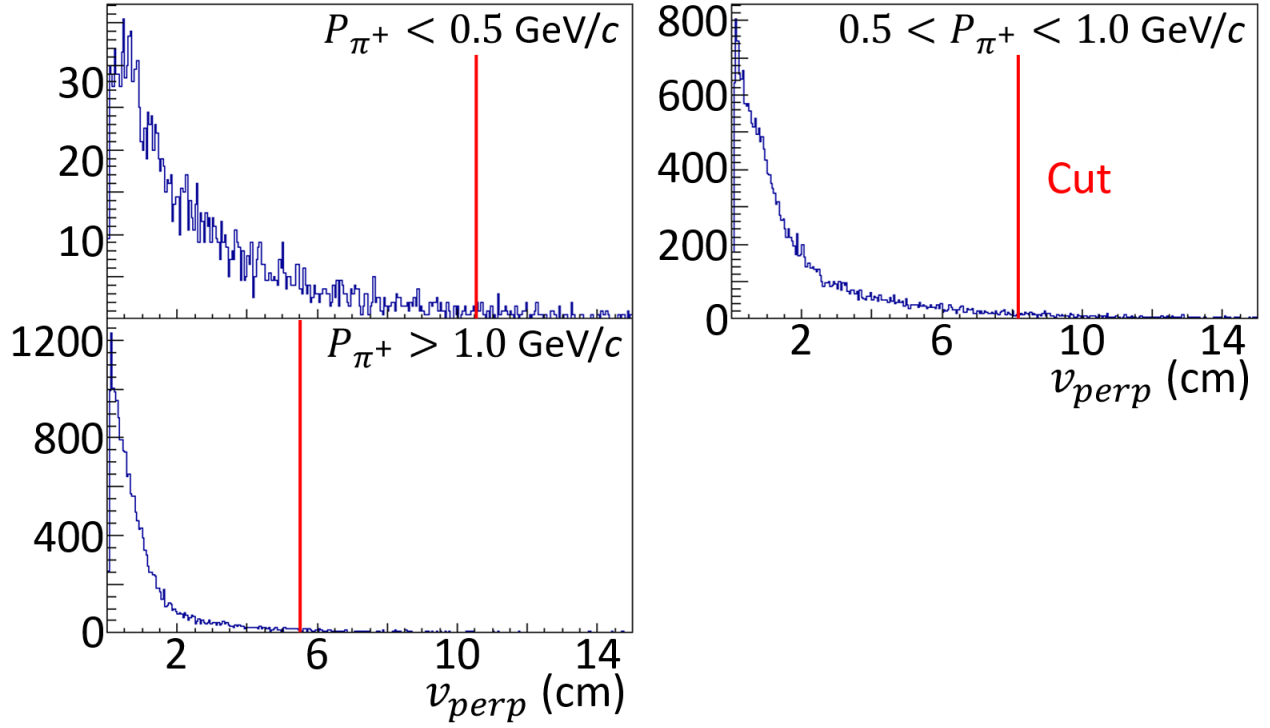


FIG. 43. Plot of positive pion perpendicular vertices. The red lines are the applied cuts in each bin; events pass if they have a pion below the cut.

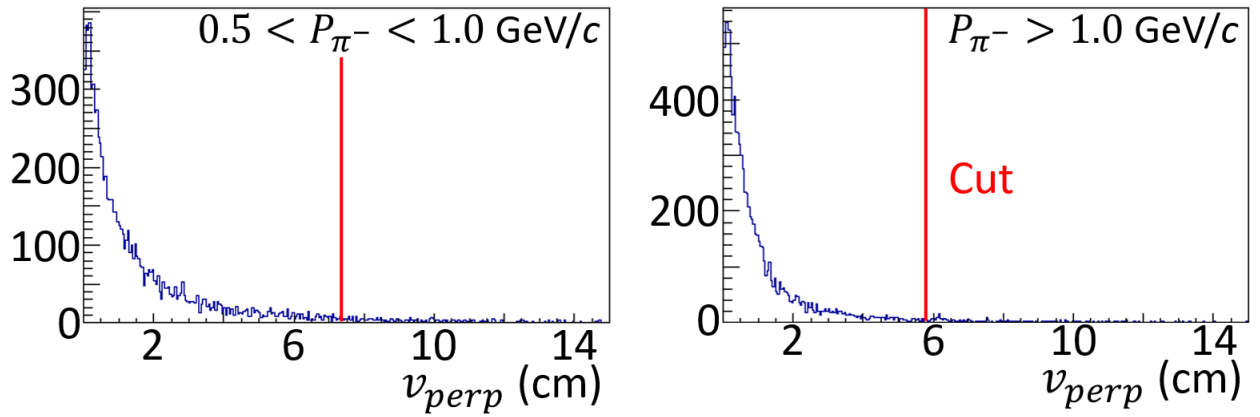


FIG. 44. Plot of negative pion perpendicular vertices. The red lines are the applied cuts in each bin; events pass if they have a pion below the cut.

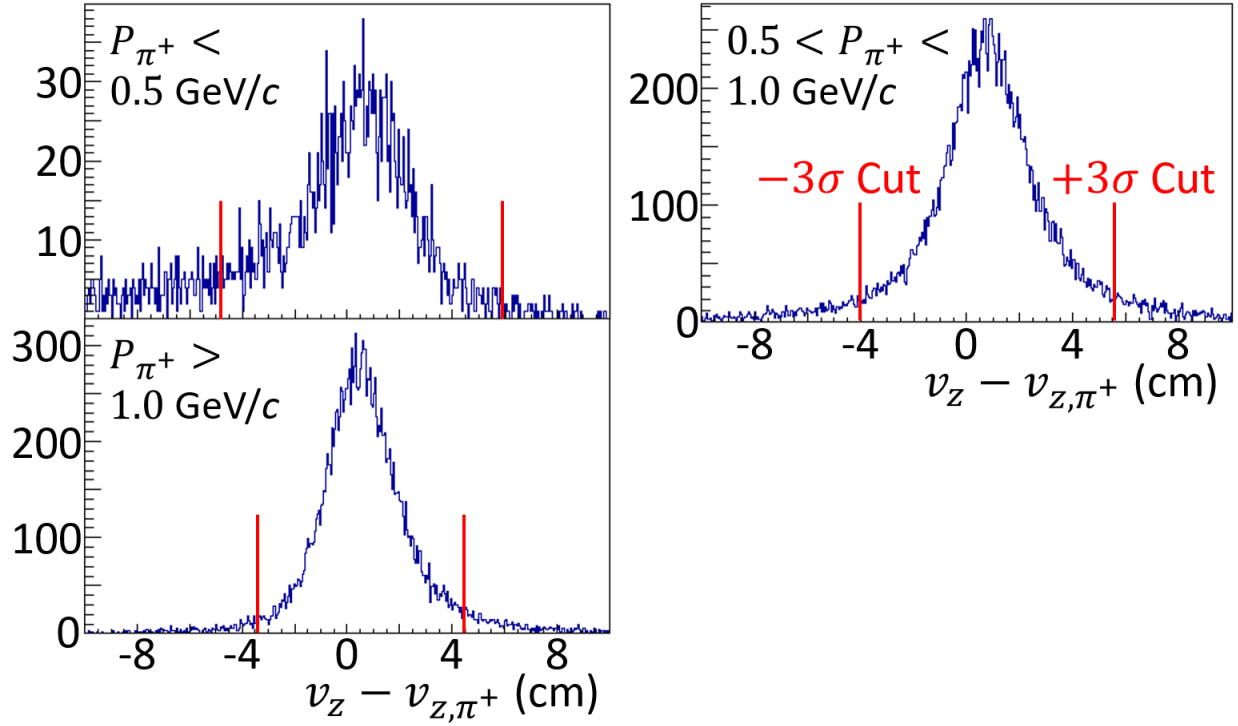


FIG. 45. Plot of vertex z difference between electrons and positively charged pions. We fitted a gaussian to each histogram; we applied cuts at $\pm 3\sigma$ of the gaussian mean for each bin.

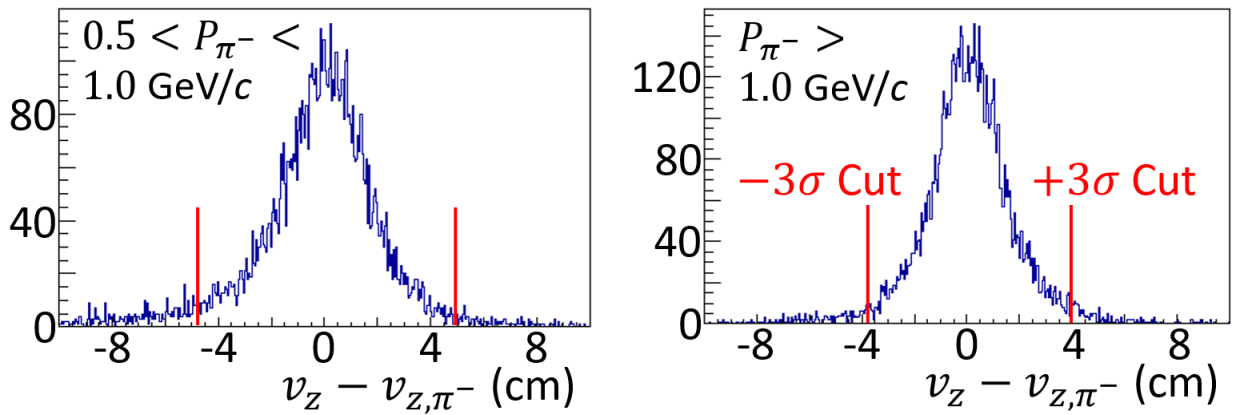


FIG. 46. Plot of vertex z difference between electrons and negatively charged pions. We fitted a gaussian to each histogram; we applied cuts at $\pm 3\sigma$ of the gaussian mean for each bin.

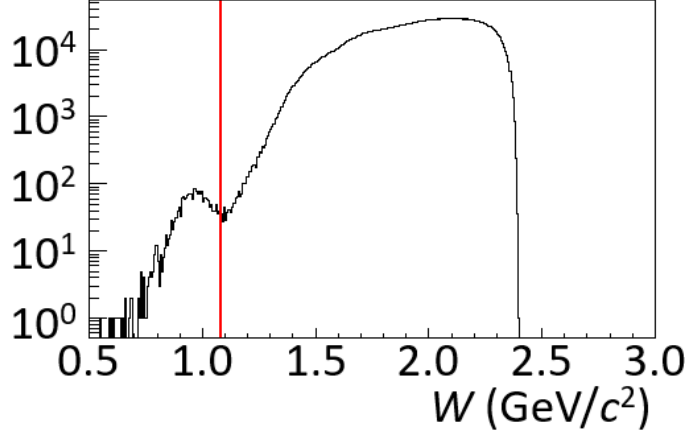


FIG. 47. W for positive pions as identified by the EB. The unusual peak around $W = 0.94$ GeV/c^2 likely consists of quasielastic protons misidentified as pions. We cut events with $W < 1.08$ GeV/c^2 (red line) to remove these protons.

4.6 BACKGROUND ANALYSIS

To confirm that we are identifying pions, we plotted β as a function of P for positive and negative charged tracks and plotted β in a P slice around 0.8 GeV/c (again for both tracks, see Fig. 48). If our cuts remove most of the background and leave on-time pions, we should only see events with a β around 1. After applying cuts on the data, we see that the only events that survive are located near $\beta = 1$ for both positive and negative particles. From this, we conclude that the uncertainty due to background events that survive the cuts is less than the uncertainty of our radiative effects cut (see Chapter 6).

4.7 KINEMATIC SELECTION

For inclusive cross sections, we plotted them as functions of W from 0.7 GeV/c^2 to 2.6 GeV/c^2 . We furthermore binned them in electron scattering angle θ_e . We used bins of 10° to 15° , 15° to 20° , 20° to 25° , 25° to 30° , and 30° to 40° . We used the inclusive cross sections to confirm if the data and simulated events were in reasonable agreement. We discuss the inclusive cross section results in Chapter 5.

For $d(e, e'\pi^\pm)$ binning, we needed to use four independent variables. Two must be from the electron and two from the pion. We have an additional independent pion variable, ϕ_π , but we chose to integrate over all of it for our analysis. We chose W and Q^2 for electron kinematics. For pion kinematics, we could choose among several variables. One variable

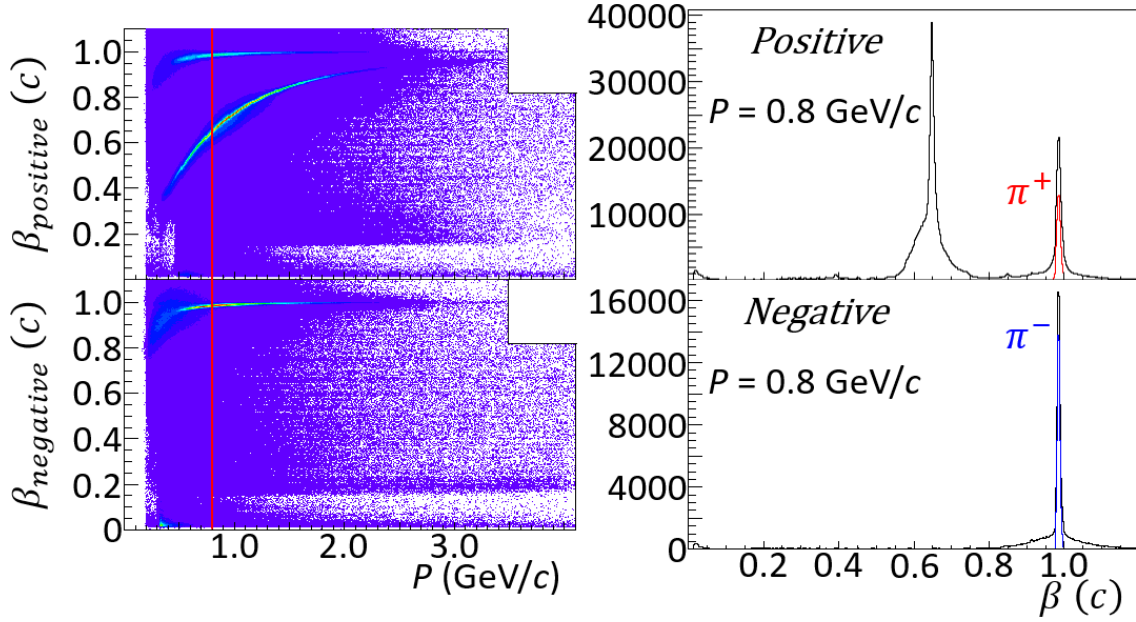


FIG. 48. Plots of β vs. P for positive and negative particles as identified by the EB (left) and plots of β in a momentum slice around $P = 0.8$ GeV/c for positive and negative particles (right). The peak around $\beta = 1$ consists mostly of pions while the other peak in the positive particle plots consists of protons. In the plots on the right, positive (red) and negative (blue) pions after cuts are shown.

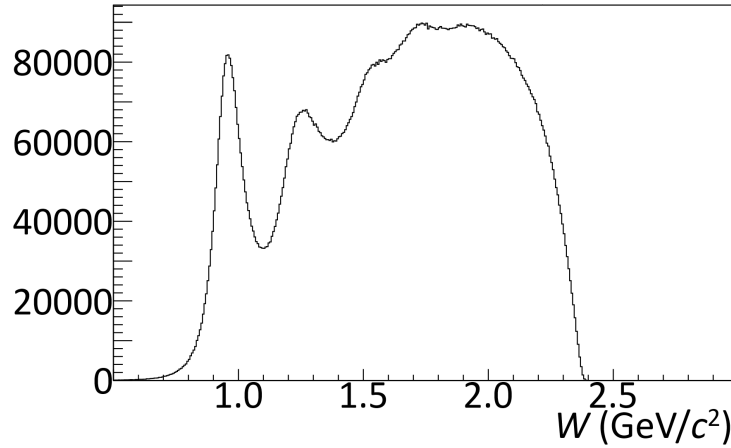


FIG. 49. Plot of number of $d(e, e')$ events versus W . Note the prominent quasielastic peak at $W = 0.94$ GeV/c², the delta peak at $W = 1.3$ GeV/c², and the smaller resonant peaks above $W = 1.5$ GeV/c².

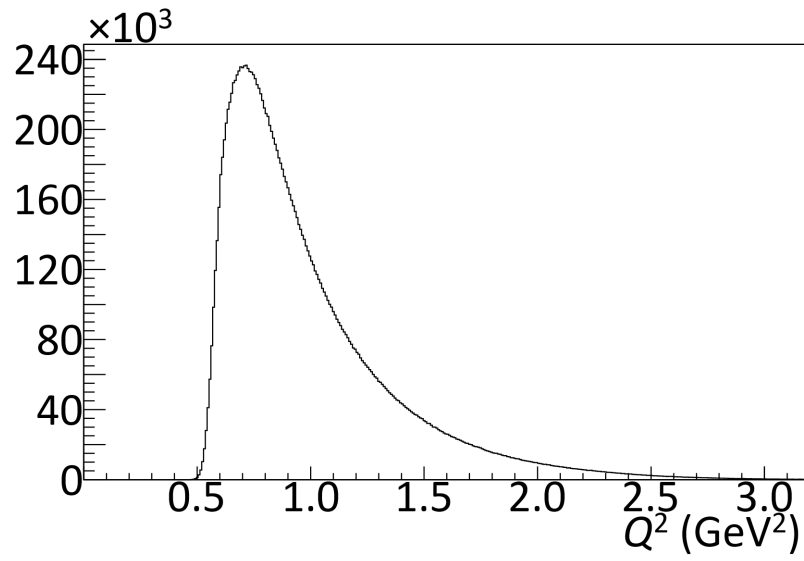


FIG. 50. Plot of number of $d(e, e')$ events versus Q^2 .

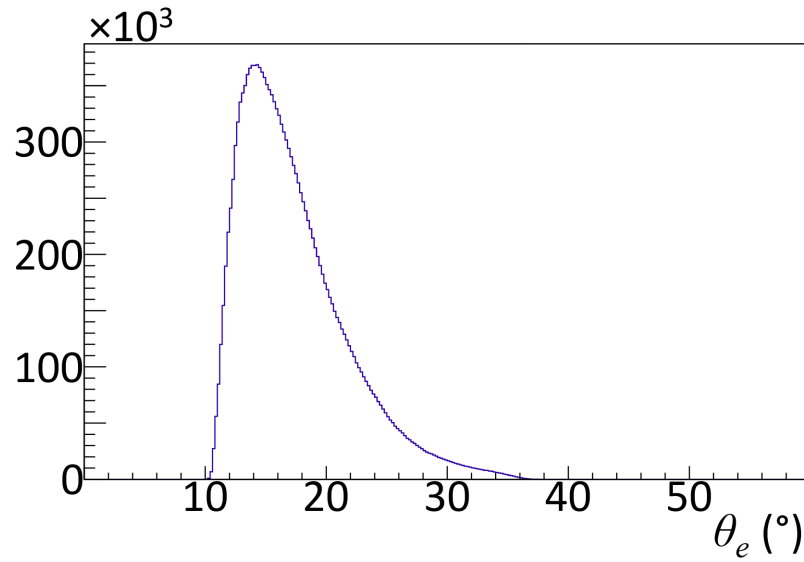


FIG. 51. Plot of number of $d(e, e')$ events versus θ_e .

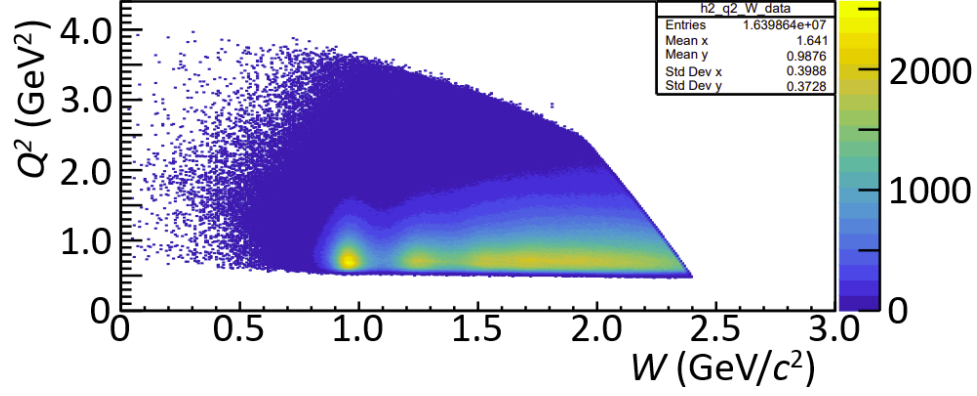


FIG. 52. Number of $d(e, e')$ events plotted as a function of Q^2 vs. W . Note the prominent quasielastic peak at $W = 0.94 \text{ GeV}/c^2$, the delta peak between $W = 1.2\text{--}1.3 \text{ GeV}/c^2$, and the N^* resonances above $W = 1.5 \text{ GeV}/c^2$.

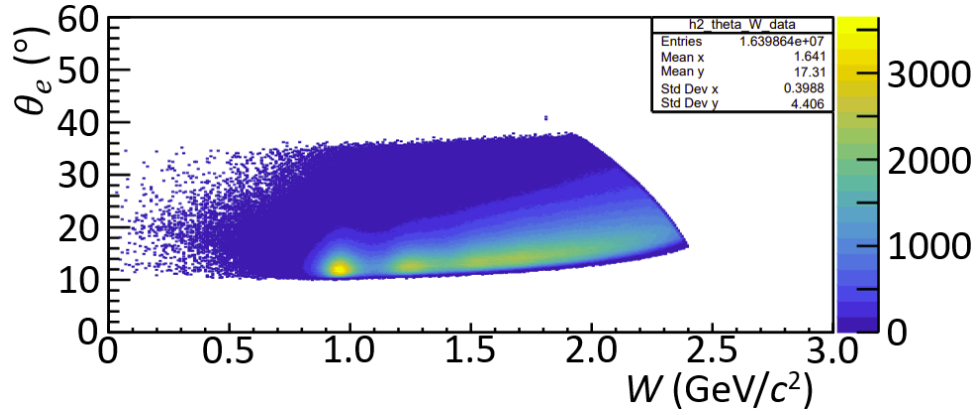
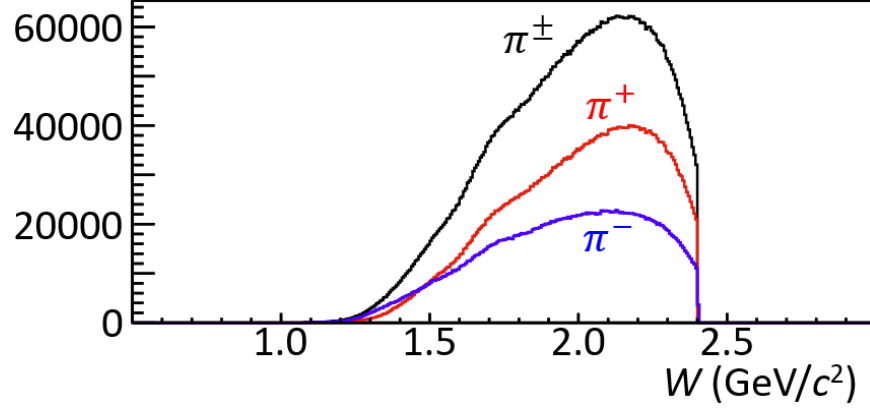


FIG. 53. Number of $d(e, e')$ events plotted as a function of θ_e vs. W .

TABLE 4. Data Binning: Bin edges used for $d(e, e'\pi^\pm)$ cross section plots.

Variable	Bin Edges				
Q^2 (GeV ²)	0.7	1.0	1.4	1.9	2.5
$\theta_{\pi q}$ (°)	0	12	22	32	46
P_π (GeV/c)	0.7	1.0	1.5	2.2	2.7

FIG. 54. Plot of W for $d(e, e'\pi^\pm)$. The red line is for $d(e, e'\pi^+)$, the blue line is for $d(e, e'\pi^-)$, and the black line is for $d(e, e'\pi^\pm)$.

could be pion kinetic energy T_π or pion momentum P_π . The other could be pion angle θ_π or the angle difference between the pion and the momentum transfer $\theta_{\pi q}$. We show the data binned in P_π and $\theta_{\pi q}$ in here, and the same data binned in P_π and θ_π in Section A.3. For binning in these kinematics, we needed to make certain the bins covered the data well, so we plotted Q^2 vs. W (see Fig. 59) and P_π vs. $\theta_{\pi q}$ for both π^+ and π^- (see Figs. 60 and 61). We applied bins away from the edge of the events to ensure the data covered the entire kinematic range of the bin. We used the bin edge values in Table 4. For example, the first bin in Q^2 is $0.7 \leq Q^2 < 1.0$ GeV². The binned cross sections are presented and discussed in the next chapter.

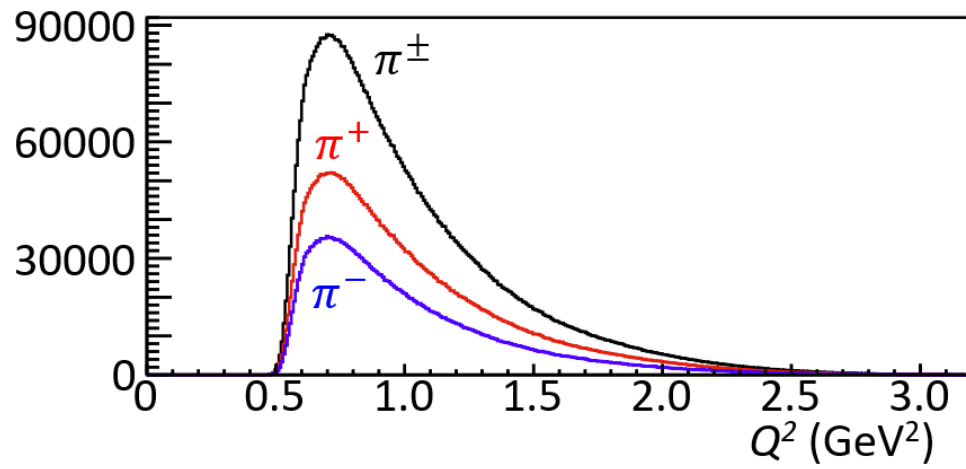


FIG. 55. Plot of Q^2 for $d(e, e'\pi^\pm)$. The red line is for $d(e, e'\pi^+)$, the blue line is for $d(e, e'\pi^-)$, and the black line is for $d(e, e'\pi^\pm)$.

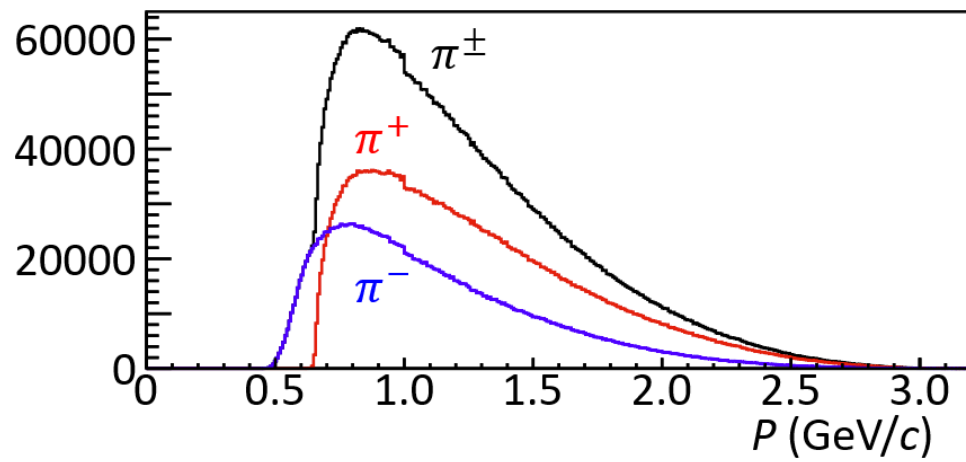


FIG. 56. Plot of P_π for $d(e, e'\pi^\pm)$. The red line is for $d(e, e'\pi^+)$, the blue line is for $d(e, e'\pi^-)$, and the black line is for $d(e, e'\pi^\pm)$.

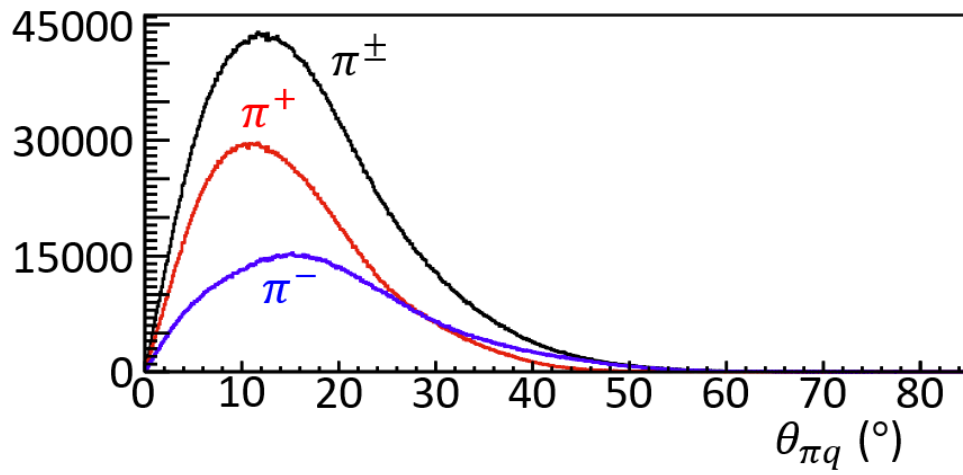


FIG. 57. Plot of $\theta_{\pi q}$ for $d(e, e' \pi^\pm)$. The red line is for $d(e, e' \pi^+)$, the blue line is for $d(e, e' \pi^-)$, and the black line is for $d(e, e' \pi^\pm)$.

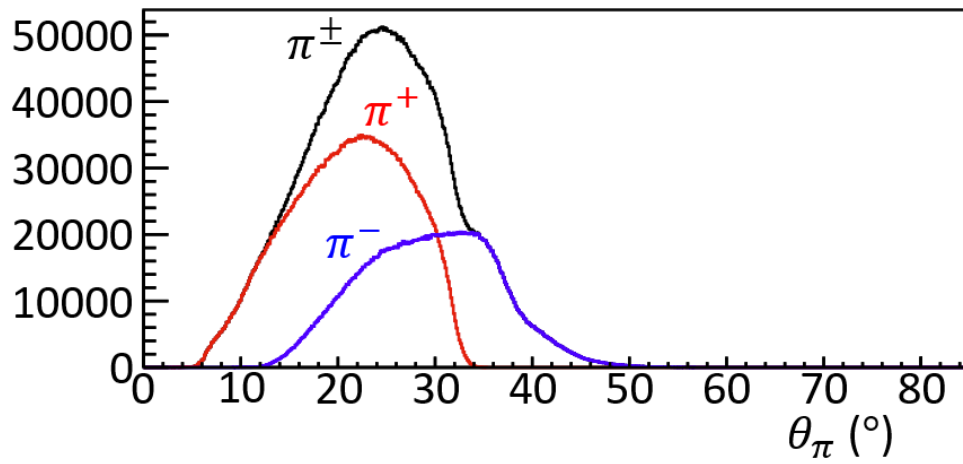


FIG. 58. Plot of θ_π for $d(e, e' \pi^\pm)$. The red line is for $d(e, e' \pi^+)$, the blue line is for $d(e, e' \pi^-)$, and the black line is the total $d(e, e' \pi^\pm)$.

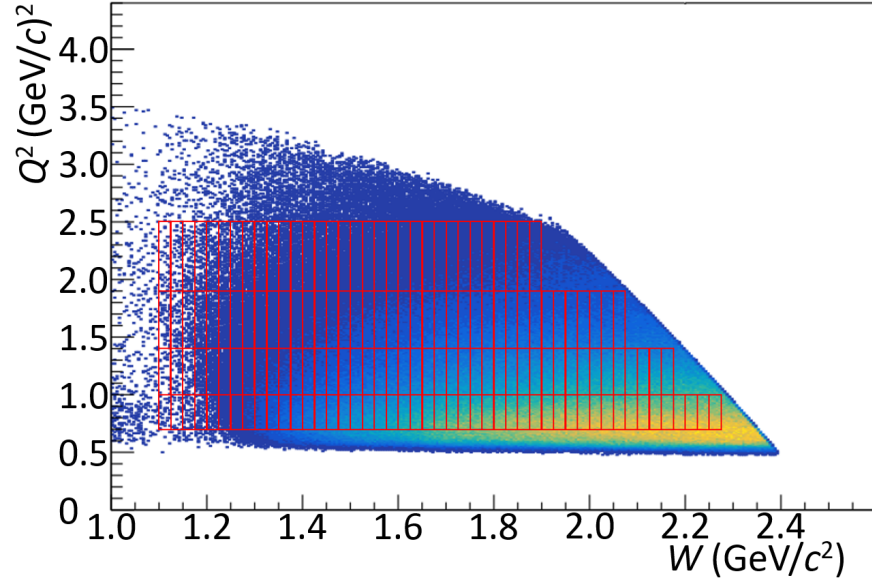


FIG. 59. Plot of Q^2 vs. W with binning superimposed. This is for $d(e, e'\pi^-)$, but the $d(e, e'\pi^+)$ binning is identical.

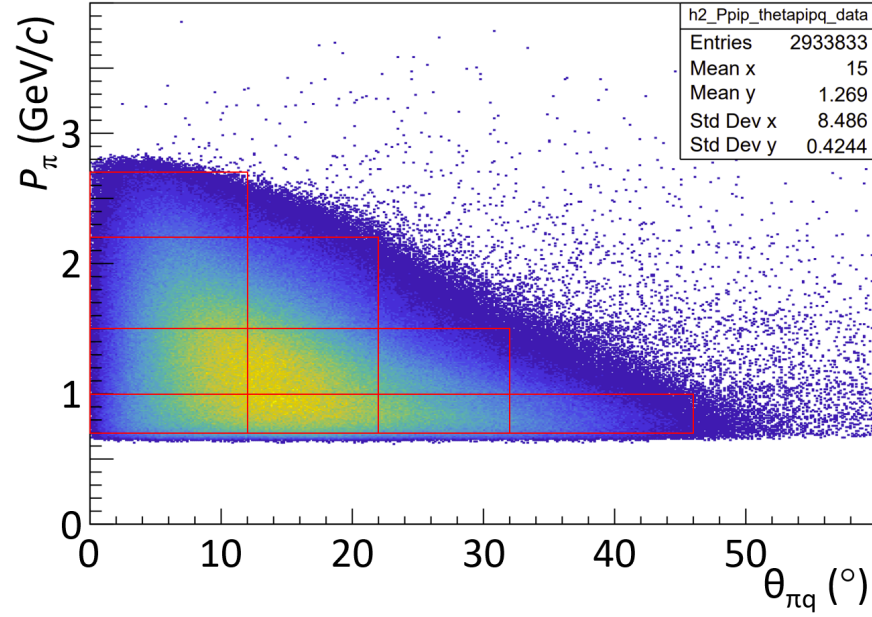


FIG. 60. Plot of P_{π^+} vs. θ_{π^+q} with binning superimposed.

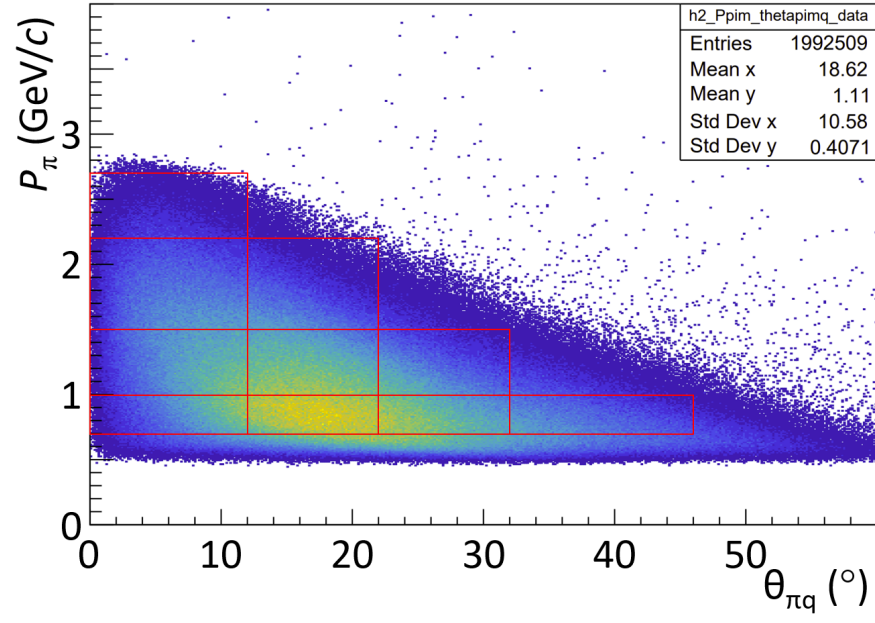


FIG. 61. Plot of P_{π^-} vs. θ_{π^-q} with binning superimposed.

CHAPTER 5

CROSS SECTIONS

5.1 INCLUSIVE CROSS SECTION

To confirm that the data and simulations made sense, we plotted $d(e, e')$ normalized yields (i.e., uncorrected cross sections) as functions of W for bins in θ_e (see Fig. 62). The inclusive yield is related to the number of events $N(e, e')$:

$$\frac{d^2\sigma}{dWd\theta_e} = \frac{N(e, e')}{\Delta W \Delta \theta_e \times N_e t_{tgt}}, \quad (31)$$

where W is the invariant mass, θ_e is the electron scattering angle, ΔW is the size of the W bin, $\Delta \theta_e$ is size of the θ_e bin, N_e is the number of incident electrons, and t_{tgt} is the target thickness in nuclei per cm^2 . For the simulated yields, onepigen included radiative effects while GENIE did not. See Sections 5.4.2-5.4.3 for descriptions of the simulations.

The peak below $W = 1 \text{ GeV}/c^2$ in the data is the quasielastic peak, the peak around $W = 1.232 \text{ GeV}/c^2$ is the delta peak, and the region above the delta peak consists of various N^* resonance peaks. As θ_e increases, the overall yield decreases, especially at low W , resulting in the N^* region dominating at high θ_e .

For onepigen, we summed over $d(e, e'\pi^+)$ and $d(e, e'\pi^-)$ events. The neutral pion production component did not work, so we multiplied the yield by two to roughly include the effects of neutral pion production.

We found that onepigen agrees with the data in the range $1.07 < W < 1.3 \text{ GeV}/c^2$ and underpredicts outside this range, which gives us confidence in the data normalization. Below this range, there is not enough energy to form a pion; above it, two pion production events begin to dominate.

GENIE, on the other hand, overpredicts the QE peak, delta peak, and the resonance region much as previous studies have found. GENIE overpredicts the QE peak by a factor of nearly three. Except at higher θ_e , it underpredicts the dip between the QE and delta peak. Both onepigen and GENIE predict more prominent peaks at $W \approx M_\Delta$ than in the data.

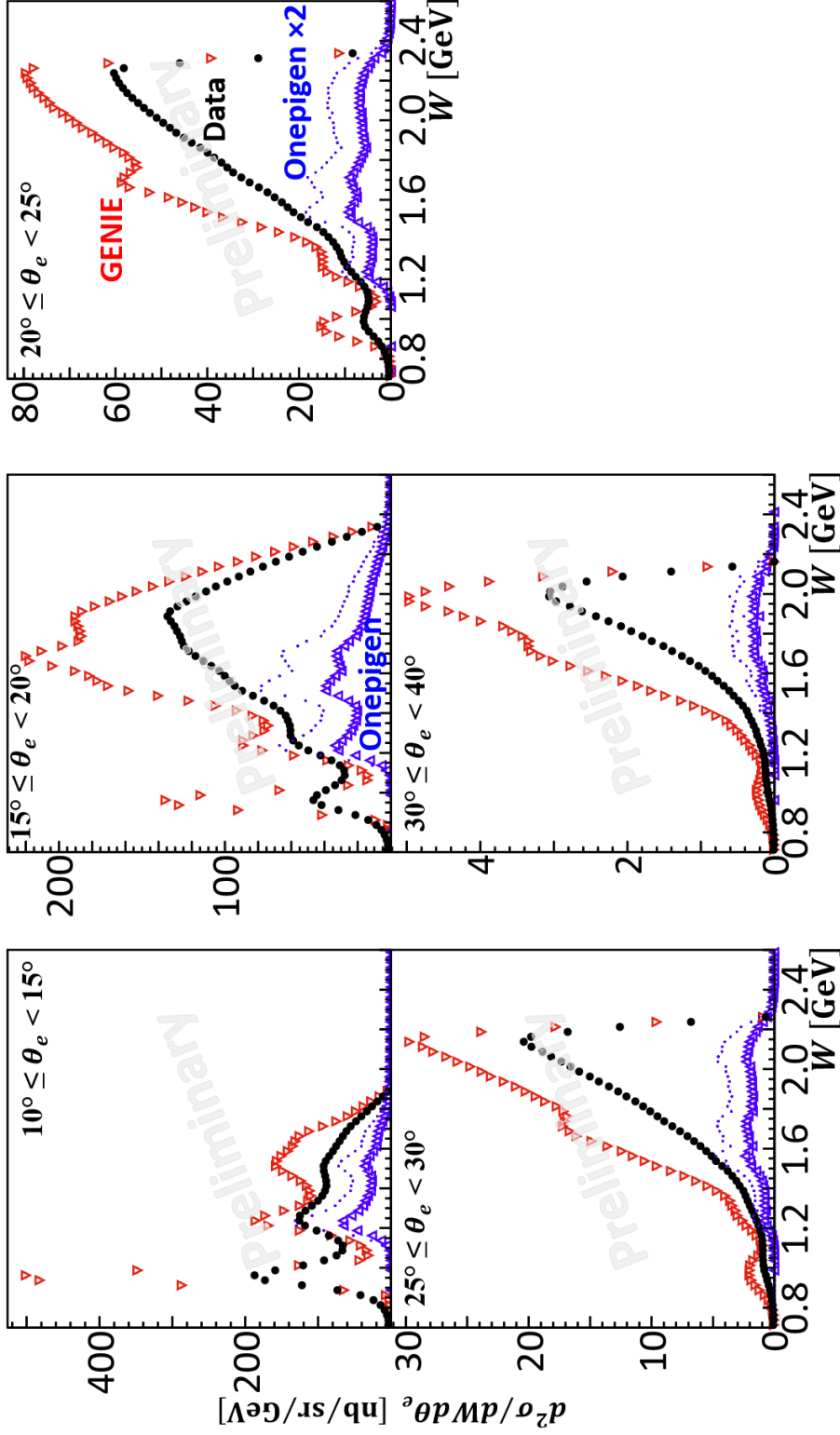


FIG. 62. $d(e, e')$ normalized yields as functions of W for bins in electron scattering angle θ_e . The black points are the data events, the red inverted triangles are GENIE events, and the blue triangles are onepigen $d(e, e'\pi^+)$ and $d(e, e'\pi^-)$ events. The blue dots show the onepigen yields multiplied by two to approximately account for the emission of neutral pions. The error bars include only statistical uncertainties. The peak below $W = 1 \text{ GeV}/c^2$ in the data is the quasiselastic peak, the peak around $W = 1.232 \text{ GeV}/c^2$ is the delta peak, and the region above the delta peak consists of various N^* resonance peaks. We expect onepigen to approximately agree with data for $1.07 < W < 1.3 \text{ GeV}/c^2$.

5.2 SEMI-INCLUSIVE CROSS SECTION

We next compared data, GENIE, and onepigen $d(e, e'\pi^\pm)$ cross sections. The pion production cross section is related to the number of measured events $N(e, e'\pi)$:

$$\frac{d^4\sigma}{dW dQ^2 d\theta_{\pi q} dP_\pi} = \frac{N(e, e'\pi)}{\Delta W \Delta Q^2 \Delta\theta_{\pi q} \Delta P_\pi \times N_e t_{tgt}} \times corr, \quad (32)$$

where $\theta_{\pi q}$ is the angle between the pion produced and the momentum transfer, P_π is the pion momentum, N_e is the number of incident electrons, t_{tgt} is the target thickness in nuclei per cm^2 , and Δx is the bin size in variable x (this equation implies we are integrating over ϕ_e and ϕ_π). The correction factors (*corr*) include radiative corrections and detector efficiencies; we applied radiative corrections to the data (see Chapter 6). The luminosity is $L = N_e t_{tgt}$. We did not apply acceptance corrections to either the data or the simulated events and therefore label all cross sections “non-AC.”

5.3 GEANT4 MONTE-CARLO

We passed our simulated events through the GEant4 Monte-Carlo (GEMC) simulation of CLAS12 (Fig. 63). We then reconstructed the simulated events using the standard CLAS12 analysis software. We used the GEMC simulation to configure the detectors and other hall components as they were during the run period. We did this so that the simulated events would have the same CLAS acceptance and detector efficiency as the experimental data. This meant we could compare the non-AC cross section results from the simulations to the data.

5.4 NORMALIZATION

In order to compare real and simulated non-AC cross sections to each other, it is necessary to scale them properly.

5.4.1 Data

Following Eqn. 32,

$$\frac{d^4\sigma}{dW dQ^2 d\theta_{\pi q} dP_\pi} = \frac{N(e, e'\pi)}{V_{Bin} L R C}, \quad (33)$$

where $V_{Bin} = \Delta P_\pi \Delta\theta_{\pi q} \Delta Q^2 \Delta W$ is the bin volume, L is the luminosity, and RC is the

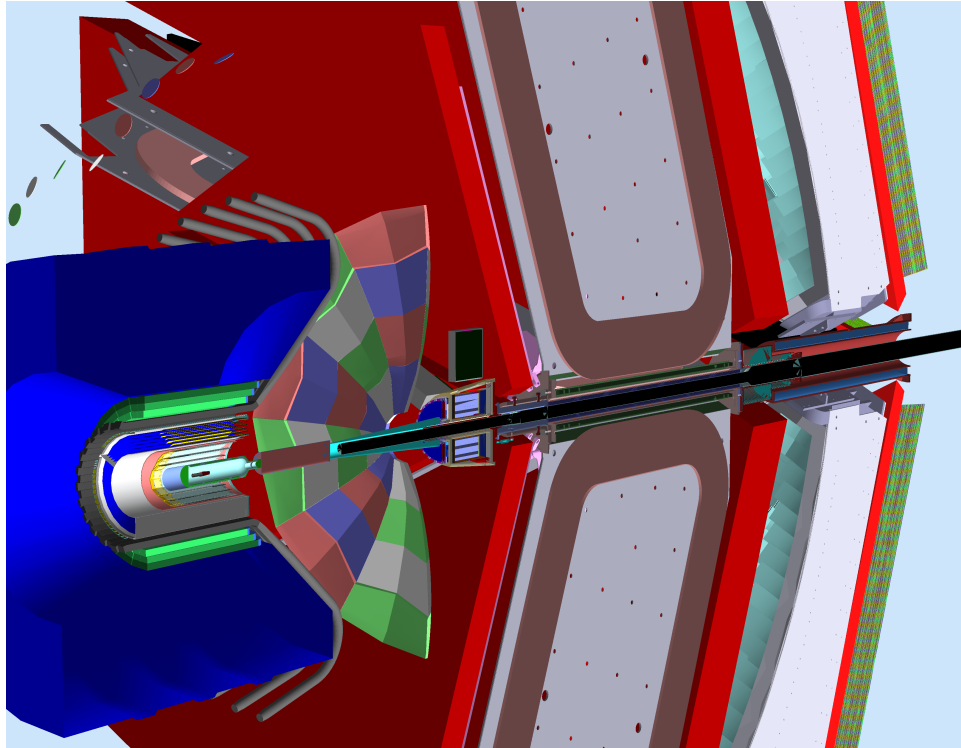


FIG. 63. Cutaway of the GEMC CLAS12 simulation. The electron beam travels from the left to the right in the image. On the left is the target and CD surrounded by the blue solenoid magnet. To the right are the green, pink, gray, and blue mirrors of the HTCC. The red DC regions 1 and 3 sandwich the copper torus magnet and gray support frame. On the right are the blue-green mirrors of the LTCC with gray support frame, the red FTOF, and the green and gray ECAL.

TABLE 5. Luminosity parameter

Variable	Value
q_e	1.602×10^{-19} C
ρ_{tgt}	0.169 g/cm ³
l_{tgt}	5.00 cm
N_A	6.022×10^{23} mol ⁻¹
mol_{tgt}	2.014 g/mol

TABLE 6. Faraday cup charges

Run Number	Faraday Cup Charge Accumulated (nC)
11286	6070
11288	8630
11289	54830
11290	238300
11291	58850
11294	288200
11295	29150
11296	107930
Total:	791960

radiative correction factor (described in Section 6.1). The luminosity is:

$$L = \frac{Q_{tot}}{q_e} \times \frac{\rho_{tgt} l_{tgt} N_A}{mol_{tgt}}, \quad (34)$$

where Q_{tot} is the total charge collected by the Faraday cup for the runs we analyzed, q_e is the charge of the electron, ρ_{tgt} is the density of deuterium, l_{tgt} is the length of the target, N_A is Avogadro's number, and mol_{tgt} are the grams per mole of deuterium (see Table 5). Table 6 gives the Faraday cup charge for each run and the total charge.

5.4.2 GENIE

To scale GENIE non-AC cross sections, we need the total number of generated events

and the total inclusive cross section for $Q^2 > Q_{min}^2$, where Q_{min}^2 is the minimum momentum transfer of generated events. GENIE numerically interpolates cross sections over a range of beam energies with data from a spline [5]. To scale the GENIE total cross section, one uses the value of the total inclusive cross section at the beam energy used to generate the events. Fig. 64 shows the splines generated with the dipole and Rarita resonance models. For a 4.244 GeV beam, the cross section is 4.321×10^6 (10^{-38} cm²) for dipole events and 4.621×10^6 (10^{-38} cm²) for Rarita events. We scale the dipole and Rarita non-AC cross sections with their corresponding value divided by the total number of generated GENIE events N_{events} and the bin volume V_{bin} . The simulated cross section for a given bin (with N_{bin} events) is then:

$$\sigma_{bin} = \frac{CS_{tot}}{N_{events}V_{bin}}N_{bin}. \quad (35)$$

5.4.3 Onepigen

To scale onepigen non-AC cross sections, we used the generator's integrated cross section CS_{tot} . Onepigen calculates this number for each event file generated. For each file, we scaled the onepigen non-AC cross section with the integrated cross section divided by the number of onepigen events and the bin volume.

$$\sigma_{bin} = \frac{CS_{tot}}{N_{events}V_{bin}}N_{bin}. \quad (36)$$

5.5 SEMI-INCLUSIVE CROSS SECTION EXAMPLE

Sample $d(e, e'\pi^+)$ normalized data and model non-AC cross sections (with correction factors and systematic uncertainties as discussed in Chapter 6) are shown in Fig. 65. Each individual plot shows the non-AC cross section as a function of W for various bins in Q^2 , $\theta_{\pi q}$, and P_π . Plots increase in $\theta_{\pi q}$ from left to right (since these plots are printed sideways, that would be bottom to top of the page) and increase in P_π from bottom to top (right to left from the page's perspective).

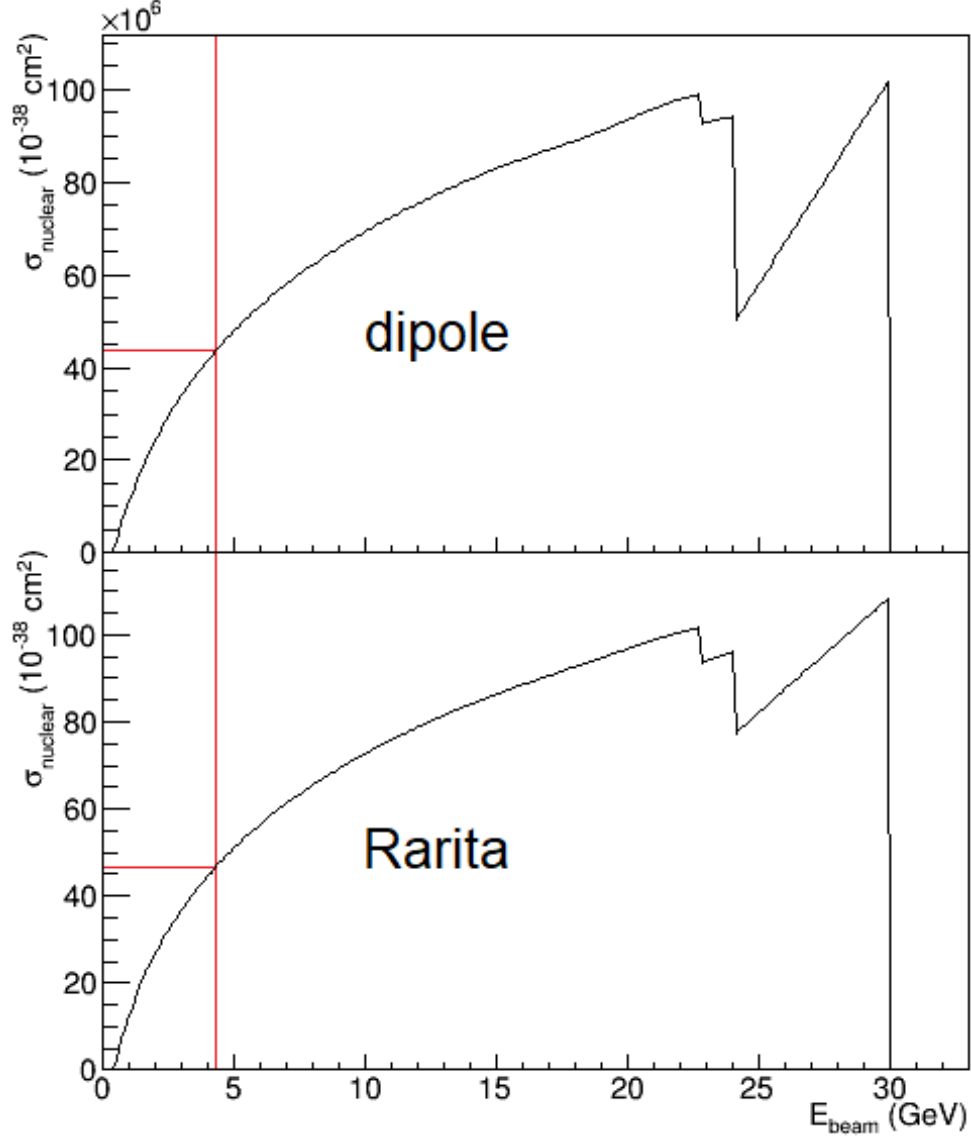


FIG. 64. Total inclusive cross sections as a function of incident electron energy for GENIE events using the dipole (top) and Rarita (bottom) models. The red lines mark the spline values of 4.321×10^6 (10^{-38} cm^2) for the dipole model and 4.621×10^6 (10^{-38} cm^2) for the Rarita model at 4.244 GeV.

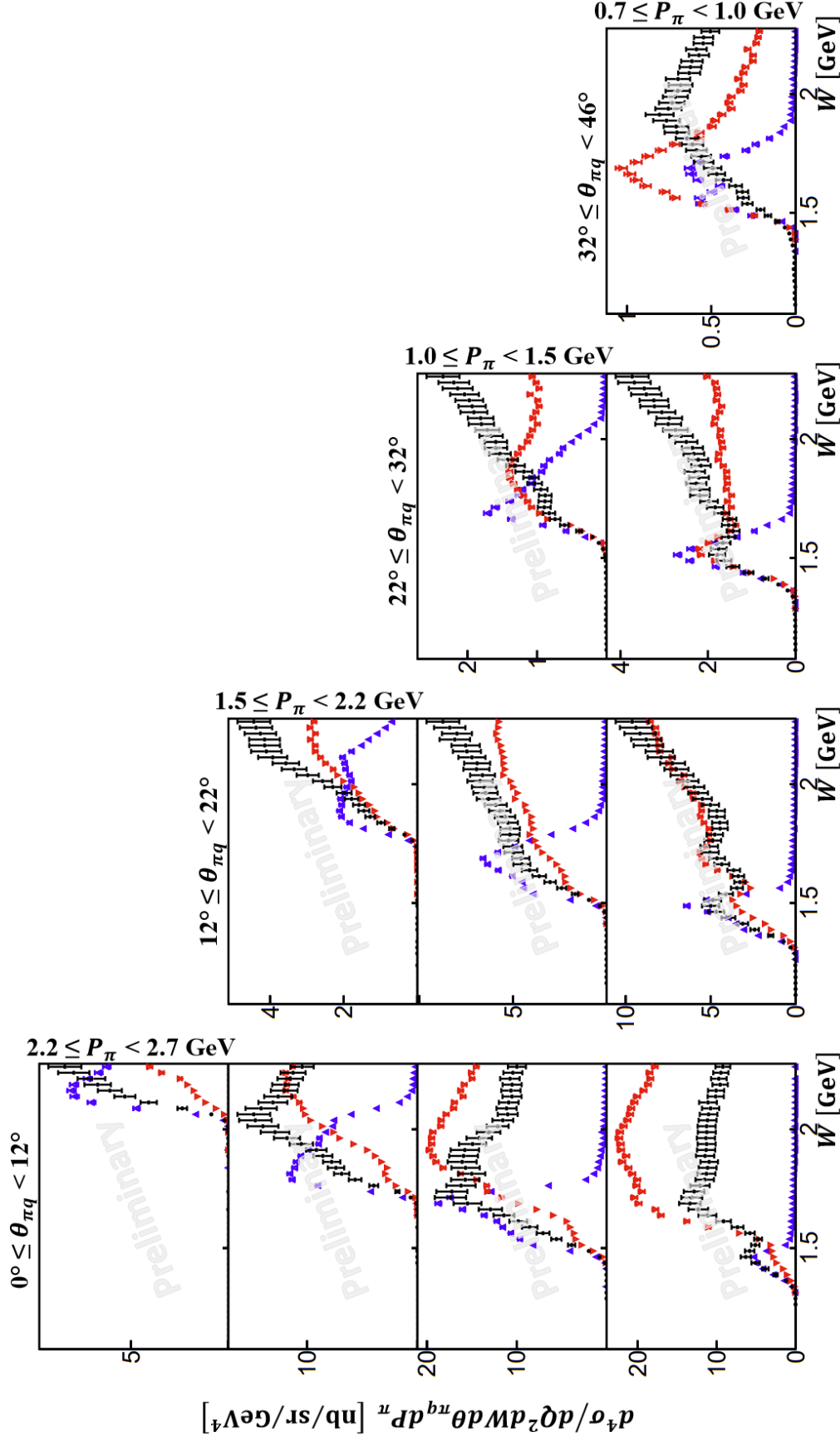


FIG. 65. Example 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $0.7 \leq Q^2 < 1.0$ GeV² (with GENIE using the dipole resonance model). Black points are data, red inverted triangles are GENIE, and blue triangles are one-pion. Data error bars include statistical and point-to-point systematic uncertainties.

CHAPTER 6

CORRECTION FACTORS AND UNCERTAINTIES

The raw data cross sections have radiative effects that we need to correct for. In addition to radiative effects, we need to calculate the systematic uncertainties on the data. These point-to-point systematic uncertainties come from the sector-by-sector variation, interactions with the target wall, the cuts we use on the data, and the radiative correction factor. The normalization uncertainties come from the lack of normalization data.

6.1 RADIATIVE EFFECTS

Radiative effects change the measured kinematics from the eA interaction. There are several effects we correct for in this analysis (see Fig. 66). The electron can emit radiation before (b) or after (c) interacting with the target. In either case, this changes the kinematics of the electron, thus affecting the reconstructed cross section. The electron also can emit radiation before interacting with the target and reabsorb it afterwards (d) which changes the vertex of the interaction. In addition, the virtual photon can interact with itself, such as lepton production and annihilation (e), which changes the propagator of the interaction. The raw cross sections include all these radiative effects; therefore, it is necessary to remove these effects to measure the non-AC Born cross sections. Removing radiative effects requires the use of a radiative correction factor RC calculated from simulated data from an event generator. RC is the ratio of radiative to non-radiative non-AC cross sections:

$$RC = \frac{\sigma_{rad}(\Delta Q^2, \Delta W, \Delta\theta_{\pi q}, \Delta P_{\pi})}{\sigma_{no-rad}(\Delta Q^2, \Delta W, \Delta\theta_{\pi q}, \Delta P_{\pi})}. \quad (37)$$

We calculated the uncertainties on RC as 20% of the correction:

$$\Delta_{RC} = 0.2 \times \left| \frac{1}{RC} - 1 \right|. \quad (38)$$

We chose such a high uncertainty because we could only find onepigen as an acceptable event generator for RC calculation, even though it only generates single pion events and our data also covers the multi-pion production region.

We used onepigen to generate events needed to calculate the RC for single charged pion production from electrons scattering off of nucleons in deuterium. It used MAID

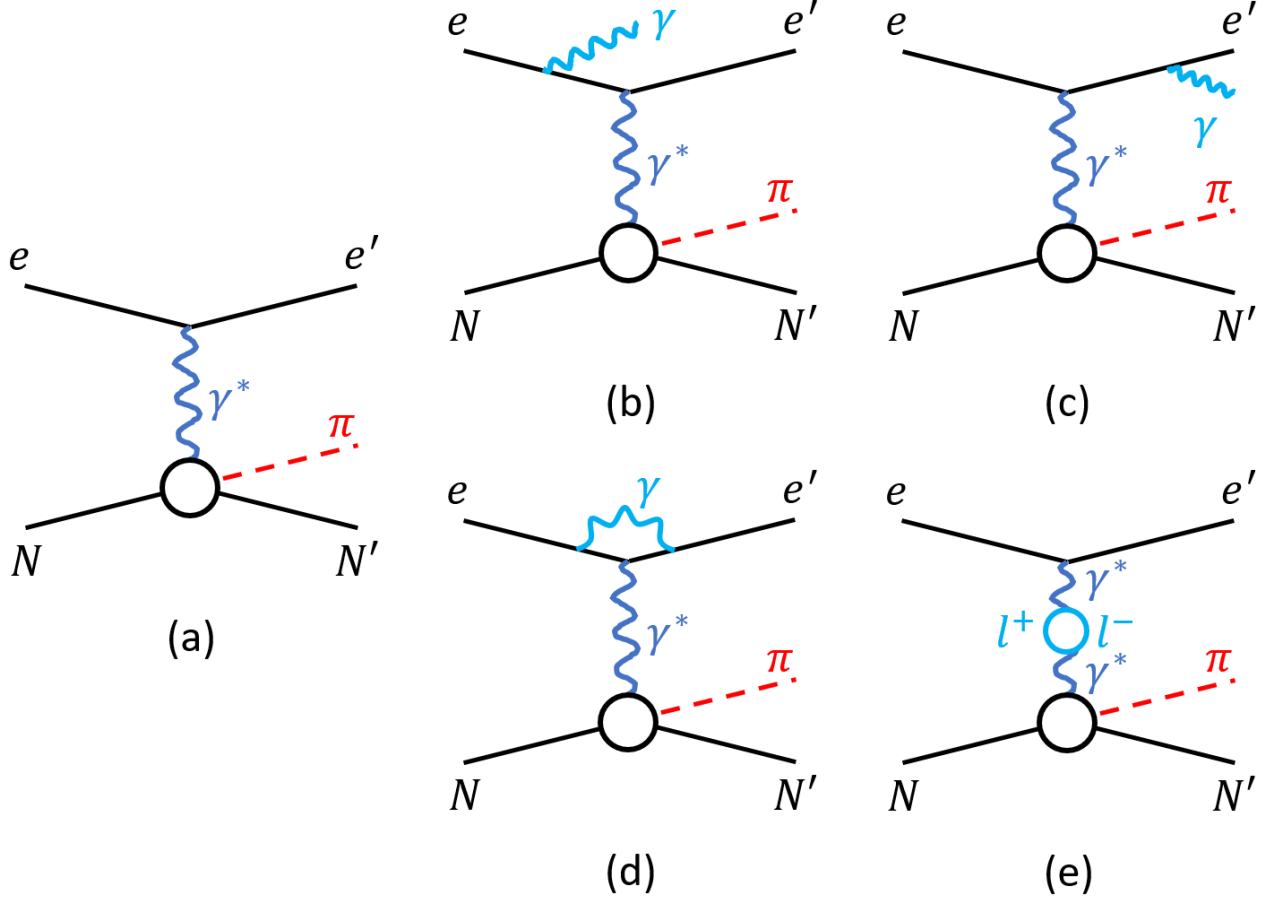


FIG. 66. Non-radiative and radiative events for electron scattering pion production events. The non-radiative event is (a) while the radiative events are (b-e). The top two radiative events change the incoming (b) and outgoing (c) energy of the electron. The bottom two change the cross section by modifying the vertex (d) and the propagator (e) respectively.

cross sectional models and had radiative and non-radiative components from the Mo-Tsai model. We used onepigen to produce radiative and non-radiative events and propagated those events through CLAS12 with GEMC. We analyzed the results to extract the corrections for our non-AC cross sections.

We plotted the ratio of radiative to non-radiative onepigen events as a function of W (see Figs. 67 and 68; additional plots in Appendix A.1). Since these factors did not include multi-pion electroproduction, they were only valid for W between 1.07-1.30 GeV/ c^2 . We fitted a straight line to the event ratios. The fit in each ratio plot was about the same for all plots of the same event (see Figs. 67 and 68), so we averaged the fits for positive and negative pions separately and used one global RC factor for each. We calculated an RC of 0.70 for positive

TABLE 7. Sources of point-to-point systematic uncertainty. Sector variation not included in the totals shown. 10% normalization uncertainty not included.

Source	Uncertainty
Electron Identification	1.5%
Hadron Identification	1.4%
Electron z vertex	3.6%
Electron perpendicular vertex	1.2%
Pion perpendicular vertex	1.1%
Electron pion z vertex difference	2.0%
Target Wall	1.0%
Sector variation	$\approx 1 - 10\%$
Radiative Correction (π^+)	8.0%
Radiative Correction (π^-)	11%
Total (π^+)	9.4%
Total (π^-)	12%

pions and an RC of 0.59 for negative pions. Applying these factors increases the non-AC cross section by a factor of 1.43 and 1.69, respectively. Because we only calculated the RC factor over a limited kinematic range and applied it as a single global correction factor, we conservatively applied the corresponding 20% uncertainty as a point-to-point uncertainty. This gave multiplicative factors of 1.43 ± 0.09 and 1.69 ± 0.14 (e.g., 0.09 is 20% of 0.43).

6.2 SYSTEMATIC UNCERTAINTIES

All data has some uncertainty. The easiest to calculate is the statistical uncertainty. For N events, the statistical uncertainty is $1/\sqrt{N}$. We also need to consider systematic uncertainties due to imperfect detectors, including bad and inefficient detector components skewing the signal strength, and imperfect data cuts. Table 7 lists the point-to-point uncertainties.

6.2.1 Sector To Sector Variation

Since each sector of CLAS12 should be identical, they should measure identical cross sections. We used the sector to sector non-AC cross section variation as a measure of the corresponding systematic uncertainty. We analyzed the sector systematic uncertainty for the inclusive and semi-inclusive non-AC cross sections. This determined the uncertainty due to

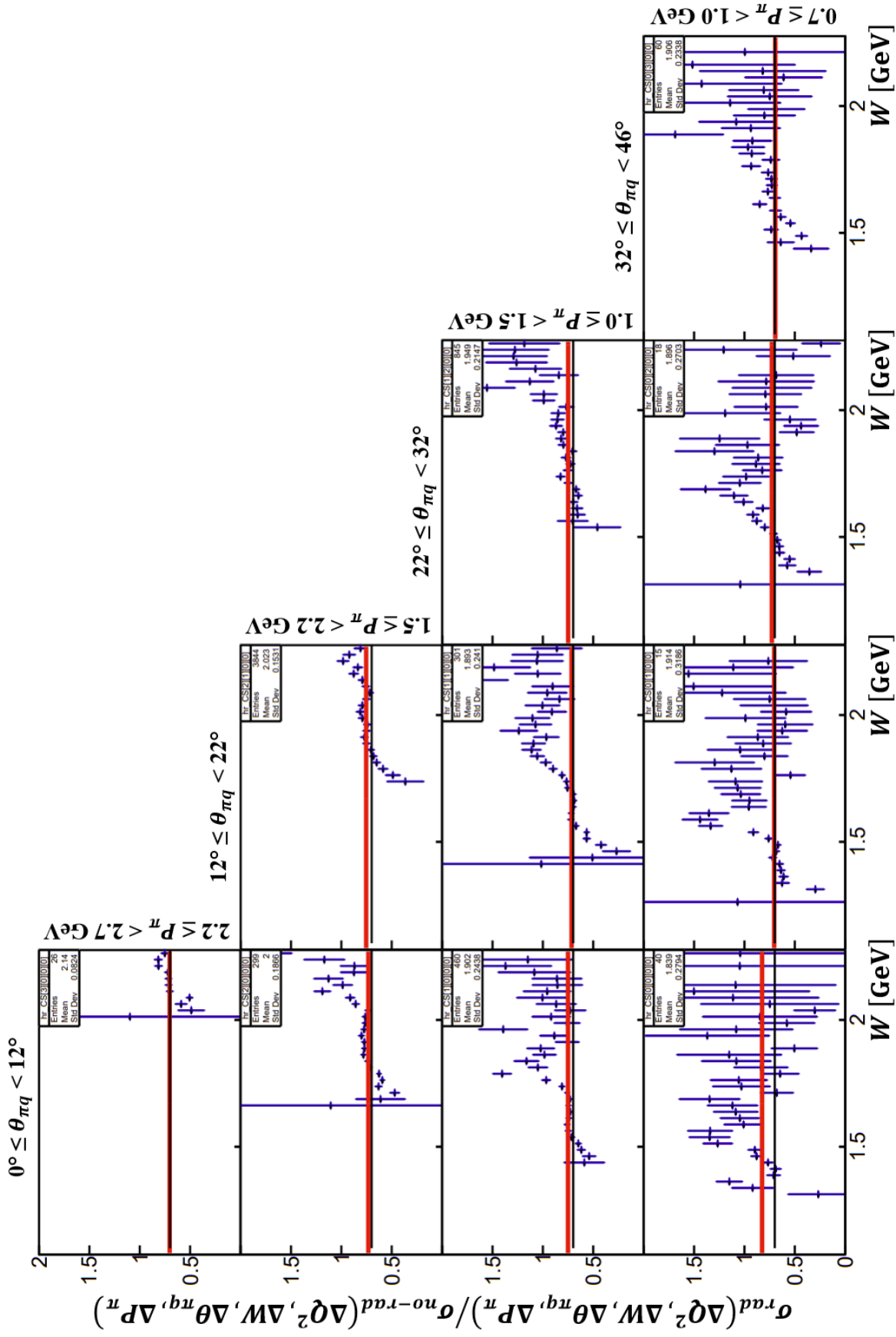


FIG. 67. Radiative over non-radiative event ratios as functions of W for $d(e, e'\pi^+)$ and $0.7 \leq Q^2 < 1.0$ GeV². The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

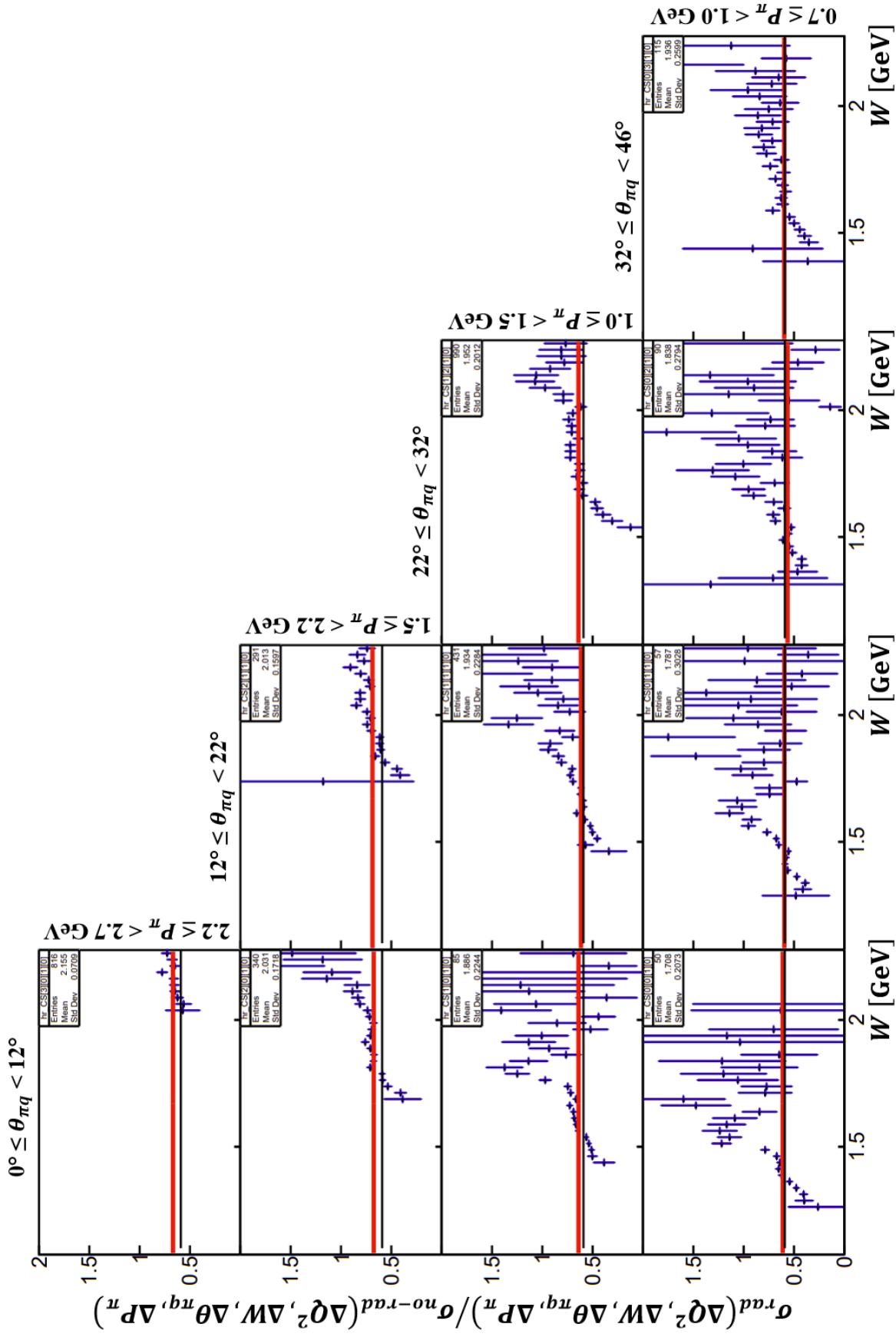


FIG. 68. Radiative over non-radiative event ratios as functions of W for $d(e, e'\pi^-)$ and $0.7 \leq Q^2 < 1.0$ GeV². The red line is the one parameter weighted fit for each plot while the black line is the global RC factor for positive pions.

differences between the detectors in each sector. We determined the non-AC cross section measured in each bin for each sector. For each bin, the uncertainty σ_{sec} is the square root of the variance V_{sec} :

$$\sigma_{sec} = \sqrt{V_{sec}}, \quad (39)$$

$$V_{sec} = \frac{1}{N_s} \sum_{i=1}^{N_s} (y_i - \bar{y})^2 - V_{stat}, \quad (40)$$

where N_s is the number of CLAS12 sectors we use, y_i is the non-AC cross section value in a bin for sector i , $\bar{y}$ is the average bin value for N_s sectors:

$$\bar{y} = \frac{1}{N_s} \sum_{i=1}^{N_s} y_i, \quad (41)$$

and V_{stat} is the statistical variance:

$$V_{stat} = \frac{1}{N_s} \sum_{i=1}^{N_s} \sigma_i^2, \quad (42)$$

where σ_i is the statistical uncertainty of y_i . Because the first part of Eq. 40 contains V_{stat} , we subtracted V_{stat} to get V_{sec} . If V_{sec} was less than zero, then we set V_{sec} to zero. Fig. 69 shows the sector inclusive yields while Fig. 70 shows the yield ratios for each sector divided by sector 1.

As discussed in Chapter 3, we removed sector 4 for detecting electrons but kept it to detect pions. We removed runs 11297 and 11299 from the analysis because there were some sectors with low values in some of the bins (see Chapter 3). We calculated the non-AC cross sections (Figs. 71 and 73) and the non-AC cross section ratios (Figs. 72 and 74). We applied the calculated uncertainty of each bin instead of a global uncertainty to each bin. We calculated an average uncertainty of 1.3%; we calculated and applied the actual uncertainties bin-by-bin. The remaining plots are in Appendix A.2.

6.2.2 Target Wall Corrections

Target wall corrections are necessary since the effect of the electron beam's interaction with the target cell walls can be significant. These corrections are normally done by comparing empty target runs with production runs to subtract the target wall effect, but there are no empty target runs with a 4.244 GeV beam. Consequently, we had to estimate the

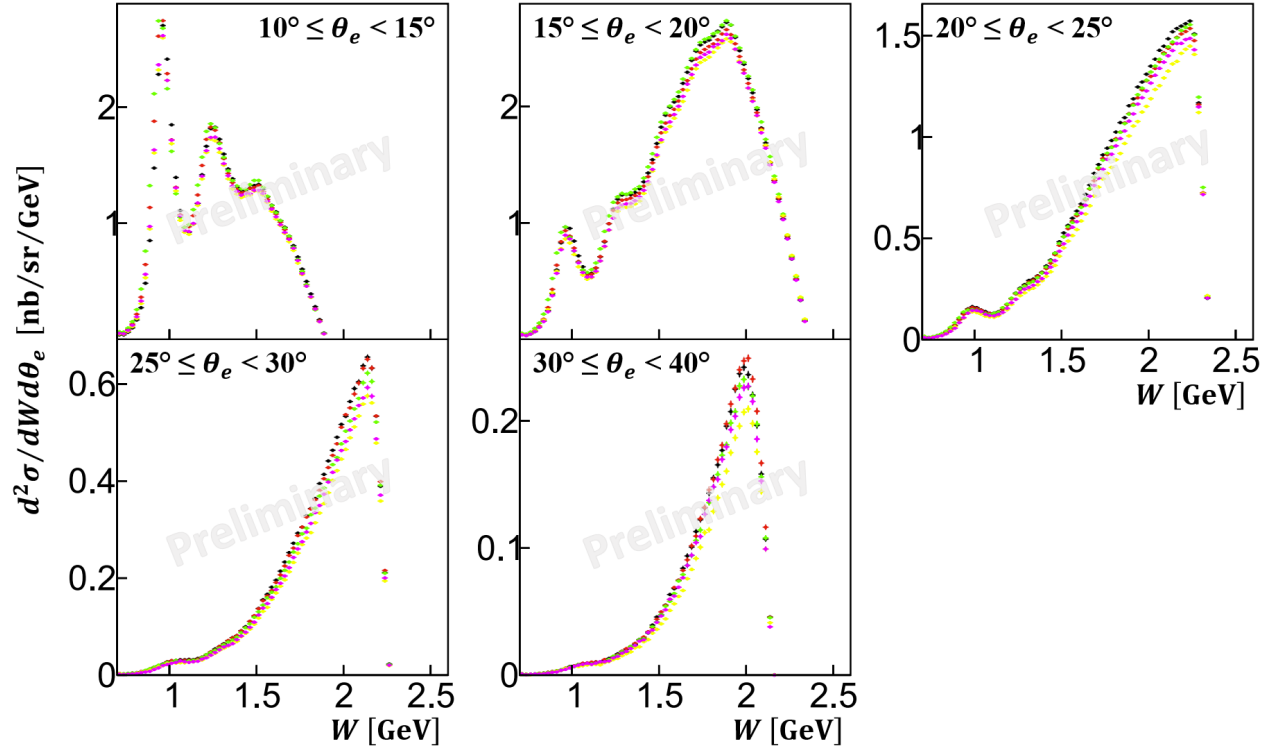


FIG. 69. $d(e, e')$ yields for each sector in the CLAS12 FD. The sectors are colored black (sector 1), red (sector 2), green (sector 3), yellow (sector 5), and magenta (sector 6).

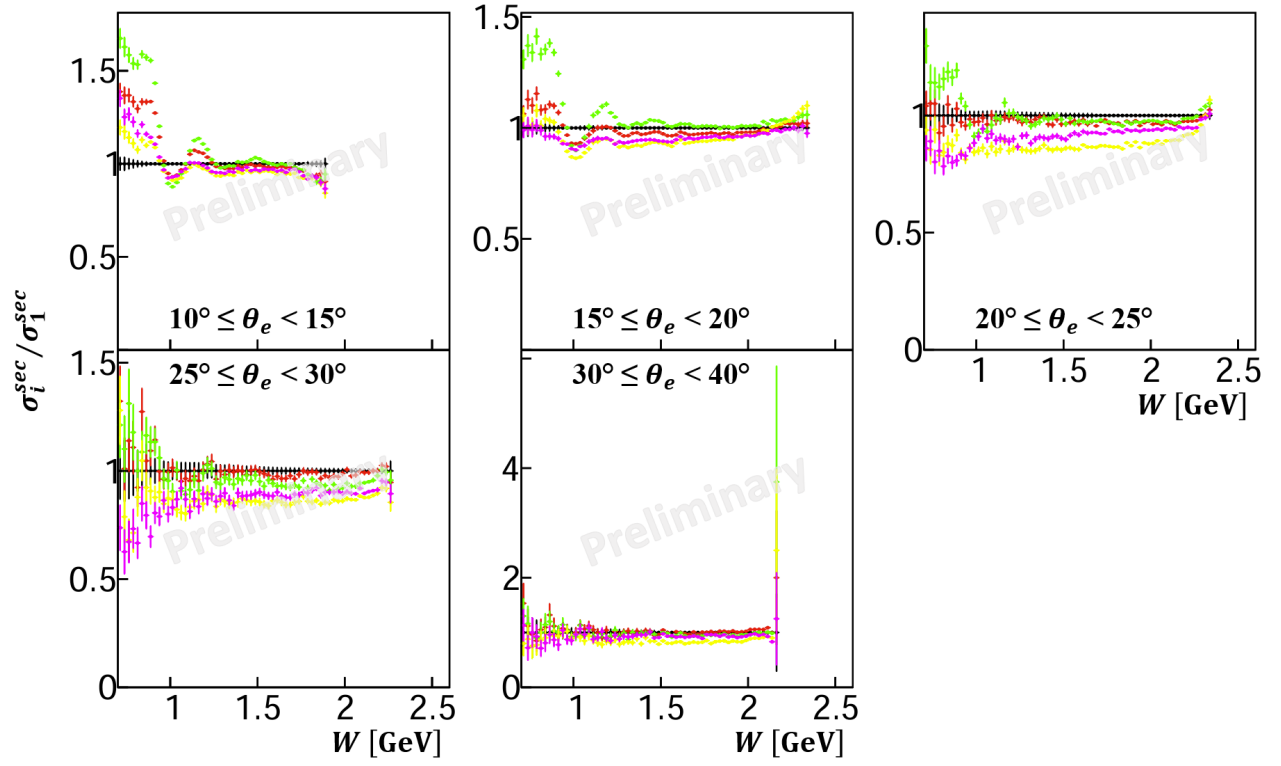


FIG. 70. $d(e, e')$ yield ratios for each sector divided by sector 1. The sectors are colored black (sector 1), red (sector 2), green (sector 3), yellow (sector 5), and magenta (sector 6).

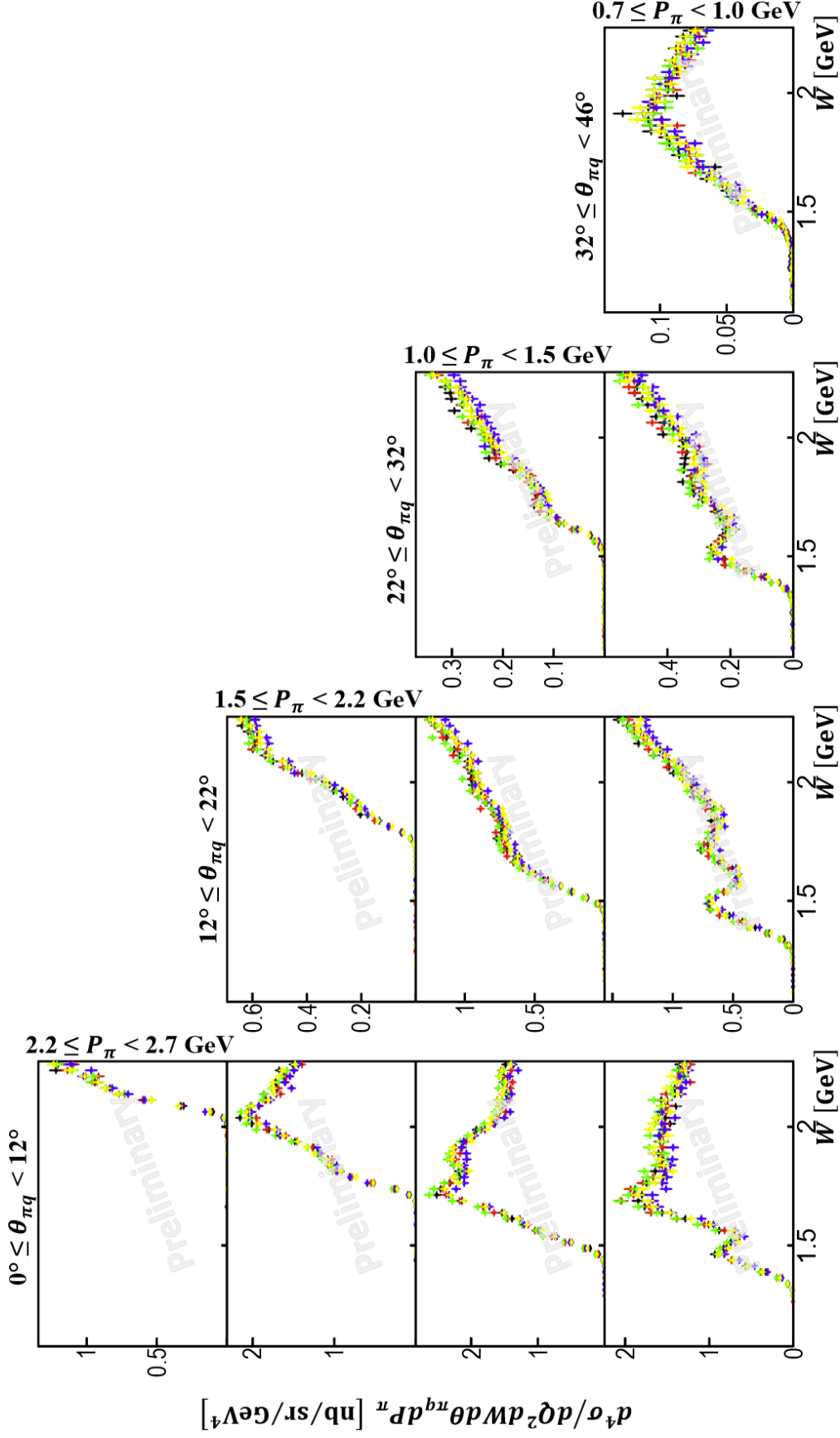


FIG. 71. $d(e, e'\pi^+)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $0.7 \leq Q^2 < 1.0$ GeV². The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

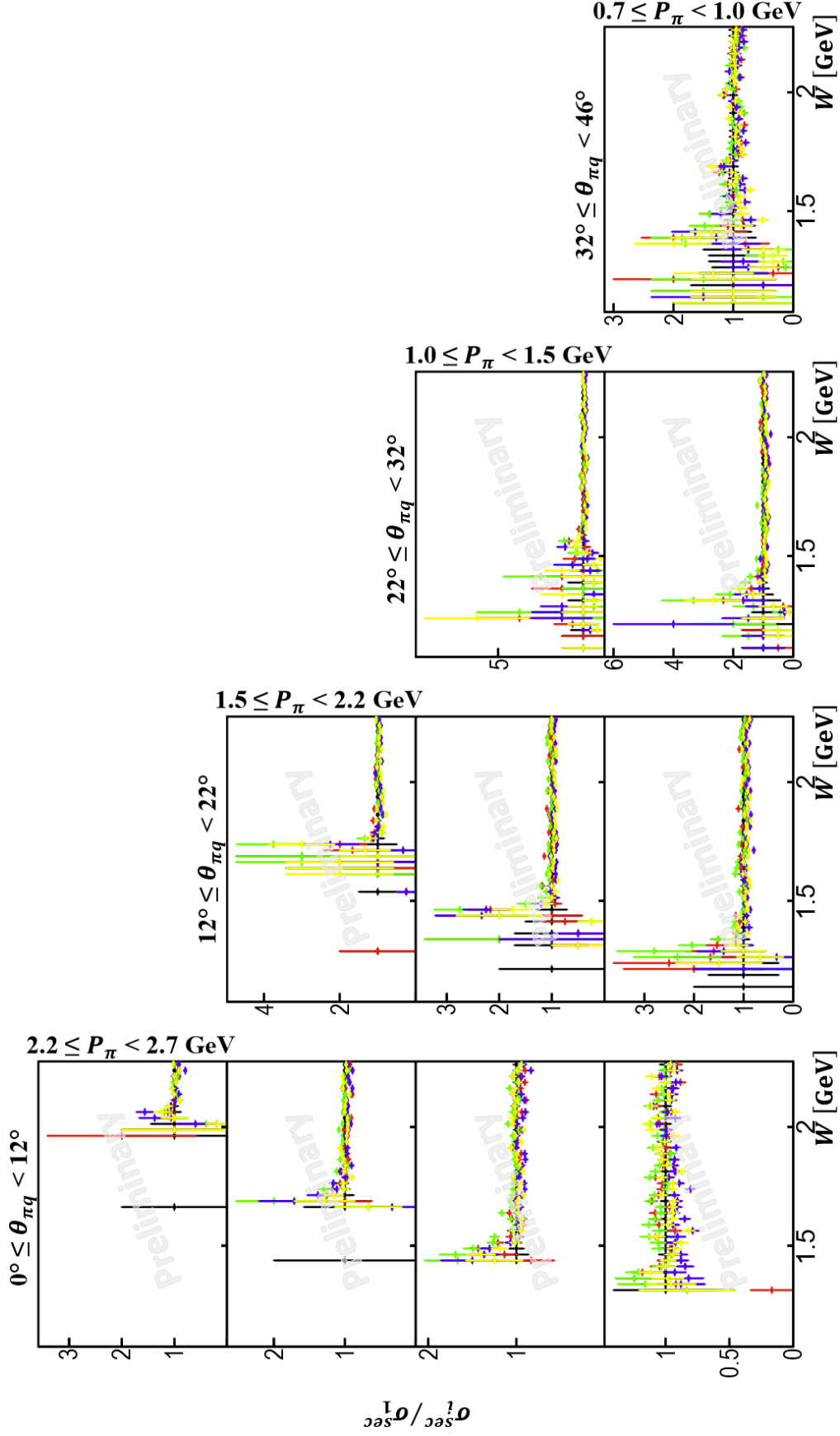


FIG. 72. $d(e, e'\pi^+)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

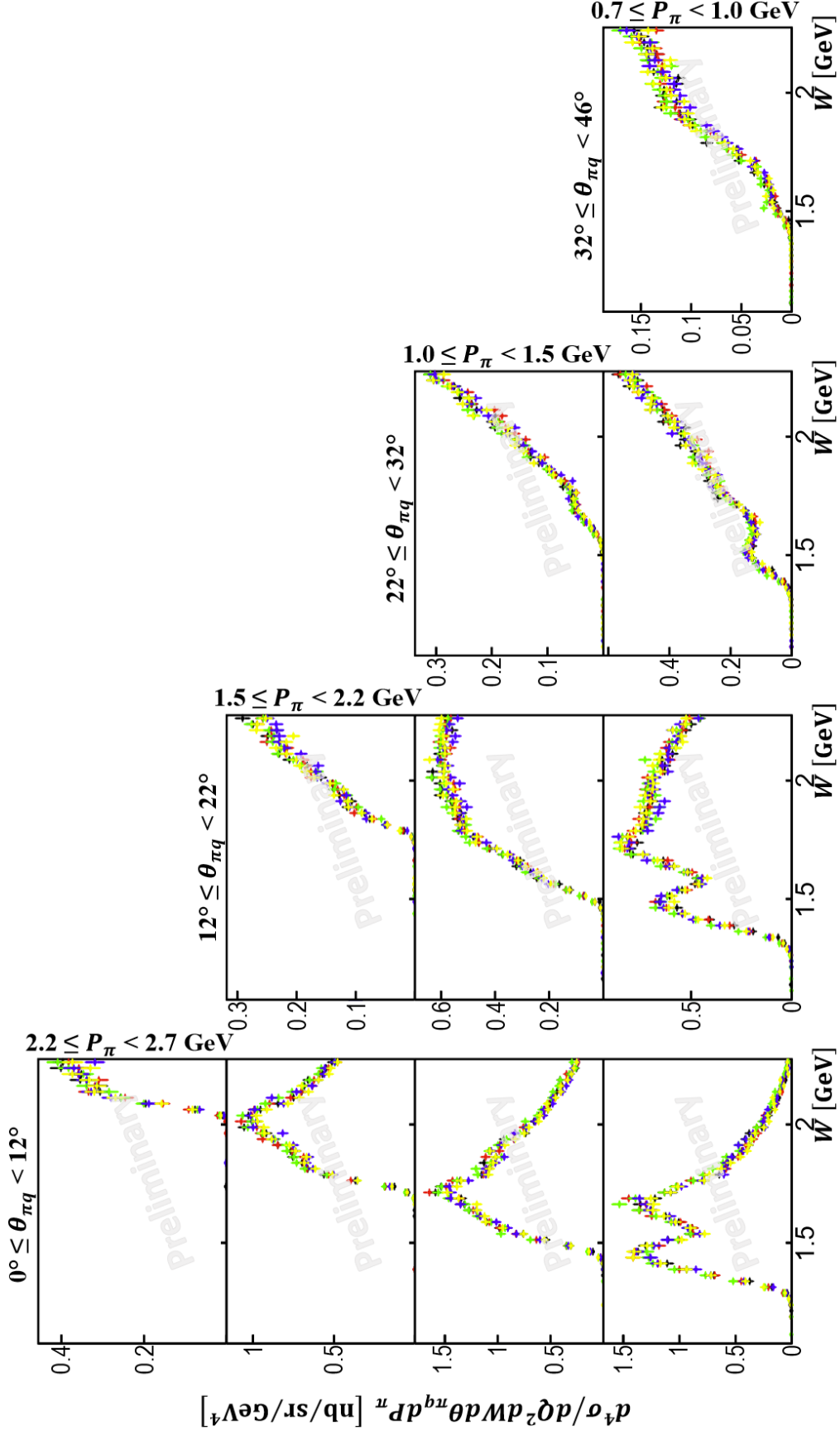


FIG. 73. $d(e, e'\pi^-)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

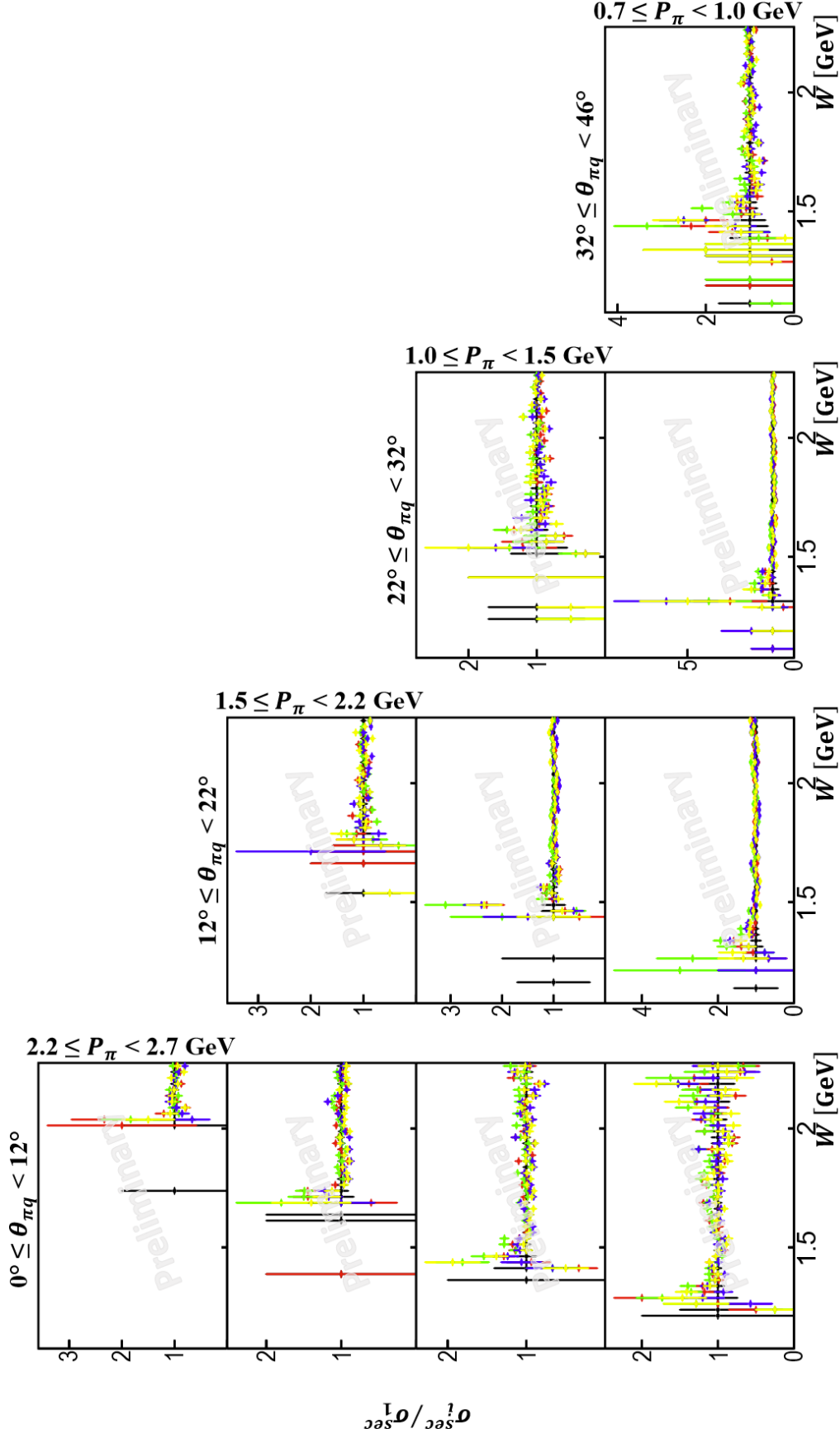


FIG. 74. $d(e, e'\pi^-)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

target wall contribution. The target walls on the beamline are each $15 \mu\text{m}$ of aluminum corresponding to 8 mg/cm^2 . The 5 cm of liquid deuterium has 800 mg/cm^2 of deuterium. This means the target wall contribution should be about 1%, so we added 1% to the systematic uncertainty.

6.2.3 Data Cuts

To calculate the systematic uncertainty due to data cuts, we varied the various cuts on the data to see how many more or less events pass. We applied this analysis to the chi2PID/NDF, SF, electron vertex, pion perpendicular, and electron pion z vertex difference cuts. In each case, we measured the number of events that passed through the chosen cut, a strict cut, and a loose cut. We calculate the uncertainty due to the cut:

$$\Delta_{cut} = \sqrt{\frac{\Delta_{tight}^2 + \Delta_{loose}^2}{2}}, \quad (43)$$

where Δ_{tight} and Δ_{loose} correspond to the difference in the number of events for the chosen cut and the tight and loose cuts respectively.

For the pid cuts, we chose a cut of 3σ , a tight cut of 2.5σ , and a loose cut of 3.5σ on the fit of the histogram of chi2PID. We calculated an average uncertainty of 1.4%.

For our refinement SF cuts, we chose a cut of 3σ , a tight cut of 2.5σ , and a loose cut of 3.5σ from the mean of the SF fits. We calculated an average uncertainty of 1.5%.

For the electron z vertex cuts, we chose cuts of $-8 < v_z < 2 \text{ cm}$. We used a tight cuts of $-7 < v_z < 1 \text{ cm}$ and a loose cut of $-9 < v_z < 3 \text{ cm}$. We calculated an average uncertainty of 3.5%. For electron perpendicular cuts, we chose a cut of 3.2 cm. We used a tight cut of 2.6 cm and a loose cut of 3.8 cm. We calculated an average uncertainty of 1.2%.

For the pion perpendicular cuts, we used different cuts for positive and negative pions. For each, we used different cuts for pion momentum bins. The cuts we chose with their tight and loose cuts are in Table 8. We calculated an average uncertainty of 1.1%.

Just like the pion perpendicular cuts, we binned the electron pion z vertex difference cuts in pion momentum bins. Unlike the perpendicular cuts, we used gaussian fits to determine the means and sigmas. We chose cuts of 3σ . We used a tight cut of 2.5σ and a loose cut of 3.5σ . The values for each bin are in Table 9. We calculated an average uncertainty of 2.0%.

TABLE 8. Pion perpendicular cut list

Pion	Momentum Bin	Tight Cut	Chosen Cut	Loose Cut
π^+	$P_\pi < 0.5 \text{ GeV}$	9.5 cm	10.5 cm	11.6 cm
π^+	$0.5 < P_\pi < 1.0 \text{ GeV}$	7.5 cm	8.3 cm	9.1 cm
π^+	$P_\pi > 1.0 \text{ GeV}$	5.0 cm	5.5 cm	6.1 cm
π^-	$P_\pi < 0.5 \text{ GeV}$	6.7 cm	7.4 cm	8.1 cm
π^-	$P_\pi > 0.5 \text{ GeV}$	5.2 cm	5.8 cm	6.4 cm

TABLE 9. Electron pion z vertex difference cut list

Pion	Momentum Bin	Mean	Sigma
π^+	$P_\pi < 0.5 \text{ GeV}$	0.54 cm	1.8 cm
π^+	$0.5 < P_\pi < 1.0 \text{ GeV}$	0.79 cm	1.6 cm
π^+	$P_\pi > 1.0 \text{ GeV}$	0.52 cm	1.3 cm
π^-	$P_\pi < 0.5 \text{ GeV}$	0.040 cm	1.6 cm
π^-	$P_\pi > 0.5 \text{ GeV}$	0.073 cm	1.3 cm

CHAPTER 7

RESULTS

This chapter presents the non-acceptance-corrected (non-AC) cross sections as functions of W and in various binning schemes. In the first scheme, the non-AC cross sections are binned in Q^2 and integrated over P_π and $\theta_{\pi q}$; we refer to this as 2D binning. The second scheme has non-AC cross sections binned in Q^2 and $\theta_{\pi q}$ and integrated over P_π . The third scheme has non-AC cross sections binned in Q^2 and P_π and integrated over $\theta_{\pi q}$. We call the second and third schemes 3D binning. The last scheme we call 4D binning; it binned the non-AC cross sections in bins of Q^2 , P_π , and $\theta_{\pi q}$. The plots compare data, GENIE, and onepigen non-AC cross sections. The non-AC cross sections drop to zero at low W because as P_π increases, the minimum W needed to produce the pion increases. Because it only includes single pion production, onepigen's non-AC cross sections should only match the data at lower W ; at higher W , onepigen and data should diverge as multi-pion production should dominate.

7.1 DATA

Data changes across the variables W , Q^2 , $\theta_{\pi q}$, and P_π . In W , non-AC cross sections generally increase as W increases, although some bins have the non-AC cross sections peak and then decrease as W increases. As Q^2 increases, data non-AC cross sections decrease in size but maintain their shape. Increasing P_π shifts the non-AC cross sections to higher W and decreases the magnitude. The variation with $\theta_{\pi q}$ is more complicated. The magnitude of the non-AC cross section peaks at low $\theta_{\pi q}$, but as $\theta_{\pi q}$ increases, GENIE non-AC cross sections increase at low W and decrease at high W relative to data. There is little difference between $d(e, e'\pi^+)$ and $d(e, e'\pi^-)$ for the 2D and 3D bins. In 4D binning, there are prominent resonance peaks in $d(e, e'\pi^-)$ at low W and low Q^2 that are less apparent in $d(e, e'\pi^+)$. Also, $d(e, e'\pi^+)$ non-AC cross sections increase with W at high W while $d(e, e'\pi^-)$ non-AC cross sections plateau or decrease in many bins, especially at low Q^2 . For all data points, the error bars include statistical and systematic uncertainties; the systematic uncertainty from the radiative corrections dominate.

7.2 ONEPIGEN

Onepigen adequately predicts $d(e, e'\pi^\pm)$ non-AC cross sections where we expect it, but it makes many unexpected overpredictions. Because it only models single pion production, onepigen should predict a non-AC cross section with a maximum around low W and a decrease as W increases. This means it should predict non-AC cross sections fairly well at low W , then underpredict at high W (where multi-pion production dominates). While it follows this expected trend, onepigen often overpredicts resonance peaks, even in cases where no peak appears in data. It typically predicts two peaks for $d(e, e'\pi^+)$, one around $W = 1.5 \text{ GeV}/c^2$ and another around $W = 1.7 \text{ GeV}/c^2$; a third peak occasionally occurs around $W = 1.3 \text{ GeV}/c^2$ for high Q^2 . For $d(e, e'\pi^-)$, onepigen typically predicts one peak around $W = 1.5 \text{ GeV}/c^2$. Onepigen peaks gain prominence as Q^2 increases for $d(e, e'\pi^+)$ and decreases for $d(e, e'\pi^-)$ resulting in overpredictions at high Q^2 for $d(e, e'\pi^+)$ and low Q^2 for $d(e, e'\pi^-)$. In these regions onepigen often predicts worse than GENIE. The 3D bins show onepigen non-AC cross sections narrowing between $W = 1.5\text{-}1.8 \text{ GeV}/c^2$ as $\theta_{\pi q}$ increases and shifting to higher W as P_π increases. For $d(e, e'\pi^+)$, they show that onepigen predicts worse as $\theta_{\pi q}$ and P_π increase. For $d(e, e'\pi^-)$, the 3D bins show that onepigen predicts worse at low P_π while its predictions across $\theta_{\pi q}$ are fairly consistent, perhaps slightly better at high angles. This can be seen clearly in the 2D binning (see Fig. 75) where onepigen predicts $d(e, e'\pi^+)$ non-AC cross section peaks at 1.5 and 1.7 GeV/c^2 that are not seen in the data.

7.3 GENIE DIPOLE MODEL

For these plots, GENIE uses the dipole resonance model (see Section 1.4.1). The difference between the dipole and Rarita models is extremely small (see Section 7.4).

7.3.1 2D Binning

For the most basic binning scheme, we looked at non-AC cross sections as functions of W for four bins of Q^2 : $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, and $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$. For all of these, we looked at $d(e, e'\pi^+)$ and $d(e, e'\pi^-)$ separately and integrated over P_π and $\theta_{\pi q}$.

For $d(e, e'\pi^+)$ (Fig. 75), we found that data and GENIE have excellent agreement. For $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, data and GENIE have good agreement until GENIE underpredicts at $W > 2.1 \text{ GeV}/c^2$. For $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, data and GENIE have excellent agreement throughout. For $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, GENIE follows the data quite closely. For $1.9 \leq$

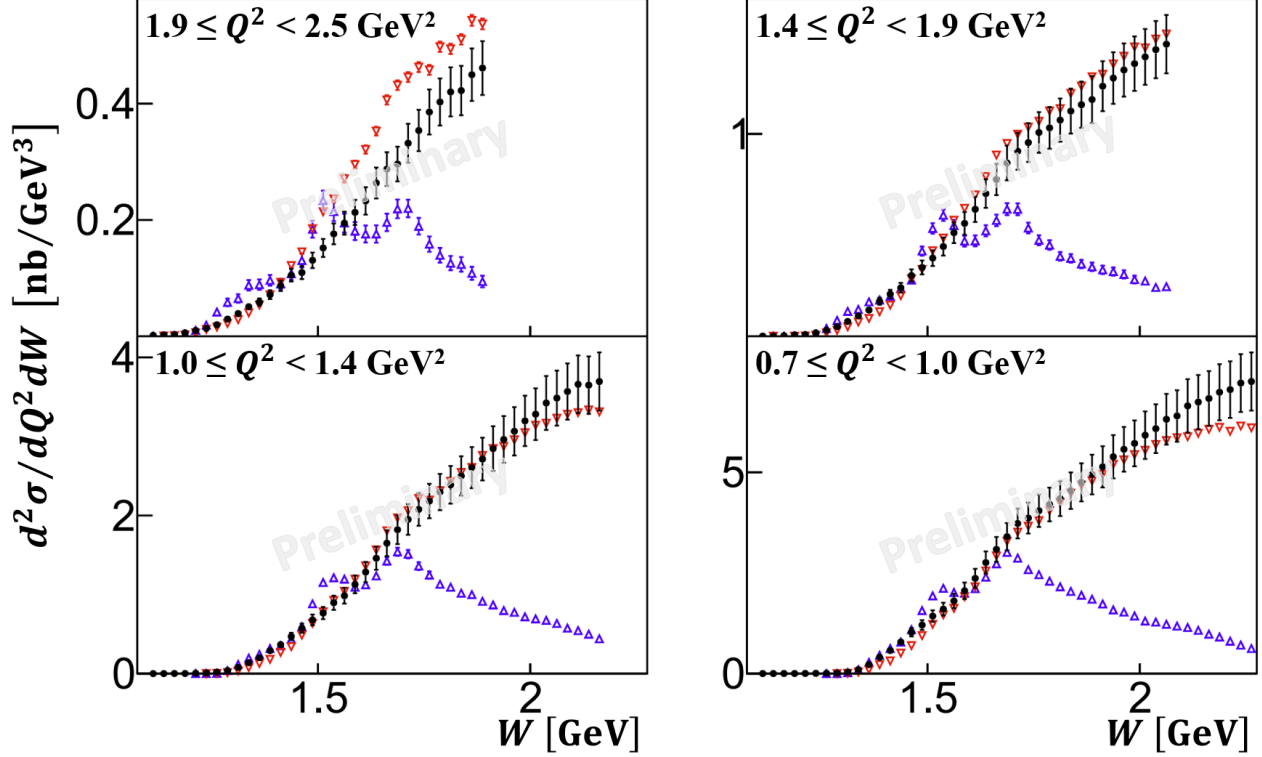


FIG. 75. 2D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and integrated over all $\theta_{\pi q}$ and P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

$Q^2 < 2.5 \text{ GeV}^2$, GENIE overpredicts the data above $W = 1.4 \text{ GeV}/c^2$.

For $d(e, e'\pi^-)$ (Fig. 76), we found that data and GENIE agree less well than in $d(e, e'\pi^+)$. The problem appears to be the shape of the GENIE non-AC cross sections. GENIE predicts a peak around $W = 1.6\text{-}1.7 \text{ GeV}/c^2$ that is not apparent in the data. Most agreement is at low Q^2 , with GENIE underpredicting at high W . For $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, GENIE agrees fairly well with the data. For $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, GENIE overpredicts the data above $W = 1.4 \text{ GeV}/c^2$.

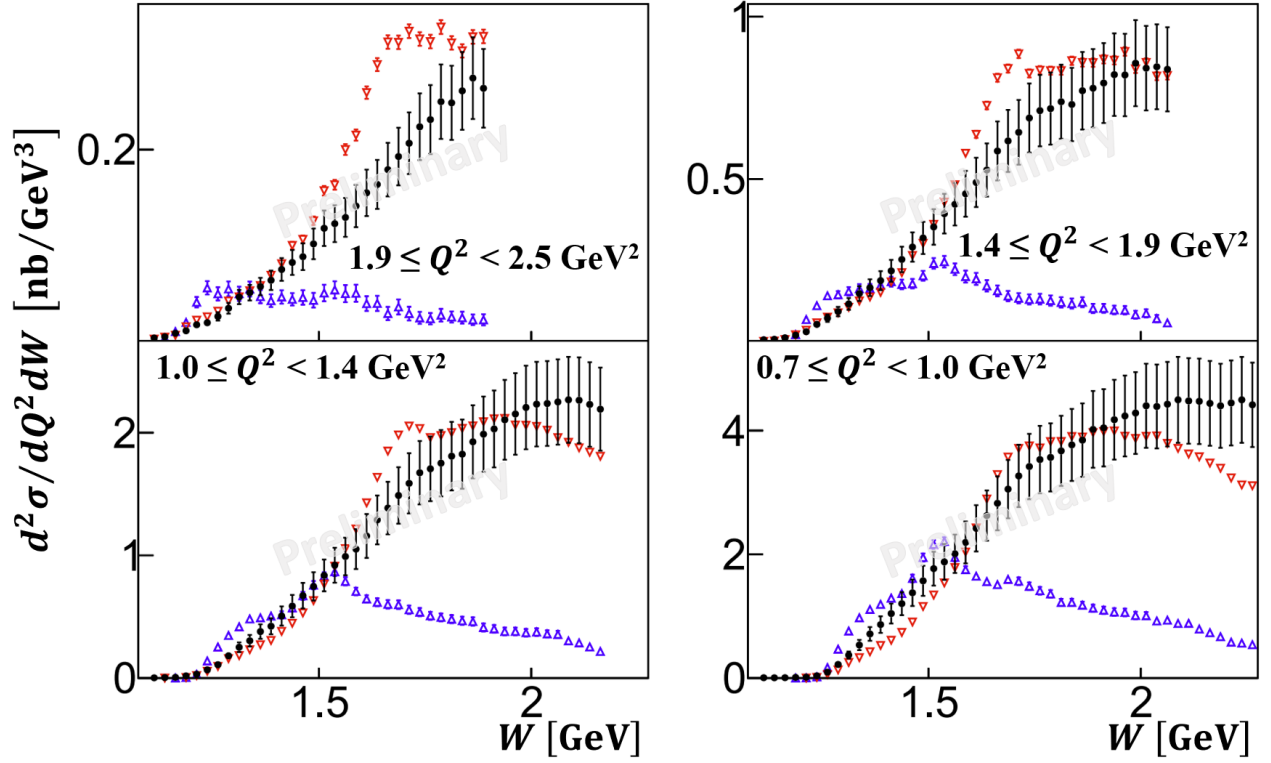


FIG. 76. 2D $d(e, e'\pi^-)$ non-AC cross sections as a function of W binned in Q^2 and integrated over all $\theta_{\pi q}$ and P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

7.3.2 3D Binning

For the 3D binning schemes, we looked at the same non-AC cross sections as in the 2D bins but further binned in either $\theta_{\pi q}$ or P_π . Again, we looked at $d(e, e'\pi^+)$ and $d(e, e'\pi^-)$ separately. We integrated over P_π for binning in Q^2 and $\theta_{\pi q}$, and we integrated over $\theta_{\pi q}$ for binning in Q^2 and P_π . In each figure, the Q^2 of the bin increases from bottom to top while $\theta_{\pi q}$ or P_π increases from left to right.

For $d(e, e'\pi^+)$ non-AC cross sections binned in Q^2 and $\theta_{\pi q}$ (Fig. 77), we found that data and GENIE have good agreement, especially at low Q^2 and $\theta_{\pi q} < 22^\circ$, while they greatly disagree at $32^\circ \leq \theta_{\pi q} < 46^\circ$. For $0^\circ \leq \theta_{\pi q} < 12^\circ$, GENIE agrees well with the data at low Q^2 . As Q^2 increases, it disagrees more above $W = 1.5 \text{ GeV}/c^2$. For $12^\circ \leq \theta_{\pi q} < 22^\circ$, GENIE agrees with data well below $W = 1.9 \text{ GeV}/c^2$ at low Q^2 ; GENIE underpredicts above $W = 1.9 \text{ GeV}/c^2$. As Q^2 increases, agreement improves until the highest Q^2 bin where GENIE slightly overpredicts between $W = 1.5\text{-}1.7 \text{ GeV}/c^2$. These same effects are more apparent in the $22^\circ \leq \theta_{\pi q} < 32^\circ$ bins. Here, the high W underprediction at low Q^2 and the overprediction between $W = 1.4\text{-}1.8 \text{ GeV}/c^2$ at high Q^2 is worse. At $32^\circ \leq \theta_{\pi q} < 46^\circ$, the GENIE shape no longer matches the data with an overpredicting peak between $W = 1.6\text{-}1.7 \text{ GeV}/c^2$ and underpredictions for $W > 1.9 \text{ GeV}/c^2$.

For $d(e, e'\pi^-)$ (Fig. 78), we found that data and GENIE have less agreement than in $d(e, e'\pi^+)$. Again, GENIE predicts a peak around $W = 1.6\text{-}1.7 \text{ GeV}/c^2$ that is not in the data. Other than this peak, the $d(e, e'\pi^-)$ results largely follow the $d(e, e'\pi^+)$ results. One additional difference is an underprediction below $W = 1.6 \text{ GeV}/c^2$ for low Q^2 and $0^\circ \leq \theta_{\pi q} < 12^\circ$.

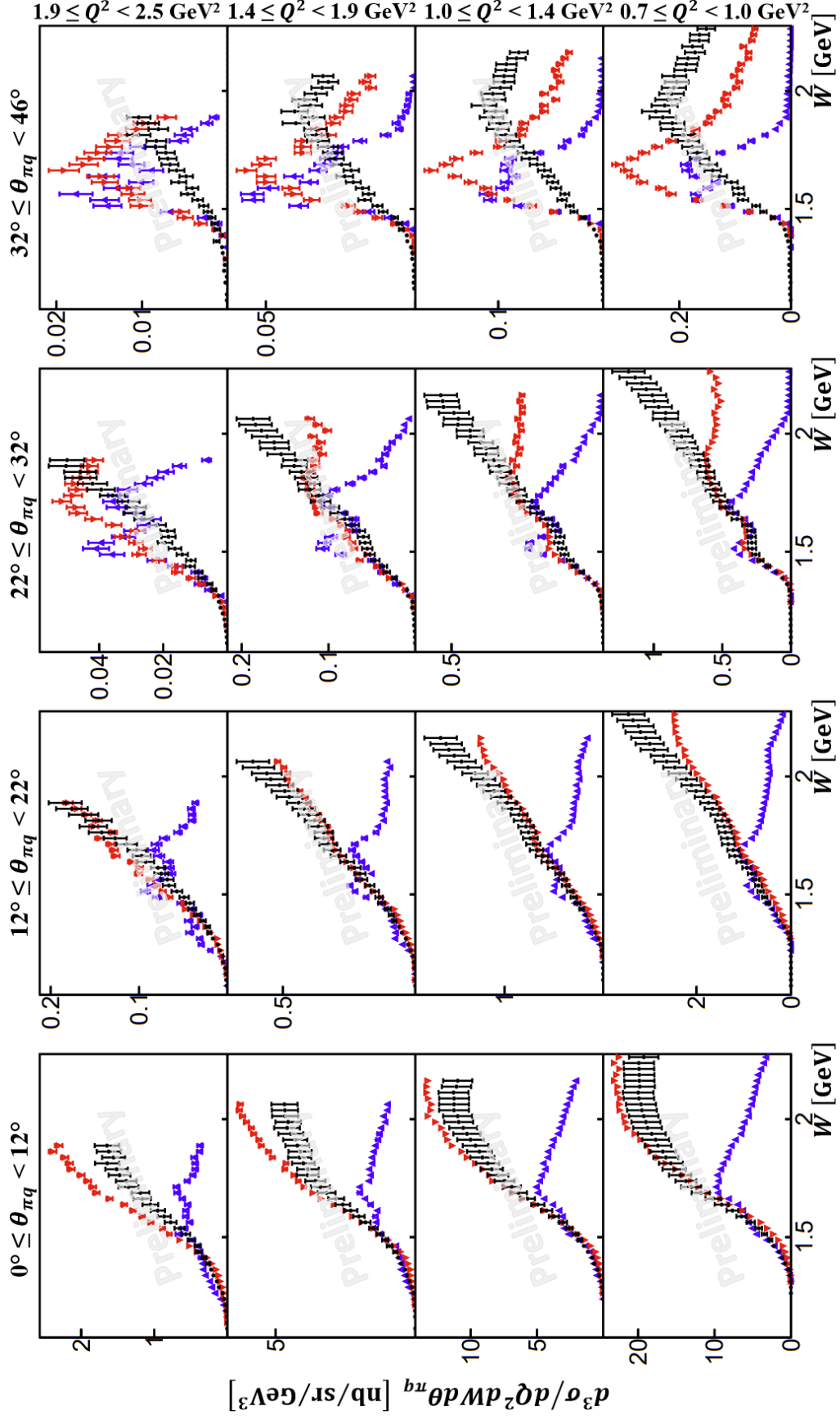


FIG. 77. 3D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and $\theta_{\pi q}$ and integrated over all P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepion. Data error bars include statistical and systematic uncertainties.

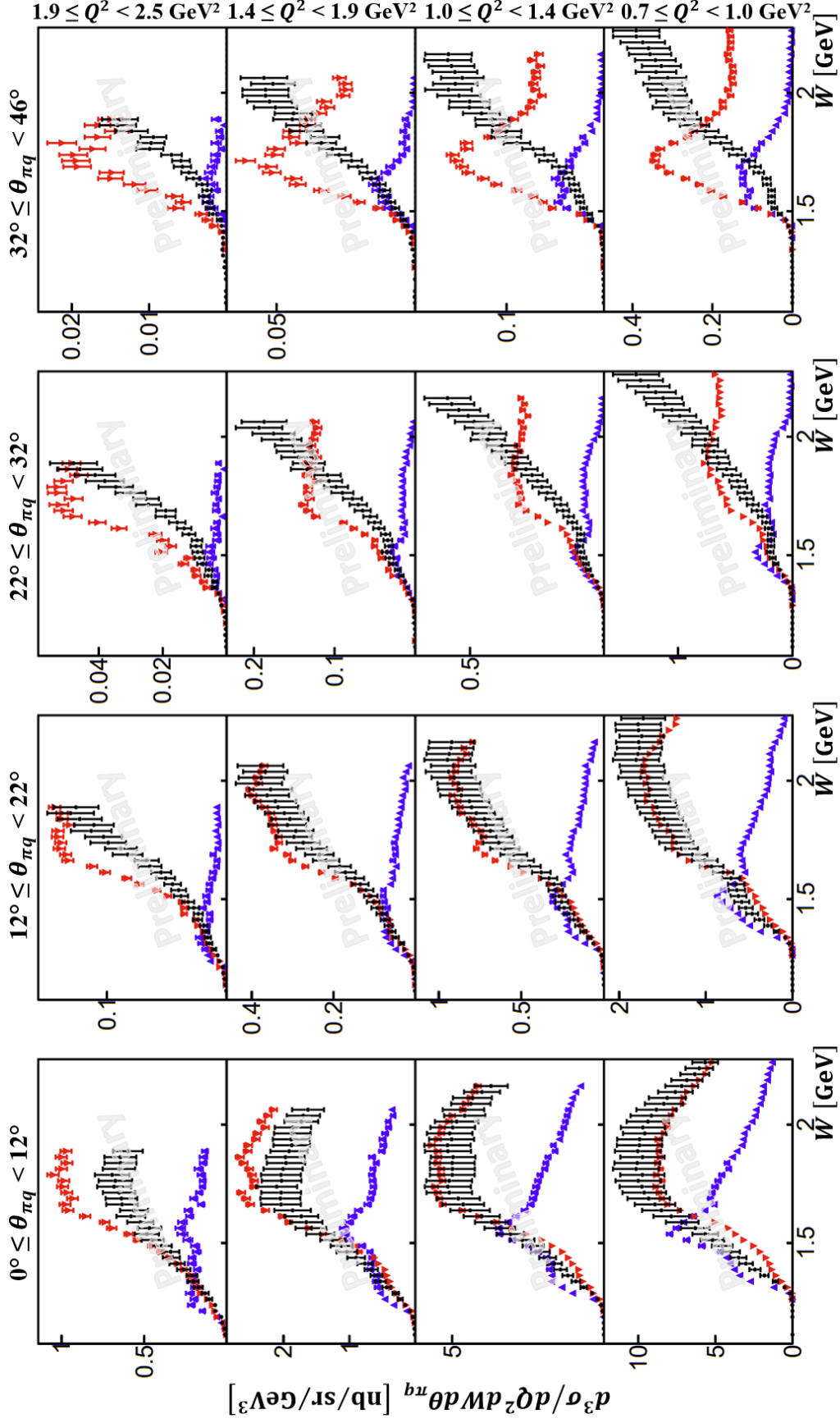


FIG. 78. 3D $d(e, e' \pi^-)$ non-AC cross sections as a function of W binned in Q^2 and $\theta_{\pi q}$ and integrated over all P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepion. Data error bars include statistical and systematic uncertainties.

For $d(e, e'\pi^+)$ non-AC cross sections binned in Q^2 and P_π (Fig. 79), we found that GENIE does not agree with the data very well except at some of the middle and high Q^2 and middle P_π bins. For $0.7 \leq P_\pi < 1.0$ GeV/ c , GENIE agrees well with the data at low Q^2 with overpredictions between $W = 1.5$ - 2.0 GeV/ c^2 and some slight underpredictions below. As Q^2 increases, low W agrees more but high W overpredicts more. For $1.0 \leq P_\pi < 1.5$ GeV/ c , GENIE largely agrees with data in the middle Q^2 bins with some under and overpredictions. At low Q^2 , GENIE underpredicts between $W = 1.5$ - 1.7 GeV/ c^2 . At high Q^2 , GENIE overpredicts for $W > 1.6$ GeV/ c^2 . For $1.5 \leq P_\pi < 2.2$ GeV/ c , GENIE has excellent agreement in $1.9 \leq Q^2 < 2.5$ GeV 2 but underpredicts as Q^2 decreases. At $2.2 \leq P_\pi < 2.7$ GeV/ c , GENIE underpredicts the data.

For $d(e, e'\pi^-)$ (Fig. 80), we found that GENIE has little agreement with the data except in a few bins. For $0.7 \leq P_\pi < 1.0$ GeV/ c , GENIE fits a peak just below $W = 1.5$ GeV/ c^2 at high Q^2 , but as Q^2 decreases, GENIE underpredicts it. As before, GENIE predicts a peak around $W = 1.6$ - 1.7 GeV/ c^2 not seen in data. All these plots show GENIE underpredicting at $W > 1.9$ GeV/ c^2 . For $1.0 \leq P_\pi < 1.5$ GeV/ c , GENIE largely agrees with data in $0.7 \leq Q^2 < 1.0$ GeV 2 with some underpredictions. As Q^2 increases, GENIE improves apart from the peak at $W = 1.6$ - 1.7 GeV/ c^2 . For $1.5 \leq P_\pi < 2.2$ GeV/ c , GENIE has excellent agreement below $Q^2 = 1.4$ GeV 2 but overpredicts above. At $2.2 \leq P_\pi < 2.7$ GeV/ c , GENIE underpredicts the data below $Q^2 = 1.4$ GeV 2 but somewhat matches the few events at higher Q^2 .

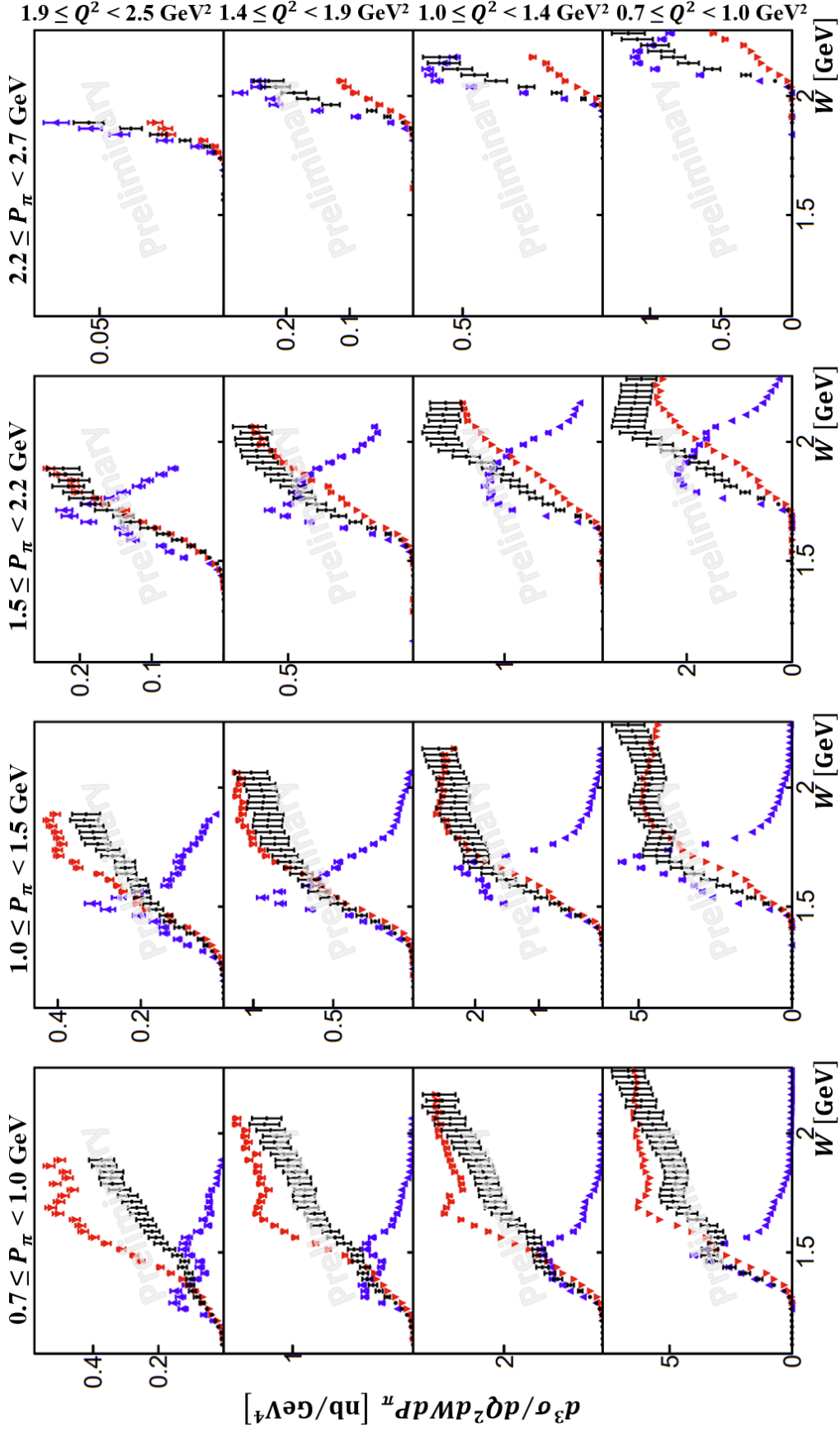


FIG. 79. 3D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and P_π and integrated over all $\theta_{\pi q}$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

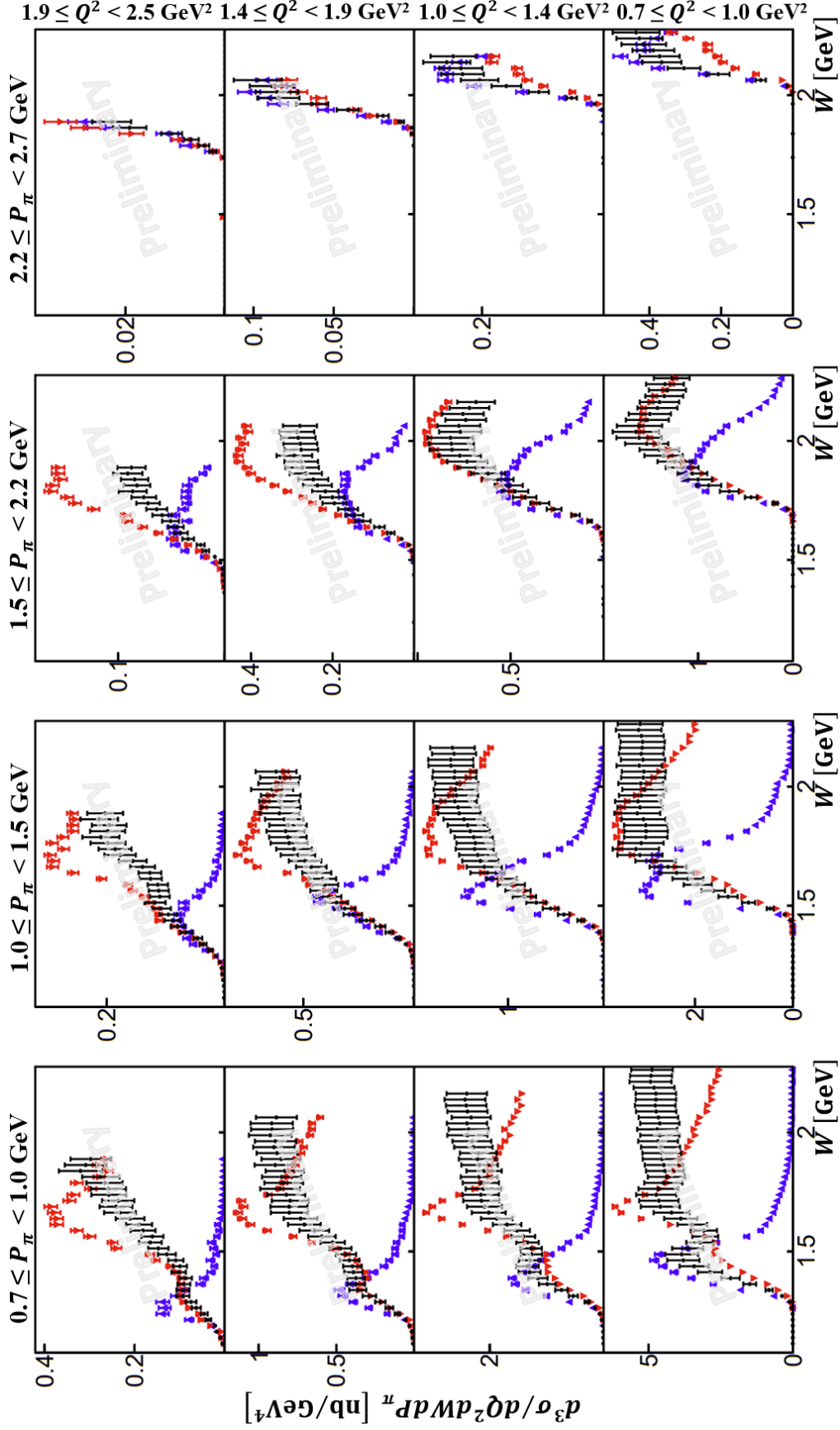


FIG. 80. 3D $d(e, e'\pi^-)$ non-AC cross sections as a function of W binned in Q^2 and P_π and integrated over all $\theta_{\pi q}$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

7.3.3 4D Binning

Positive Pion Production

For π^+ , the quality of GENIE predictions vary depending on $\theta_{\pi q}$ and P_π for a bin in Q^2 . For $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$ and $0^\circ \leq \theta_{\pi q} < 12^\circ$, GENIE overpredicts the non-AC cross section for $W > 1.6 \text{ GeV}/c^2$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$ (Fig. 81). For $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, the data non-AC cross section increases in magnitude while the GENIE non-AC cross section remains about the same. While the GENIE shape is fairly close, it peaks at slightly higher W than the data. GENIE underpredicts the peak near $W = 1.5 \text{ GeV}/c^2$. For $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, GENIE largely underpredicts the data. At the highest P_π bin ($2.2 \leq P_\pi < 2.7 \text{ GeV}/c$), GENIE underpredicts the data.

For $12^\circ \leq \theta_{\pi q} < 22^\circ$, GENIE predicts best at $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$ but underpredicts as P_π increases. At higher $\theta_{\pi q}$, GENIE overpredicts at lower W and underpredicts at higher W . GENIE predicts a prominent peak not seen in data around $W = 1.7 \text{ GeV}/c^2$ for $32^\circ \leq \theta_{\pi q} < 46^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$.

At $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, GENIE predictions improve in some bins and degrade in others (Fig. 82). This is due to GENIE non-AC cross sections shifting slightly higher relative to data non-AC cross sections, an effect that occurs as Q^2 increases. At $0^\circ \leq \theta_{\pi q} < 12^\circ$ and low P_π , GENIE predictions are above the data at higher W . GENIE underpredicts for $W < 1.5 \text{ GeV}/c^2$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$. For $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, GENIE and data nearly match below $W = 1.7 \text{ GeV}/c^2$. For $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, GENIE underpredicts below $W = 2.1 \text{ GeV}/c^2$ while it completely underpredicts data for $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$.

GENIE makes its best predictions at $12^\circ \leq \theta_{\pi q} < 22^\circ$ where it largely matches data for $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$ (with slight overpredictions for $1.5 < W < 2.0 \text{ GeV}/c^2$) and underpredicts as P_π increases. At higher $\theta_{\pi q}$, GENIE still overpredicts at lower W and underpredicts at higher W with a peak around $W = 1.7 \text{ GeV}/c^2$ not seen in data for $32^\circ \leq \theta_{\pi q} < 46^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$.

At $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, GENIE non-AC cross sections shift slightly higher to data, again affecting predictions (Fig. 83). At $0^\circ \leq \theta_{\pi q} < 12^\circ$ and low P_π , GENIE predictions are above the data at higher W . For $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, GENIE begins overpredicting just below $W = 1.5 \text{ GeV}/c^2$. For $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, GENIE predicts the data well below $W = 1.7 \text{ GeV}/c^2$ but overpredicts beyond. GENIE underpredicts as P_π increases.

GENIE's predictions at $12^\circ \leq \theta_{\pi q} < 22^\circ$ are starting to fit better at higher P_π , unlike it was for lower Q^2 . The slight overpredictions in $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$ increased slightly while

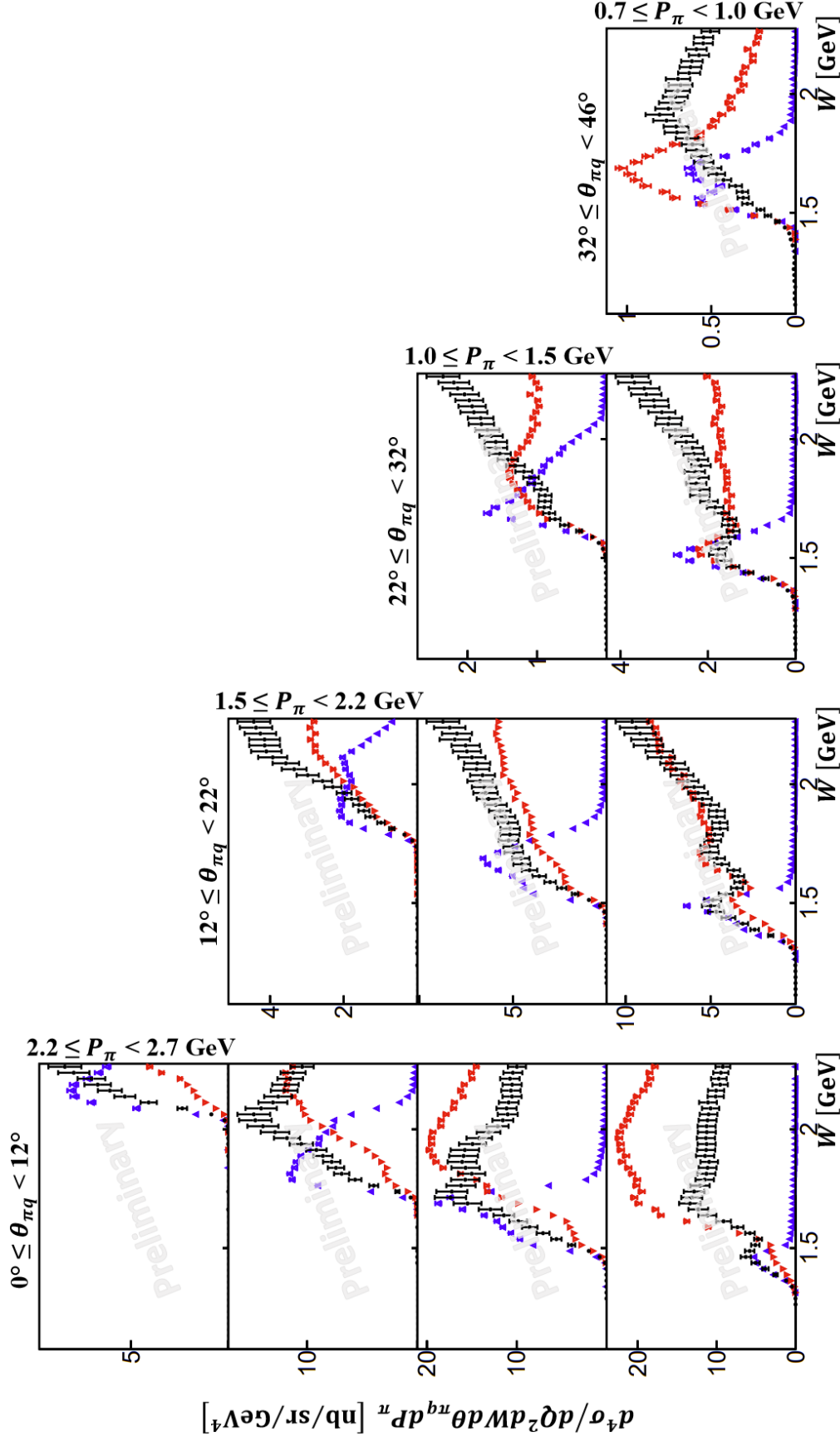


FIG. 81. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are one-pion exchange. Data error bars include statistical and systematic uncertainties.

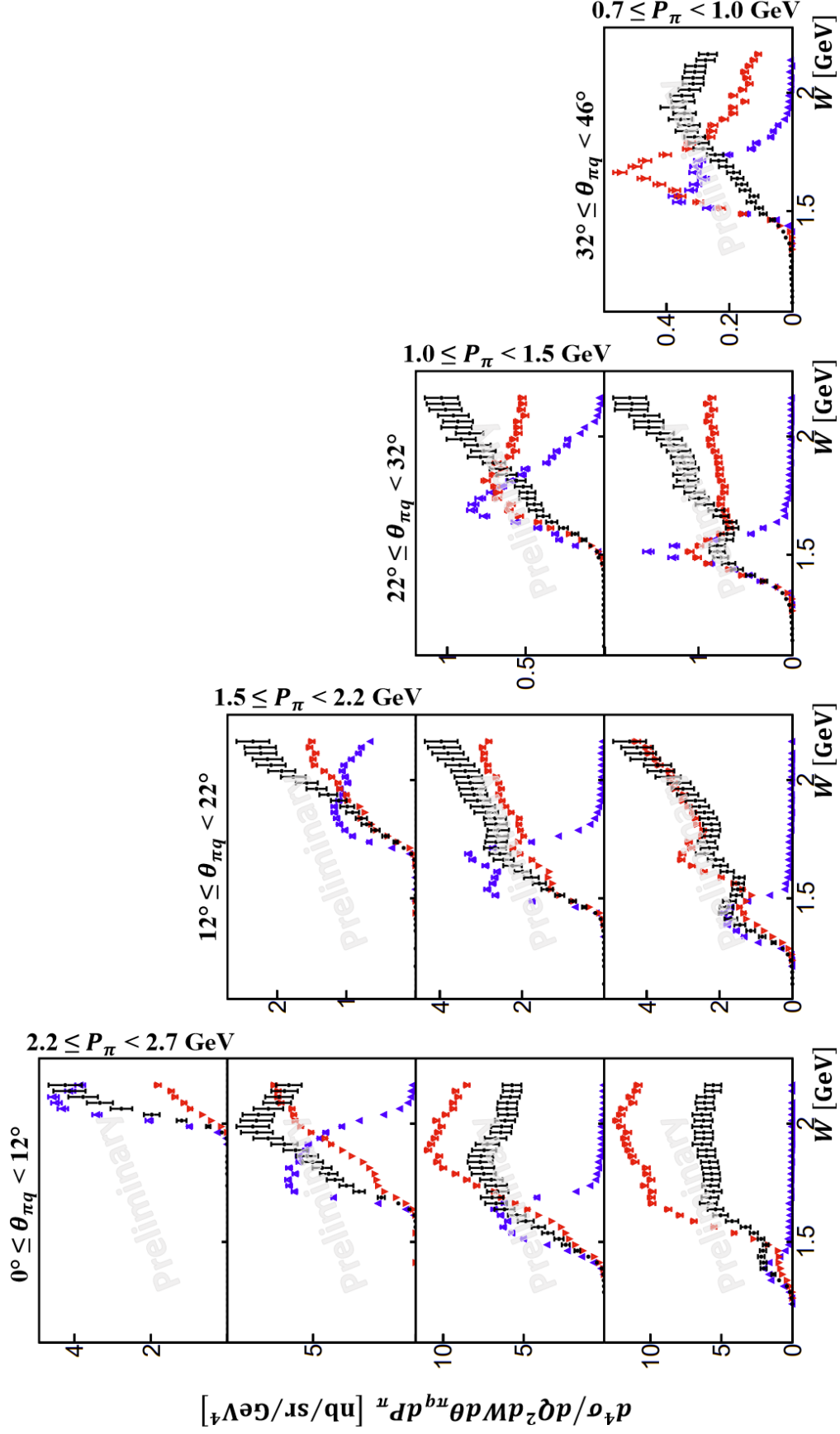


FIG. 82. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are one-pion. Data error bars include statistical and systematic uncertainties.

the predictions in $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$ are pretty close to the data. GENIE predictions in $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$ have improved slightly. At higher $\theta_{\pi q}$, GENIE predictions are much the same as in $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$.

At $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, GENIE non-AC cross sections shift high enough to change where GENIE best fits the data (Fig. 84). At $0^\circ \leq \theta_{\pi q} < 12^\circ$ and $P_\pi < 1.5 \text{ GeV}/c$, GENIE overpredicts for nearly all measured W . For $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, GENIE is slightly below the data while $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$ is GENIE further below.

GENIE's predictions at $12^\circ \leq \theta_{\pi q} < 22^\circ$ now have GENIE overpredicting in $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, fairly accurate in $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, and very good in $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$. At higher $\theta_{\pi q}$, GENIE predictions are higher than at lower Q^2 . It is interesting to note that onepigen predicts similar non-AC cross sections to GENIE, especially the peak around $W = 1.5 \text{ GeV}/c^2$ in $22^\circ \leq \theta_{\pi q} < 32^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$.

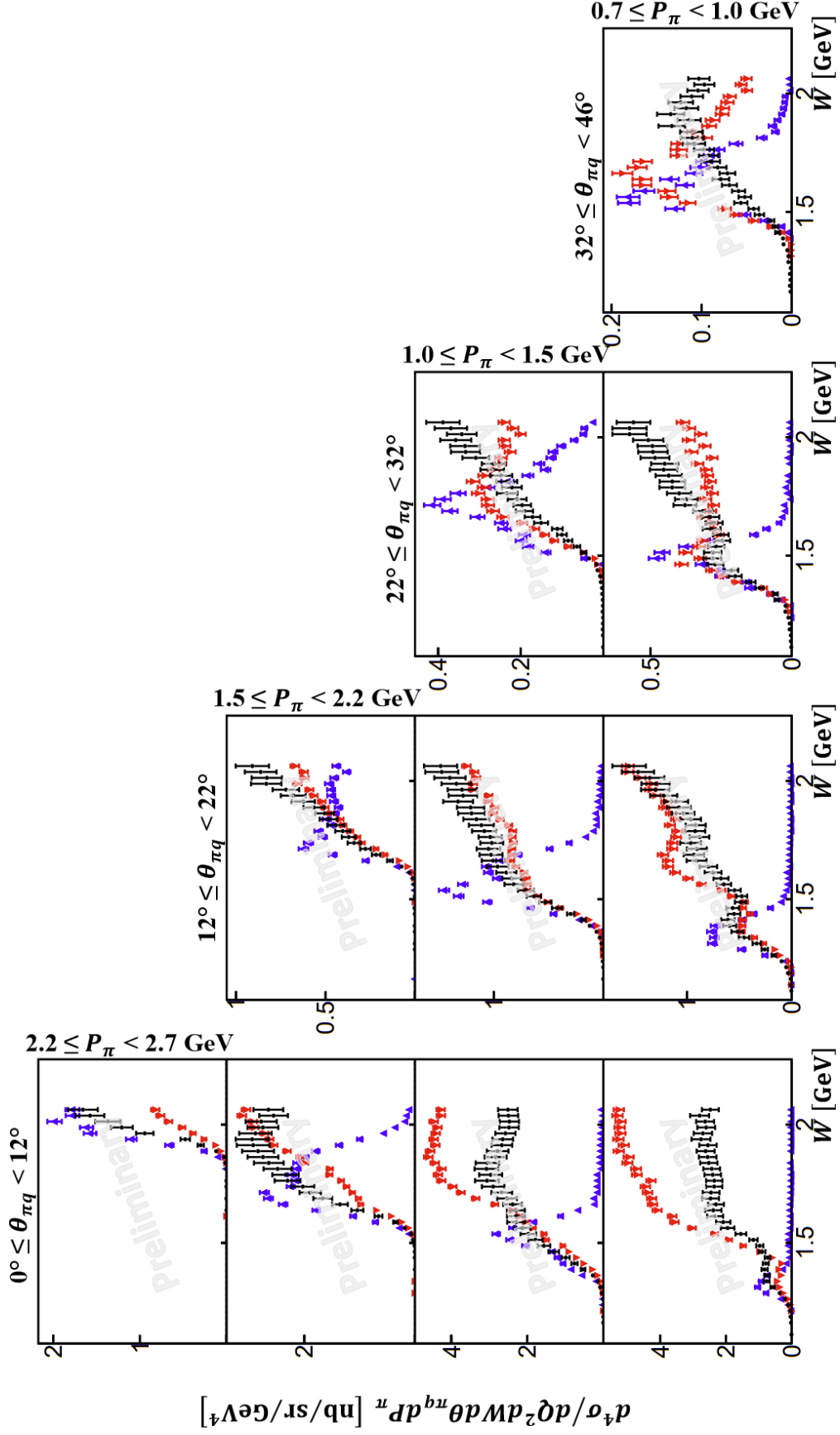


FIG. 83. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

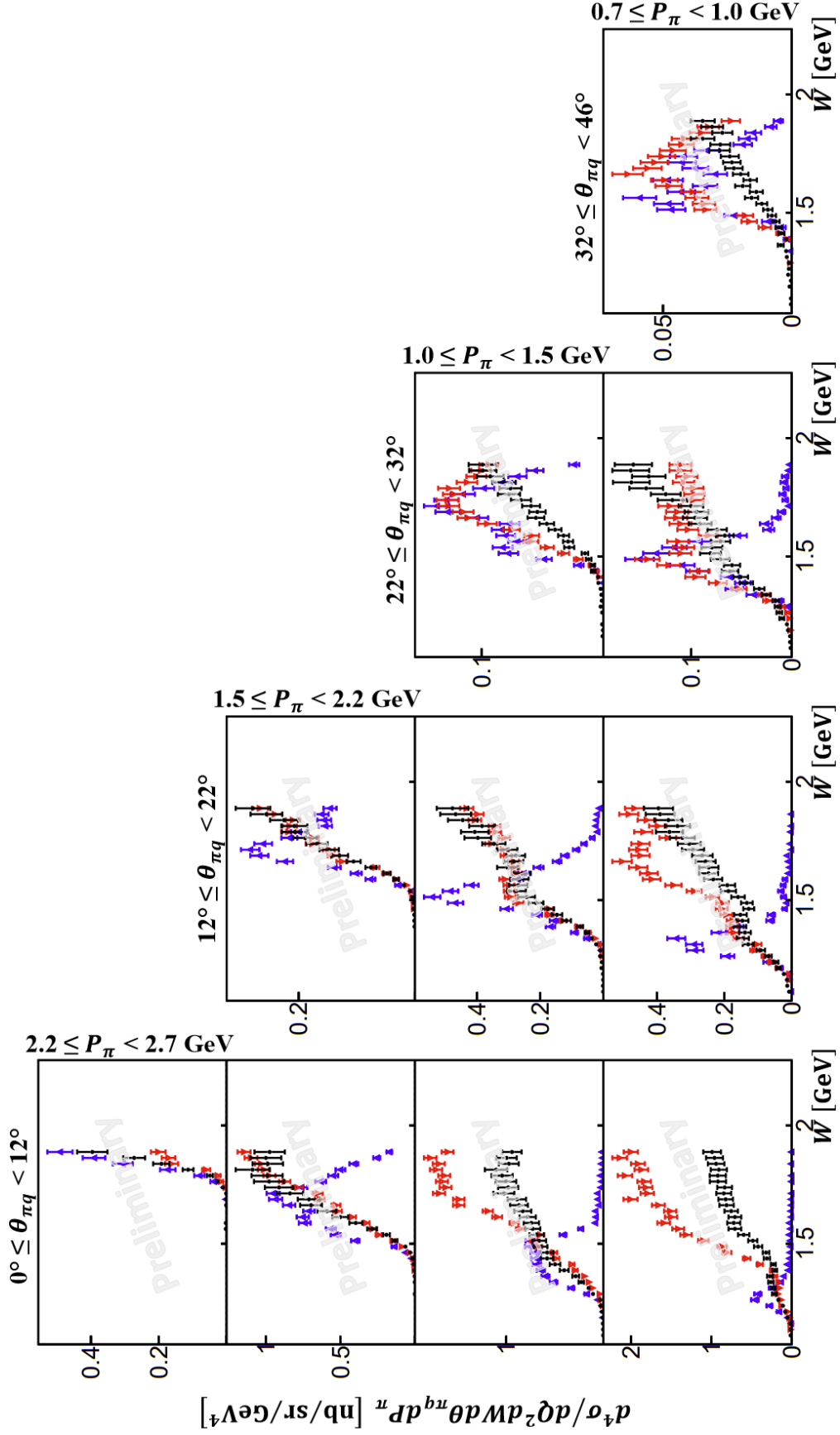


FIG. 84. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are one-pion. Data error bars include statistical and systematic uncertainties.

Negative Pion Production

For π^- , we found that GENIE's accuracy depends on $\theta_{\pi q}$ and P_π for a bin in Q^2 much as it does for π^+ ; however, the non-AC cross sections are significantly different. For $0.7 \leq Q^2 < 1.0$ GeV^2 and $0^\circ \leq \theta_{\pi q} < 12^\circ$, GENIE predicts the data fairly well for $0.7 \leq P_\pi < 1.0$ GeV/c (Fig. 85); its biggest problem is that it struggles with data peaks. It greatly underpredicts the first peak around $W = 1.4$ GeV/c^2 and slightly overpredicts the second around $W = 1.7$ GeV/c^2 . For $1.0 \leq P_\pi < 1.5$ GeV^2 , GENIE underpredicts the peak around $W = 1.7$ GeV/c^2 (with no peak at $W = 1.4$ GeV/c^2). GENIE starts to underpredict more as P_π increases.

For $12^\circ \leq \theta_{\pi q} < 22^\circ$ and $0.7 \leq P_\pi < 1.0$ GeV/c , GENIE underpredicts the first peak around $W = 1.4$ GeV/c^2 , peaks a bit too low in W for the second around $W = 1.7$ GeV/c^2 , and underpredicts as W increases. For $1.0 \leq P_\pi < 1.5$ GeV/c , GENIE fits well for $W < 1.8$ GeV/c^2 but underpredicts beyond. GENIE does not match the data for $1.5 \leq P_\pi < 2.2$ GeV/c . At $22^\circ \leq \theta_{\pi q} < 32^\circ$ and $0.7 \leq P_\pi < 1.0$ GeV/c , GENIE predicts fairly well for $W < 1.7$ GeV/c^2 but underpredicts beyond. In the remaining bins, GENIE predicts a prominent peak not seen in data around $W = 1.9$ GeV/c^2 ($22^\circ \leq \theta_{\pi q} < 32^\circ$, $1.0 \leq P_\pi < 1.5$ GeV/c) and $W = 1.7$ GeV/c^2 ($32^\circ \leq \theta_{\pi q} < 46^\circ$, $0.7 \leq P_\pi < 1.0$ GeV/c).

For $1.0 \leq Q^2 < 1.4$ GeV^2 and $0^\circ \leq \theta_{\pi q} < 12^\circ$, GENIE again predicts the data fairly well for $0.7 \leq P_\pi < 1.0$ GeV/c , but it underpredicts below $W = 1.55$ GeV/c^2 and overpredicts above (Fig. 86). While its underprediction of the peak around $W = 1.4$ GeV/c^2 has improved, its overprediction of the peak around $W = 1.7$ GeV/c^2 has increased. For $1.0 \leq P_\pi < 1.5$ GeV^2 , GENIE underpredicts for $W < 1.6$ GeV/c^2 and overpredicts $W > 1.7$ GeV/c^2 . For $1.5 \leq P_\pi < 2.2$ GeV^2 , GENIE nearly matches the data starts but still underpredicts in the region $1.7 < W < 2.0$ GeV/c^2 . GENIE underpredicts nearly all of $2.2 \leq P_\pi < 2.7$ GeV^2 .

For $12^\circ \leq \theta_{\pi q} < 22^\circ$ and $0.7 \leq P_\pi < 1.0$ GeV/c , GENIE predictions are the same as at lower Q^2 , but its underprediction of the peak around $W = 1.4$ GeV/c^2 has improved, it more apparently overpredicts a peak near $W = 1.7$ GeV/c^2 , and still underpredicts as W increases. For $1.0 \leq P_\pi < 1.5$ GeV/c , GENIE is slightly above data for $W < 1.8$ GeV/c^2 but still underpredicts beyond. GENIE overpredicts the data for $1.5 \leq P_\pi < 2.2$ GeV/c except at the lowest measured W . At $22^\circ \leq \theta_{\pi q} < 32^\circ$ and $0.7 \leq P_\pi < 1.0$ GeV/c , GENIE predicts $W < 1.7$ GeV/c^2 fairly well but underpredicts beyond. In the remaining bins, GENIE still predicts prominent peaks not seen in data around $W = 1.9$ GeV/c^2 ($22^\circ \leq \theta_{\pi q} < 32^\circ$, $1.0 \leq P_\pi < 1.5$ GeV/c) and $W = 1.7$ GeV/c^2 ($32^\circ \leq \theta_{\pi q} < 46^\circ$, $0.7 \leq P_\pi < 1.0$ GeV/c).

For $1.4 \leq Q^2 < 1.9$ GeV^2 and $0^\circ \leq \theta_{\pi q} < 12^\circ$, GENIE again predicts the data fairly well

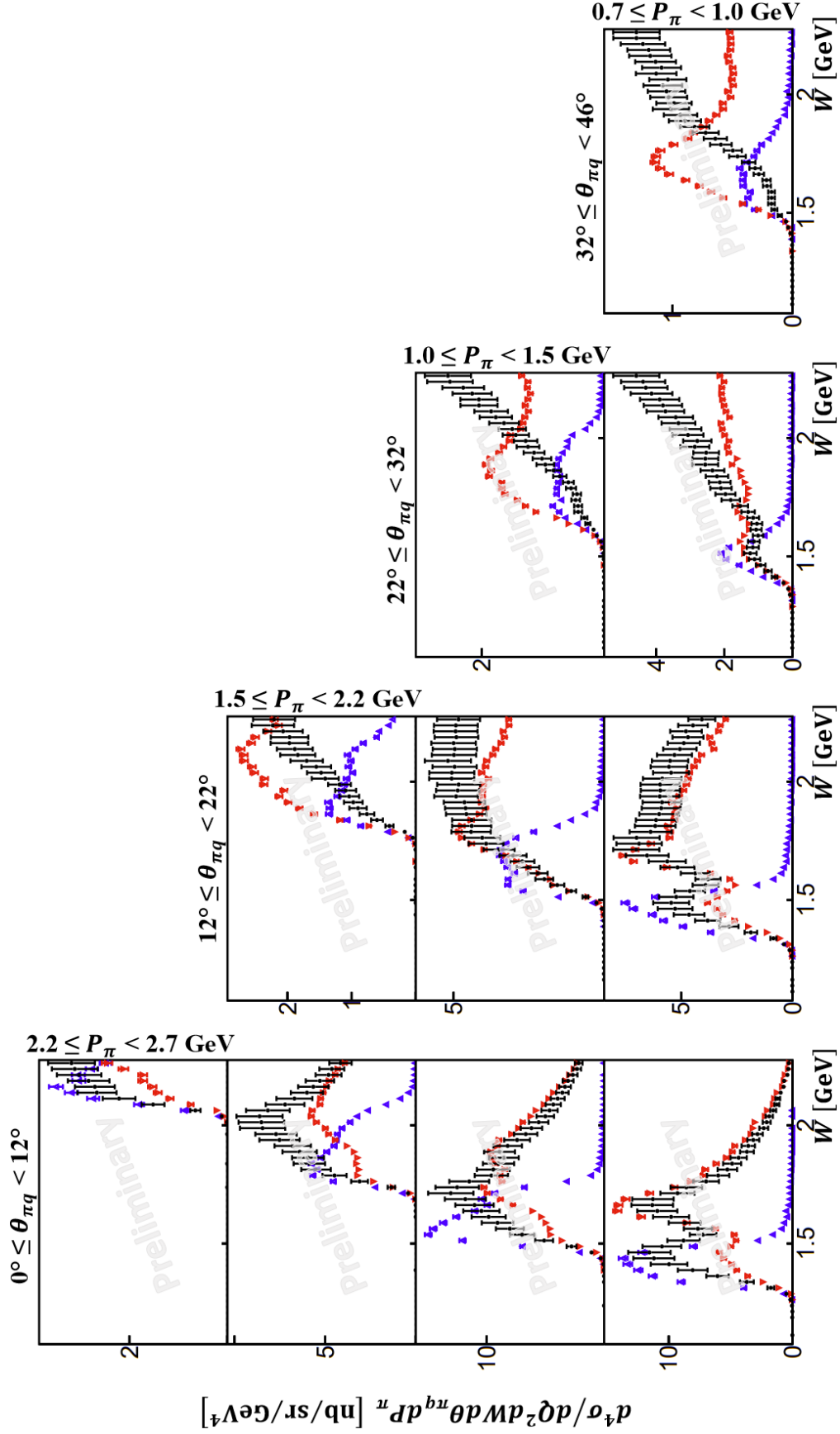


FIG. 85. 4D $d(e, e'\pi^-)$ non-AC cross sections as a function of W for $0.7 \leq Q^2 < 1.0$ GeV² (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

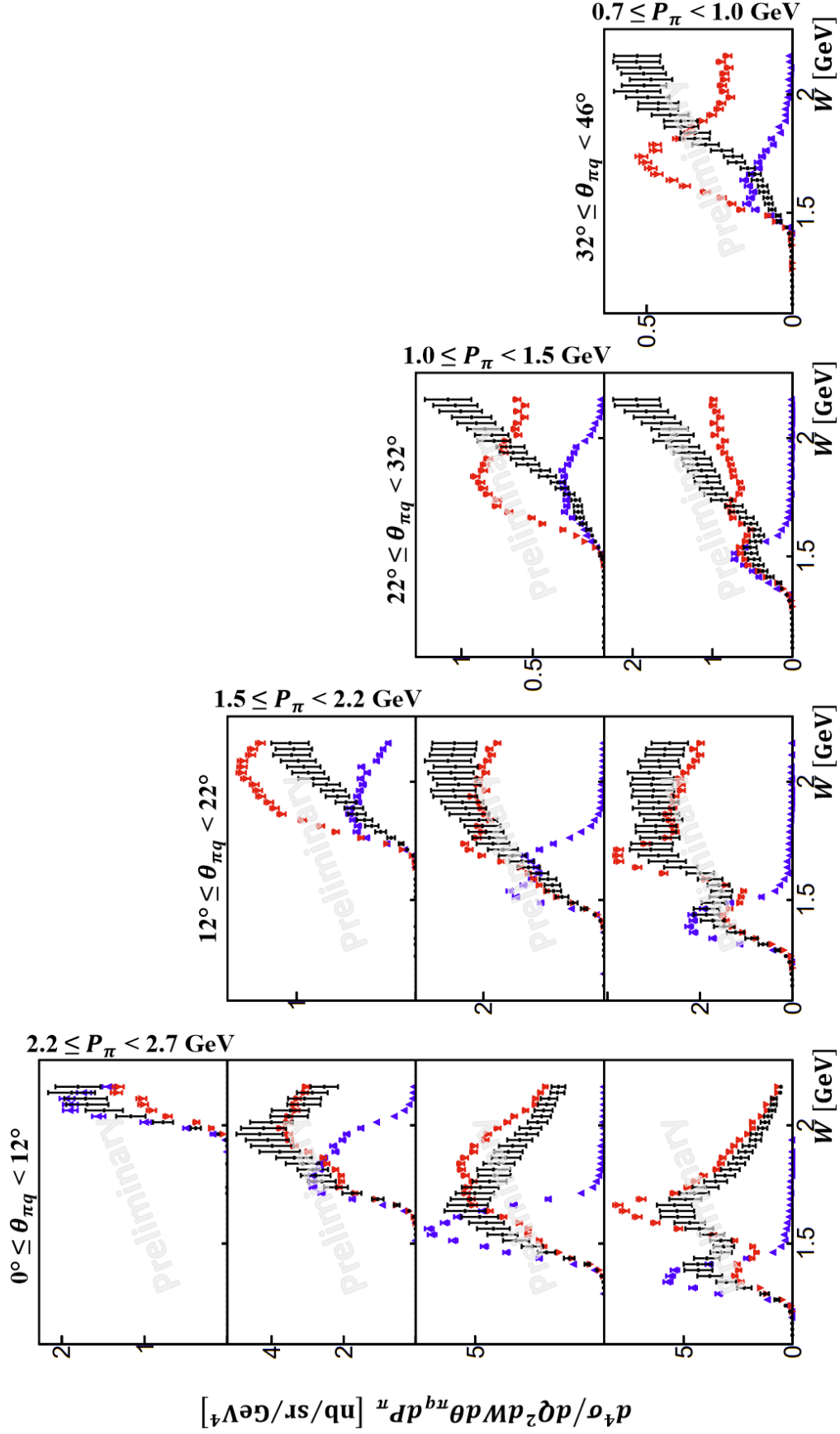


FIG. 86. 4D $d(e, e'\pi^-)$ non-AC cross sections as a function of W for $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$ (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

for $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, but it underpredicts $W < 1.5 \text{ GeV}/c^2$ and overpredicts $W > 1.6 \text{ GeV}/c^2$ (Fig. 87). Its overprediction of the $W = 1.7 \text{ GeV}/c^2$ peak is about the same as at $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$. For $1.0 \leq P_\pi < 1.5 \text{ GeV}^2$, GENIE overpredicts for $W > 1.6 \text{ GeV}/c^2$. For $1.5 \leq P_\pi < 2.2 \text{ GeV}^2$, GENIE matches the data until it overpredicts in the region $W > 1.8 \text{ GeV}/c^2$. GENIE mostly matches data in $2.2 \leq P_\pi < 2.7 \text{ GeV}^2$.

For $12^\circ \leq \theta_{\pi q} < 22^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, GENIE underpredictions have improved from $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$ while its overprediction of the (no longer visible in data) $W = 1.7 \text{ GeV}/c^2$ peak has slightly increased. For $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, GENIE is slightly above data for $1.5 < W < 1.8 \text{ GeV}/c^2$. GENIE overpredicts the data for $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$. At $22^\circ \leq \theta_{\pi q} < 32^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, GENIE slightly overpredicts $W < 1.7 \text{ GeV}/c^2$ and underpredicts beyond. In the remaining bins, GENIE still predicts peaks not seen in data around $W = 1.8 \text{ GeV}/c^2$ ($22^\circ \leq \theta_{\pi q} < 32^\circ$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$) and $W = 1.7 \text{ GeV}/c^2$ ($32^\circ \leq \theta_{\pi q} < 46^\circ$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

For $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$ and $0^\circ \leq \theta_{\pi q} < 12^\circ$, GENIE overpredicts the data for $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$ and $W > 1.5 \text{ GeV}/c^2$ (Fig. 88). For $1.0 \leq P_\pi < 1.5 \text{ GeV}^2$, GENIE overpredicts for $W > 1.6 \text{ GeV}/c^2$. GENIE overpredicts in higher P_π .

For $12^\circ \leq \theta_{\pi q} < 22^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, GENIE matches the data well but predicts a peak at $W = 1.7 \text{ GeV}/c^2$ not in data. For $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, GENIE is above data for $W < 1.8 \text{ GeV}/c^2$. GENIE overpredicts the data for $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$. At $22^\circ \leq \theta_{\pi q} < 32^\circ$ and $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, GENIE predictions are scattered. In the remaining bins, GENIE overpredicts data.

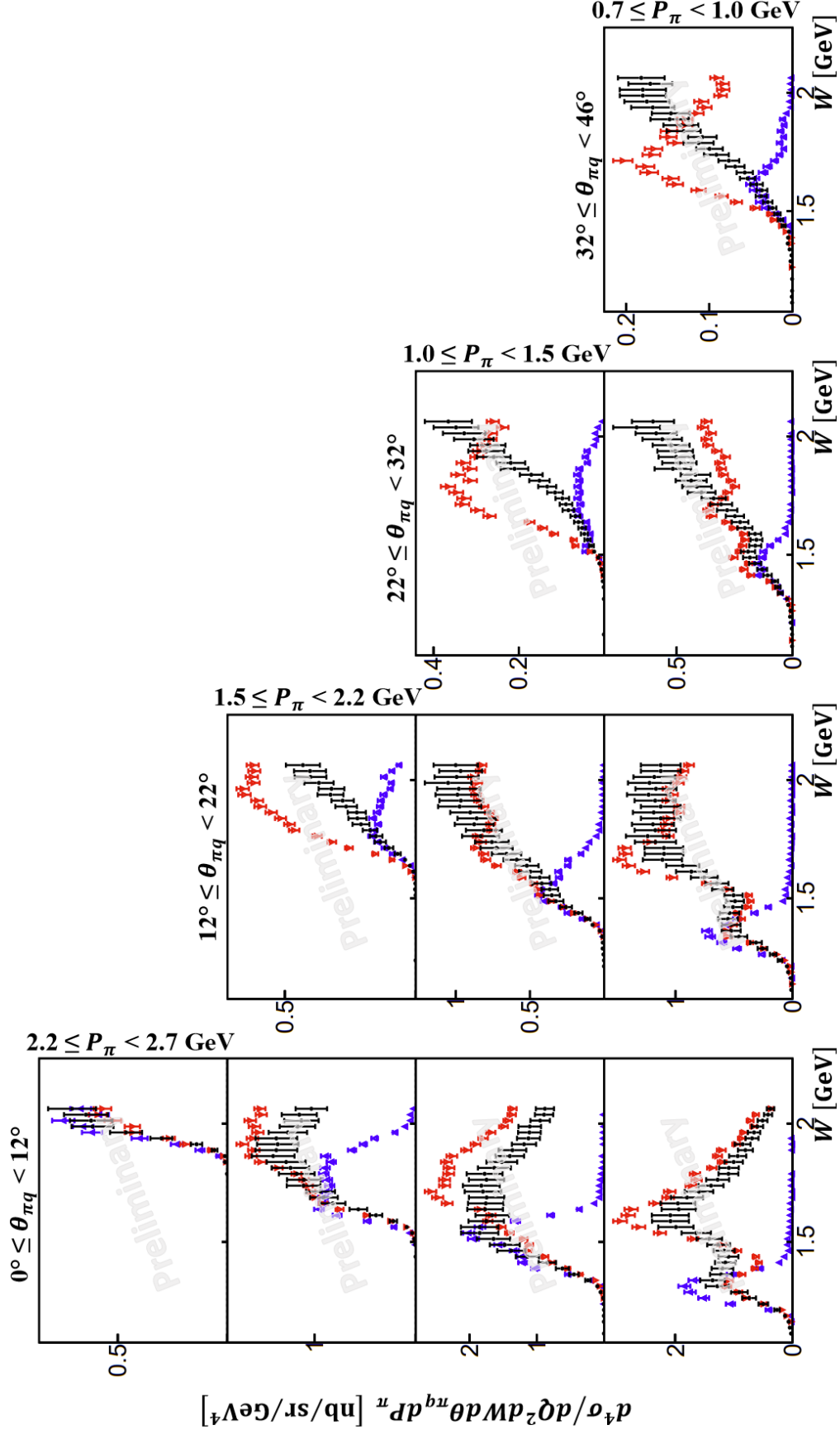


FIG. 87. 4D $d(e, e'\pi^-)$ non-AC cross sections as a function of W for $1.4 \leq Q^2 < 1.9$ GeV² (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are one-pion. Data error bars include statistical and systematic uncertainties.

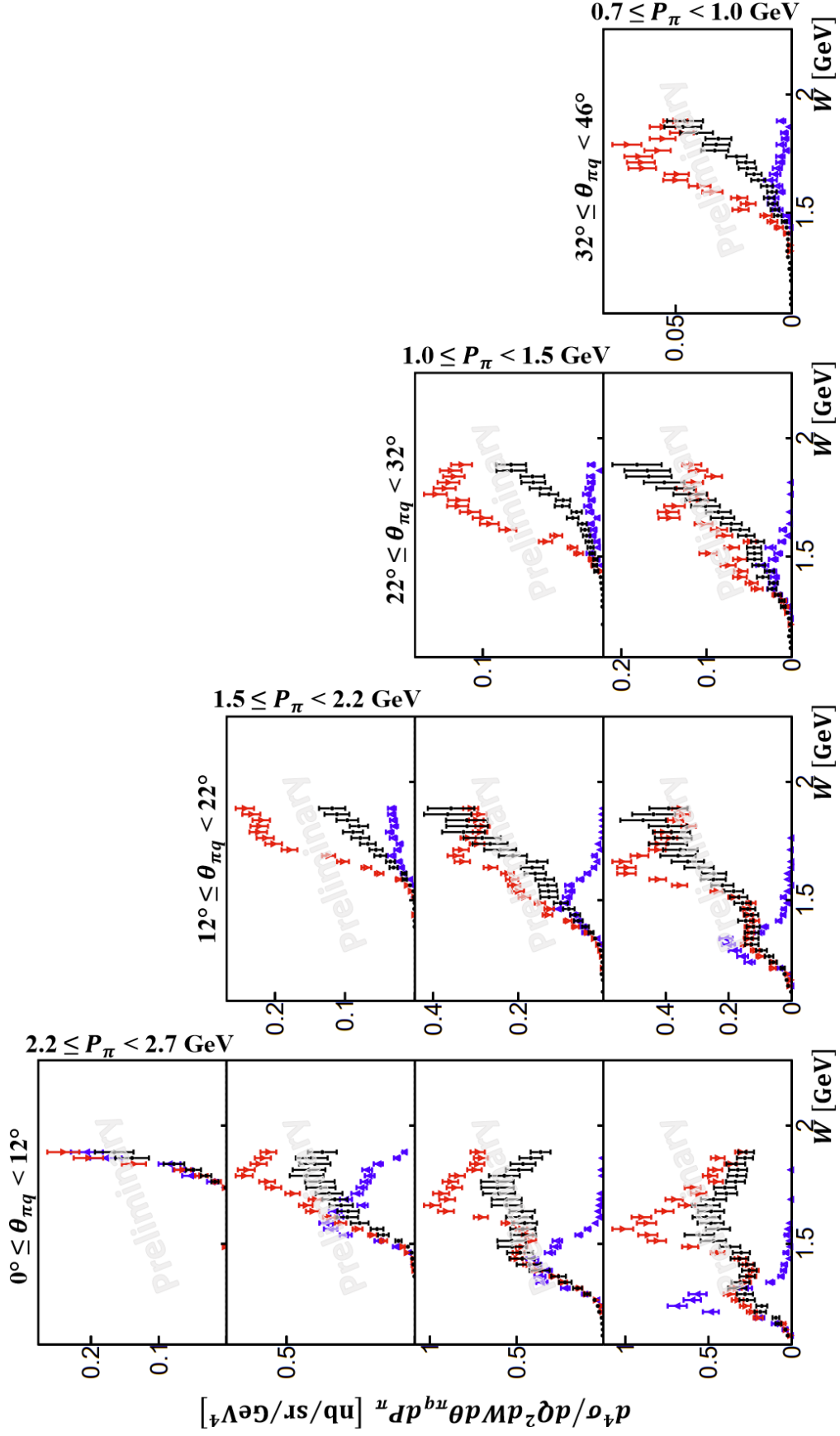


FIG. 88. 4D $d(e, e'\pi^-)$ non-AC cross sections as a function of W for $1.9 \leq Q^2 < 2.5$ GeV² (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

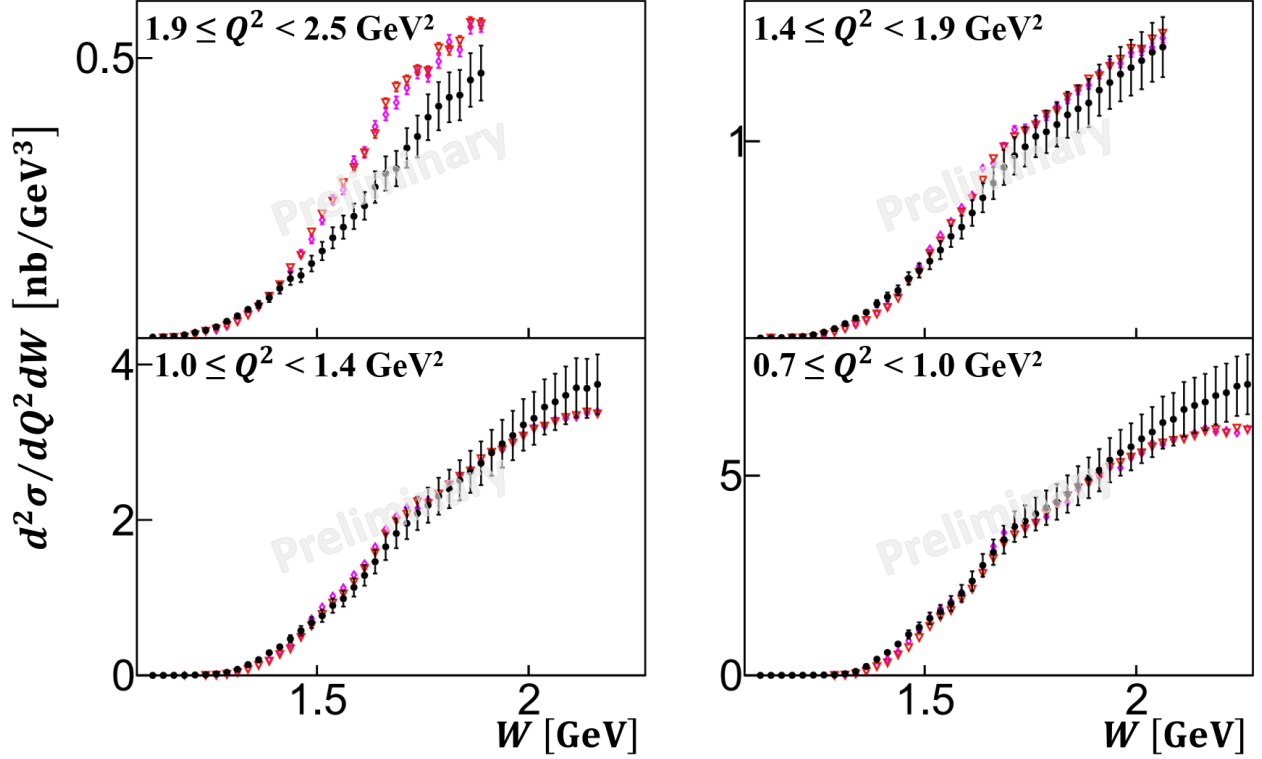


FIG. 89. 2D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and integrated over all $\theta_{\pi q}$ and P_π (with dipole and Rarita GENIE models). Black points are data, red inverted triangles are dipole GENIE events, and magenta diamonds are Rarita GENIE events. Data error bars include statistical and systematic uncertainties.

7.4 GENIE DIPOLE VS. RARITA MODEL

We compared data, GENIE with the dipole resonance model, and GENIE with the Rarita resonance model. The dipole and Rarita models predict almost identical non-AC cross sections, except at about $W \approx 1.7 \text{ GeV}/c^2$ where the Rarita model is slightly larger (see Figs. 89-91).

7.5 ALTERNATIVE BINNING AND CROSS SECTION TABLES

In addition to binning in $\theta_{\pi q}$, we also made plots with binning in Q^2 , θ_π , and P_π . While not the focus of our analysis, we included these plots in Appendix A. We have the tables with the non-AC cross section values for data, GENIE (dipole), and onepigen in Appendix B.

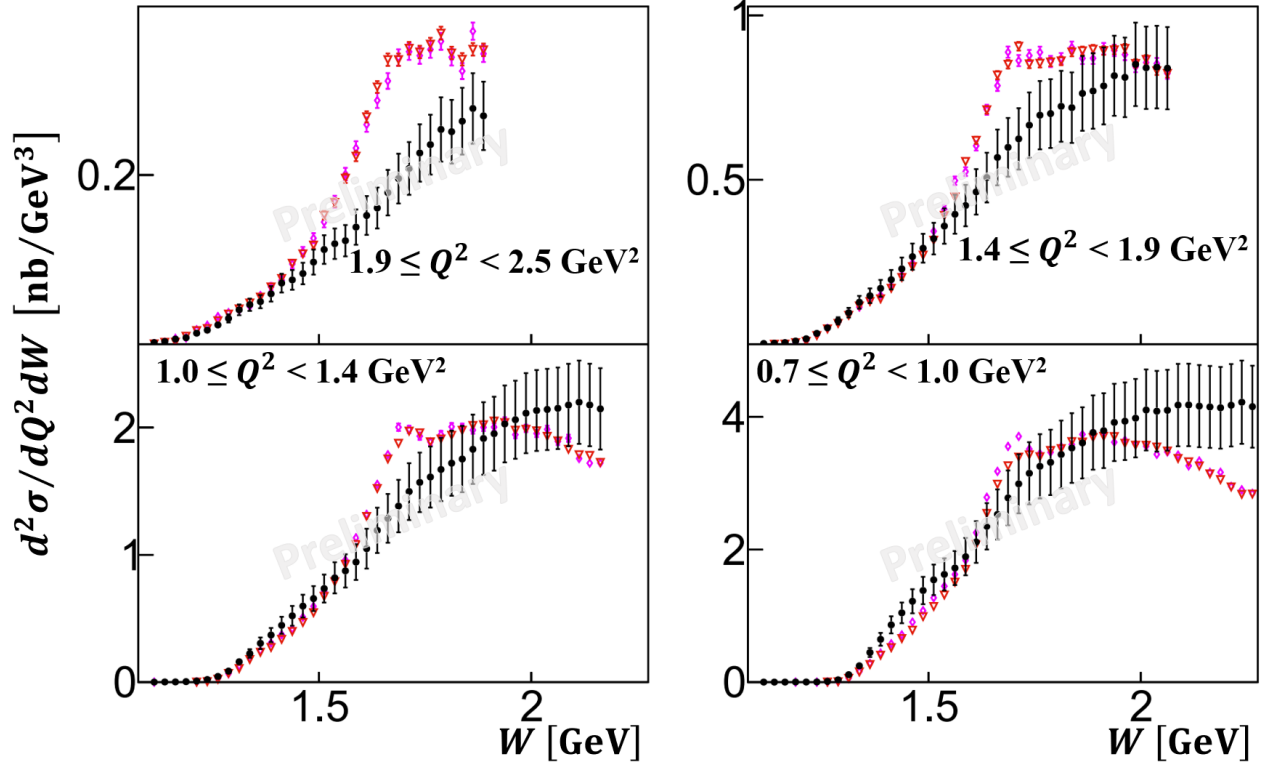


FIG. 90. 2D $d(e, e'\pi^-)$ non-AC cross sections as a function of W binned in Q^2 and integrated over all $\theta_{\pi q}$ and P_π (with dipole and Rarita GENIE models). Black points are data, red inverted triangles are dipole GENIE events, and magenta diamonds are Rarita GENIE events. Data error bars include statistical and systematic uncertainties.

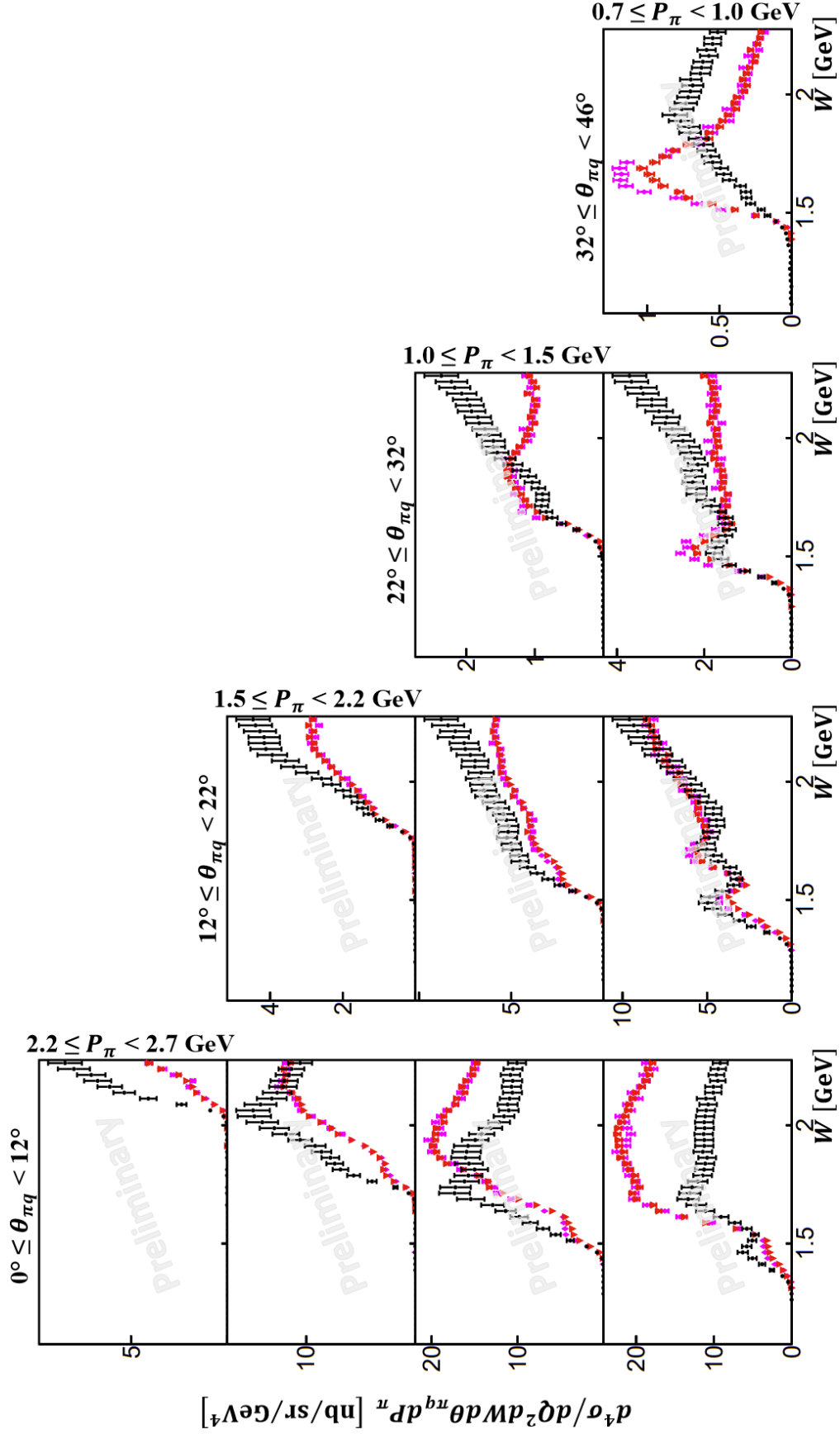


FIG. 91. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$ (with dipole and Rarita GENIE models). Black points are data, red inverted triangles are dipole GENIE events, and magenta diamonds are Rarita GENIE events. Data error bars include statistical and systematic uncertainties.

CHAPTER 8

CONCLUSIONS

We compared measured 4.244 GeV $d(e, e'\pi^\pm)$ non-acceptance-corrected cross sections to GENIE and how this depended on W , Q^2 , $\theta_{\pi q}$, and P_π for both π^+ and π^- . We found that GENIE's dipole and Rarita resonance models largely make the same predictions in these cross sections. As Q^2 increases, GENIE cross sections increase relative to data, but as P_π increases, GENIE cross sections decrease relative to data. The GENIE-data dependence on $\theta_{\pi q}$ is more complicated, but as $\theta_{\pi q}$ increases, GENIE cross sections increase at low W and decrease at high W relative to data.

While GENIE overpredicted the (e, e') data, especially in the resonance region, GENIE predicts the 2D bins in W and Q^2 remarkably well, agreeing best with data at low Q^2 . GENIE typically over predicts at high Q^2 , although at some high W regions GENIE predicts these cross sections fairly well. For $d(e, e'\pi^-)$, GENIE overpredicts greater at high Q^2 than $d(e, e'\pi^+)$.

In the 3D and 4D $d(e, e'\pi^+)$ bins, GENIE overpredicts at low $\theta_{\pi q}$ and P_π (where most of the events occur) and at high $\theta_{\pi q}$ for low W . GENIE predicts well for $\theta_{\pi q} < 32^\circ$, especially in bins of $12^\circ \leq \theta_{\pi q} < 22^\circ$. GENIE underpredicts both at high P_π and at high $\theta_{\pi q}$ for high W . It greatly disagrees with data in $32^\circ \leq \theta_{\pi q} < 46^\circ$ bins. GENIE agrees in P_π bins in only a few ranges, typically in moderate P_π . GENIE agrees best in $1.5 \leq P_\pi < 2.2$ GeV/ c for $1.9 \leq Q^2 < 2.5$ GeV².

In the 3D and 4D $d(e, e'\pi^-)$ bins, GENIE results are similar to $d(e, e'\pi^+)$ at high $\theta_{\pi q}$ but slightly different at low $\theta_{\pi q}$. GENIE best fits the data in bins of $0^\circ \leq \theta_{\pi q} < 12^\circ$ and $12^\circ \leq \theta_{\pi q} < 22^\circ$. GENIE $d(e, e'\pi^-)$ overpredictions in $0^\circ \leq \theta_{\pi q} < 12^\circ$ are relatively tame compared to $d(e, e'\pi^+)$. Unlike the underpredictions in $d(e, e'\pi^+)$, GENIE $d(e, e'\pi^-)$ has overpredictions for $12^\circ \leq \theta_{\pi q} < 22^\circ$, $1.5 \leq P_\pi < 2.2$ GeV/ c , and $0.7 \leq Q^2 < 1.0$ GeV². GENIE agrees best in $1.5 \leq P_\pi < 2.2$ GeV/ c for $Q^2 < 1.4$ GeV².

Overall, GENIE has performed better than expected in the 2D bins while it has issues with most of the 3D and 4D bins. While it produces peaks similar to the data, GENIE typically overpredicts the scale of them, especially in $d(e, e'\pi^-)$ bins. This suggests GENIE overpredicts N^* resonances. The e4 ν collaboration should consider improving GENIE RES models with $d(e, e'\pi^\pm)$ cross sections. This could reduce overpredictions of $d(e, e')$ cross sections in the pion production region.

Unfortunately, onepigen does not work as well as we expect. While it works well in $d(e, e')$ predictions where we expect it to, it does not describe the data well in the various kinematic bins for $d(e, e'\pi^\pm)$. The fact that it overpredicts peaks is particularly concerning.

To improve the experiment, the author has several suggestions. First, measuring $p(e, e'\pi)$ would have allowed us to normalize the experiment and reduce the normalization uncertainty. Second, the use of additional simulations for radiative corrections would allow for a better removal of radiative effects and reduce the overall uncertainty on the radiative corrections. New versions of GENIE will include effects for all kinematic regions and will allow more detailed and precise radiative corrections.

With these results, we can see how GENIE models predict $d(e, e'\pi^\pm)$ cross sections and how they compare to data. The e4 ν collaboration can use this data to tune GENIE parameters to make better predictions. By constraining $d(e, e'\pi^\pm)$ cross sections, the collaboration can better understand how to model $d(e, e')$ cross sections.

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APPENDIX A

ADDITIONAL PLOTS

A.1 ADDITIONAL RADIATIVE CORRECTION PLOTS

A.1.1 Positive Pion Production

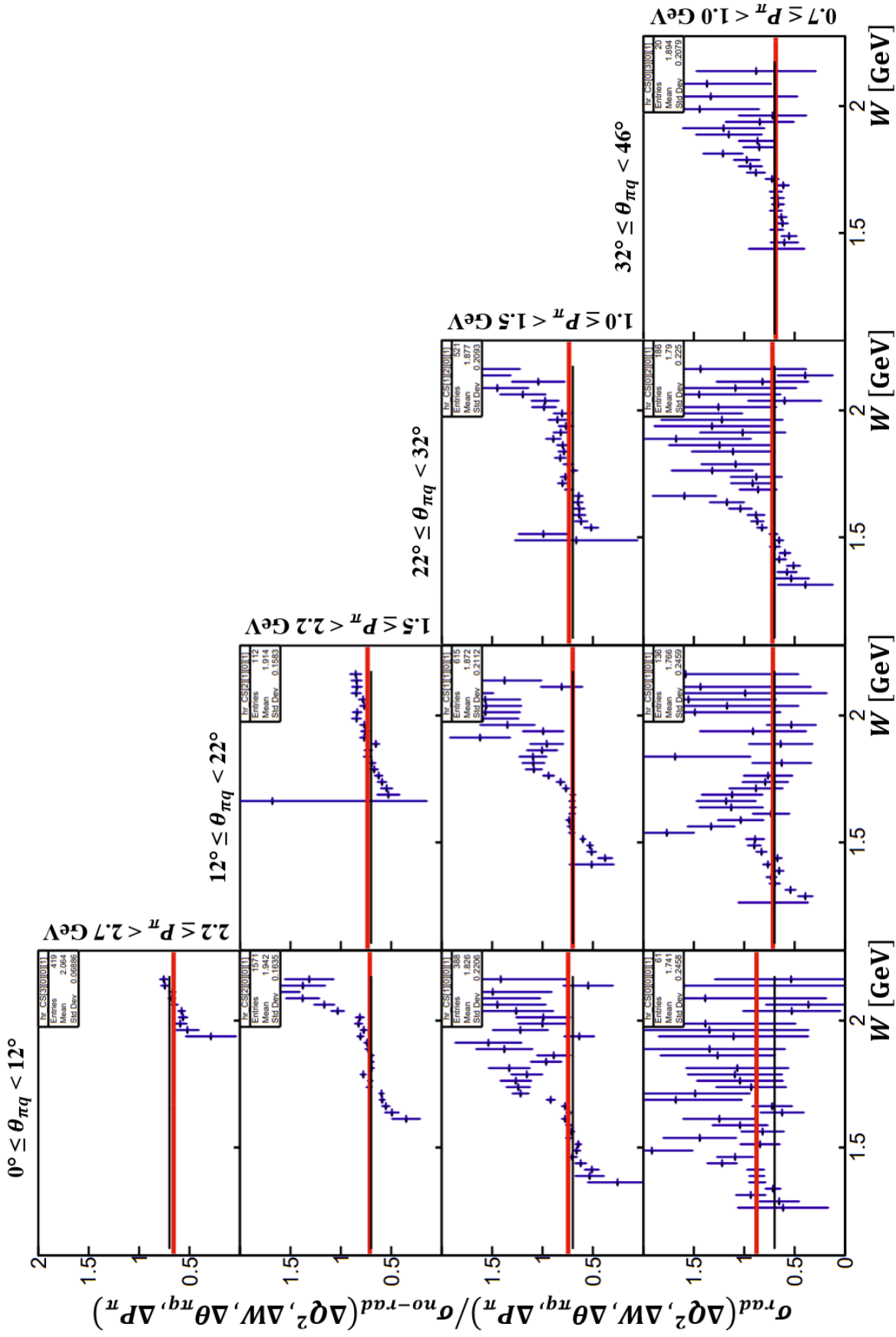


FIG. 92. Radiative over non-radiative event ratios as functions of W for $d(e, e'\pi^+)$ and $1.0 \leq Q^2 < 1.4$ GeV². The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

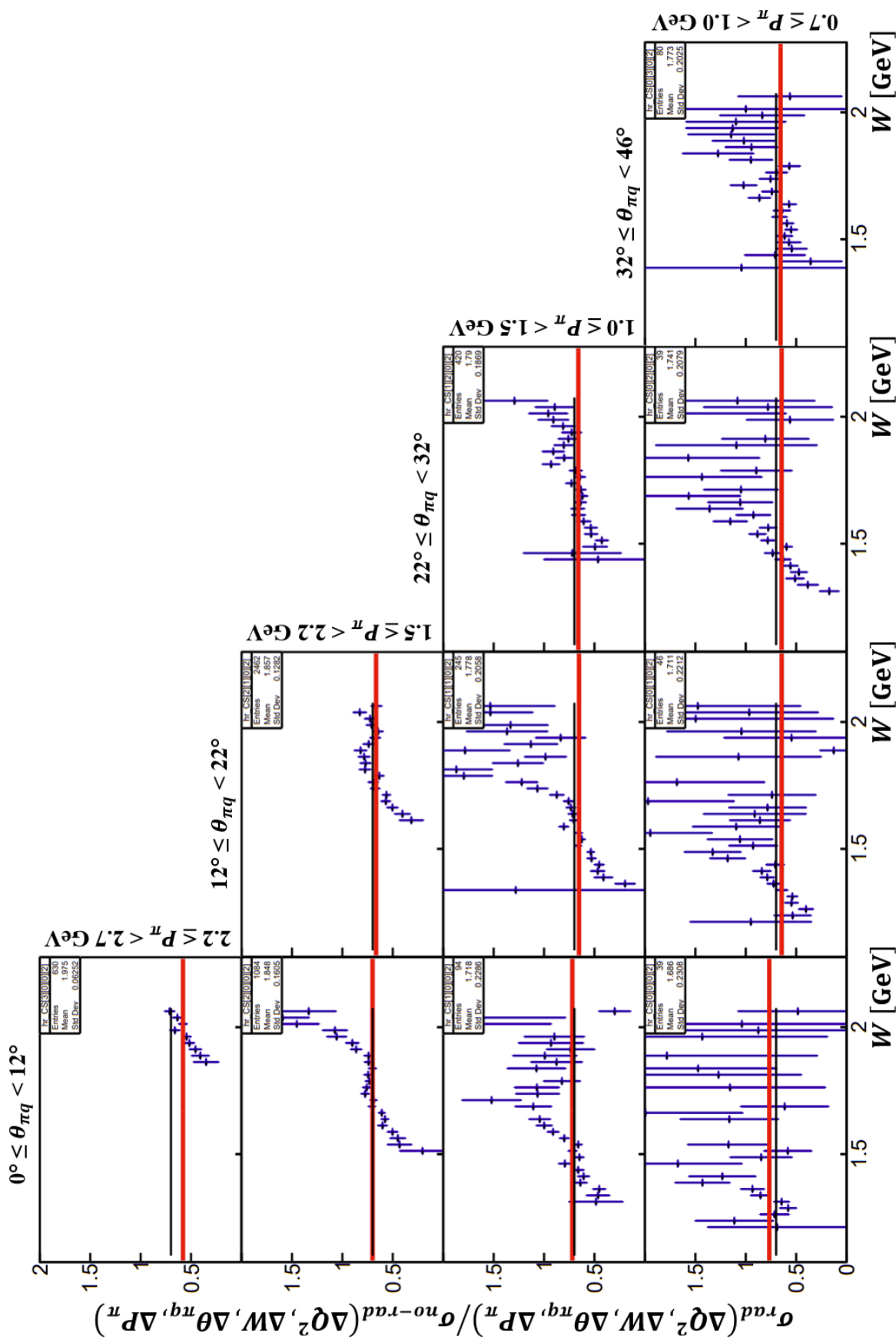


FIG. 93. Radiative over non-radiative event ratios as functions of W for $d(e, e'\pi^+)$ and $1.4 \leq Q^2 < 1.9$ GeV². The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

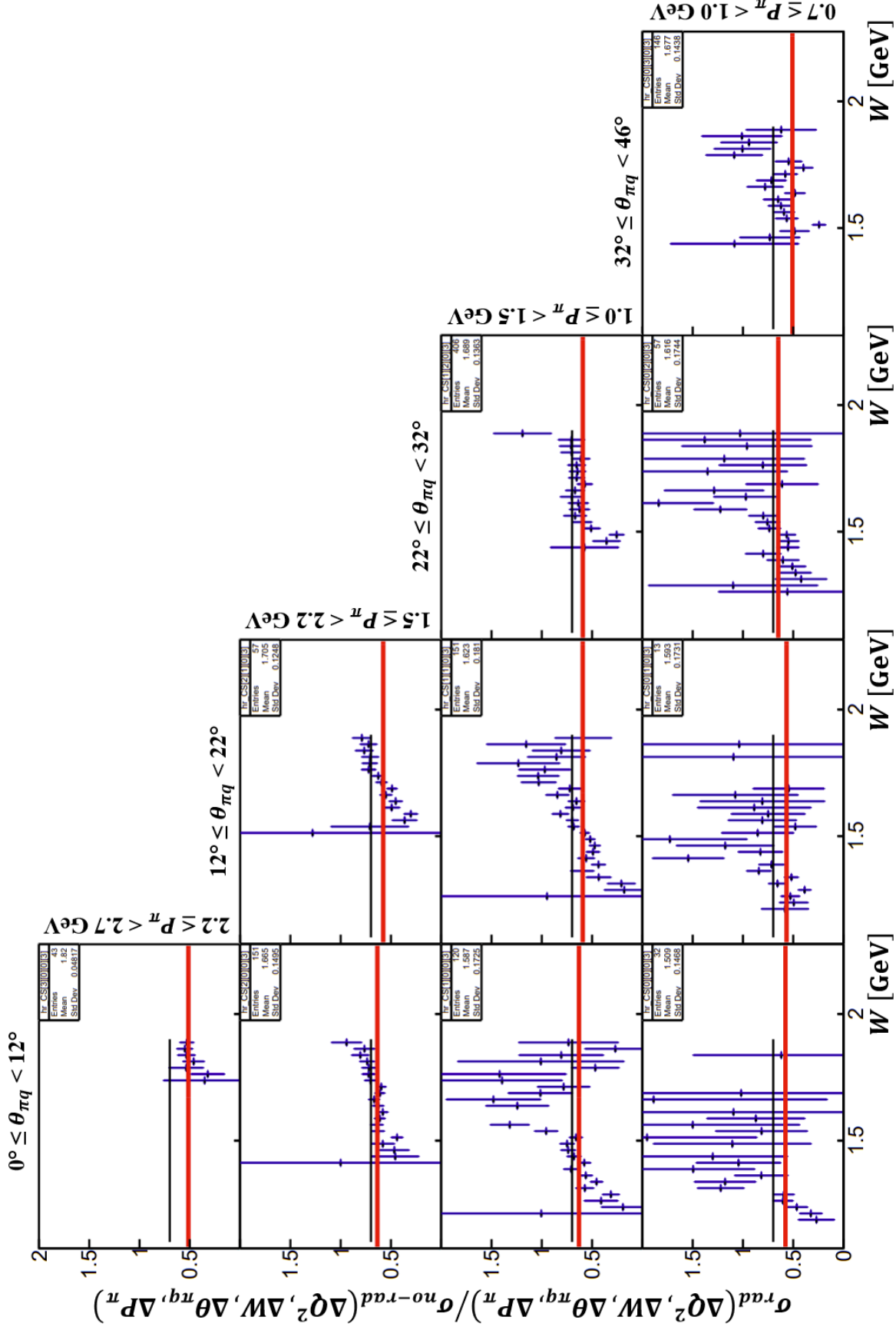


FIG. 94. Radiative over non-radiative event ratios as functions of W for $d(e, e'\pi^+)$ and $1.9 \leq Q^2 < 2.5$ GeV². The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

A.1.2 Negative Pion Production

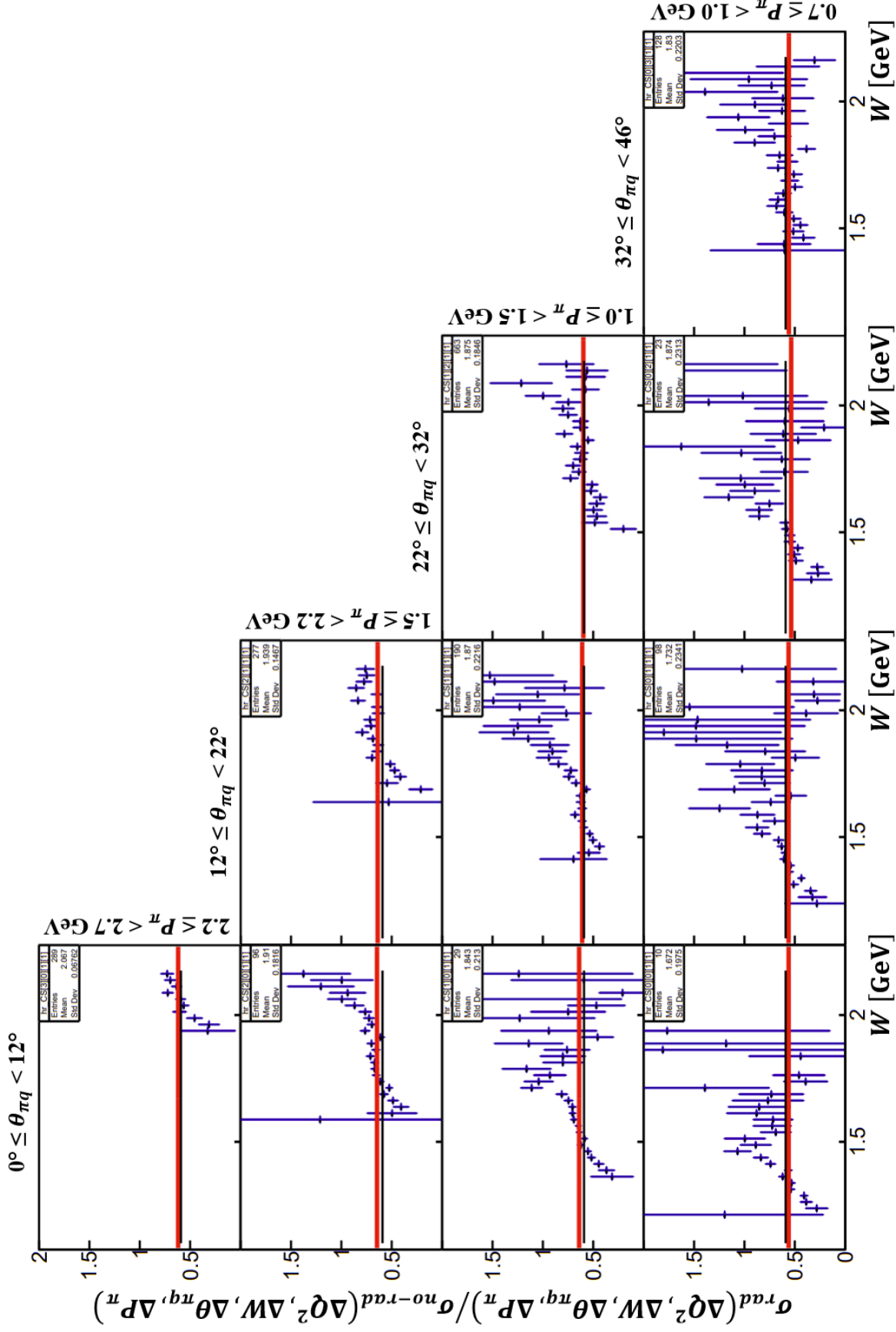


FIG. 95. Radiative over non-radiative event ratios as functions of W for $d(e, e'\pi^-)$ and $1.0 \leq Q^2 < 1.4$ GeV². The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

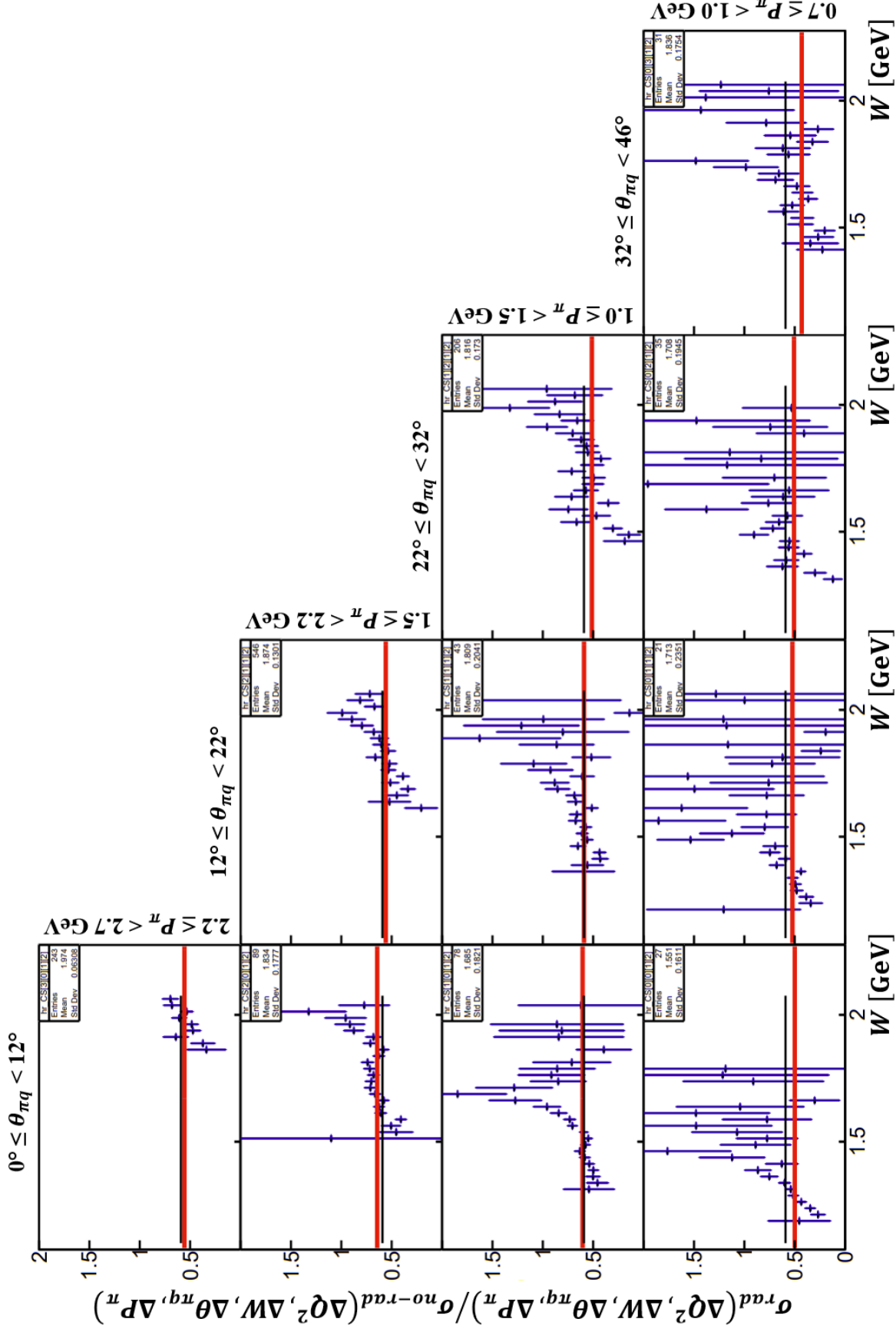


FIG. 96. Radiative over non-radiative event ratios as functions of W for $d(e, e' \pi^-)$ and $1.4 \leq Q^2 < 1.9$ GeV². The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

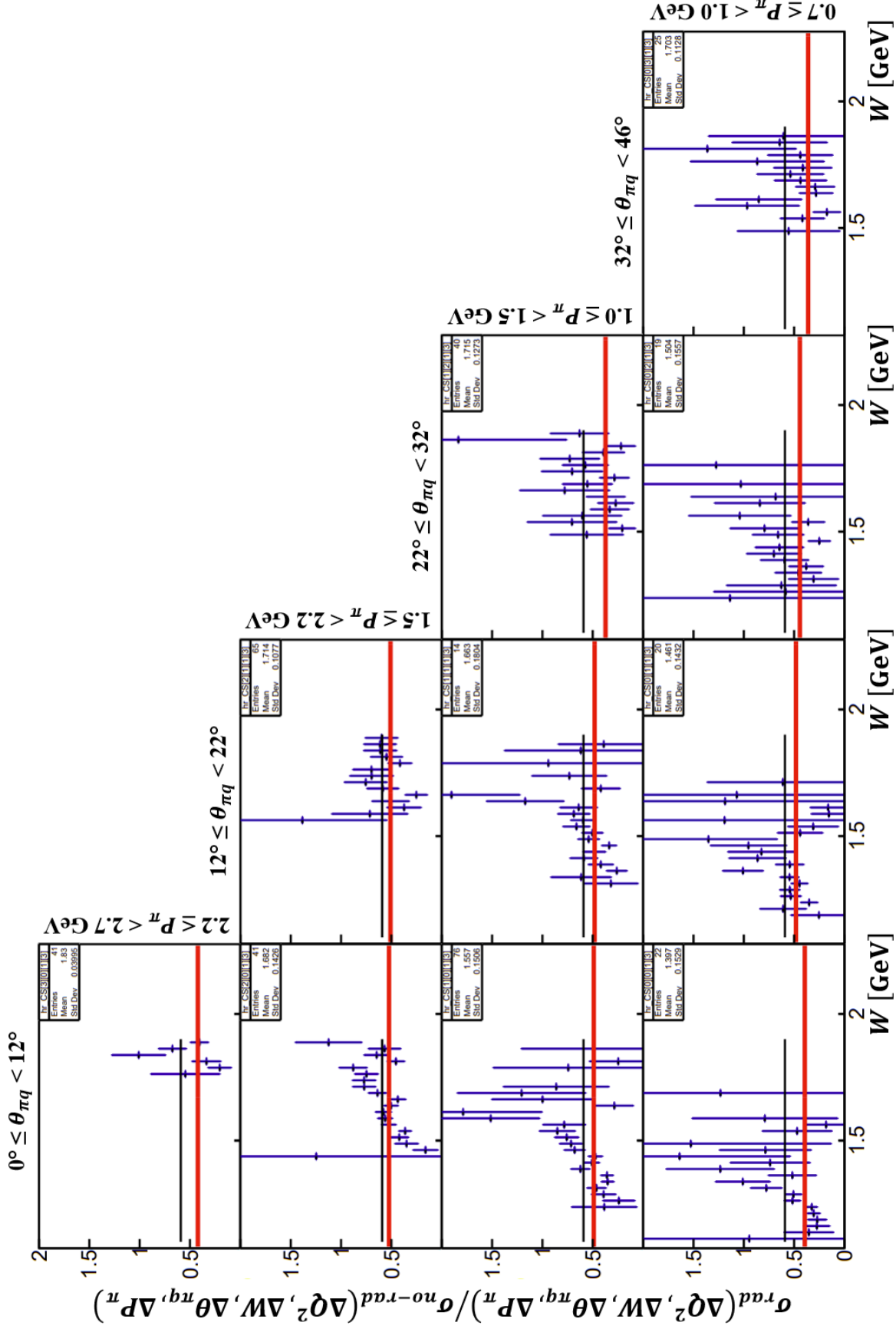


FIG. 97. Radiative over non-radiative event ratios as functions of W for $d(e, e' \pi^-)$ and $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$. The red line is the one parameter weighted fit to the bins while the black line is the global RC factor for positive pions.

A.2 ADDITIONAL SECTOR-BY-SECTOR SYSTEMATIC UNCERTAINTY PLOTS

A.2.1 Positive Pion Production

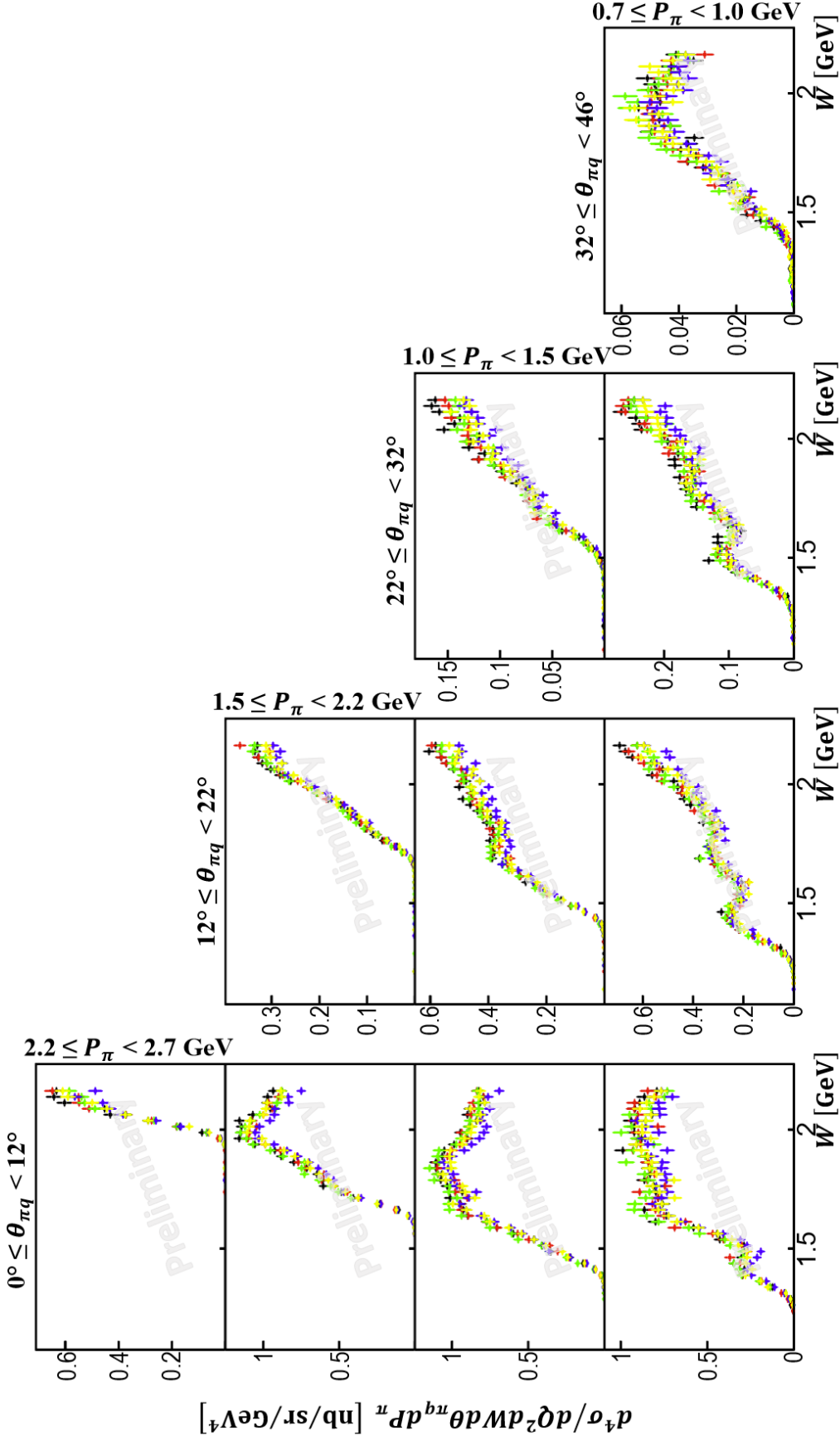


FIG. 98. $d(e, e'\pi^+)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

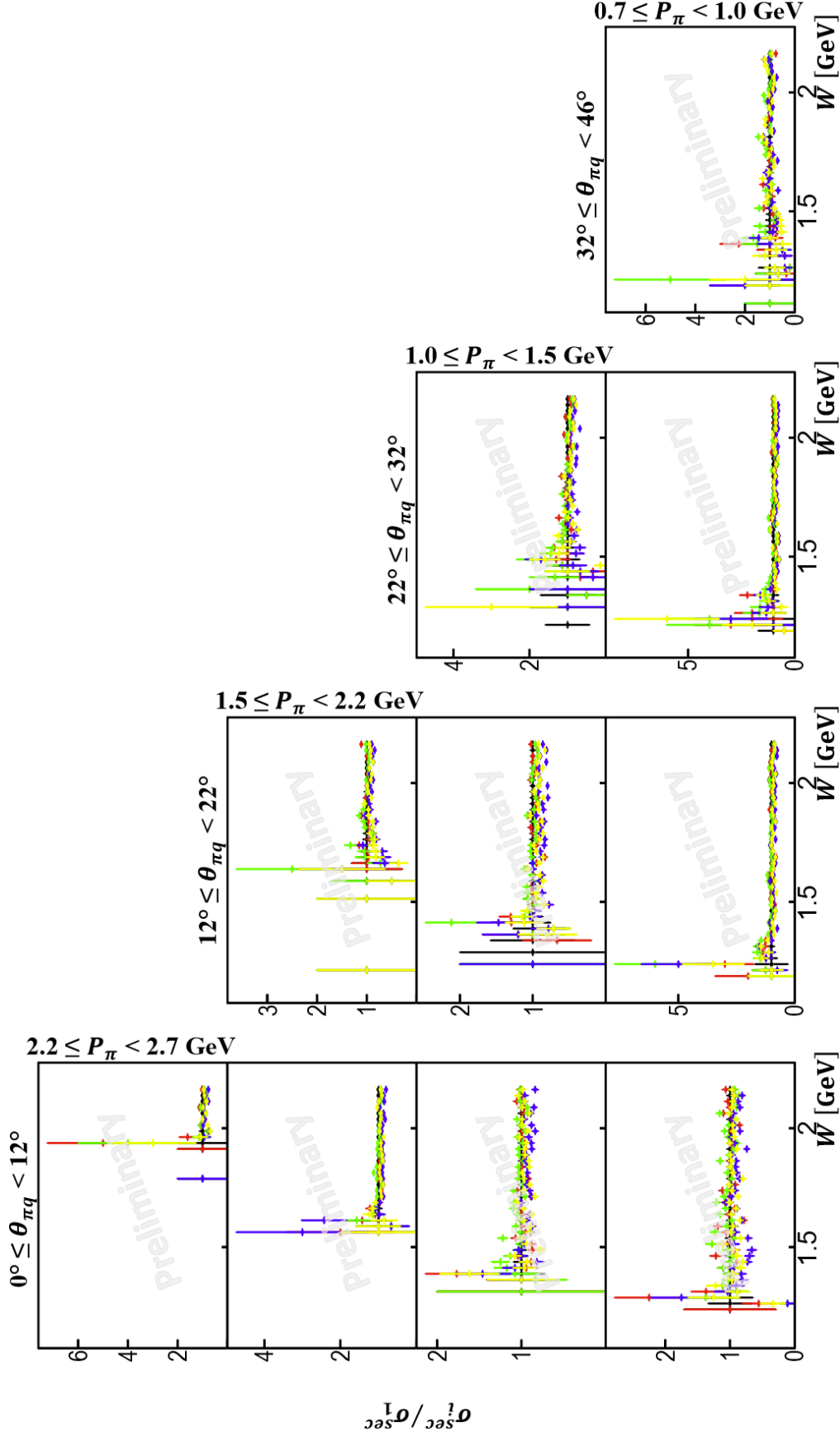


FIG. 99. $d(e, e'\pi^+)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

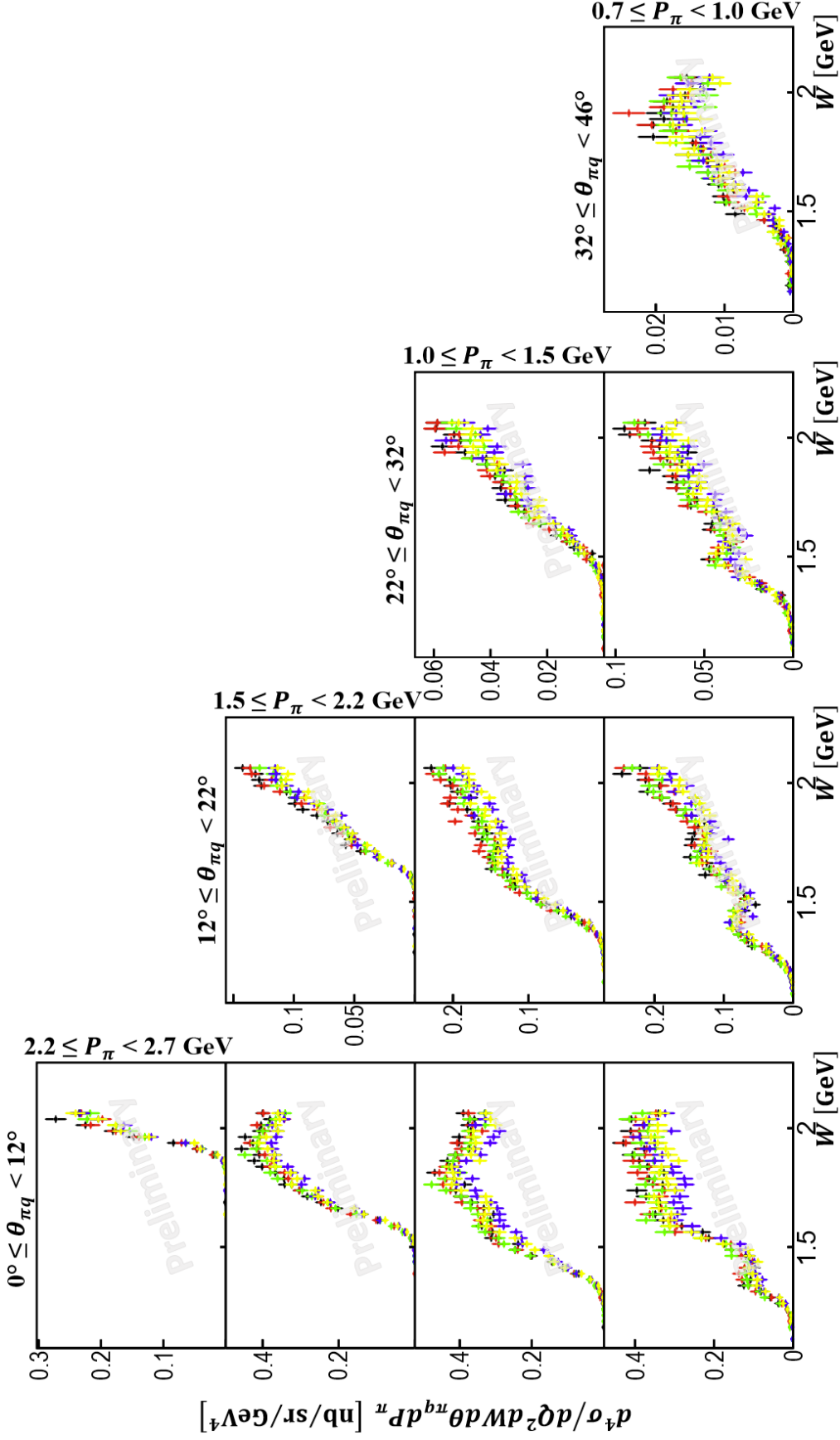


FIG. 100. $d(e, e'\pi^+)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

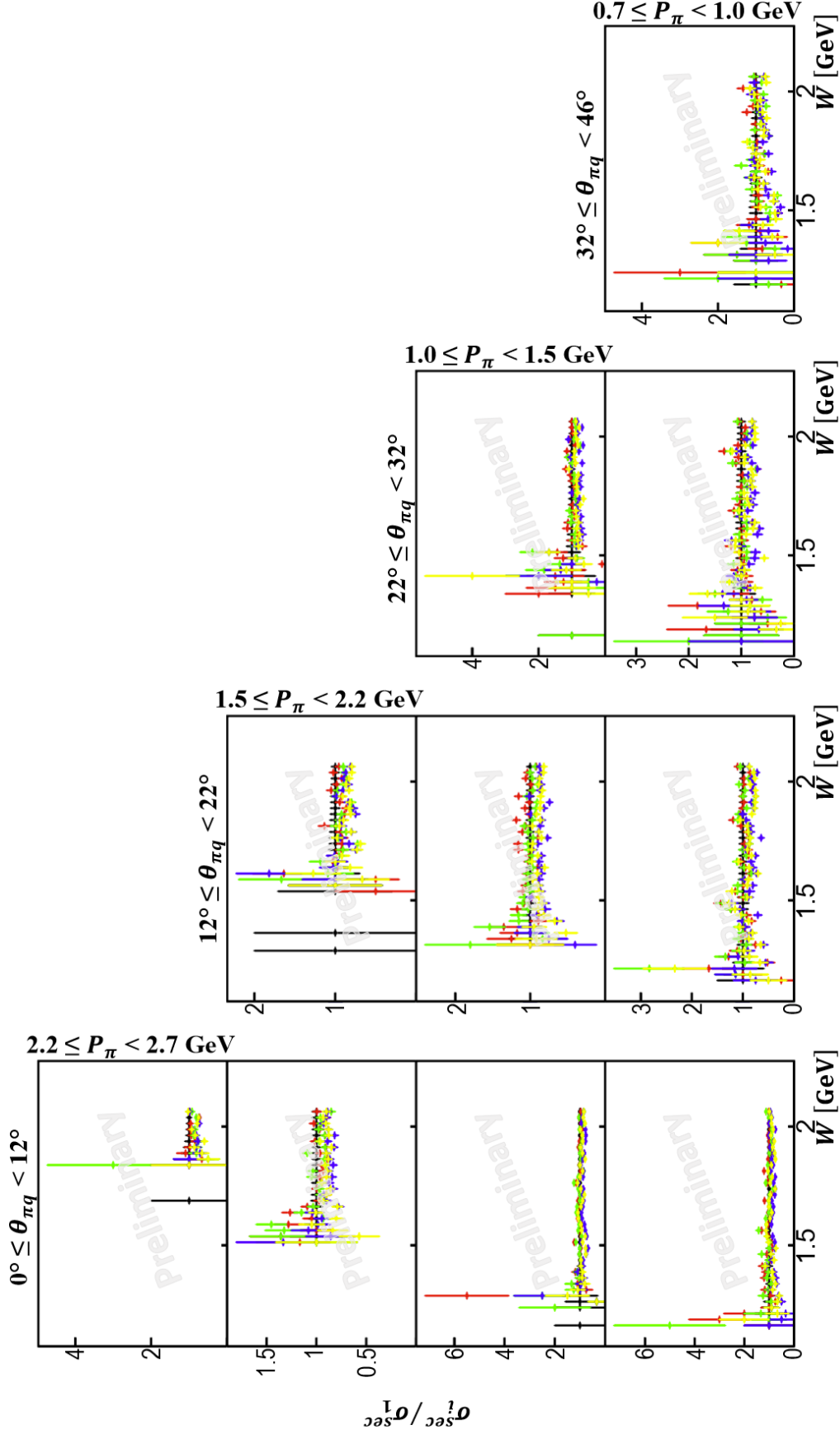


FIG. 101. $d(e, e'\pi^+)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

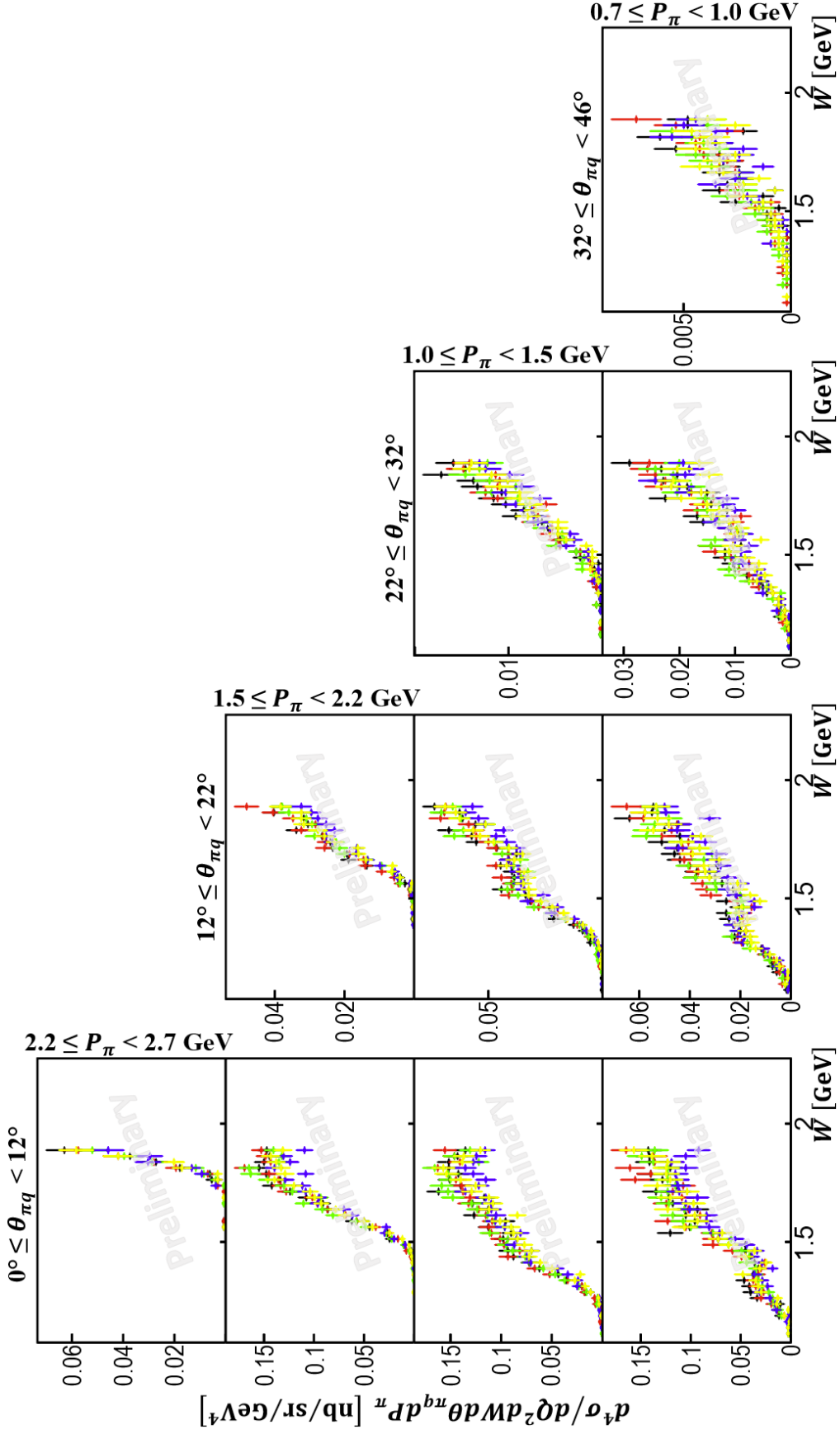


FIG. 102. $d(e, e'\pi^+)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $1.9 \leq Q^2 < 2.5$ GeV². The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

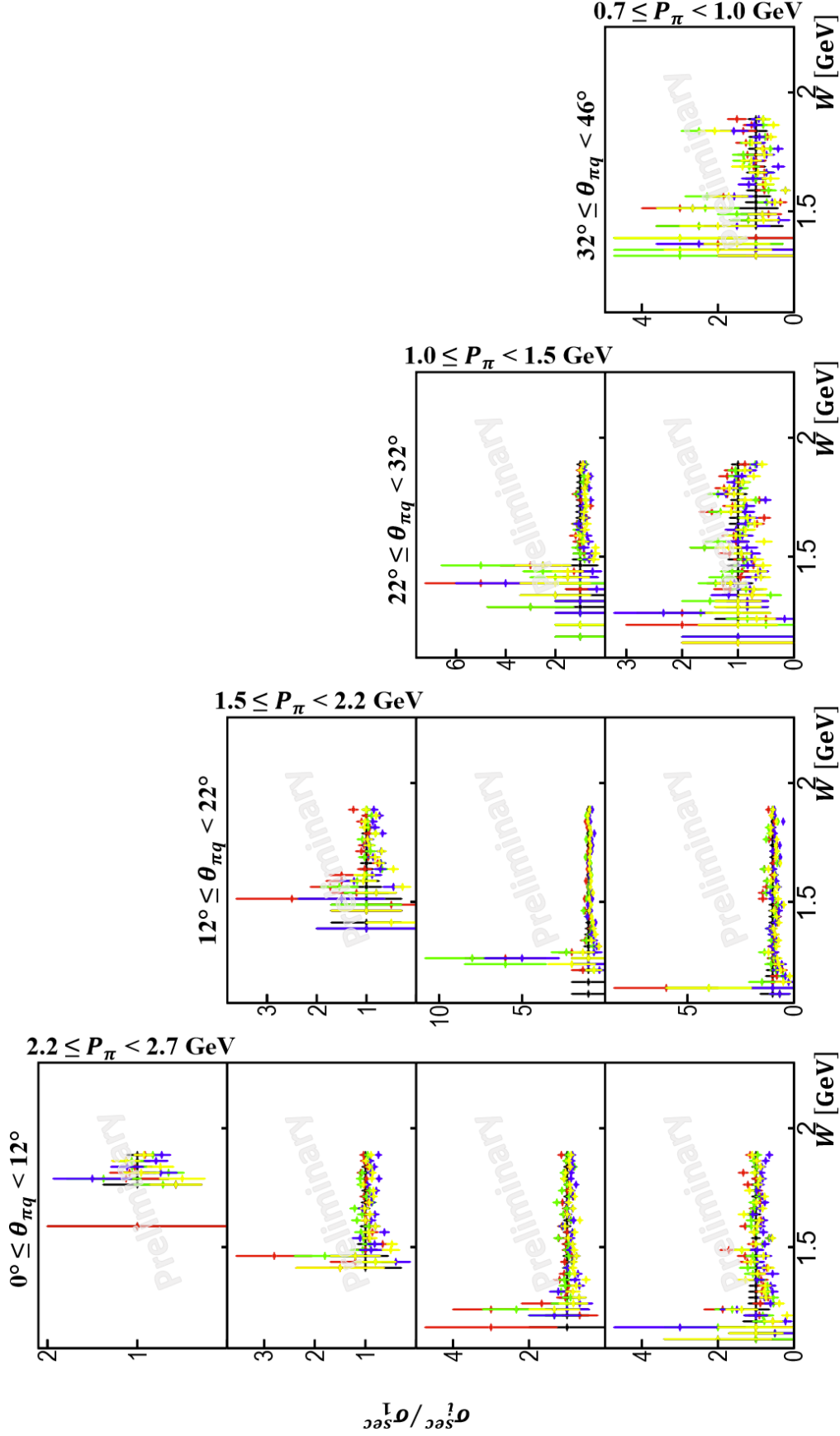


FIG. 103. $d(e, e'\pi^+)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

A.2.2 Negative Pion Production

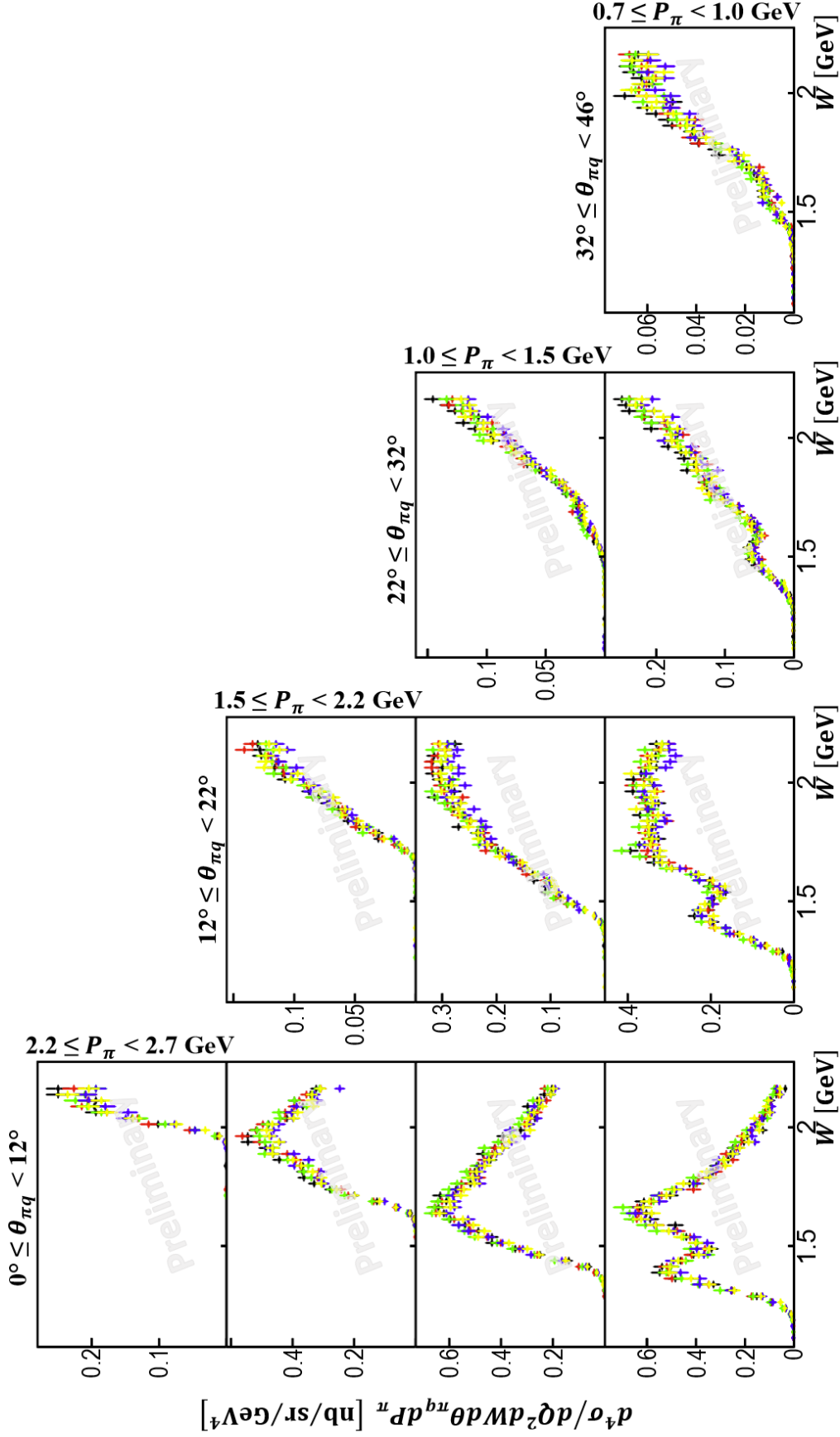


FIG. 104. $d(e, e'\pi^+)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

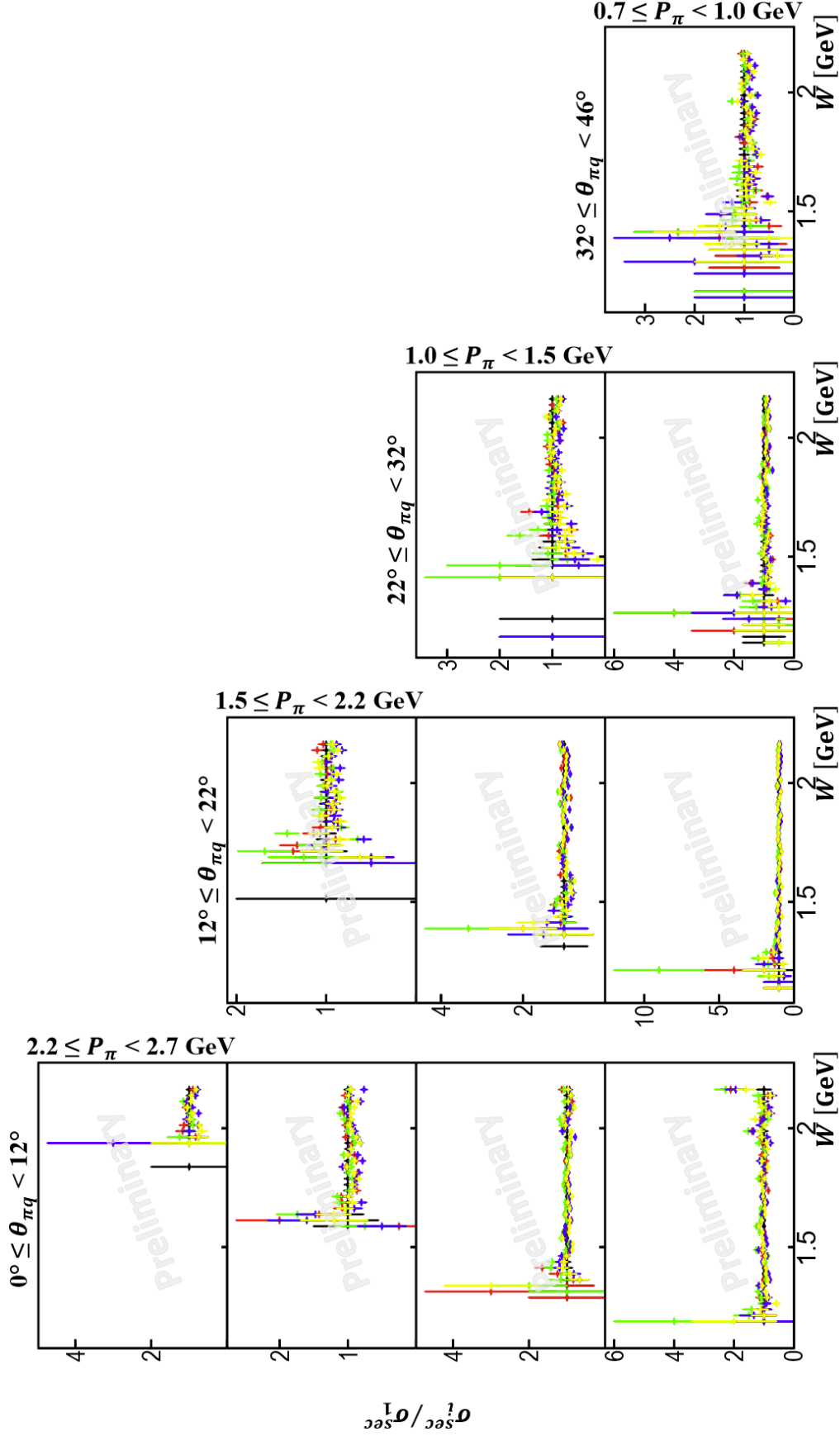


FIG. 105. $d(e, e'\pi^+)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $1.0 \leq Q^2 < 1.4$ GeV². The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

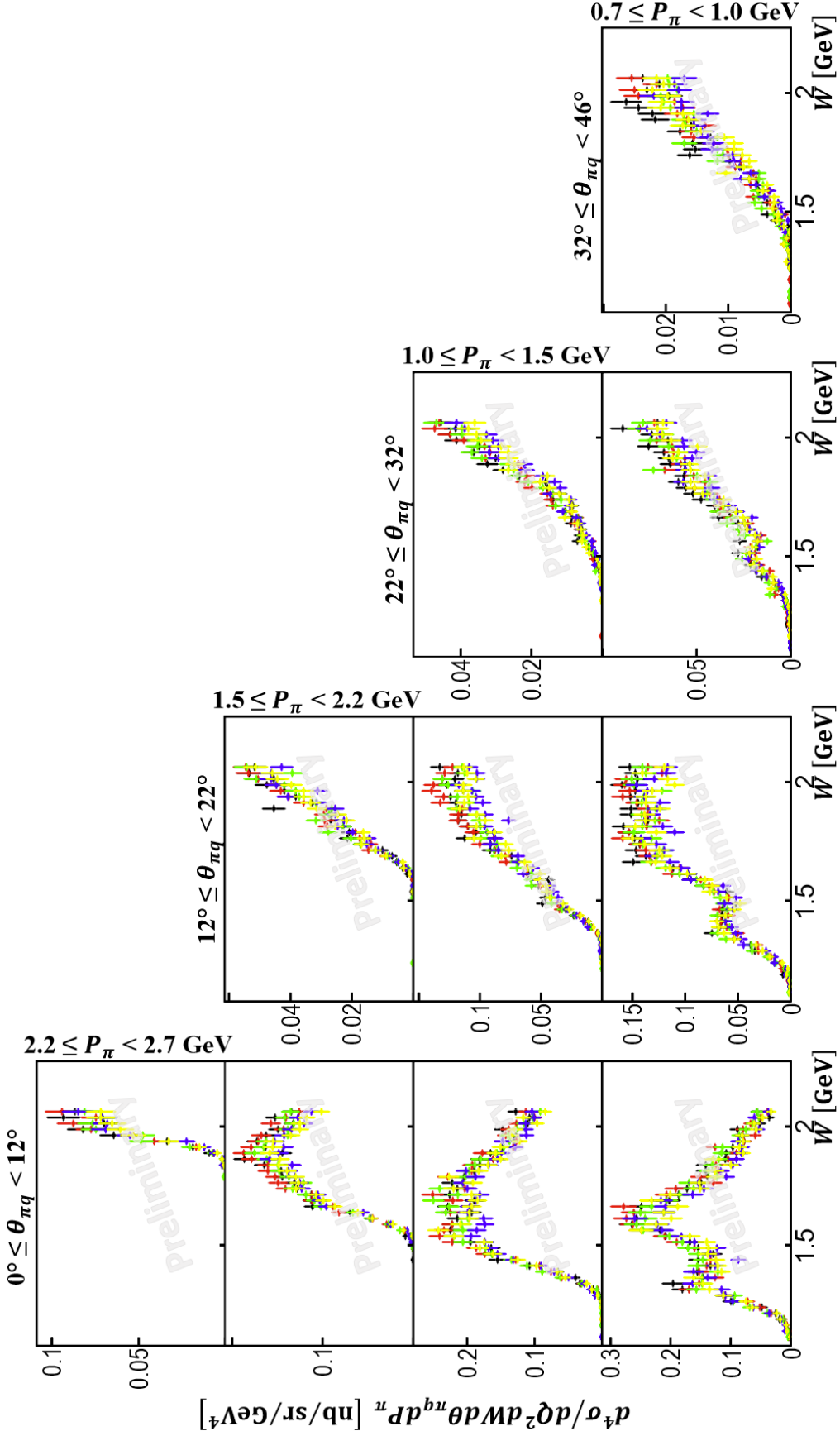


FIG. 106. $d(e, e'\pi^-)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

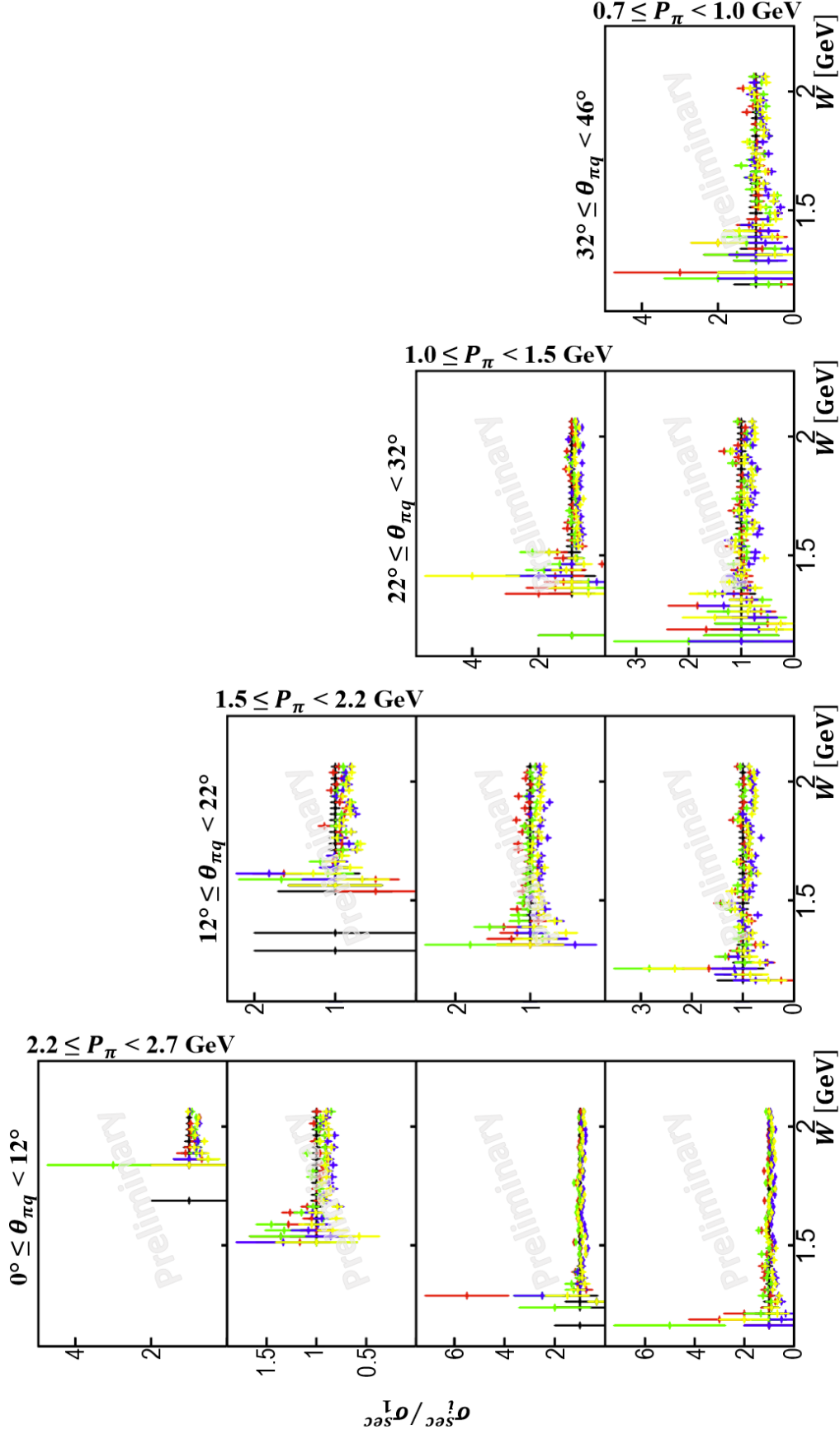


FIG. 107. $d(e, e'\pi^-)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

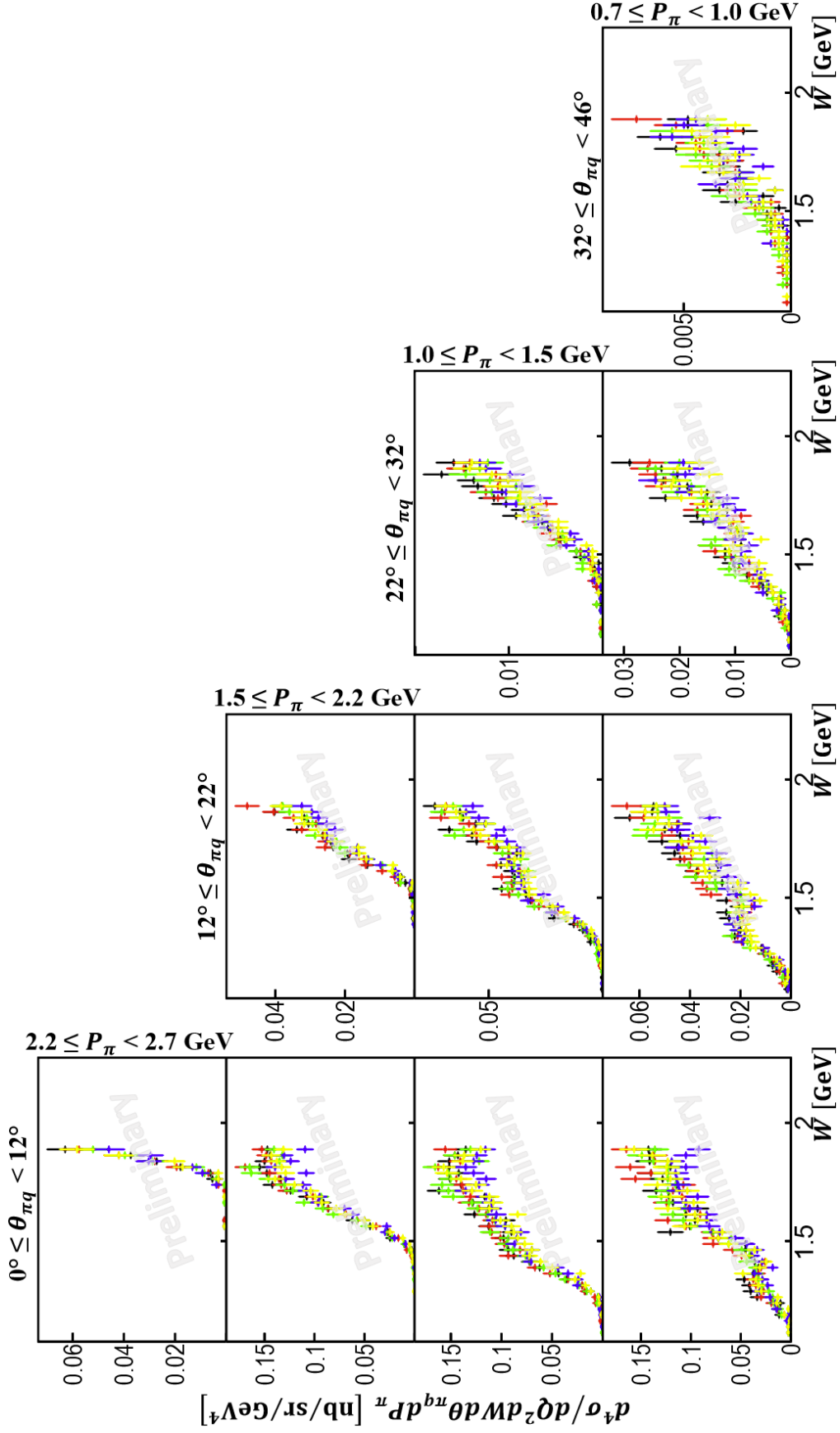


FIG. 108. $d(e, e'\pi^-)$ non-AC cross sections for electrons detected in five sectors of the CLAS12 FD and $1.9 \leq Q^2 < 2.5$ GeV². The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

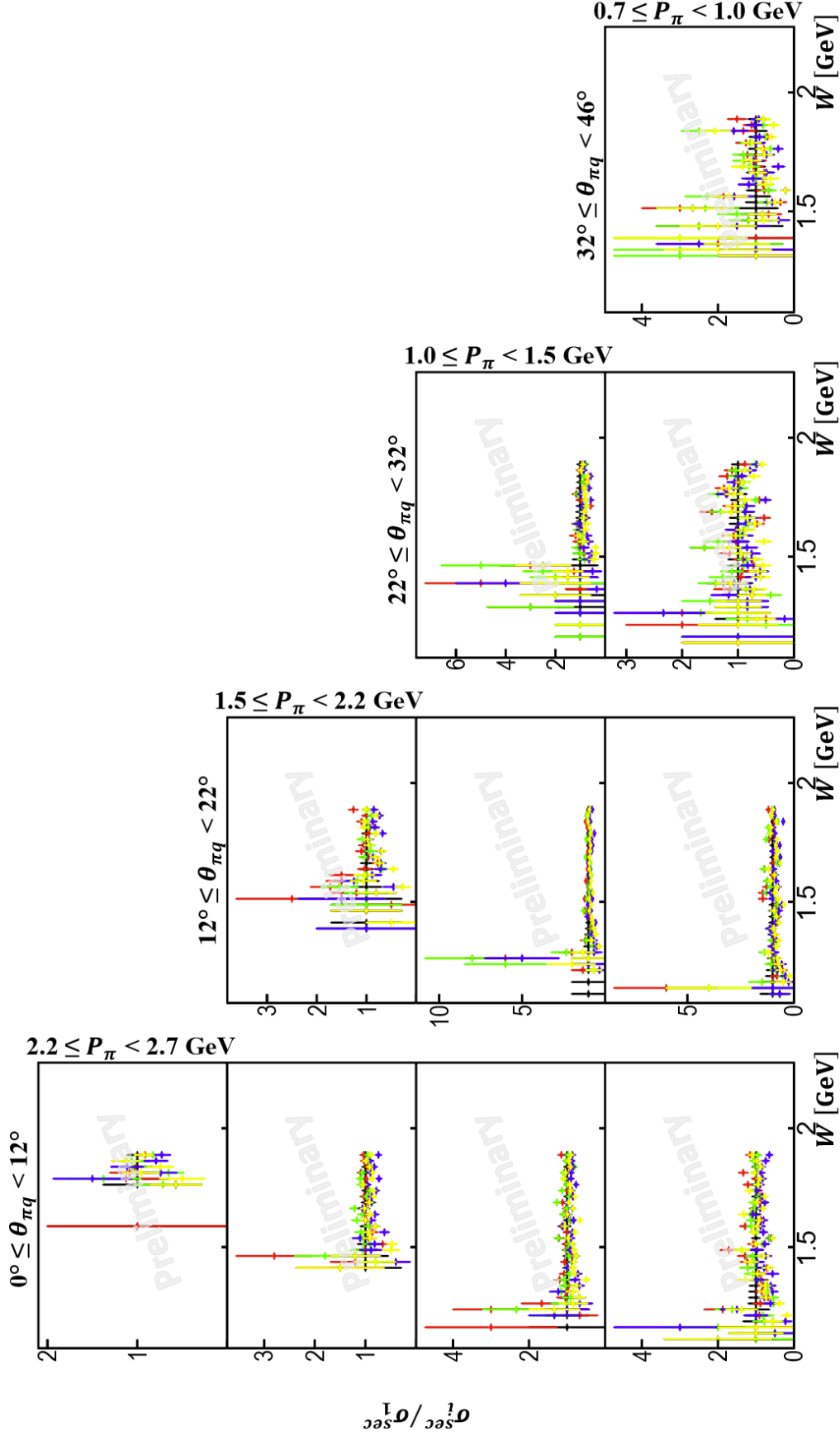


FIG. 109. $d(e, e'\pi^-)$ non-AC cross section ratios for each sector (other than sector 4) divided by sector 1 in the CLAS12 FD and $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$. The sectors are colored black (sector 1), red (sector 2), green (sector 3), blue (sector 5), and yellow (sector 6).

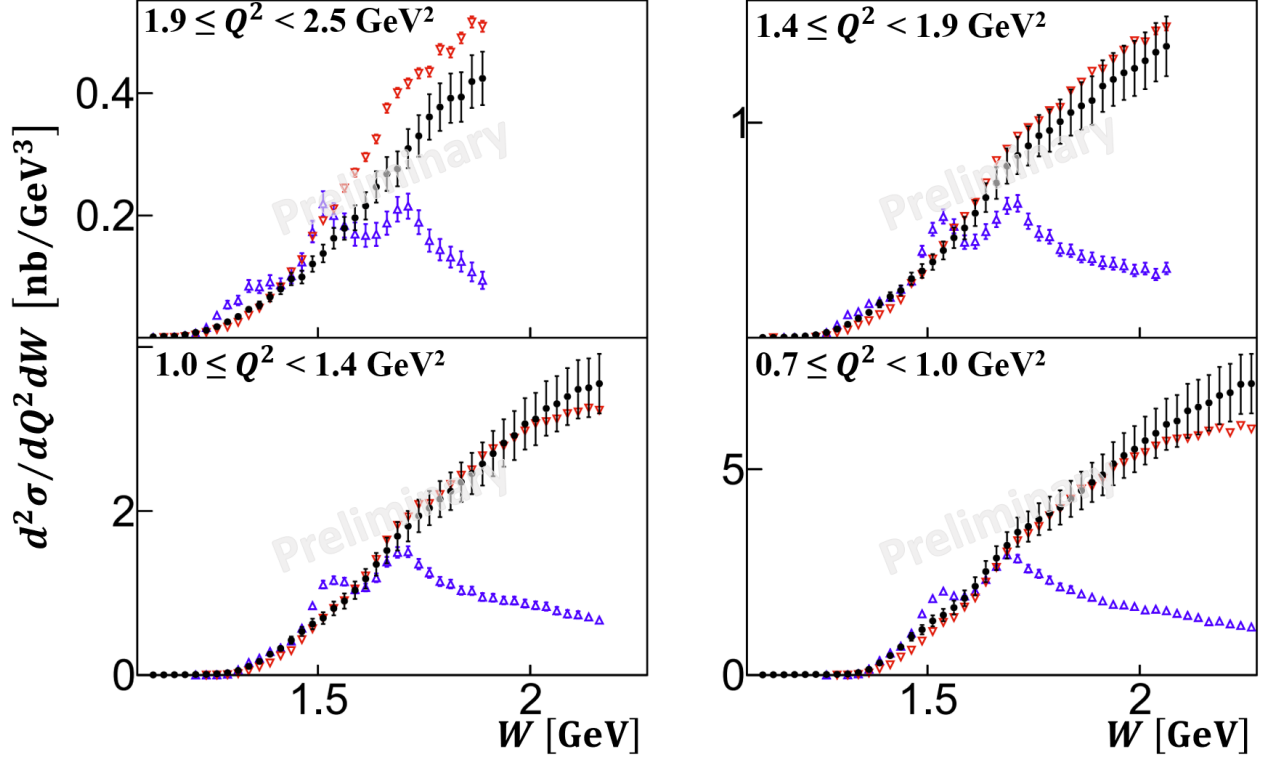


FIG. 110. 2D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and integrated over all θ_π and P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

A.3 GENIE DIPOLE MODEL (θ_π BINNING)

For these plots, GENIE uses the dipole resonance model, but instead of binning in $\theta_{\pi q}$, we bin in θ_π .

A.3.1 2D Binning

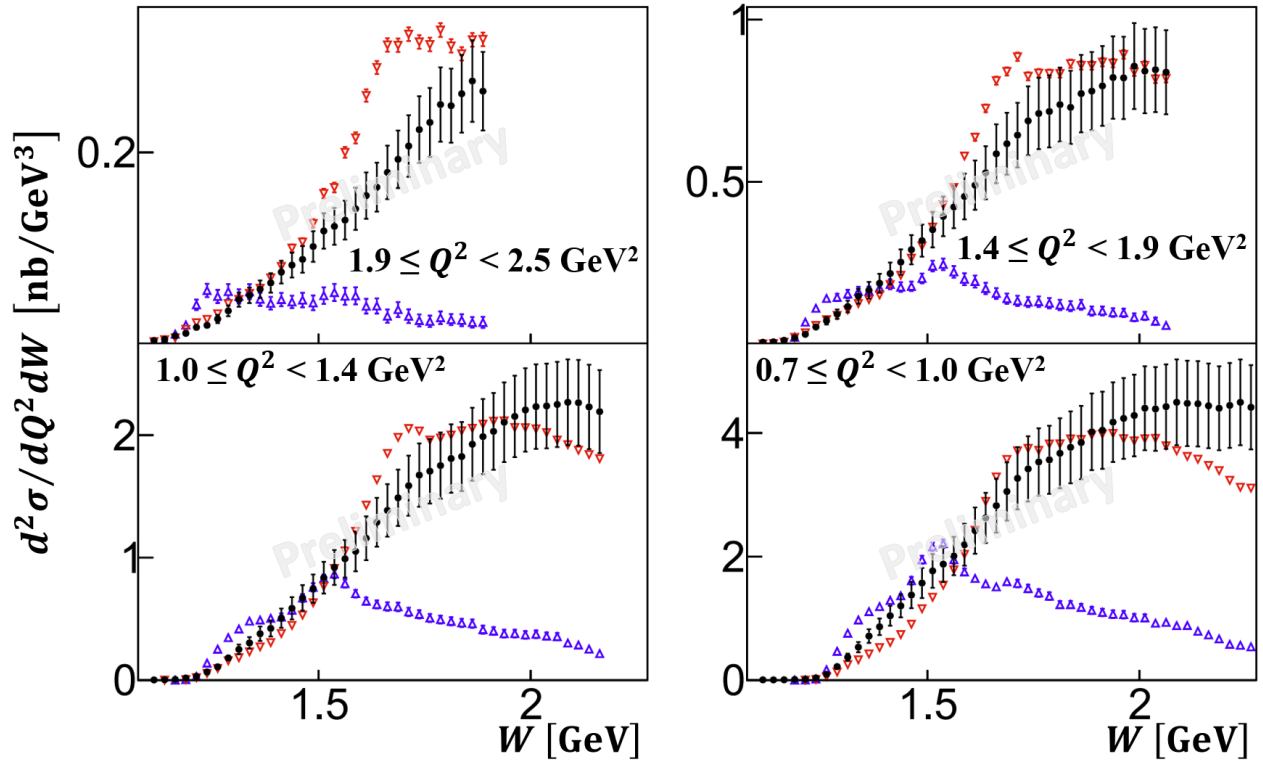


FIG. 111. 2D $d(e, e'\pi^-)$ non-AC cross sections as a function of W binned in Q^2 and integrated over all θ_π and P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

A.3.2 3D Binning

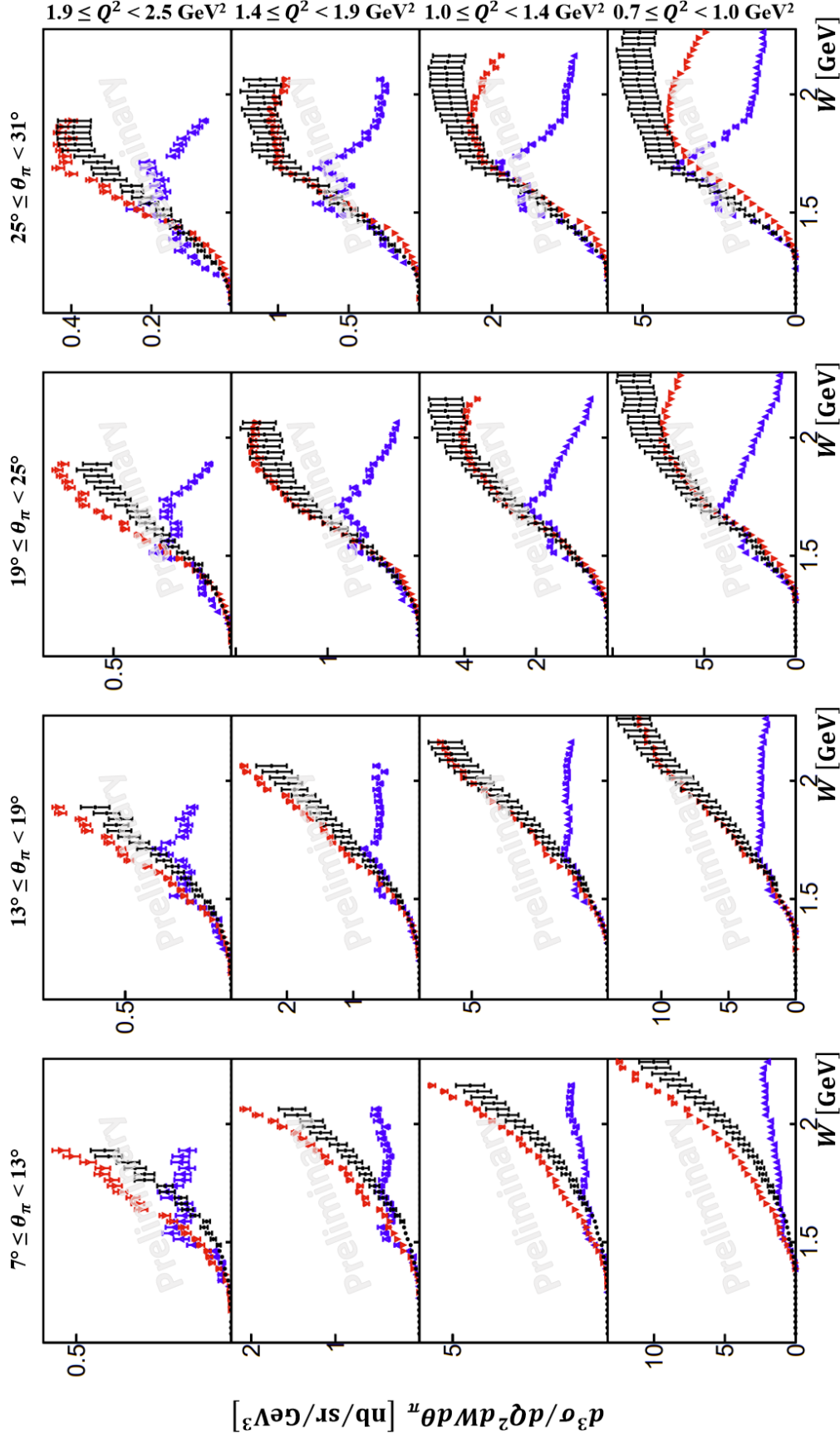


FIG. 112. 3D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and θ_π and integrated over all P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are one-pion. Data error bars include statistical and systematic uncertainties.

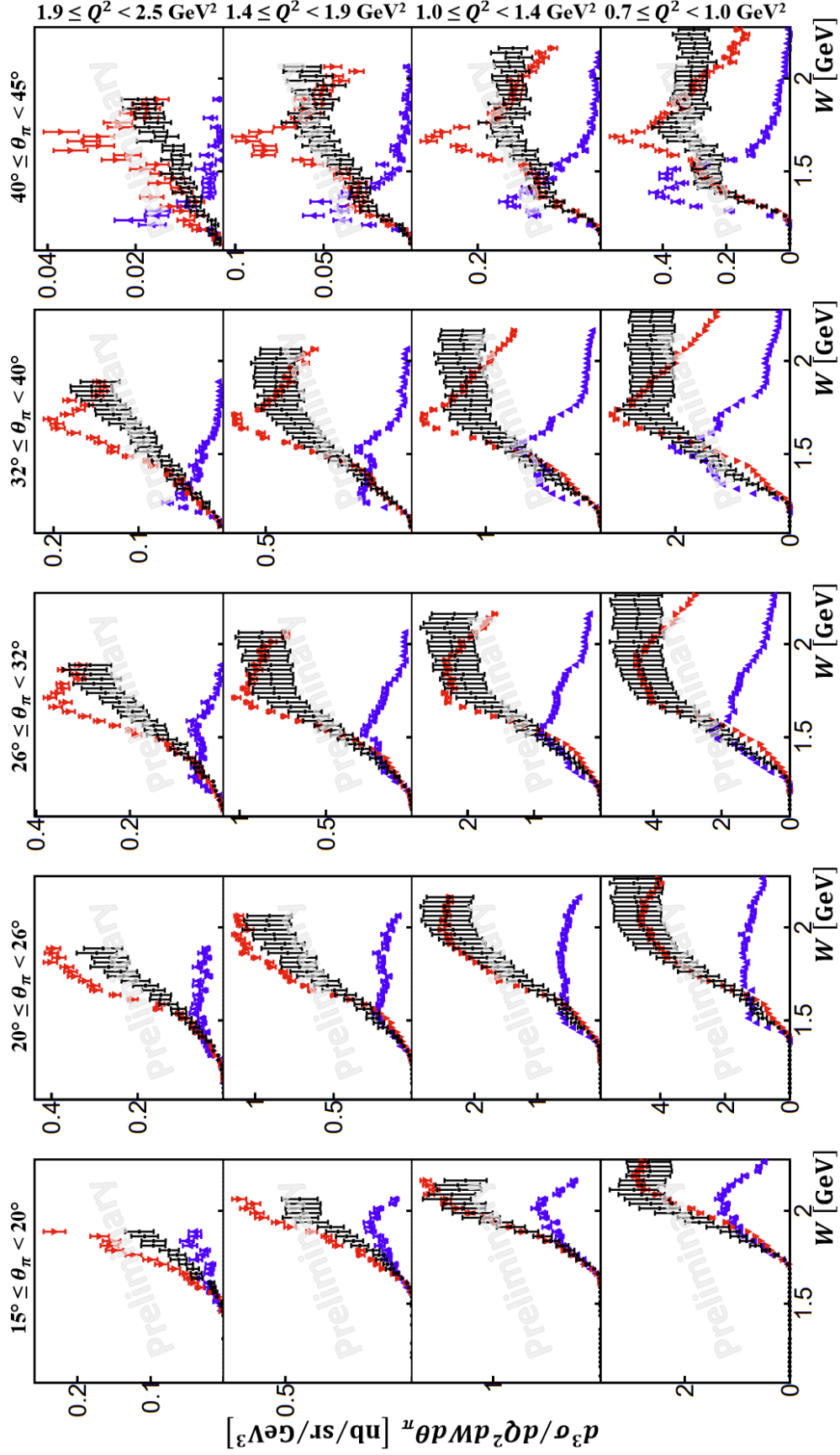


FIG. 113. 3D $d(e, e'\pi^-)$ non-AC cross sections as a function of W binned in Q^2 and θ_π and integrated over all P_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

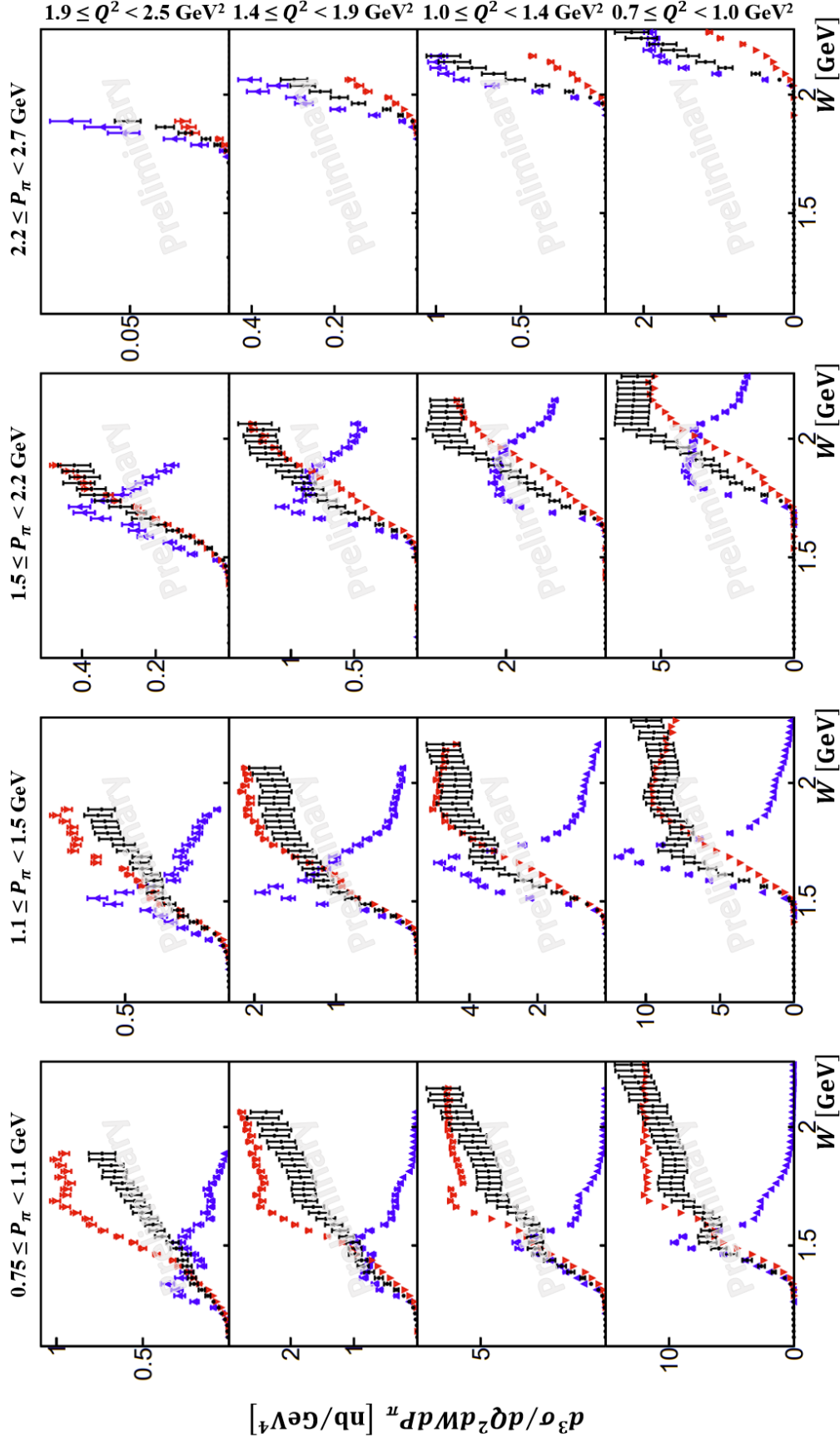


FIG. 114. 3D $d(e, e'\pi^+)$ non-AC cross sections as a function of W binned in Q^2 and P_π and integrated over all θ_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

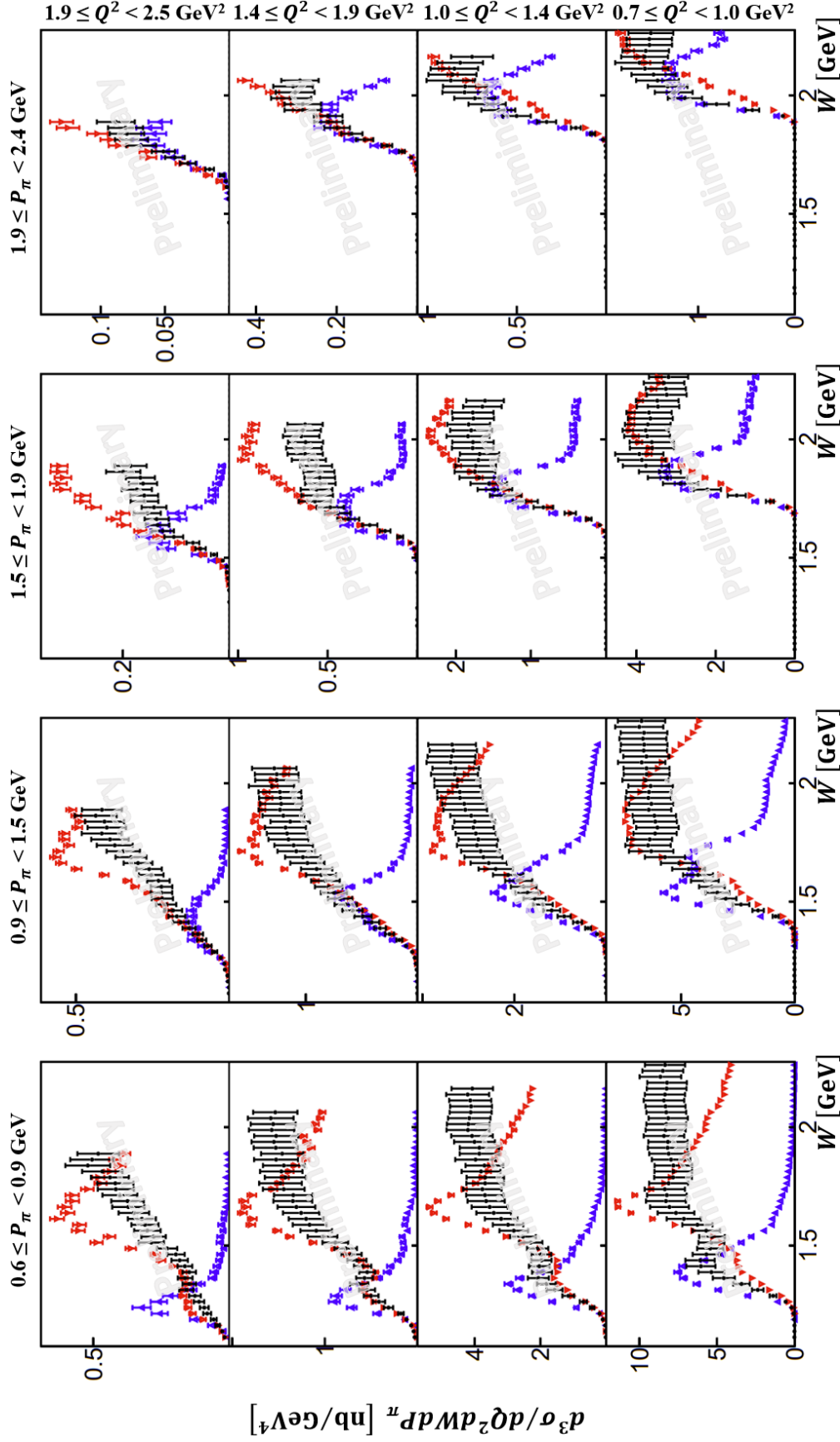


FIG. 115. 3D $d(e, e'\pi^-)$ non-AC cross sections as a function of W binned in Q^2 and P_π and integrated over all θ_π (with GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

A.3.3 4D Binning

Positive Pion Production

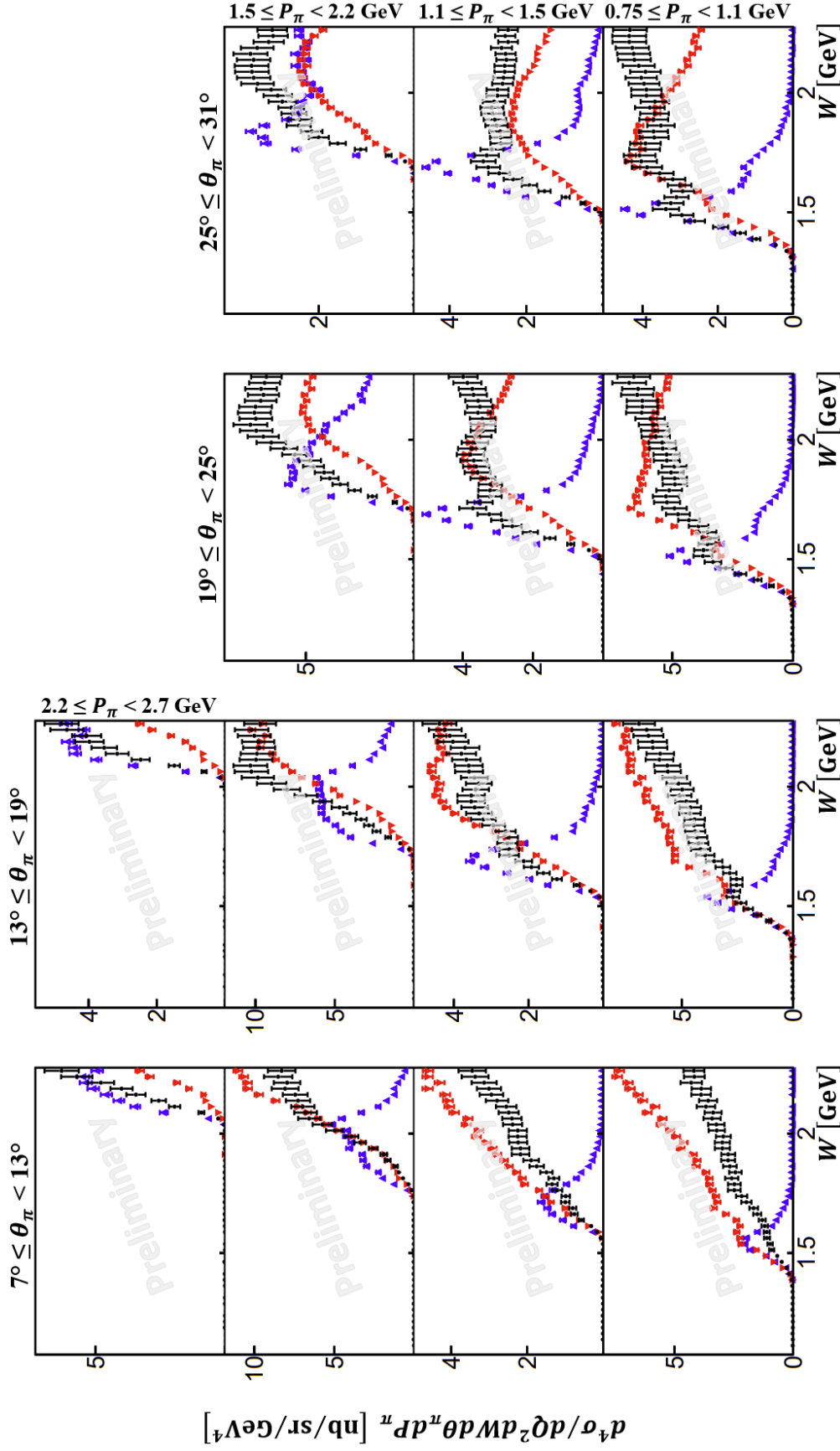


FIG. 116. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $0.7 \leq Q^2 < 1.0$ GeV² (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

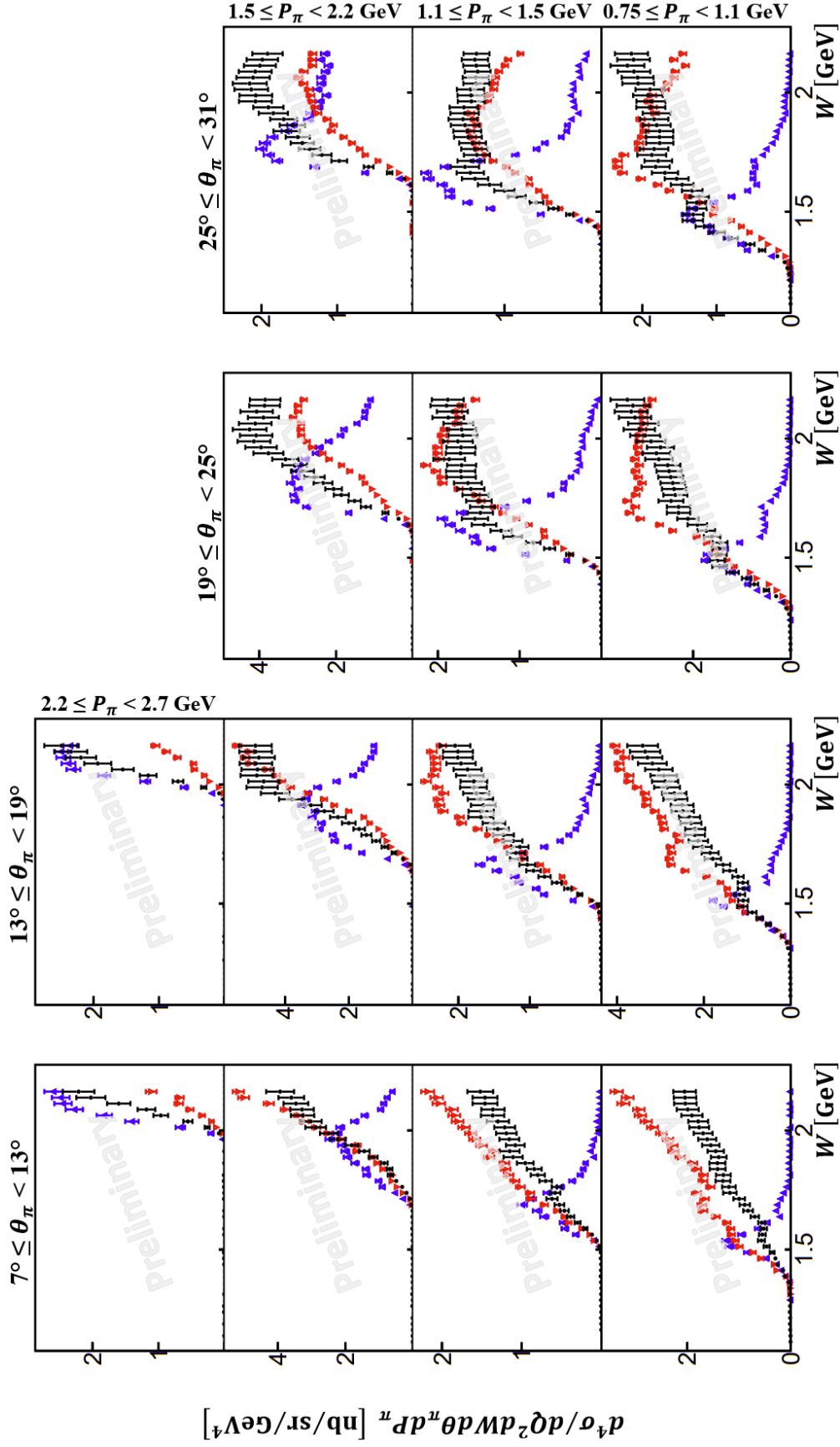


FIG. 117. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$ (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

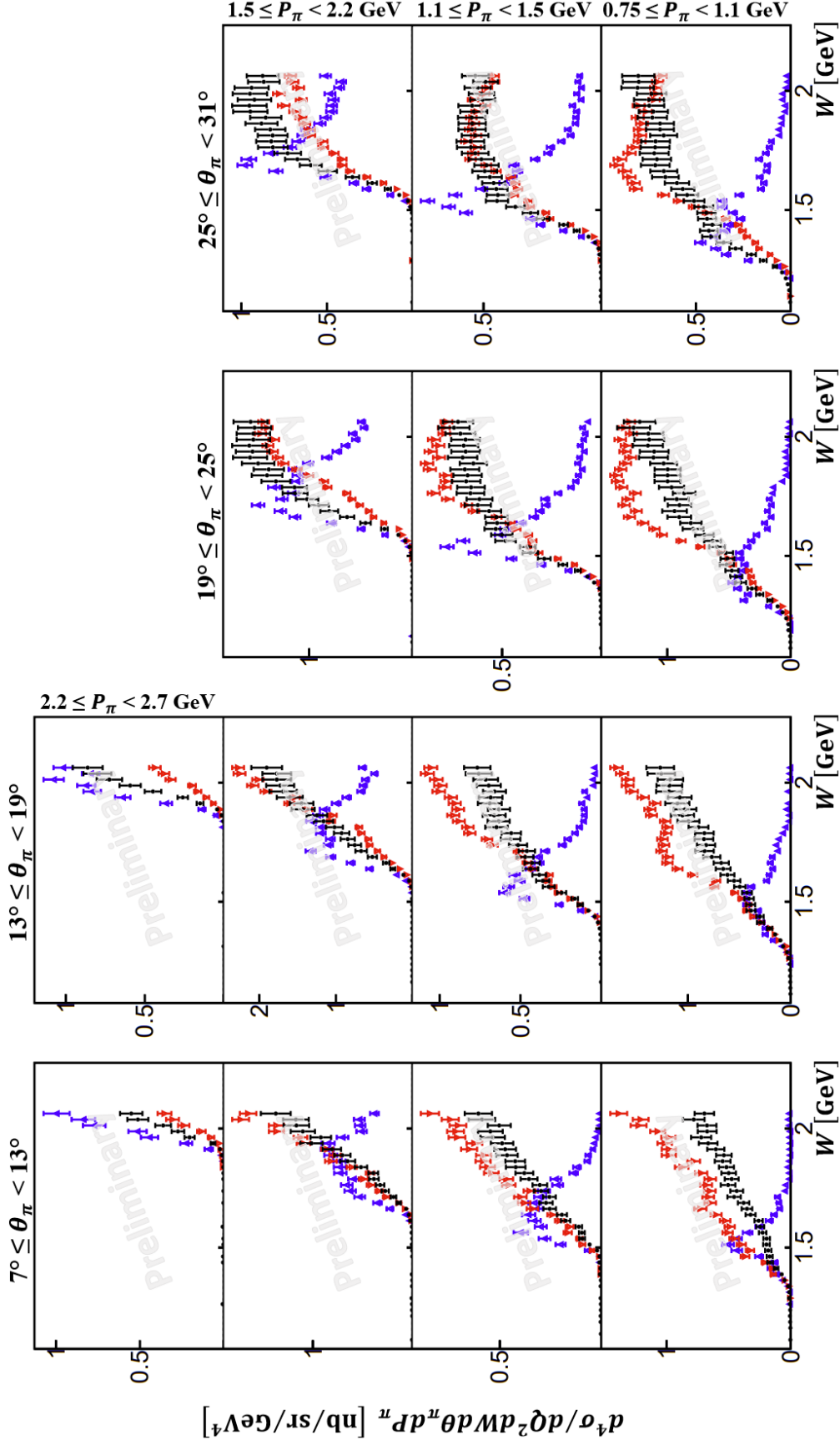


FIG. 118. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $1.4 \leq Q^2 < 1.9$ GeV² (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

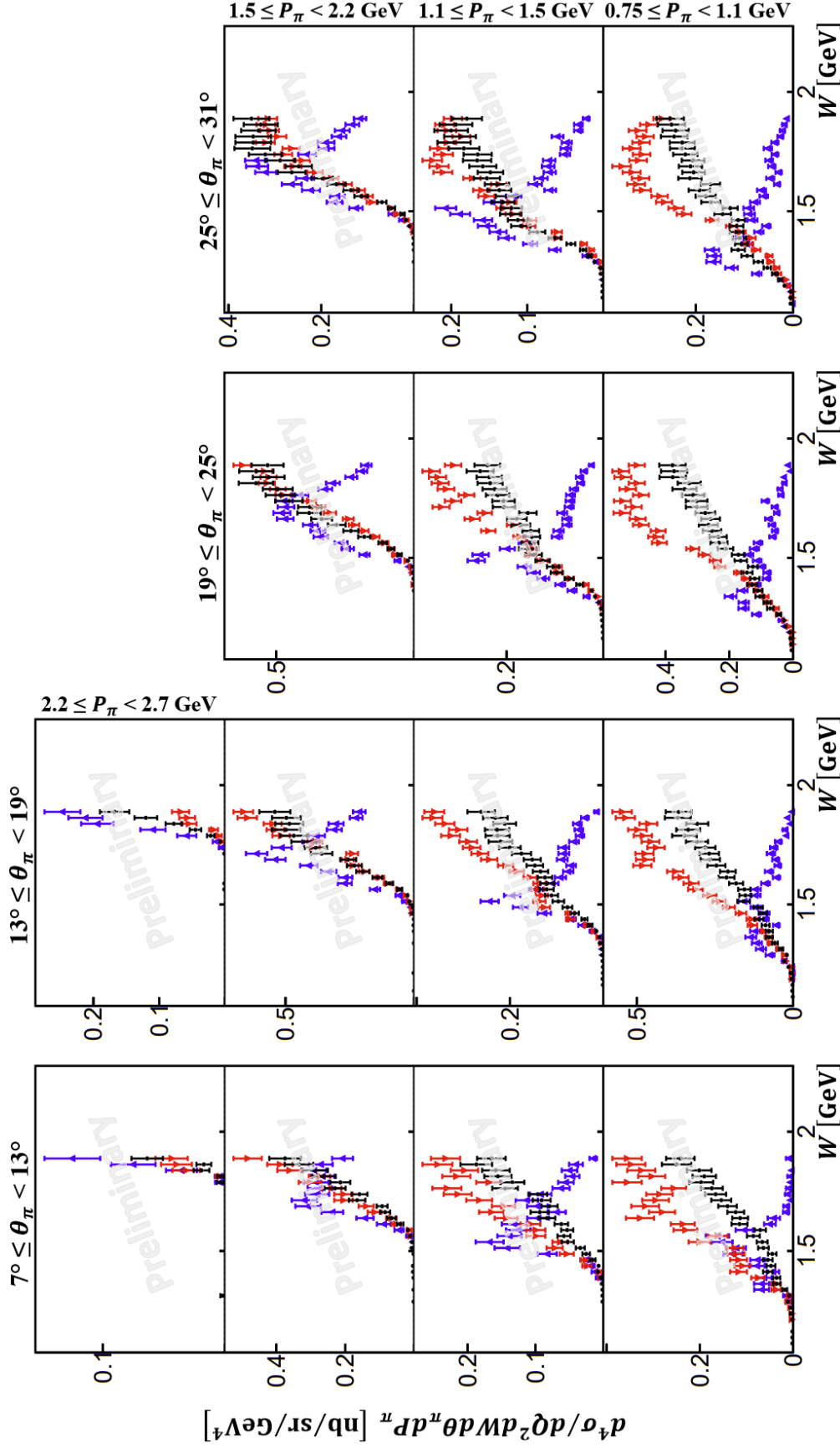


FIG. 119. 4D $d(e, e'\pi^+)$ non-AC cross sections as a function of W for $1.9 \leq Q^2 < 2.5$ GeV² (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

Negative Pion Production

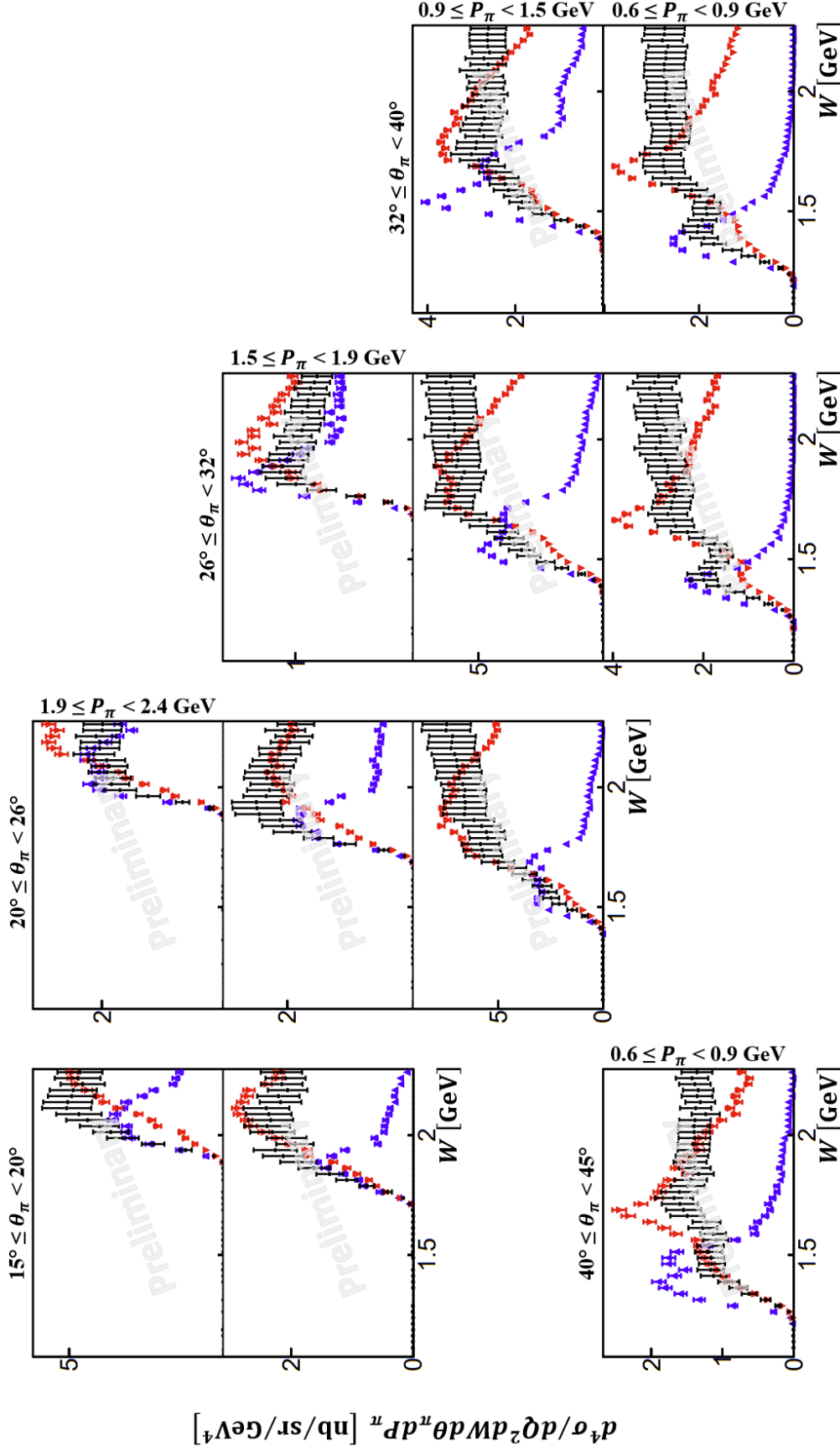


FIG. 120. 4D $d(e, e' \pi^-)$ non-AC cross sections as a function of W for $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$ (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

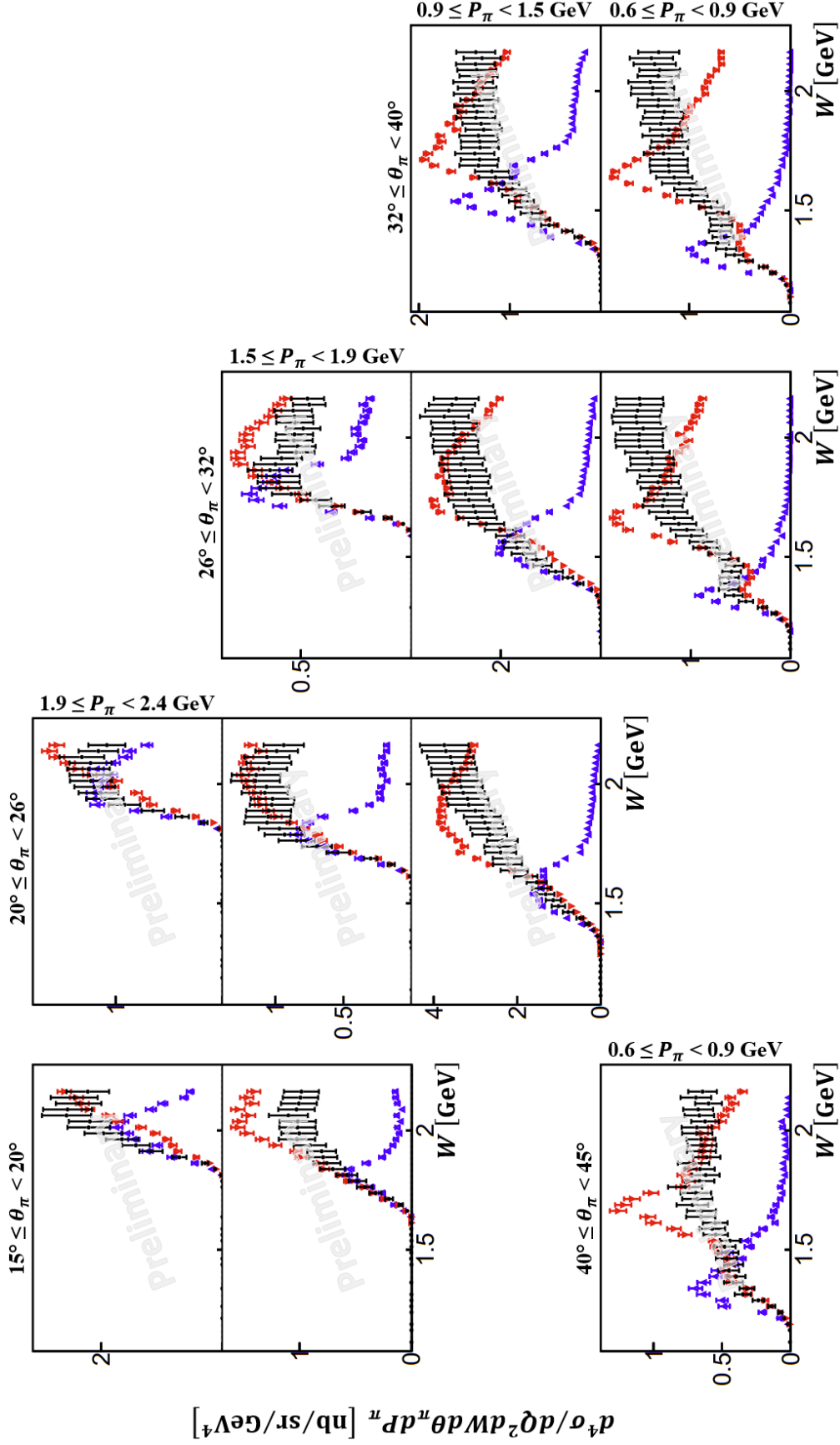


FIG. 121. 4D $d(e, e' \pi^-)$ non-AC cross sections as a function of W for $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$ (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

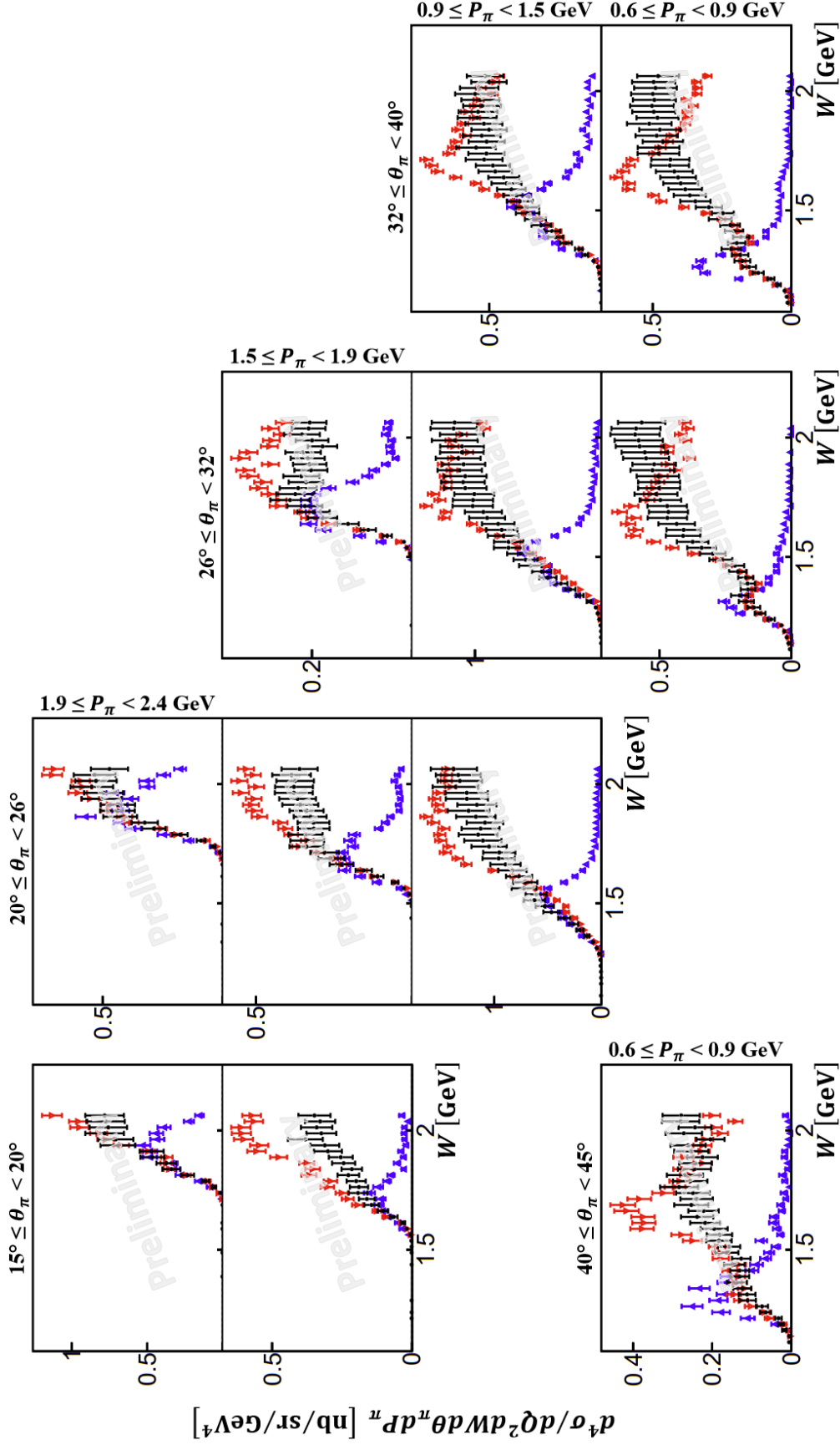


FIG. 122. 4D $d(e, e'\pi^-)$ non-AC cross sections as a function of W for $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$ (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

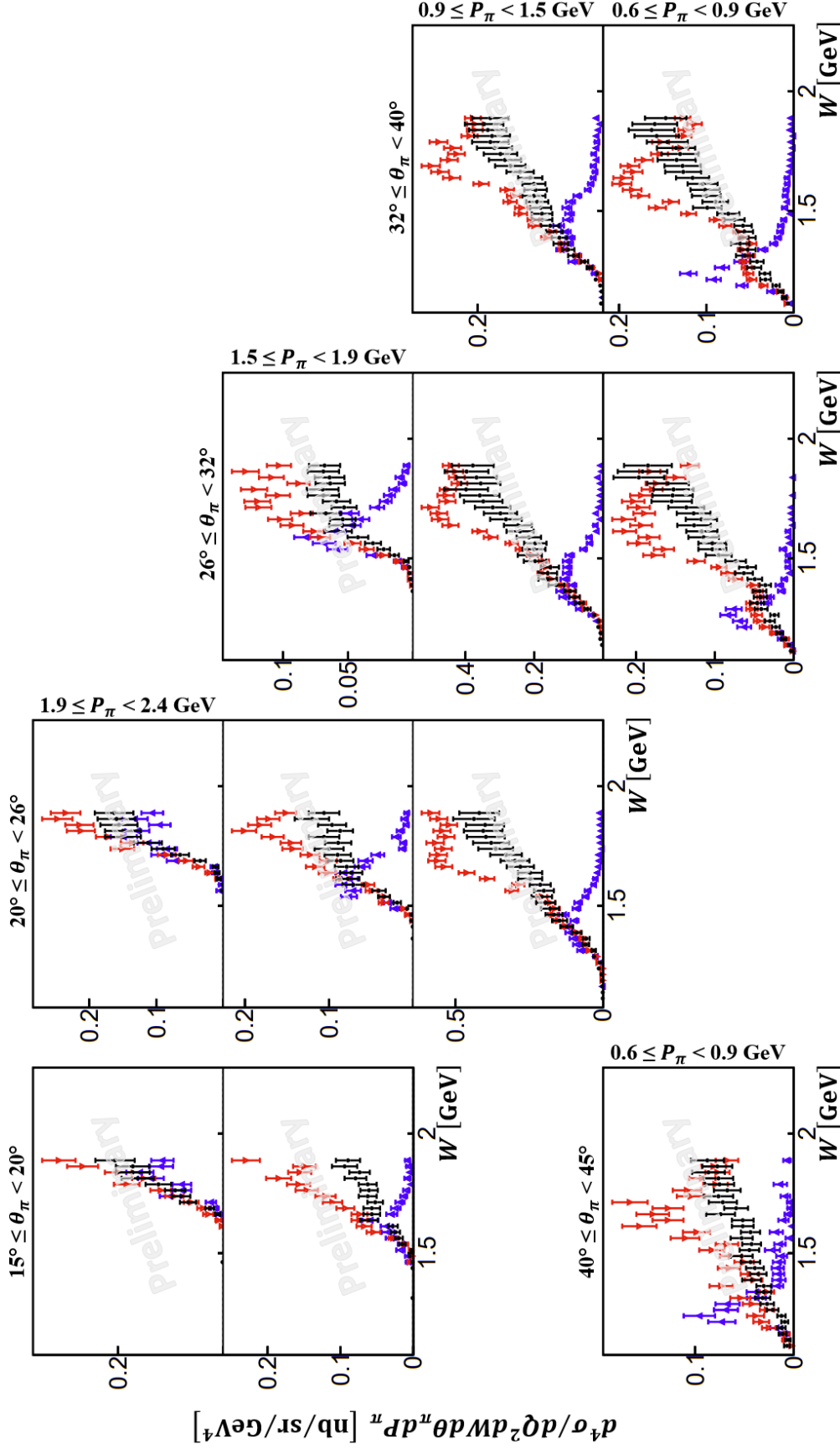


FIG. 123. 4D $d(e, e'\pi^-)$ non-AC cross sections as a function of W for $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$ (with θ_π binning and GENIE using the dipole model). Black points are data, red inverted triangles are GENIE, and blue triangles are onepigen. Data error bars include statistical and systematic uncertainties.

APPENDIX B

CROSS SECTION TABLES

B.1 2D CROSS SECTION TABLES FOR $D(E, E'\pi^+)$ TABLE 10. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV²).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV ²						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$1.6 \cdot 10^{-3}$	$3.85 \cdot 10^{-4}$	0	0	$1.73 \cdot 10^{-4}$	$1.73 \cdot 10^{-4}$
1.15	$2.37 \cdot 10^{-3}$	$4.86 \cdot 10^{-4}$	$4.77 \cdot 10^{-4}$	$2.75 \cdot 10^{-4}$	0	0
1.18	$2.67 \cdot 10^{-3}$	$5.24 \cdot 10^{-4}$	$1.11 \cdot 10^{-3}$	$4.21 \cdot 10^{-4}$	$1.14 \cdot 10^{-3}$	$5.94 \cdot 10^{-4}$
1.2	$5.88 \cdot 10^{-3}$	$8.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-3}$	$5.51 \cdot 10^{-4}$	$3.56 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$
1.23	$9.93 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$5.88 \cdot 10^{-3}$	$9.67 \cdot 10^{-4}$	$1 \cdot 10^{-2}$	$2.14 \cdot 10^{-3}$
1.25	$1.36 \cdot 10^{-2}$	$1.69 \cdot 10^{-3}$	$1.18 \cdot 10^{-2}$	$1.37 \cdot 10^{-3}$	$1.92 \cdot 10^{-2}$	$3.06 \cdot 10^{-3}$
1.28	$1.98 \cdot 10^{-2}$	$2.32 \cdot 10^{-3}$	$1.57 \cdot 10^{-2}$	$1.58 \cdot 10^{-3}$	$4.17 \cdot 10^{-2}$	$5.33 \cdot 10^{-3}$
1.3	$2.96 \cdot 10^{-2}$	$3.3 \cdot 10^{-3}$	$2.19 \cdot 10^{-2}$	$1.87 \cdot 10^{-3}$	$5.83 \cdot 10^{-2}$	$6.6 \cdot 10^{-3}$
1.33	$3.9 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$	$2.86 \cdot 10^{-2}$	$2.13 \cdot 10^{-3}$	$6.5 \cdot 10^{-2}$	$7.26 \cdot 10^{-3}$
1.35	$5.08 \cdot 10^{-2}$	$5.43 \cdot 10^{-3}$	$4.02 \cdot 10^{-2}$	$2.53 \cdot 10^{-3}$	$8.77 \cdot 10^{-2}$	$8.91 \cdot 10^{-3}$
1.38	$5.89 \cdot 10^{-2}$	$6.23 \cdot 10^{-3}$	$5.37 \cdot 10^{-2}$	$2.92 \cdot 10^{-3}$	$8.89 \cdot 10^{-2}$	$8.88 \cdot 10^{-3}$
1.4	$7.16 \cdot 10^{-2}$	$7.5 \cdot 10^{-3}$	$7.12 \cdot 10^{-2}$	$3.36 \cdot 10^{-3}$	$9.62 \cdot 10^{-2}$	$9.29 \cdot 10^{-3}$
1.43	$8.68 \cdot 10^{-2}$	$9.02 \cdot 10^{-3}$	$9.27 \cdot 10^{-2}$	$3.84 \cdot 10^{-3}$	$9.01 \cdot 10^{-2}$	$8.77 \cdot 10^{-3}$
1.45	0.11	$1.08 \cdot 10^{-2}$	0.12	$4.4 \cdot 10^{-3}$	0.11	$1.07 \cdot 10^{-2}$
1.48	0.11	$1.13 \cdot 10^{-2}$	0.15	$4.8 \cdot 10^{-3}$	0.13	$1.19 \cdot 10^{-2}$
1.5	0.13	$1.34 \cdot 10^{-2}$	0.19	$5.42 \cdot 10^{-3}$	0.18	$1.45 \cdot 10^{-2}$
1.53	0.15	$1.55 \cdot 10^{-2}$	0.21	$5.83 \cdot 10^{-3}$	0.23	$1.68 \cdot 10^{-2}$
1.55	0.18	$1.79 \cdot 10^{-2}$	0.24	$6.13 \cdot 10^{-3}$	0.21	$1.68 \cdot 10^{-2}$
1.58	0.19	$1.97 \cdot 10^{-2}$	0.27	$6.56 \cdot 10^{-3}$	0.19	$1.62 \cdot 10^{-2}$
1.6	0.21	$2.16 \cdot 10^{-2}$	0.3	$6.85 \cdot 10^{-3}$	0.18	$1.54 \cdot 10^{-2}$
1.63	0.23	$2.36 \cdot 10^{-2}$	0.32	$7.15 \cdot 10^{-3}$	0.18	$1.47 \cdot 10^{-2}$
1.65	0.26	$2.66 \cdot 10^{-2}$	0.35	$7.49 \cdot 10^{-3}$	0.18	$1.5 \cdot 10^{-2}$
1.68	0.29	$2.9 \cdot 10^{-2}$	0.41	$8.04 \cdot 10^{-3}$	0.2	$1.5 \cdot 10^{-2}$

TABLE 10 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.3	$2.99 \cdot 10^{-2}$	0.43	$8.29 \cdot 10^{-3}$	0.22	$1.62 \cdot 10^{-2}$
1.73	0.33	$3.34 \cdot 10^{-2}$	0.45	$8.42 \cdot 10^{-3}$	0.22	$1.52 \cdot 10^{-2}$
1.75	0.35	$3.56 \cdot 10^{-2}$	0.46	$8.58 \cdot 10^{-3}$	0.19	$1.43 \cdot 10^{-2}$
1.78	0.39	$3.88 \cdot 10^{-2}$	0.46	$8.54 \cdot 10^{-3}$	0.16	$1.33 \cdot 10^{-2}$
1.8	0.4	$4.05 \cdot 10^{-2}$	0.5	$8.9 \cdot 10^{-3}$	0.14	$1.27 \cdot 10^{-2}$
1.83	0.42	$4.22 \cdot 10^{-2}$	0.49	$8.87 \cdot 10^{-3}$	0.13	$1.22 \cdot 10^{-2}$
1.85	0.42	$4.25 \cdot 10^{-2}$	0.51	$9.01 \cdot 10^{-3}$	0.12	$1.25 \cdot 10^{-2}$
1.88	0.45	$4.52 \cdot 10^{-2}$	0.54	$9.29 \cdot 10^{-3}$	0.11	$1.12 \cdot 10^{-2}$
1.9	0.46	$4.63 \cdot 10^{-2}$	0.54	$9.24 \cdot 10^{-3}$	$9.41 \cdot 10^{-2}$	$9.97 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 11. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.33 \cdot 10^{-4}$	$2.69 \cdot 10^{-4}$	0	0	0	0
1.15	$9.17 \cdot 10^{-4}$	$3.04 \cdot 10^{-4}$	$3.82 \cdot 10^{-4}$	$2.7 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$
1.18	$2.75 \cdot 10^{-3}$	$5.72 \cdot 10^{-4}$	0	0	$1.94 \cdot 10^{-4}$	$1.94 \cdot 10^{-4}$
1.2	$6.6 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$	$3.82 \cdot 10^{-4}$	$2.7 \cdot 10^{-4}$	$4.14 \cdot 10^{-4}$	$2.92 \cdot 10^{-4}$
1.23	$8.16 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	$4.67 \cdot 10^{-4}$	$1.78 \cdot 10^{-3}$	$9.59 \cdot 10^{-4}$
1.25	$1.68 \cdot 10^{-2}$	$2.08 \cdot 10^{-3}$	$4.39 \cdot 10^{-3}$	$9.15 \cdot 10^{-4}$	$9.79 \cdot 10^{-3}$	$2.72 \cdot 10^{-3}$
1.28	$2.99 \cdot 10^{-2}$	$3.4 \cdot 10^{-3}$	$1.66 \cdot 10^{-2}$	$1.78 \cdot 10^{-3}$	$3.85 \cdot 10^{-2}$	$4.93 \cdot 10^{-3}$
1.3	$4.78 \cdot 10^{-2}$	$5.19 \cdot 10^{-3}$	$2.92 \cdot 10^{-2}$	$2.36 \cdot 10^{-3}$	$7.83 \cdot 10^{-2}$	$6.58 \cdot 10^{-3}$
1.33	$7.3 \cdot 10^{-2}$	$7.72 \cdot 10^{-3}$	$4.65 \cdot 10^{-2}$	$2.98 \cdot 10^{-3}$	0.12	$9.58 \cdot 10^{-3}$
1.35	0.1	$1.05 \cdot 10^{-2}$	$7.02 \cdot 10^{-2}$	$3.66 \cdot 10^{-3}$	0.13	$1.06 \cdot 10^{-2}$
1.38	0.13	$1.34 \cdot 10^{-2}$	$8.81 \cdot 10^{-2}$	$4.1 \cdot 10^{-3}$	0.17	$1.34 \cdot 10^{-2}$
1.4	0.17	$1.77 \cdot 10^{-2}$	0.12	$4.81 \cdot 10^{-3}$	0.18	$1.41 \cdot 10^{-2}$
1.43	0.21	$2.12 \cdot 10^{-2}$	0.15	$5.42 \cdot 10^{-3}$	0.2	$1.55 \cdot 10^{-2}$
1.45	0.24	$2.43 \cdot 10^{-2}$	0.2	$6.18 \cdot 10^{-3}$	0.24	$1.65 \cdot 10^{-2}$
1.48	0.3	$3.04 \cdot 10^{-2}$	0.28	$7.36 \cdot 10^{-3}$	0.28	$1.78 \cdot 10^{-2}$
1.5	0.34	$3.43 \cdot 10^{-2}$	0.33	$7.94 \cdot 10^{-3}$	0.42	$2.22 \cdot 10^{-2}$
1.53	0.39	$3.89 \cdot 10^{-2}$	0.42	$8.98 \cdot 10^{-3}$	0.53	$2.6 \cdot 10^{-2}$
1.55	0.44	$4.46 \cdot 10^{-2}$	0.49	$9.62 \cdot 10^{-3}$	0.6	$2.83 \cdot 10^{-2}$
1.58	0.51	$5.14 \cdot 10^{-2}$	0.57	$1.05 \cdot 10^{-2}$	0.55	$2.79 \cdot 10^{-2}$
1.6	0.56	$5.6 \cdot 10^{-2}$	0.63	$1.1 \cdot 10^{-2}$	0.47	$2.63 \cdot 10^{-2}$
1.63	0.63	$6.29 \cdot 10^{-2}$	0.7	$1.15 \cdot 10^{-2}$	0.47	$2.69 \cdot 10^{-2}$
1.65	0.71	$7.06 \cdot 10^{-2}$	0.79	$1.23 \cdot 10^{-2}$	0.52	$2.76 \cdot 10^{-2}$
1.68	0.77	$7.76 \cdot 10^{-2}$	0.9	$1.31 \cdot 10^{-2}$	0.57	$2.85 \cdot 10^{-2}$

TABLE 11 Continued.						
$d(e, e' \pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.86	$8.57 \cdot 10^{-2}$	0.95	$1.35 \cdot 10^{-2}$	0.63	$2.93 \cdot 10^{-2}$
1.73	0.91	$9.15 \cdot 10^{-2}$	1	$1.38 \cdot 10^{-2}$	0.63	$2.9 \cdot 10^{-2}$
1.75	0.96	$9.57 \cdot 10^{-2}$	1.03	$1.4 \cdot 10^{-2}$	0.54	$2.65 \cdot 10^{-2}$
1.78	1.01	0.1	1.06	$1.42 \cdot 10^{-2}$	0.47	$2.47 \cdot 10^{-2}$
1.8	1.03	0.1	1.11	$1.46 \cdot 10^{-2}$	0.45	$2.33 \cdot 10^{-2}$
1.83	1.07	0.11	1.12	$1.46 \cdot 10^{-2}$	0.39	$2.14 \cdot 10^{-2}$
1.85	1.11	0.11	1.2	$1.51 \cdot 10^{-2}$	0.39	$2.08 \cdot 10^{-2}$
1.88	1.14	0.11	1.24	$1.54 \cdot 10^{-2}$	0.36	$2.02 \cdot 10^{-2}$
1.9	1.17	0.12	1.28	$1.56 \cdot 10^{-2}$	0.34	$2.12 \cdot 10^{-2}$
1.93	1.24	0.12	1.29	$1.57 \cdot 10^{-2}$	0.33	$2.1 \cdot 10^{-2}$
1.95	1.28	0.13	1.35	$1.6 \cdot 10^{-2}$	0.32	$2.02 \cdot 10^{-2}$
1.98	1.32	0.13	1.38	$1.62 \cdot 10^{-2}$	0.31	$1.99 \cdot 10^{-2}$
2	1.35	0.13	1.43	$1.65 \cdot 10^{-2}$	0.28	$1.86 \cdot 10^{-2}$
2.03	1.38	0.14	1.43	$1.65 \cdot 10^{-2}$	0.27	$1.7 \cdot 10^{-2}$
2.05	1.42	0.14	1.47	$1.67 \cdot 10^{-2}$	0.24	$1.64 \cdot 10^{-2}$
2.08	1.44	0.14	1.49	$1.69 \cdot 10^{-2}$	0.24	$1.63 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 12. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.44 \cdot 10^{-4}$	$2.01 \cdot 10^{-4}$	0	0	0	0
1.15	$6.87 \cdot 10^{-4}$	$2.89 \cdot 10^{-4}$	0	0	0	0
1.18	$1.6 \cdot 10^{-3}$	$4.57 \cdot 10^{-4}$	0	0	0	0
1.2	$1.83 \cdot 10^{-3}$	$4.93 \cdot 10^{-4}$	0	0	0	0
1.23	$5.38 \cdot 10^{-3}$	$9.51 \cdot 10^{-4}$	0	0	$7.14 \cdot 10^{-4}$	$5.05 \cdot 10^{-4}$
1.25	$8.82 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$7.15 \cdot 10^{-4}$	$4.13 \cdot 10^{-4}$	$1.06 \cdot 10^{-3}$	$8.24 \cdot 10^{-4}$
1.28	$1.94 \cdot 10^{-2}$	$2.44 \cdot 10^{-3}$	$2.86 \cdot 10^{-3}$	$8.26 \cdot 10^{-4}$	$4.19 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
1.3	$3.95 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$	$1.22 \cdot 10^{-2}$	$1.7 \cdot 10^{-3}$	$3.74 \cdot 10^{-2}$	$4.78 \cdot 10^{-3}$
1.33	$7.84 \cdot 10^{-2}$	$8.36 \cdot 10^{-3}$	$3.51 \cdot 10^{-2}$	$2.89 \cdot 10^{-3}$	0.12	$8.71 \cdot 10^{-3}$
1.35	0.14	$1.43 \cdot 10^{-2}$	$7.63 \cdot 10^{-2}$	$4.27 \cdot 10^{-3}$	0.2	$1.2 \cdot 10^{-2}$
1.38	0.2	$2.06 \cdot 10^{-2}$	0.13	$5.53 \cdot 10^{-3}$	0.24	$1.48 \cdot 10^{-2}$
1.4	0.29	$2.96 \cdot 10^{-2}$	0.18	$6.56 \cdot 10^{-3}$	0.32	$1.85 \cdot 10^{-2}$
1.43	0.37	$3.71 \cdot 10^{-2}$	0.27	$8 \cdot 10^{-3}$	0.35	$2.1 \cdot 10^{-2}$
1.45	0.47	$4.73 \cdot 10^{-2}$	0.34	$9.01 \cdot 10^{-3}$	0.43	$2.5 \cdot 10^{-2}$
1.48	0.57	$5.77 \cdot 10^{-2}$	0.49	$1.08 \cdot 10^{-2}$	0.59	$3.04 \cdot 10^{-2}$
1.5	0.68	$6.82 \cdot 10^{-2}$	0.63	$1.23 \cdot 10^{-2}$	0.88	$3.69 \cdot 10^{-2}$
1.53	0.77	$7.68 \cdot 10^{-2}$	0.78	$1.37 \cdot 10^{-2}$	1.15	$4.22 \cdot 10^{-2}$
1.55	0.9	$8.98 \cdot 10^{-2}$	0.93	$1.49 \cdot 10^{-2}$	1.21	$4.31 \cdot 10^{-2}$
1.58	0.98	$9.86 \cdot 10^{-2}$	1.04	$1.58 \cdot 10^{-2}$	1.2	$4.3 \cdot 10^{-2}$
1.6	1.13	0.11	1.19	$1.69 \cdot 10^{-2}$	1.09	$4.07 \cdot 10^{-2}$
1.63	1.28	0.13	1.36	$1.8 \cdot 10^{-2}$	1.12	$4.17 \cdot 10^{-2}$
1.65	1.46	0.15	1.56	$1.93 \cdot 10^{-2}$	1.24	$4.43 \cdot 10^{-2}$
1.68	1.65	0.16	1.81	$2.08 \cdot 10^{-2}$	1.42	$4.89 \cdot 10^{-2}$

TABLE 12 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.82	0.18	1.97	$2.17 \cdot 10^{-2}$	1.54	$5.19 \cdot 10^{-2}$
1.73	1.95	0.19	2.06	$2.22 \cdot 10^{-2}$	1.51	$5.22 \cdot 10^{-2}$
1.75	2.08	0.21	2.21	$2.3 \cdot 10^{-2}$	1.36	$4.94 \cdot 10^{-2}$
1.78	2.18	0.22	2.2	$2.29 \cdot 10^{-2}$	1.25	$4.56 \cdot 10^{-2}$
1.8	2.3	0.23	2.31	$2.35 \cdot 10^{-2}$	1.13	$4.27 \cdot 10^{-2}$
1.83	2.39	0.24	2.43	$2.41 \cdot 10^{-2}$	1.09	$4.02 \cdot 10^{-2}$
1.85	2.5	0.25	2.54	$2.46 \cdot 10^{-2}$	1.02	$3.83 \cdot 10^{-2}$
1.88	2.6	0.26	2.61	$2.49 \cdot 10^{-2}$	1	$3.74 \cdot 10^{-2}$
1.9	2.71	0.27	2.76	$2.56 \cdot 10^{-2}$	0.92	$3.44 \cdot 10^{-2}$
1.93	2.84	0.28	2.85	$2.61 \cdot 10^{-2}$	0.87	$3.29 \cdot 10^{-2}$
1.95	2.96	0.3	2.87	$2.62 \cdot 10^{-2}$	0.8	$3.25 \cdot 10^{-2}$
1.98	3.06	0.31	2.96	$2.66 \cdot 10^{-2}$	0.78	$3.33 \cdot 10^{-2}$
2	3.2	0.32	3.05	$2.69 \cdot 10^{-2}$	0.72	$3.3 \cdot 10^{-2}$
2.03	3.28	0.33	3.14	$2.74 \cdot 10^{-2}$	0.69	$3.24 \cdot 10^{-2}$
2.05	3.42	0.34	3.17	$2.75 \cdot 10^{-2}$	0.67	$3.23 \cdot 10^{-2}$
2.08	3.48	0.35	3.23	$2.77 \cdot 10^{-2}$	0.63	$2.97 \cdot 10^{-2}$
2.1	3.57	0.36	3.28	$2.8 \cdot 10^{-2}$	0.58	$2.71 \cdot 10^{-2}$
2.13	3.66	0.36	3.3	$2.8 \cdot 10^{-2}$	0.54	$2.53 \cdot 10^{-2}$
2.15	3.65	0.36	3.33	$2.82 \cdot 10^{-2}$	0.5	$2.47 \cdot 10^{-2}$
2.18	3.69	0.37	3.31	$2.81 \cdot 10^{-2}$	0.44	$2.23 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 13. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.83 \cdot 10^{-3}$	$5.6 \cdot 10^{-4}$	0	0	0	0
1.15	$2.44 \cdot 10^{-3}$	$6.58 \cdot 10^{-4}$	0	0	0	0
1.18	$3.82 \cdot 10^{-3}$	$8.53 \cdot 10^{-4}$	0	0	0	0
1.2	$3.36 \cdot 10^{-3}$	$7.91 \cdot 10^{-4}$	0	0	0	0
1.23	$5.04 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$	0	0	0	0
1.25	$7.48 \cdot 10^{-3}$	$1.3 \cdot 10^{-3}$	0	0	0	0
1.28	$1.02 \cdot 10^{-2}$	$1.61 \cdot 10^{-3}$	0	0	$3.47 \cdot 10^{-4}$	$3.47 \cdot 10^{-4}$
1.3	$1.3 \cdot 10^{-2}$	$1.91 \cdot 10^{-3}$	$3.18 \cdot 10^{-4}$	$3.18 \cdot 10^{-4}$	$9.62 \cdot 10^{-4}$	$7.73 \cdot 10^{-4}$
1.33	$4.05 \cdot 10^{-2}$	$4.73 \cdot 10^{-3}$	$8.9 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	$2.11 \cdot 10^{-2}$	$3.92 \cdot 10^{-3}$
1.35	0.1	$1.08 \cdot 10^{-2}$	$4.01 \cdot 10^{-2}$	$3.57 \cdot 10^{-3}$	$9.56 \cdot 10^{-2}$	$8.92 \cdot 10^{-3}$
1.38	0.22	$2.3 \cdot 10^{-2}$	$9.89 \cdot 10^{-2}$	$5.61 \cdot 10^{-3}$	0.28	$1.58 \cdot 10^{-2}$
1.4	0.41	$4.11 \cdot 10^{-2}$	0.22	$8.41 \cdot 10^{-3}$	0.45	$2.24 \cdot 10^{-2}$
1.43	0.57	$5.8 \cdot 10^{-2}$	0.31	$1 \cdot 10^{-2}$	0.62	$2.77 \cdot 10^{-2}$
1.45	0.79	$7.89 \cdot 10^{-2}$	0.51	$1.27 \cdot 10^{-2}$	0.78	$3.37 \cdot 10^{-2}$
1.48	1.03	0.1	0.7	$1.49 \cdot 10^{-2}$	1.09	$4.37 \cdot 10^{-2}$
1.5	1.21	0.12	0.94	$1.73 \cdot 10^{-2}$	1.57	$5.72 \cdot 10^{-2}$
1.53	1.43	0.14	1.22	$1.97 \cdot 10^{-2}$	1.93	$6.38 \cdot 10^{-2}$
1.55	1.6	0.16	1.46	$2.15 \cdot 10^{-2}$	2.12	$6.72 \cdot 10^{-2}$
1.58	1.8	0.18	1.62	$2.27 \cdot 10^{-2}$	2.01	$6.43 \cdot 10^{-2}$
1.6	2.06	0.21	1.91	$2.46 \cdot 10^{-2}$	2	$6.32 \cdot 10^{-2}$
1.63	2.37	0.24	2.16	$2.62 \cdot 10^{-2}$	2.11	$6.48 \cdot 10^{-2}$
1.65	2.76	0.28	2.55	$2.85 \cdot 10^{-2}$	2.4	$6.85 \cdot 10^{-2}$
1.68	3.08	0.31	2.92	$3.05 \cdot 10^{-2}$	2.72	$7.13 \cdot 10^{-2}$

TABLE 13 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	3.4	0.34	3.29	$3.23 \cdot 10^{-2}$	3.01	$7.4 \cdot 10^{-2}$
1.73	3.73	0.37	3.51	$3.34 \cdot 10^{-2}$	2.87	$7.73 \cdot 10^{-2}$
1.75	3.86	0.39	3.66	$3.41 \cdot 10^{-2}$	2.58	$7.6 \cdot 10^{-2}$
1.78	4.05	0.4	3.8	$3.47 \cdot 10^{-2}$	2.46	$7.64 \cdot 10^{-2}$
1.8	4.2	0.42	4.05	$3.59 \cdot 10^{-2}$	2.3	$7.28 \cdot 10^{-2}$
1.83	4.35	0.43	4.25	$3.67 \cdot 10^{-2}$	2.16	$6.94 \cdot 10^{-2}$
1.85	4.54	0.45	4.48	$3.77 \cdot 10^{-2}$	2.04	$6.62 \cdot 10^{-2}$
1.88	4.75	0.47	4.68	$3.86 \cdot 10^{-2}$	1.95	$6.24 \cdot 10^{-2}$
1.9	4.94	0.49	4.79	$3.9 \cdot 10^{-2}$	1.85	$5.92 \cdot 10^{-2}$
1.93	5.13	0.51	4.95	$3.97 \cdot 10^{-2}$	1.73	$5.71 \cdot 10^{-2}$
1.95	5.38	0.54	5.2	$4.06 \cdot 10^{-2}$	1.58	$5.32 \cdot 10^{-2}$
1.98	5.57	0.56	5.31	$4.11 \cdot 10^{-2}$	1.53	$5.18 \cdot 10^{-2}$
2	5.72	0.57	5.44	$4.16 \cdot 10^{-2}$	1.43	$5.01 \cdot 10^{-2}$
2.03	5.92	0.59	5.54	$4.2 \cdot 10^{-2}$	1.31	$4.75 \cdot 10^{-2}$
2.05	6.08	0.61	5.69	$4.25 \cdot 10^{-2}$	1.28	$4.81 \cdot 10^{-2}$
2.08	6.32	0.63	5.79	$4.29 \cdot 10^{-2}$	1.23	$4.94 \cdot 10^{-2}$
2.1	6.4	0.64	5.85	$4.31 \cdot 10^{-2}$	1.18	$4.77 \cdot 10^{-2}$
2.13	6.65	0.66	5.88	$4.32 \cdot 10^{-2}$	1.14	$4.59 \cdot 10^{-2}$
2.15	6.74	0.67	5.97	$4.36 \cdot 10^{-2}$	1.07	$4.28 \cdot 10^{-2}$
2.18	6.83	0.68	6.07	$4.39 \cdot 10^{-2}$	0.98	$3.98 \cdot 10^{-2}$
2.2	6.99	0.7	6.12	$4.41 \cdot 10^{-2}$	0.91	$3.77 \cdot 10^{-2}$
2.23	7.05	0.7	6.02	$4.37 \cdot 10^{-2}$	0.81	$3.59 \cdot 10^{-2}$
2.25	7.21	0.72	6.15	$4.42 \cdot 10^{-2}$	0.71	$3.34 \cdot 10^{-2}$
2.28	7.25	0.72	6.1	$4.4 \cdot 10^{-2}$	0.62	$3.06 \cdot 10^{-2}$

B.2 2D CROSS SECTION TABLES FOR $D(E, E'\Pi^-)$

TABLE 14. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0$ GeV²).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0$ GeV ²						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$1.9 \cdot 10^{-3}$	$4.99 \cdot 10^{-4}$	$3.18 \cdot 10^{-4}$	$2.25 \cdot 10^{-4}$	$2 \cdot 10^{-4}$	$2 \cdot 10^{-4}$
1.15	$3.07 \cdot 10^{-3}$	$6.93 \cdot 10^{-4}$	$2.07 \cdot 10^{-3}$	$5.73 \cdot 10^{-4}$	$1.74 \cdot 10^{-3}$	$7.49 \cdot 10^{-4}$
1.18	$5.96 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$6.16 \cdot 10^{-4}$	$4.84 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$
1.2	$7.58 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$	$9.54 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	$8.75 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
1.23	$1.29 \cdot 10^{-2}$	$2.18 \cdot 10^{-3}$	$1.62 \cdot 10^{-2}$	$1.61 \cdot 10^{-3}$	$2.37 \cdot 10^{-2}$	$2.92 \cdot 10^{-3}$
1.25	$1.61 \cdot 10^{-2}$	$2.65 \cdot 10^{-3}$	$1.78 \cdot 10^{-2}$	$1.68 \cdot 10^{-3}$	$4.23 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$
1.28	$2.27 \cdot 10^{-2}$	$3.64 \cdot 10^{-3}$	$2.7 \cdot 10^{-2}$	$2.07 \cdot 10^{-3}$	$4.23 \cdot 10^{-2}$	$4.78 \cdot 10^{-3}$
1.3	$2.99 \cdot 10^{-2}$	$4.69 \cdot 10^{-3}$	$3.51 \cdot 10^{-2}$	$2.36 \cdot 10^{-3}$	$4.87 \cdot 10^{-2}$	$5.73 \cdot 10^{-3}$
1.33	$3.99 \cdot 10^{-2}$	$6.16 \cdot 10^{-3}$	$4.07 \cdot 10^{-2}$	$2.54 \cdot 10^{-3}$	$4.81 \cdot 10^{-2}$	$6.18 \cdot 10^{-3}$
1.35	$4.6 \cdot 10^{-2}$	$7.05 \cdot 10^{-3}$	$4.69 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$	$5.42 \cdot 10^{-2}$	$6.55 \cdot 10^{-3}$
1.38	$4.98 \cdot 10^{-2}$	$7.62 \cdot 10^{-3}$	$5.47 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$	$4.76 \cdot 10^{-2}$	$6.3 \cdot 10^{-3}$
1.4	$5.83 \cdot 10^{-2}$	$8.87 \cdot 10^{-3}$	$6.61 \cdot 10^{-2}$	$3.24 \cdot 10^{-3}$	$4.36 \cdot 10^{-2}$	$5.97 \cdot 10^{-3}$
1.43	$7.08 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$	$7.52 \cdot 10^{-2}$	$3.46 \cdot 10^{-3}$	$4.58 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$
1.45	$7.48 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	$9.28 \cdot 10^{-2}$	$3.84 \cdot 10^{-3}$	$4.61 \cdot 10^{-2}$	$5.85 \cdot 10^{-3}$
1.48	$8.15 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	0.1	$4.08 \cdot 10^{-3}$	$5.02 \cdot 10^{-2}$	$7.45 \cdot 10^{-3}$
1.5	$9.49 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$	0.11	$4.24 \cdot 10^{-3}$	$4.72 \cdot 10^{-2}$	$7.21 \cdot 10^{-3}$
1.53	0.11	$1.64 \cdot 10^{-2}$	0.15	$4.84 \cdot 10^{-3}$	$5.54 \cdot 10^{-2}$	$8.25 \cdot 10^{-3}$
1.55	0.12	$1.74 \cdot 10^{-2}$	0.16	$5.04 \cdot 10^{-3}$	$5.79 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$
1.58	0.12	$1.79 \cdot 10^{-2}$	0.19	$5.52 \cdot 10^{-3}$	$5.76 \cdot 10^{-2}$	$7.89 \cdot 10^{-3}$
1.6	0.13	$2.01 \cdot 10^{-2}$	0.21	$5.82 \cdot 10^{-3}$	$5.26 \cdot 10^{-2}$	$7.48 \cdot 10^{-3}$
1.63	0.15	$2.21 \cdot 10^{-2}$	0.26	$6.42 \cdot 10^{-3}$	$4.68 \cdot 10^{-2}$	$7.2 \cdot 10^{-3}$
1.65	0.16	$2.35 \cdot 10^{-2}$	0.29	$6.84 \cdot 10^{-3}$	$4.54 \cdot 10^{-2}$	$6.64 \cdot 10^{-3}$
1.68	0.17	$2.6 \cdot 10^{-2}$	0.32	$7.17 \cdot 10^{-3}$	$3.22 \cdot 10^{-2}$	$5.52 \cdot 10^{-3}$

TABLE 14 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.19	$2.84 \cdot 10^{-2}$	0.33	$7.2 \cdot 10^{-3}$	$4.3 \cdot 10^{-2}$	$6.6 \cdot 10^{-3}$
1.73	0.2	$3.03 \cdot 10^{-2}$	0.34	$7.32 \cdot 10^{-3}$	$3.43 \cdot 10^{-2}$	$5.53 \cdot 10^{-3}$
1.75	0.22	$3.27 \cdot 10^{-2}$	0.34	$7.3 \cdot 10^{-3}$	$3.06 \cdot 10^{-2}$	$4.82 \cdot 10^{-3}$
1.78	0.23	$3.42 \cdot 10^{-2}$	0.34	$7.35 \cdot 10^{-3}$	$3.14 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
1.8	0.25	$3.66 \cdot 10^{-2}$	0.35	$7.48 \cdot 10^{-3}$	$3.38 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$
1.83	0.24	$3.59 \cdot 10^{-2}$	0.33	$7.24 \cdot 10^{-3}$	$3.33 \cdot 10^{-2}$	$5.93 \cdot 10^{-3}$
1.85	0.26	$3.82 \cdot 10^{-2}$	0.32	$7.17 \cdot 10^{-3}$	$3.02 \cdot 10^{-2}$	$5.28 \cdot 10^{-3}$
1.88	0.27	$4.03 \cdot 10^{-2}$	0.33	$7.29 \cdot 10^{-3}$	$2.83 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$
1.9	0.26	$3.89 \cdot 10^{-2}$	0.33	$7.28 \cdot 10^{-3}$	$2.93 \cdot 10^{-2}$	$5.04 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 15. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.38 \cdot 10^{-3}$	$6.17 \cdot 10^{-4}$	0	0	0	0
1.15	$3.14 \cdot 10^{-3}$	$7.44 \cdot 10^{-4}$	$3.82 \cdot 10^{-4}$	$2.7 \cdot 10^{-4}$	0	0
1.18	$4.77 \cdot 10^{-3}$	$1 \cdot 10^{-3}$	$7.63 \cdot 10^{-4}$	$3.82 \cdot 10^{-4}$	$1 \cdot 10^{-3}$	$7.1 \cdot 10^{-4}$
1.2	$9.42 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$	$5.15 \cdot 10^{-3}$	$9.91 \cdot 10^{-4}$	$1.49 \cdot 10^{-3}$	$5.26 \cdot 10^{-4}$
1.23	$1.68 \cdot 10^{-2}$	$2.81 \cdot 10^{-3}$	$9.16 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$1.79 \cdot 10^{-2}$	$2.69 \cdot 10^{-3}$
1.25	$3.27 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$	$2.67 \cdot 10^{-2}$	$2.26 \cdot 10^{-3}$	$5.2 \cdot 10^{-2}$	$4.84 \cdot 10^{-3}$
1.28	$4.92 \cdot 10^{-2}$	$7.59 \cdot 10^{-3}$	$4.6 \cdot 10^{-2}$	$2.96 \cdot 10^{-3}$	$8.74 \cdot 10^{-2}$	$6.19 \cdot 10^{-3}$
1.3	$7.03 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$	$6.3 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	0.12	$7.24 \cdot 10^{-3}$
1.33	$9.49 \cdot 10^{-2}$	$1.43 \cdot 10^{-2}$	$8.76 \cdot 10^{-2}$	$4.09 \cdot 10^{-3}$	0.14	$9.62 \cdot 10^{-3}$
1.35	0.13	$1.91 \cdot 10^{-2}$	0.11	$4.68 \cdot 10^{-3}$	0.16	$1.15 \cdot 10^{-2}$
1.38	0.15	$2.2 \cdot 10^{-2}$	0.13	$4.96 \cdot 10^{-3}$	0.16	$1.22 \cdot 10^{-2}$
1.4	0.17	$2.51 \cdot 10^{-2}$	0.14	$5.1 \cdot 10^{-3}$	0.17	$1.32 \cdot 10^{-2}$
1.43	0.19	$2.88 \cdot 10^{-2}$	0.17	$5.64 \cdot 10^{-3}$	0.19	$1.42 \cdot 10^{-2}$
1.45	0.23	$3.37 \cdot 10^{-2}$	0.2	$6.18 \cdot 10^{-3}$	0.18	$1.4 \cdot 10^{-2}$
1.48	0.26	$3.91 \cdot 10^{-2}$	0.23	$6.67 \cdot 10^{-3}$	0.19	$1.45 \cdot 10^{-2}$
1.5	0.29	$4.28 \cdot 10^{-2}$	0.27	$7.13 \cdot 10^{-3}$	0.21	$1.54 \cdot 10^{-2}$
1.53	0.32	$4.72 \cdot 10^{-2}$	0.31	$7.72 \cdot 10^{-3}$	0.25	$1.69 \cdot 10^{-2}$
1.55	0.35	$5.24 \cdot 10^{-2}$	0.38	$8.56 \cdot 10^{-3}$	0.26	$1.74 \cdot 10^{-2}$
1.58	0.39	$5.78 \cdot 10^{-2}$	0.44	$9.18 \cdot 10^{-3}$	0.23	$1.68 \cdot 10^{-2}$
1.6	0.42	$6.14 \cdot 10^{-2}$	0.55	$1.02 \cdot 10^{-2}$	0.22	$1.69 \cdot 10^{-2}$
1.63	0.46	$6.77 \cdot 10^{-2}$	0.61	$1.08 \cdot 10^{-2}$	0.21	$1.75 \cdot 10^{-2}$
1.65	0.5	$7.36 \cdot 10^{-2}$	0.7	$1.16 \cdot 10^{-2}$	0.19	$1.61 \cdot 10^{-2}$
1.68	0.56	$8.27 \cdot 10^{-2}$	0.8	$1.24 \cdot 10^{-2}$	0.18	$1.58 \cdot 10^{-2}$

TABLE 15 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.59	$8.71 \cdot 10^{-2}$	0.83	$1.26 \cdot 10^{-2}$	0.16	$1.46 \cdot 10^{-2}$
1.73	0.61	$9.07 \cdot 10^{-2}$	0.89	$1.3 \cdot 10^{-2}$	0.16	$1.43 \cdot 10^{-2}$
1.75	0.65	$9.65 \cdot 10^{-2}$	0.83	$1.26 \cdot 10^{-2}$	0.16	$1.37 \cdot 10^{-2}$
1.78	0.68	0.1	0.84	$1.26 \cdot 10^{-2}$	0.15	$1.35 \cdot 10^{-2}$
1.8	0.69	0.1	0.84	$1.27 \cdot 10^{-2}$	0.15	$1.34 \cdot 10^{-2}$
1.83	0.71	0.1	0.84	$1.27 \cdot 10^{-2}$	0.14	$1.23 \cdot 10^{-2}$
1.85	0.71	0.1	0.87	$1.29 \cdot 10^{-2}$	0.14	$1.23 \cdot 10^{-2}$
1.88	0.75	0.11	0.87	$1.29 \cdot 10^{-2}$	0.14	$1.25 \cdot 10^{-2}$
1.9	0.76	0.11	0.87	$1.29 \cdot 10^{-2}$	0.12	$1.17 \cdot 10^{-2}$
1.93	0.77	0.11	0.87	$1.29 \cdot 10^{-2}$	0.11	$1.23 \cdot 10^{-2}$
1.95	0.8	0.12	0.87	$1.29 \cdot 10^{-2}$	0.11	$1.2 \cdot 10^{-2}$
1.98	0.79	0.12	0.88	$1.29 \cdot 10^{-2}$	$9.34 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
2	0.84	0.12	0.83	$1.26 \cdot 10^{-2}$	$8.41 \cdot 10^{-2}$	$9.61 \cdot 10^{-3}$
2.03	0.82	0.12	0.84	$1.26 \cdot 10^{-2}$	$9.05 \cdot 10^{-2}$	$9.29 \cdot 10^{-3}$
2.05	0.82	0.12	0.81	$1.24 \cdot 10^{-2}$	$7.13 \cdot 10^{-2}$	$8.72 \cdot 10^{-3}$
2.08	0.82	0.12	0.8	$1.23 \cdot 10^{-2}$	$6.51 \cdot 10^{-2}$	$7.53 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 16. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$8.12 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	0	0	0	0
1.15	$1.9 \cdot 10^{-3}$	$5.78 \cdot 10^{-4}$	0	0	0	0
1.18	$2.17 \cdot 10^{-3}$	$6.28 \cdot 10^{-4}$	0	0	0	0
1.2	$4.33 \cdot 10^{-3}$	$9.96 \cdot 10^{-4}$	0	0	$4.63 \cdot 10^{-4}$	$4.63 \cdot 10^{-4}$
1.23	$8.67 \cdot 10^{-3}$	$1.67 \cdot 10^{-3}$	$7.15 \cdot 10^{-4}$	$4.13 \cdot 10^{-4}$	$7.04 \cdot 10^{-4}$	$4.07 \cdot 10^{-4}$
1.25	$2.07 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$4.53 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	$9.99 \cdot 10^{-3}$	$2.17 \cdot 10^{-3}$
1.28	$4.56 \cdot 10^{-2}$	$7.15 \cdot 10^{-3}$	$2.34 \cdot 10^{-2}$	$2.36 \cdot 10^{-3}$	$5.32 \cdot 10^{-2}$	$4.9 \cdot 10^{-3}$
1.3	$8.75 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$	$6.84 \cdot 10^{-2}$	$4.04 \cdot 10^{-3}$	0.18	$1.01 \cdot 10^{-2}$
1.33	0.16	$2.4 \cdot 10^{-2}$	0.11	$5.03 \cdot 10^{-3}$	0.3	$1.4 \cdot 10^{-2}$
1.35	0.22	$3.35 \cdot 10^{-2}$	0.18	$6.52 \cdot 10^{-3}$	0.41	$1.68 \cdot 10^{-2}$
1.38	0.31	$4.54 \cdot 10^{-2}$	0.23	$7.45 \cdot 10^{-3}$	0.47	$2 \cdot 10^{-2}$
1.4	0.37	$5.48 \cdot 10^{-2}$	0.27	$8.03 \cdot 10^{-3}$	0.51	$2.28 \cdot 10^{-2}$
1.43	0.45	$6.59 \cdot 10^{-2}$	0.33	$8.93 \cdot 10^{-3}$	0.51	$2.49 \cdot 10^{-2}$
1.45	0.52	$7.69 \cdot 10^{-2}$	0.4	$9.72 \cdot 10^{-3}$	0.57	$2.83 \cdot 10^{-2}$
1.48	0.6	$8.82 \cdot 10^{-2}$	0.47	$1.05 \cdot 10^{-2}$	0.67	$3.14 \cdot 10^{-2}$
1.5	0.66	$9.69 \cdot 10^{-2}$	0.54	$1.14 \cdot 10^{-2}$	0.77	$3.39 \cdot 10^{-2}$
1.53	0.73	0.11	0.67	$1.26 \cdot 10^{-2}$	0.86	$3.54 \cdot 10^{-2}$
1.55	0.82	0.12	0.78	$1.37 \cdot 10^{-2}$	0.91	$3.6 \cdot 10^{-2}$
1.58	0.87	0.13	0.92	$1.48 \cdot 10^{-2}$	0.83	$3.39 \cdot 10^{-2}$
1.6	0.94	0.14	1.07	$1.6 \cdot 10^{-2}$	0.74	$3.17 \cdot 10^{-2}$
1.63	1.05	0.15	1.29	$1.76 \cdot 10^{-2}$	0.68	$3.06 \cdot 10^{-2}$
1.65	1.19	0.17	1.51	$1.9 \cdot 10^{-2}$	0.65	$3.22 \cdot 10^{-2}$
1.68	1.28	0.19	1.74	$2.04 \cdot 10^{-2}$	0.64	$3.34 \cdot 10^{-2}$

TABLE 16 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.38	0.2	1.86	$2.11 \cdot 10^{-2}$	0.65	$3.39 \cdot 10^{-2}$
1.73	1.49	0.22	1.95	$2.16 \cdot 10^{-2}$	0.62	$3.29 \cdot 10^{-2}$
1.75	1.56	0.23	1.94	$2.15 \cdot 10^{-2}$	0.6	$3.3 \cdot 10^{-2}$
1.78	1.6	0.24	1.87	$2.11 \cdot 10^{-2}$	0.58	$3.16 \cdot 10^{-2}$
1.8	1.66	0.24	1.9	$2.13 \cdot 10^{-2}$	0.56	$3.01 \cdot 10^{-2}$
1.83	1.71	0.25	1.92	$2.14 \cdot 10^{-2}$	0.51	$2.86 \cdot 10^{-2}$
1.85	1.74	0.26	1.96	$2.16 \cdot 10^{-2}$	0.49	$2.69 \cdot 10^{-2}$
1.88	1.82	0.27	2	$2.18 \cdot 10^{-2}$	0.48	$2.65 \cdot 10^{-2}$
1.9	1.9	0.28	2	$2.19 \cdot 10^{-2}$	0.43	$2.46 \cdot 10^{-2}$
1.93	1.93	0.28	2.03	$2.2 \cdot 10^{-2}$	0.41	$2.32 \cdot 10^{-2}$
1.95	2.01	0.3	2.01	$2.19 \cdot 10^{-2}$	0.38	$2.31 \cdot 10^{-2}$
1.98	2.04	0.3	1.96	$2.16 \cdot 10^{-2}$	0.36	$2.24 \cdot 10^{-2}$
2	2.09	0.31	1.96	$2.16 \cdot 10^{-2}$	0.33	$2.25 \cdot 10^{-2}$
2.03	2.11	0.31	1.95	$2.16 \cdot 10^{-2}$	0.31	$2.18 \cdot 10^{-2}$
2.05	2.12	0.31	1.91	$2.14 \cdot 10^{-2}$	0.29	$2.11 \cdot 10^{-2}$
2.08	2.12	0.31	1.87	$2.11 \cdot 10^{-2}$	0.29	$2.05 \cdot 10^{-2}$
2.1	2.15	0.32	1.8	$2.07 \cdot 10^{-2}$	0.23	$1.7 \cdot 10^{-2}$
2.13	2.17	0.32	1.76	$2.05 \cdot 10^{-2}$	0.22	$1.58 \cdot 10^{-2}$
2.15	2.15	0.32	1.76	$2.05 \cdot 10^{-2}$	0.2	$1.55 \cdot 10^{-2}$
2.18	2.12	0.31	1.7	$2.01 \cdot 10^{-2}$	0.17	$1.48 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 17. 2D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.62 \cdot 10^{-3}$	$5.92 \cdot 10^{-4}$	0	0	0	0
1.15	$1.26 \cdot 10^{-3}$	$5.13 \cdot 10^{-4}$	0	0	0	0
1.18	$1.62 \cdot 10^{-3}$	$5.92 \cdot 10^{-4}$	0	0	0	0
1.2	$3.25 \cdot 10^{-3}$	$9.03 \cdot 10^{-4}$	0	0	0	0
1.23	$2.71 \cdot 10^{-3}$	$8.05 \cdot 10^{-4}$	0	0	0	0
1.25	$3.97 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$	0	0	0	0
1.28	$1.16 \cdot 10^{-2}$	$2.23 \cdot 10^{-3}$	$2.23 \cdot 10^{-3}$	$8.41 \cdot 10^{-4}$	$1.59 \cdot 10^{-3}$	$9.25 \cdot 10^{-4}$
1.3	$3.57 \cdot 10^{-2}$	$5.84 \cdot 10^{-3}$	$7.31 \cdot 10^{-3}$	$1.52 \cdot 10^{-3}$	$3.1 \cdot 10^{-2}$	$4.31 \cdot 10^{-3}$
1.33	0.11	$1.73 \cdot 10^{-2}$	$5.95 \cdot 10^{-2}$	$4.35 \cdot 10^{-3}$	0.19	$1.18 \cdot 10^{-2}$
1.35	0.25	$3.69 \cdot 10^{-2}$	0.16	$7.03 \cdot 10^{-3}$	0.54	$2.1 \cdot 10^{-2}$
1.38	0.45	$6.66 \cdot 10^{-2}$	0.27	$9.19 \cdot 10^{-3}$	0.82	$2.66 \cdot 10^{-2}$
1.4	0.65	$9.6 \cdot 10^{-2}$	0.41	$1.14 \cdot 10^{-2}$	1.05	$3.39 \cdot 10^{-2}$
1.43	0.87	0.13	0.52	$1.29 \cdot 10^{-2}$	1.23	$3.74 \cdot 10^{-2}$
1.45	1.05	0.15	0.66	$1.45 \cdot 10^{-2}$	1.37	$4.22 \cdot 10^{-2}$
1.48	1.22	0.18	0.78	$1.58 \cdot 10^{-2}$	1.59	$5.16 \cdot 10^{-2}$
1.5	1.39	0.2	0.99	$1.77 \cdot 10^{-2}$	1.93	$6.15 \cdot 10^{-2}$
1.53	1.54	0.23	1.14	$1.9 \cdot 10^{-2}$	2.18	$6.68 \cdot 10^{-2}$
1.55	1.63	0.24	1.31	$2.04 \cdot 10^{-2}$	2.26	$6.74 \cdot 10^{-2}$
1.58	1.72	0.25	1.5	$2.19 \cdot 10^{-2}$	2	$6.23 \cdot 10^{-2}$
1.6	1.9	0.28	1.7	$2.32 \cdot 10^{-2}$	1.82	$5.92 \cdot 10^{-2}$
1.63	2.11	0.31	2.07	$2.57 \cdot 10^{-2}$	1.7	$5.75 \cdot 10^{-2}$
1.65	2.35	0.35	2.54	$2.84 \cdot 10^{-2}$	1.62	$5.62 \cdot 10^{-2}$
1.68	2.53	0.37	2.98	$3.08 \cdot 10^{-2}$	1.58	$5.49 \cdot 10^{-2}$

TABLE 17 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.78	0.41	3.25	$3.22 \cdot 10^{-2}$	1.65	$5.62 \cdot 10^{-2}$
1.73	2.99	0.44	3.39	$3.28 \cdot 10^{-2}$	1.63	$5.91 \cdot 10^{-2}$
1.75	3.15	0.46	3.42	$3.3 \cdot 10^{-2}$	1.52	$5.92 \cdot 10^{-2}$
1.78	3.25	0.48	3.39	$3.28 \cdot 10^{-2}$	1.46	$5.92 \cdot 10^{-2}$
1.8	3.31	0.49	3.49	$3.33 \cdot 10^{-2}$	1.39	$5.76 \cdot 10^{-2}$
1.83	3.43	0.5	3.51	$3.34 \cdot 10^{-2}$	1.27	$5.52 \cdot 10^{-2}$
1.85	3.53	0.52	3.62	$3.39 \cdot 10^{-2}$	1.24	$5.27 \cdot 10^{-2}$
1.88	3.61	0.53	3.61	$3.39 \cdot 10^{-2}$	1.18	$5.13 \cdot 10^{-2}$
1.9	3.76	0.55	3.67	$3.42 \cdot 10^{-2}$	1.08	$4.74 \cdot 10^{-2}$
1.93	3.79	0.56	3.69	$3.42 \cdot 10^{-2}$	1	$4.39 \cdot 10^{-2}$
1.95	3.91	0.57	3.69	$3.43 \cdot 10^{-2}$	0.94	$4.33 \cdot 10^{-2}$
1.98	3.93	0.58	3.58	$3.38 \cdot 10^{-2}$	0.88	$4.12 \cdot 10^{-2}$
2	3.98	0.59	3.56	$3.36 \cdot 10^{-2}$	0.83	$3.86 \cdot 10^{-2}$
2.03	4.1	0.6	3.56	$3.36 \cdot 10^{-2}$	0.77	$3.78 \cdot 10^{-2}$
2.05	4.08	0.6	3.53	$3.35 \cdot 10^{-2}$	0.66	$3.59 \cdot 10^{-2}$
2.08	4.09	0.6	3.47	$3.32 \cdot 10^{-2}$	0.64	$3.69 \cdot 10^{-2}$
2.1	4.17	0.61	3.35	$3.26 \cdot 10^{-2}$	0.57	$3.48 \cdot 10^{-2}$
2.13	4.16	0.61	3.3	$3.24 \cdot 10^{-2}$	0.56	$3.29 \cdot 10^{-2}$
2.15	4.15	0.61	3.24	$3.21 \cdot 10^{-2}$	0.5	$3.06 \cdot 10^{-2}$
2.18	4.13	0.61	3.12	$3.15 \cdot 10^{-2}$	0.47	$2.82 \cdot 10^{-2}$
2.2	4.12	0.61	3.04	$3.11 \cdot 10^{-2}$	0.39	$2.71 \cdot 10^{-2}$
2.23	4.16	0.61	2.92	$3.05 \cdot 10^{-2}$	0.36	$2.4 \cdot 10^{-2}$
2.25	4.2	0.62	2.81	$2.99 \cdot 10^{-2}$	0.31	$2.23 \cdot 10^{-2}$
2.28	4.13	0.61	2.81	$2.99 \cdot 10^{-2}$	0.28	$2.19 \cdot 10^{-2}$

B.3 3D CROSS SECTION TABLES FOR $D(E, E'\Pi^+)$ INTEGRATED OVER P_Π

TABLE 18. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV², $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV ² , $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$4.45 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	0	0	0	0
1.15	$5.01 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$3.47 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	0	0
1.18	$6.68 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$	$3.47 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	$2.41 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$
1.2	$1.95 \cdot 10^{-2}$	$3.82 \cdot 10^{-3}$	$8.11 \cdot 10^{-3}$	$3.06 \cdot 10^{-3}$	$1.75 \cdot 10^{-2}$	$7.13 \cdot 10^{-3}$
1.23	$3.12 \cdot 10^{-2}$	$5.19 \cdot 10^{-3}$	$1.51 \cdot 10^{-2}$	$4.17 \cdot 10^{-3}$	$4.86 \cdot 10^{-2}$	$9.25 \cdot 10^{-3}$
1.25	$4.73 \cdot 10^{-2}$	$6.96 \cdot 10^{-3}$	$4.05 \cdot 10^{-2}$	$6.85 \cdot 10^{-3}$	$8.94 \cdot 10^{-2}$	$1.4 \cdot 10^{-2}$
1.28	$6.68 \cdot 10^{-2}$	$9.02 \cdot 10^{-3}$	$5.33 \cdot 10^{-2}$	$7.85 \cdot 10^{-3}$	0.17	$2.07 \cdot 10^{-2}$
1.3	0.12	$1.43 \cdot 10^{-2}$	$6.95 \cdot 10^{-2}$	$8.97 \cdot 10^{-3}$	0.21	$2.46 \cdot 10^{-2}$
1.33	0.14	$1.7 \cdot 10^{-2}$	0.1	$1.08 \cdot 10^{-2}$	0.24	$2.6 \cdot 10^{-2}$
1.35	0.19	$2.17 \cdot 10^{-2}$	0.12	$1.19 \cdot 10^{-2}$	0.3	$2.73 \cdot 10^{-2}$
1.38	0.22	$2.5 \cdot 10^{-2}$	0.16	$1.36 \cdot 10^{-2}$	0.33	$2.73 \cdot 10^{-2}$
1.4	0.27	$2.92 \cdot 10^{-2}$	0.22	$1.59 \cdot 10^{-2}$	0.34	$2.55 \cdot 10^{-2}$
1.43	0.32	$3.47 \cdot 10^{-2}$	0.28	$1.81 \cdot 10^{-2}$	0.36	$2.89 \cdot 10^{-2}$
1.45	0.39	$4.18 \cdot 10^{-2}$	0.42	$2.2 \cdot 10^{-2}$	0.37	$3.12 \cdot 10^{-2}$
1.48	0.41	$4.32 \cdot 10^{-2}$	0.52	$2.46 \cdot 10^{-2}$	0.4	$3.35 \cdot 10^{-2}$
1.5	0.49	$5.17 \cdot 10^{-2}$	0.66	$2.76 \cdot 10^{-2}$	0.48	$3.71 \cdot 10^{-2}$
1.53	0.57	$5.94 \cdot 10^{-2}$	0.79	$3.03 \cdot 10^{-2}$	0.66	$4.54 \cdot 10^{-2}$
1.55	0.66	$6.8 \cdot 10^{-2}$	0.89	$3.21 \cdot 10^{-2}$	0.59	$4.44 \cdot 10^{-2}$
1.58	0.78	$8.01 \cdot 10^{-2}$	1.05	$3.49 \cdot 10^{-2}$	0.52	$3.92 \cdot 10^{-2}$
1.6	0.87	$8.89 \cdot 10^{-2}$	1.17	$3.68 \cdot 10^{-2}$	0.57	$3.84 \cdot 10^{-2}$
1.63	0.95	$9.75 \cdot 10^{-2}$	1.29	$3.87 \cdot 10^{-2}$	0.57	$3.73 \cdot 10^{-2}$
1.65	1.05	0.11	1.41	$4.04 \cdot 10^{-2}$	0.54	$3.67 \cdot 10^{-2}$
1.68	1.17	0.12	1.61	$4.32 \cdot 10^{-2}$	0.62	$3.65 \cdot 10^{-2}$

TABLE 18 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	1.19	0.12	1.79	$4.56 \cdot 10^{-2}$	0.69	$4.08 \cdot 10^{-2}$
1.73	1.35	0.14	1.84	$4.62 \cdot 10^{-2}$	0.7	$3.9 \cdot 10^{-2}$
1.75	1.38	0.14	1.91	$4.7 \cdot 10^{-2}$	0.55	$3.43 \cdot 10^{-2}$
1.78	1.47	0.15	2	$4.81 \cdot 10^{-2}$	0.47	$3.5 \cdot 10^{-2}$
1.8	1.52	0.15	2.14	$4.98 \cdot 10^{-2}$	0.44	$3.67 \cdot 10^{-2}$
1.83	1.64	0.17	2.16	$5 \cdot 10^{-2}$	0.44	$3.67 \cdot 10^{-2}$
1.85	1.56	0.16	2.23	$5.08 \cdot 10^{-2}$	0.45	$4.13 \cdot 10^{-2}$
1.88	1.62	0.16	2.39	$5.26 \cdot 10^{-2}$	0.38	$3.51 \cdot 10^{-2}$
1.9	1.65	0.17	2.31	$5.17 \cdot 10^{-2}$	0.37	$3.65 \cdot 10^{-2}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 19. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV², $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV ² , $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$2.39 \cdot 10^{-3}$	$7.91 \cdot 10^{-4}$	0	0	$5.42 \cdot 10^{-4}$	$5.42 \cdot 10^{-4}$
1.15	$4.29 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	0	0	0	0
1.18	$4.29 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$9.93 \cdot 10^{-4}$	$2.52 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$
1.2	$7.39 \cdot 10^{-3}$	$1.52 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$9.93 \cdot 10^{-4}$	$3.64 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$
1.23	$1.45 \cdot 10^{-2}$	$2.36 \cdot 10^{-3}$	$1.19 \cdot 10^{-2}$	$2.43 \cdot 10^{-3}$	$1.05 \cdot 10^{-2}$	$2.7 \cdot 10^{-3}$
1.25	$1.65 \cdot 10^{-2}$	$2.57 \cdot 10^{-3}$	$1.84 \cdot 10^{-2}$	$3.02 \cdot 10^{-3}$	$2.15 \cdot 10^{-2}$	$3.54 \cdot 10^{-3}$
1.28	$2.58 \cdot 10^{-2}$	$3.57 \cdot 10^{-3}$	$2.43 \cdot 10^{-2}$	$3.48 \cdot 10^{-3}$	$5.81 \cdot 10^{-2}$	$7.06 \cdot 10^{-3}$
1.3	$3.27 \cdot 10^{-2}$	$4.29 \cdot 10^{-3}$	$3.38 \cdot 10^{-2}$	$4.09 \cdot 10^{-3}$	$8.91 \cdot 10^{-2}$	$8.89 \cdot 10^{-3}$
1.33	$4.98 \cdot 10^{-2}$	$6.04 \cdot 10^{-3}$	$3.52 \cdot 10^{-2}$	$4.18 \cdot 10^{-3}$	$9.45 \cdot 10^{-2}$	$9.64 \cdot 10^{-3}$
1.35	$6.18 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$	$6.01 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$	0.13	$1.22 \cdot 10^{-2}$
1.38	$6.73 \cdot 10^{-2}$	$7.8 \cdot 10^{-3}$	$7.5 \cdot 10^{-2}$	$6.1 \cdot 10^{-3}$	0.11	$1.19 \cdot 10^{-2}$
1.4	$8.32 \cdot 10^{-2}$	$9.41 \cdot 10^{-3}$	$9.33 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$	0.13	$1.28 \cdot 10^{-2}$
1.43	0.1	$1.14 \cdot 10^{-2}$	0.12	$7.61 \cdot 10^{-3}$	$9.72 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.45	0.12	$1.31 \cdot 10^{-2}$	0.14	$8.44 \cdot 10^{-3}$	0.12	$1.13 \cdot 10^{-2}$
1.48	0.13	$1.39 \cdot 10^{-2}$	0.15	$8.61 \cdot 10^{-3}$	0.16	$1.17 \cdot 10^{-2}$
1.5	0.15	$1.58 \cdot 10^{-2}$	0.2	$9.89 \cdot 10^{-3}$	0.24	$1.43 \cdot 10^{-2}$
1.53	0.17	$1.83 \cdot 10^{-2}$	0.22	$1.05 \cdot 10^{-2}$	0.28	$1.57 \cdot 10^{-2}$
1.55	0.2	$2.1 \cdot 10^{-2}$	0.24	$1.09 \cdot 10^{-2}$	0.26	$1.62 \cdot 10^{-2}$
1.58	0.21	$2.16 \cdot 10^{-2}$	0.26	$1.15 \cdot 10^{-2}$	0.24	$1.7 \cdot 10^{-2}$
1.6	0.23	$2.36 \cdot 10^{-2}$	0.3	$1.23 \cdot 10^{-2}$	0.2	$1.69 \cdot 10^{-2}$
1.63	0.24	$2.47 \cdot 10^{-2}$	0.3	$1.22 \cdot 10^{-2}$	0.2	$1.68 \cdot 10^{-2}$
1.65	0.28	$2.89 \cdot 10^{-2}$	0.33	$1.27 \cdot 10^{-2}$	0.2	$1.67 \cdot 10^{-2}$
1.68	0.29	$3.03 \cdot 10^{-2}$	0.38	$1.37 \cdot 10^{-2}$	0.23	$1.78 \cdot 10^{-2}$

TABLE 19 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.31	$3.19 \cdot 10^{-2}$	0.39	$1.39 \cdot 10^{-2}$	0.25	$1.89 \cdot 10^{-2}$
1.73	0.34	$3.54 \cdot 10^{-2}$	0.4	$1.41 \cdot 10^{-2}$	0.24	$1.67 \cdot 10^{-2}$
1.75	0.38	$3.93 \cdot 10^{-2}$	0.44	$1.47 \cdot 10^{-2}$	0.21	$1.6 \cdot 10^{-2}$
1.78	0.43	$4.38 \cdot 10^{-2}$	0.39	$1.39 \cdot 10^{-2}$	0.17	$1.29 \cdot 10^{-2}$
1.8	0.46	$4.67 \cdot 10^{-2}$	0.46	$1.5 \cdot 10^{-2}$	0.15	$1.26 \cdot 10^{-2}$
1.83	0.44	$4.49 \cdot 10^{-2}$	0.44	$1.48 \cdot 10^{-2}$	0.12	$1.15 \cdot 10^{-2}$
1.85	0.49	$5 \cdot 10^{-2}$	0.48	$1.54 \cdot 10^{-2}$	0.12	$1.12 \cdot 10^{-2}$
1.88	0.53	$5.39 \cdot 10^{-2}$	0.51	$1.6 \cdot 10^{-2}$	0.12	$1.16 \cdot 10^{-2}$
1.9	0.55	$5.62 \cdot 10^{-2}$	0.54	$1.64 \cdot 10^{-2}$	0.11	$9.9 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 20. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV², $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV ² , $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$3.07 \cdot 10^{-4}$	$2.19 \cdot 10^{-4}$	0	0	0	0
1.15	$4.61 \cdot 10^{-4}$	$2.7 \cdot 10^{-4}$	0	0	0	0
1.18	$7.68 \cdot 10^{-4}$	$3.52 \cdot 10^{-4}$	0	0	0	0
1.2	$1.23 \cdot 10^{-3}$	$4.51 \cdot 10^{-4}$	$3.2 \cdot 10^{-4}$	$3.2 \cdot 10^{-4}$	0	0
1.23	$1.84 \cdot 10^{-3}$	$5.63 \cdot 10^{-4}$	0	0	0	0
1.25	$2.92 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	$6.39 \cdot 10^{-4}$	$4.52 \cdot 10^{-4}$	0	0
1.28	$4.15 \cdot 10^{-3}$	$8.99 \cdot 10^{-4}$	$1.28 \cdot 10^{-3}$	$6.39 \cdot 10^{-4}$	$6.65 \cdot 10^{-4}$	$4.7 \cdot 10^{-4}$
1.3	$5.22 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	$2.88 \cdot 10^{-3}$	$9.59 \cdot 10^{-4}$	$1.31 \cdot 10^{-3}$	$7.56 \cdot 10^{-4}$
1.33	$5.38 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	$7.03 \cdot 10^{-3}$	$1.5 \cdot 10^{-3}$	$3.65 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$
1.35	$8.29 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$8.31 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	$1.13 \cdot 10^{-2}$	$2.18 \cdot 10^{-3}$
1.38	$1.08 \cdot 10^{-2}$	$1.67 \cdot 10^{-3}$	$1.57 \cdot 10^{-2}$	$2.24 \cdot 10^{-3}$	$1.71 \cdot 10^{-2}$	$2.64 \cdot 10^{-3}$
1.4	$1.55 \cdot 10^{-2}$	$2.18 \cdot 10^{-3}$	$2.21 \cdot 10^{-2}$	$2.66 \cdot 10^{-3}$	$1.49 \cdot 10^{-2}$	$2.65 \cdot 10^{-3}$
1.43	$1.74 \cdot 10^{-2}$	$2.38 \cdot 10^{-3}$	$3.04 \cdot 10^{-2}$	$3.12 \cdot 10^{-3}$	$1.88 \cdot 10^{-2}$	$3.07 \cdot 10^{-3}$
1.45	$2.26 \cdot 10^{-2}$	$2.92 \cdot 10^{-3}$	$3.04 \cdot 10^{-2}$	$3.12 \cdot 10^{-3}$	$3.15 \cdot 10^{-2}$	$4.61 \cdot 10^{-3}$
1.48	$2.21 \cdot 10^{-2}$	$2.87 \cdot 10^{-3}$	$4.16 \cdot 10^{-2}$	$3.65 \cdot 10^{-3}$	$4.27 \cdot 10^{-2}$	$5.65 \cdot 10^{-3}$
1.5	$2.73 \cdot 10^{-2}$	$3.41 \cdot 10^{-3}$	$5.34 \cdot 10^{-2}$	$4.13 \cdot 10^{-3}$	$6.97 \cdot 10^{-2}$	$7.44 \cdot 10^{-3}$
1.53	$3.18 \cdot 10^{-2}$	$3.86 \cdot 10^{-3}$	$4.96 \cdot 10^{-2}$	$3.98 \cdot 10^{-3}$	$7.94 \cdot 10^{-2}$	$7.91 \cdot 10^{-3}$
1.55	$3.78 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$	$5.53 \cdot 10^{-2}$	$4.21 \cdot 10^{-3}$	$7.63 \cdot 10^{-2}$	$7.78 \cdot 10^{-3}$
1.58	$3.56 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$	$6.36 \cdot 10^{-2}$	$4.51 \cdot 10^{-3}$	$6.28 \cdot 10^{-2}$	$7.07 \cdot 10^{-3}$
1.6	$3.63 \cdot 10^{-2}$	$4.31 \cdot 10^{-3}$	$5.44 \cdot 10^{-2}$	$4.17 \cdot 10^{-3}$	$5.61 \cdot 10^{-2}$	$6.43 \cdot 10^{-3}$
1.63	$4.21 \cdot 10^{-2}$	$4.9 \cdot 10^{-3}$	$6.87 \cdot 10^{-2}$	$4.69 \cdot 10^{-3}$	$4.86 \cdot 10^{-2}$	$5.72 \cdot 10^{-3}$
1.65	$5.05 \cdot 10^{-2}$	$5.75 \cdot 10^{-3}$	$8.09 \cdot 10^{-2}$	$5.09 \cdot 10^{-3}$	$4.61 \cdot 10^{-2}$	$5.88 \cdot 10^{-3}$
1.68	$5.65 \cdot 10^{-2}$	$6.35 \cdot 10^{-3}$	$9.02 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$	$5.65 \cdot 10^{-2}$	$5.91 \cdot 10^{-3}$

TABLE 20 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$5.55 \cdot 10^{-2}$	$6.24 \cdot 10^{-3}$	$9.18 \cdot 10^{-2}$	$5.42 \cdot 10^{-3}$	$6.68 \cdot 10^{-2}$	$6.16 \cdot 10^{-3}$
1.73	$5.98 \cdot 10^{-2}$	$6.67 \cdot 10^{-3}$	0.1	$5.66 \cdot 10^{-3}$	$6.94 \cdot 10^{-2}$	$5.78 \cdot 10^{-3}$
1.75	$6.94 \cdot 10^{-2}$	$7.64 \cdot 10^{-3}$	$9.34 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$	$6.63 \cdot 10^{-2}$	$5.86 \cdot 10^{-3}$
1.78	$7.63 \cdot 10^{-2}$	$8.33 \cdot 10^{-3}$	$9.05 \cdot 10^{-2}$	$5.38 \cdot 10^{-3}$	$6.04 \cdot 10^{-2}$	$5.9 \cdot 10^{-3}$
1.8	$8.16 \cdot 10^{-2}$	$8.86 \cdot 10^{-3}$	$9.27 \cdot 10^{-2}$	$5.44 \cdot 10^{-3}$	$5.07 \cdot 10^{-2}$	$5.18 \cdot 10^{-3}$
1.83	$8.86 \cdot 10^{-2}$	$9.56 \cdot 10^{-3}$	$8.82 \cdot 10^{-2}$	$5.31 \cdot 10^{-3}$	$4.37 \cdot 10^{-2}$	$5.04 \cdot 10^{-3}$
1.85	$8.91 \cdot 10^{-2}$	$9.61 \cdot 10^{-3}$	$8.34 \cdot 10^{-2}$	$5.17 \cdot 10^{-3}$	$3.72 \cdot 10^{-2}$	$4.71 \cdot 10^{-3}$
1.88	$9.75 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	$8.34 \cdot 10^{-2}$	$5.17 \cdot 10^{-3}$	$2.9 \cdot 10^{-2}$	$4.01 \cdot 10^{-3}$
1.9	$9.69 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$8.03 \cdot 10^{-2}$	$5.07 \cdot 10^{-3}$	$1.27 \cdot 10^{-2}$	$2.61 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 21. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.92 \cdot 10^{-5}$	$7.96 \cdot 10^{-5}$	0	0	0	0
1.15	$7.92 \cdot 10^{-5}$	$7.96 \cdot 10^{-5}$	0	0	0	0
1.18	0	0	0	0	0	0
1.2	$2.38 \cdot 10^{-4}$	$1.39 \cdot 10^{-4}$	0	0	0	0
1.23	$7.92 \cdot 10^{-5}$	$7.96 \cdot 10^{-5}$	0	0	0	0
1.25	$3.96 \cdot 10^{-4}$	$1.82 \cdot 10^{-4}$	0	0	0	0
1.28	$3.17 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	0	0	0	0
1.3	$3.17 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	$1.65 \cdot 10^{-4}$	$1.65 \cdot 10^{-4}$	0	0
1.33	$5.55 \cdot 10^{-4}$	$2.17 \cdot 10^{-4}$	0	0	0	0
1.35	$6.34 \cdot 10^{-4}$	$2.33 \cdot 10^{-4}$	0	0	$1.68 \cdot 10^{-4}$	$1.68 \cdot 10^{-4}$
1.38	$1.27 \cdot 10^{-3}$	$3.41 \cdot 10^{-4}$	0	0	0	0
1.4	$6.34 \cdot 10^{-4}$	$2.33 \cdot 10^{-4}$	$4.95 \cdot 10^{-4}$	$2.86 \cdot 10^{-4}$	$5.37 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$
1.43	$1.19 \cdot 10^{-3}$	$3.29 \cdot 10^{-4}$	$1.32 \cdot 10^{-3}$	$4.67 \cdot 10^{-4}$	0	0
1.45	$1.51 \cdot 10^{-3}$	$3.77 \cdot 10^{-4}$	$3.13 \cdot 10^{-3}$	$7.19 \cdot 10^{-4}$	$1.25 \cdot 10^{-3}$	$5.58 \cdot 10^{-4}$
1.48	$1.82 \cdot 10^{-3}$	$4.21 \cdot 10^{-4}$	$4.95 \cdot 10^{-3}$	$9.03 \cdot 10^{-4}$	$2.72 \cdot 10^{-3}$	$7.28 \cdot 10^{-4}$
1.5	$2.3 \cdot 10^{-3}$	$4.84 \cdot 10^{-4}$	$5.44 \cdot 10^{-3}$	$9.48 \cdot 10^{-4}$	$6.68 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$
1.53	$2.77 \cdot 10^{-3}$	$5.44 \cdot 10^{-4}$	$1.01 \cdot 10^{-2}$	$1.29 \cdot 10^{-3}$	$1.4 \cdot 10^{-2}$	$1.64 \cdot 10^{-3}$
1.55	$3.49 \cdot 10^{-3}$	$6.3 \cdot 10^{-4}$	$1.02 \cdot 10^{-2}$	$1.3 \cdot 10^{-3}$	$1.44 \cdot 10^{-2}$	$1.68 \cdot 10^{-3}$
1.58	$4.68 \cdot 10^{-3}$	$7.66 \cdot 10^{-4}$	$1.11 \cdot 10^{-2}$	$1.35 \cdot 10^{-3}$	$1.77 \cdot 10^{-2}$	$1.93 \cdot 10^{-3}$
1.6	$4.12 \cdot 10^{-3}$	$7.03 \cdot 10^{-4}$	$1.15 \cdot 10^{-2}$	$1.38 \cdot 10^{-3}$	$1.29 \cdot 10^{-2}$	$1.61 \cdot 10^{-3}$
1.63	$5.71 \cdot 10^{-3}$	$8.8 \cdot 10^{-4}$	$1.44 \cdot 10^{-2}$	$1.54 \cdot 10^{-3}$	$1.01 \cdot 10^{-2}$	$1.43 \cdot 10^{-3}$
1.65	$4.83 \cdot 10^{-3}$	$7.84 \cdot 10^{-4}$	$1.48 \cdot 10^{-2}$	$1.56 \cdot 10^{-3}$	$1.44 \cdot 10^{-2}$	$1.74 \cdot 10^{-3}$
1.68	$5.94 \cdot 10^{-3}$	$9.06 \cdot 10^{-4}$	$1.91 \cdot 10^{-2}$	$1.78 \cdot 10^{-3}$	$8.9 \cdot 10^{-3}$	$1.37 \cdot 10^{-3}$

TABLE 21 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$6.74 \cdot 10^{-3}$	$9.92 \cdot 10^{-4}$	$1.68 \cdot 10^{-2}$	$1.67 \cdot 10^{-3}$	$1.12 \cdot 10^{-2}$	$1.51 \cdot 10^{-3}$
1.73	$6.97 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$	$1.6 \cdot 10^{-2}$	$1.62 \cdot 10^{-3}$	$1.28 \cdot 10^{-2}$	$1.65 \cdot 10^{-3}$
1.75	$7.21 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	$1.52 \cdot 10^{-2}$	$1.58 \cdot 10^{-3}$	$1.26 \cdot 10^{-2}$	$1.59 \cdot 10^{-3}$
1.78	$8.4 \cdot 10^{-3}$	$1.17 \cdot 10^{-3}$	$1.39 \cdot 10^{-2}$	$1.51 \cdot 10^{-3}$	$9.91 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$
1.8	$8.32 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$	$1.29 \cdot 10^{-2}$	$1.46 \cdot 10^{-3}$	$5.7 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$
1.83	$1.04 \cdot 10^{-2}$	$1.37 \cdot 10^{-3}$	$1.25 \cdot 10^{-2}$	$1.44 \cdot 10^{-3}$	$5.14 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$
1.85	$8.08 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$	$1.06 \cdot 10^{-2}$	$1.32 \cdot 10^{-3}$	$4.47 \cdot 10^{-3}$	$9.12 \cdot 10^{-4}$
1.88	$9.27 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$9.73 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$	$2.43 \cdot 10^{-3}$	$6.73 \cdot 10^{-4}$
1.9	$1.04 \cdot 10^{-2}$	$1.37 \cdot 10^{-3}$	$7.09 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$	$1.55 \cdot 10^{-3}$	$5.16 \cdot 10^{-4}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 22. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4$ GeV², $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4$ GeV ² , $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$1.34 \cdot 10^{-3}$	$9.53 \cdot 10^{-4}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$6.01 \cdot 10^{-3}$	$2.09 \cdot 10^{-3}$	0	0	0	0
1.2	$1.07 \cdot 10^{-2}$	$2.87 \cdot 10^{-3}$	0	0	0	0
1.23	$1.13 \cdot 10^{-2}$	$2.97 \cdot 10^{-3}$	$4.17 \cdot 10^{-3}$	$2.41 \cdot 10^{-3}$	$4.57 \cdot 10^{-3}$	$3.23 \cdot 10^{-3}$
1.25	$3.34 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$	$1.39 \cdot 10^{-2}$	$4.39 \cdot 10^{-3}$	$2.95 \cdot 10^{-2}$	$9.82 \cdot 10^{-3}$
1.28	$6.61 \cdot 10^{-2}$	$9.35 \cdot 10^{-3}$	$3.47 \cdot 10^{-2}$	$6.95 \cdot 10^{-3}$	$9.87 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$
1.3	0.13	$1.56 \cdot 10^{-2}$	$8.48 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$	0.23	$2.18 \cdot 10^{-2}$
1.33	0.21	$2.44 \cdot 10^{-2}$	0.12	$1.3 \cdot 10^{-2}$	0.33	$2.83 \cdot 10^{-2}$
1.35	0.3	$3.3 \cdot 10^{-2}$	0.17	$1.55 \cdot 10^{-2}$	0.36	$3.38 \cdot 10^{-2}$
1.38	0.36	$3.92 \cdot 10^{-2}$	0.18	$1.57 \cdot 10^{-2}$	0.5	$4.14 \cdot 10^{-2}$
1.4	0.51	$5.43 \cdot 10^{-2}$	0.26	$1.92 \cdot 10^{-2}$	0.5	$3.87 \cdot 10^{-2}$
1.43	0.61	$6.45 \cdot 10^{-2}$	0.35	$2.21 \cdot 10^{-2}$	0.57	$3.97 \cdot 10^{-2}$
1.45	0.72	$7.46 \cdot 10^{-2}$	0.54	$2.73 \cdot 10^{-2}$	0.62	$3.78 \cdot 10^{-2}$
1.48	0.92	$9.52 \cdot 10^{-2}$	0.75	$3.23 \cdot 10^{-2}$	0.69	$3.91 \cdot 10^{-2}$
1.5	1.08	0.11	0.98	$3.68 \cdot 10^{-2}$	1.05	$4.94 \cdot 10^{-2}$
1.53	1.26	0.13	1.32	$4.29 \cdot 10^{-2}$	1.26	$5.6 \cdot 10^{-2}$
1.55	1.5	0.15	1.5	$4.57 \cdot 10^{-2}$	1.51	$6.71 \cdot 10^{-2}$
1.58	1.78	0.18	1.92	$5.17 \cdot 10^{-2}$	1.4	$6.81 \cdot 10^{-2}$
1.6	2.02	0.2	2.26	$5.6 \cdot 10^{-2}$	1.43	$7.36 \cdot 10^{-2}$
1.63	2.31	0.23	2.5	$5.89 \cdot 10^{-2}$	1.35	$7.19 \cdot 10^{-2}$
1.65	2.59	0.26	2.91	$6.36 \cdot 10^{-2}$	1.6	$7.53 \cdot 10^{-2}$
1.68	2.83	0.29	3.38	$6.86 \cdot 10^{-2}$	1.79	$7.19 \cdot 10^{-2}$

TABLE 22 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	3.17	0.32	3.68	$7.15 \cdot 10^{-2}$	1.99	$7.45 \cdot 10^{-2}$
1.73	3.4	0.34	3.99	$7.44 \cdot 10^{-2}$	1.99	$7.15 \cdot 10^{-2}$
1.75	3.58	0.36	4.19	$7.63 \cdot 10^{-2}$	1.66	$6.7 \cdot 10^{-2}$
1.78	3.85	0.39	4.35	$7.78 \cdot 10^{-2}$	1.59	$6.43 \cdot 10^{-2}$
1.8	3.84	0.39	4.67	$8.06 \cdot 10^{-2}$	1.64	$6.6 \cdot 10^{-2}$
1.83	4.01	0.4	4.63	$8.02 \cdot 10^{-2}$	1.54	$6.31 \cdot 10^{-2}$
1.85	4.13	0.41	5.11	$8.43 \cdot 10^{-2}$	1.54	$6.5 \cdot 10^{-2}$
1.88	4.12	0.41	5.25	$8.54 \cdot 10^{-2}$	1.49	$6.65 \cdot 10^{-2}$
1.9	4.22	0.42	5.51	$8.75 \cdot 10^{-2}$	1.42	$7.19 \cdot 10^{-2}$
1.93	4.3	0.43	5.6	$8.82 \cdot 10^{-2}$	1.33	$7.4 \cdot 10^{-2}$
1.95	4.45	0.45	5.79	$8.97 \cdot 10^{-2}$	1.28	$7.4 \cdot 10^{-2}$
1.98	4.59	0.46	5.87	$9.03 \cdot 10^{-2}$	1.22	$7.34 \cdot 10^{-2}$
2	4.55	0.46	6.04	$9.16 \cdot 10^{-2}$	1.07	$6.46 \cdot 10^{-2}$
2.03	4.66	0.47	6.18	$9.27 \cdot 10^{-2}$	1.13	$6.33 \cdot 10^{-2}$
2.05	4.67	0.47	6.3	$9.36 \cdot 10^{-2}$	1	$5.66 \cdot 10^{-2}$
2.08	4.68	0.47	6.27	$9.33 \cdot 10^{-2}$	0.99	$5.92 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 23. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$8.59 \cdot 10^{-4}$	$5.03 \cdot 10^{-4}$	0	0	0	0
1.15	$1.72 \cdot 10^{-3}$	$7.22 \cdot 10^{-4}$	$1.19 \cdot 10^{-3}$	$8.43 \cdot 10^{-4}$	$5.97 \cdot 10^{-4}$	$5.97 \cdot 10^{-4}$
1.18	$3.15 \cdot 10^{-3}$	$1 \cdot 10^{-3}$	0	0	$6.06 \cdot 10^{-4}$	$6.06 \cdot 10^{-4}$
1.2	$1.03 \cdot 10^{-2}$	$2 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$8.43 \cdot 10^{-4}$	$1.29 \cdot 10^{-3}$	$9.13 \cdot 10^{-4}$
1.23	$1.57 \cdot 10^{-2}$	$2.64 \cdot 10^{-3}$	$1.79 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$	$3.6 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$
1.25	$3.09 \cdot 10^{-2}$	$4.28 \cdot 10^{-3}$	$7.74 \cdot 10^{-3}$	$2.15 \cdot 10^{-3}$	$1.72 \cdot 10^{-2}$	$3.6 \cdot 10^{-3}$
1.28	$5.27 \cdot 10^{-2}$	$6.52 \cdot 10^{-3}$	$3.46 \cdot 10^{-2}$	$4.54 \cdot 10^{-3}$	$7.62 \cdot 10^{-2}$	$7.55 \cdot 10^{-3}$
1.3	$8.13 \cdot 10^{-2}$	$9.42 \cdot 10^{-3}$	$5 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$	0.14	$1.03 \cdot 10^{-2}$
1.33	0.11	$1.21 \cdot 10^{-2}$	$8.1 \cdot 10^{-2}$	$6.95 \cdot 10^{-3}$	0.23	$1.43 \cdot 10^{-2}$
1.35	0.15	$1.66 \cdot 10^{-2}$	0.11	$8.1 \cdot 10^{-3}$	0.22	$1.35 \cdot 10^{-2}$
1.38	0.19	$2 \cdot 10^{-2}$	0.15	$9.55 \cdot 10^{-3}$	0.25	$1.67 \cdot 10^{-2}$
1.4	0.24	$2.53 \cdot 10^{-2}$	0.17	$1.01 \cdot 10^{-2}$	0.27	$1.9 \cdot 10^{-2}$
1.43	0.27	$2.86 \cdot 10^{-2}$	0.21	$1.11 \cdot 10^{-2}$	0.25	$1.92 \cdot 10^{-2}$
1.45	0.31	$3.27 \cdot 10^{-2}$	0.24	$1.2 \cdot 10^{-2}$	0.34	$2.2 \cdot 10^{-2}$
1.48	0.38	$3.94 \cdot 10^{-2}$	0.33	$1.41 \cdot 10^{-2}$	0.39	$2.25 \cdot 10^{-2}$
1.5	0.41	$4.23 \cdot 10^{-2}$	0.39	$1.52 \cdot 10^{-2}$	0.56	$2.44 \cdot 10^{-2}$
1.53	0.46	$4.72 \cdot 10^{-2}$	0.47	$1.68 \cdot 10^{-2}$	0.68	$2.63 \cdot 10^{-2}$
1.55	0.52	$5.29 \cdot 10^{-2}$	0.55	$1.81 \cdot 10^{-2}$	0.74	$2.72 \cdot 10^{-2}$
1.58	0.61	$6.19 \cdot 10^{-2}$	0.61	$1.9 \cdot 10^{-2}$	0.65	$2.56 \cdot 10^{-2}$
1.6	0.63	$6.4 \cdot 10^{-2}$	0.65	$1.97 \cdot 10^{-2}$	0.5	$2.32 \cdot 10^{-2}$
1.63	0.69	$7 \cdot 10^{-2}$	0.7	$2.05 \cdot 10^{-2}$	0.56	$2.7 \cdot 10^{-2}$
1.65	0.77	$7.85 \cdot 10^{-2}$	0.78	$2.16 \cdot 10^{-2}$	0.61	$2.89 \cdot 10^{-2}$
1.68	0.87	$8.84 \cdot 10^{-2}$	0.84	$2.24 \cdot 10^{-2}$	0.67	$3.3 \cdot 10^{-2}$

TABLE 23 Continued.						
$d(e, e' \pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.94	$9.54 \cdot 10^{-2}$	0.9	$2.32 \cdot 10^{-2}$	0.72	$3.41 \cdot 10^{-2}$
1.73	0.99	$9.99 \cdot 10^{-2}$	0.91	$2.33 \cdot 10^{-2}$	0.69	$3.33 \cdot 10^{-2}$
1.75	1.04	0.1	0.96	$2.39 \cdot 10^{-2}$	0.58	$3 \cdot 10^{-2}$
1.78	1.04	0.1	0.97	$2.41 \cdot 10^{-2}$	0.45	$2.56 \cdot 10^{-2}$
1.8	1.1	0.11	1	$2.44 \cdot 10^{-2}$	0.42	$2.28 \cdot 10^{-2}$
1.83	1.14	0.11	1.06	$2.52 \cdot 10^{-2}$	0.36	$2.14 \cdot 10^{-2}$
1.85	1.21	0.12	1.1	$2.56 \cdot 10^{-2}$	0.38	$2.15 \cdot 10^{-2}$
1.88	1.27	0.13	1.18	$2.65 \cdot 10^{-2}$	0.35	$2.17 \cdot 10^{-2}$
1.9	1.32	0.13	1.21	$2.69 \cdot 10^{-2}$	0.32	$2.07 \cdot 10^{-2}$
1.93	1.43	0.14	1.25	$2.73 \cdot 10^{-2}$	0.34	$2.05 \cdot 10^{-2}$
1.95	1.48	0.15	1.31	$2.8 \cdot 10^{-2}$	0.35	$1.98 \cdot 10^{-2}$
1.98	1.54	0.15	1.41	$2.9 \cdot 10^{-2}$	0.34	$1.98 \cdot 10^{-2}$
2	1.64	0.16	1.46	$2.95 \cdot 10^{-2}$	0.35	$2.01 \cdot 10^{-2}$
2.03	1.69	0.17	1.45	$2.94 \cdot 10^{-2}$	0.33	$1.86 \cdot 10^{-2}$
2.05	1.78	0.18	1.5	$2.98 \cdot 10^{-2}$	0.29	$1.88 \cdot 10^{-2}$
2.08	1.85	0.19	1.56	$3.05 \cdot 10^{-2}$	0.32	$1.93 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 24. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.53 \cdot 10^{-4}$	$3.24 \cdot 10^{-4}$	0	0	0	0
1.15	$7.37 \cdot 10^{-4}$	$3.76 \cdot 10^{-4}$	0	0	0	0
1.18	$1.11 \cdot 10^{-3}$	$4.65 \cdot 10^{-4}$	0	0	0	0
1.2	$2.58 \cdot 10^{-3}$	$7.36 \cdot 10^{-4}$	0	0	0	0
1.23	$2.4 \cdot 10^{-3}$	$7.06 \cdot 10^{-4}$	0	0	0	0
1.25	$3.5 \cdot 10^{-3}$	$8.76 \cdot 10^{-4}$	0	0	$4.37 \cdot 10^{-4}$	$4.37 \cdot 10^{-4}$
1.28	$7.37 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	$1.53 \cdot 10^{-3}$	$7.67 \cdot 10^{-4}$	$1.12 \cdot 10^{-3}$	$7.95 \cdot 10^{-4}$
1.3	$6.82 \cdot 10^{-3}$	$1.31 \cdot 10^{-3}$	$3.07 \cdot 10^{-3}$	$1.09 \cdot 10^{-3}$	$8.27 \cdot 10^{-4}$	$5.85 \cdot 10^{-4}$
1.33	$1.64 \cdot 10^{-2}$	$2.39 \cdot 10^{-3}$	$7.29 \cdot 10^{-3}$	$1.67 \cdot 10^{-3}$	$1.01 \cdot 10^{-2}$	$2.25 \cdot 10^{-3}$
1.35	$1.84 \cdot 10^{-2}$	$2.6 \cdot 10^{-3}$	$2.23 \cdot 10^{-2}$	$2.92 \cdot 10^{-3}$	$2.29 \cdot 10^{-2}$	$3.21 \cdot 10^{-3}$
1.38	$3.56 \cdot 10^{-2}$	$4.37 \cdot 10^{-3}$	$2.95 \cdot 10^{-2}$	$3.37 \cdot 10^{-3}$	$4.48 \cdot 10^{-2}$	$4.69 \cdot 10^{-3}$
1.4	$4.64 \cdot 10^{-2}$	$5.47 \cdot 10^{-3}$	$5.87 \cdot 10^{-2}$	$4.75 \cdot 10^{-3}$	$4.74 \cdot 10^{-2}$	$4.63 \cdot 10^{-3}$
1.43	$6.38 \cdot 10^{-2}$	$7.21 \cdot 10^{-3}$	$7.37 \cdot 10^{-2}$	$5.32 \cdot 10^{-3}$	$7.58 \cdot 10^{-2}$	$6.67 \cdot 10^{-3}$
1.45	$7.1 \cdot 10^{-2}$	$7.94 \cdot 10^{-3}$	$8.67 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$	$8.01 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$
1.48	$8.98 \cdot 10^{-2}$	$9.82 \cdot 10^{-3}$	0.12	$6.91 \cdot 10^{-3}$	$9.77 \cdot 10^{-2}$	$7.79 \cdot 10^{-3}$
1.5	0.1	$1.1 \cdot 10^{-2}$	0.11	$6.42 \cdot 10^{-3}$	0.17	$1.16 \cdot 10^{-2}$
1.53	0.11	$1.16 \cdot 10^{-2}$	0.14	$7.25 \cdot 10^{-3}$	0.21	$1.38 \cdot 10^{-2}$
1.55	0.11	$1.2 \cdot 10^{-2}$	0.14	$7.36 \cdot 10^{-3}$	0.2	$1.38 \cdot 10^{-2}$
1.58	0.12	$1.24 \cdot 10^{-2}$	0.15	$7.68 \cdot 10^{-3}$	0.19	$1.35 \cdot 10^{-2}$
1.6	0.13	$1.34 \cdot 10^{-2}$	0.15	$7.55 \cdot 10^{-3}$	0.14	$1.1 \cdot 10^{-2}$
1.63	0.14	$1.49 \cdot 10^{-2}$	0.16	$7.94 \cdot 10^{-3}$	0.15	$1.11 \cdot 10^{-2}$
1.65	0.16	$1.66 \cdot 10^{-2}$	0.18	$8.37 \cdot 10^{-3}$	0.14	$1 \cdot 10^{-2}$
1.68	0.17	$1.8 \cdot 10^{-2}$	0.22	$9.1 \cdot 10^{-3}$	0.16	$1.07 \cdot 10^{-2}$

TABLE 24 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	0.19	$1.98 \cdot 10^{-2}$	0.22	$9.18 \cdot 10^{-3}$	0.19	$1.11 \cdot 10^{-2}$
1.73	0.21	$2.2 \cdot 10^{-2}$	0.22	$9.24 \cdot 10^{-3}$	0.22	$1.19 \cdot 10^{-2}$
1.75	0.22	$2.24 \cdot 10^{-2}$	0.23	$9.42 \cdot 10^{-3}$	0.2	$1.04 \cdot 10^{-2}$
1.78	0.24	$2.44 \cdot 10^{-2}$	0.24	$9.51 \cdot 10^{-3}$	0.18	$1.05 \cdot 10^{-2}$
1.8	0.24	$2.46 \cdot 10^{-2}$	0.23	$9.49 \cdot 10^{-3}$	0.15	$9.76 \cdot 10^{-3}$
1.83	0.24	$2.52 \cdot 10^{-2}$	0.24	$9.68 \cdot 10^{-3}$	0.12	$8.64 \cdot 10^{-3}$
1.85	0.25	$2.62 \cdot 10^{-2}$	0.23	$9.46 \cdot 10^{-3}$	$9.49 \cdot 10^{-2}$	$7.84 \cdot 10^{-3}$
1.88	0.27	$2.78 \cdot 10^{-2}$	0.22	$9.26 \cdot 10^{-3}$	$6.99 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$
1.9	0.27	$2.76 \cdot 10^{-2}$	0.22	$9.28 \cdot 10^{-3}$	$7.98 \cdot 10^{-2}$	$7.39 \cdot 10^{-3}$
1.93	0.3	$3.07 \cdot 10^{-2}$	0.21	$8.94 \cdot 10^{-3}$	$6.69 \cdot 10^{-2}$	$6.92 \cdot 10^{-3}$
1.95	0.31	$3.22 \cdot 10^{-2}$	0.22	$9.17 \cdot 10^{-3}$	$6.21 \cdot 10^{-2}$	$5.97 \cdot 10^{-3}$
1.98	0.32	$3.23 \cdot 10^{-2}$	0.21	$9.01 \cdot 10^{-3}$	$5.16 \cdot 10^{-2}$	$5.47 \cdot 10^{-3}$
2	0.33	$3.39 \cdot 10^{-2}$	0.23	$9.38 \cdot 10^{-3}$	$3.76 \cdot 10^{-2}$	$5.27 \cdot 10^{-3}$
2.03	0.34	$3.51 \cdot 10^{-2}$	0.2	$8.69 \cdot 10^{-3}$	$2.56 \cdot 10^{-2}$	$4.23 \cdot 10^{-3}$
2.05	0.36	$3.65 \cdot 10^{-2}$	0.22	$9.15 \cdot 10^{-3}$	$2.45 \cdot 10^{-2}$	$4.5 \cdot 10^{-3}$
2.08	0.36	$3.7 \cdot 10^{-2}$	0.24	$9.51 \cdot 10^{-3}$	$1.39 \cdot 10^{-2}$	$3.17 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 25. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$3.8 \cdot 10^{-4}$	$1.94 \cdot 10^{-4}$	0	0	0	0
1.2	$5.71 \cdot 10^{-4}$	$2.4 \cdot 10^{-4}$	0	0	0	0
1.23	$3.8 \cdot 10^{-4}$	$1.94 \cdot 10^{-4}$	0	0	0	0
1.25	$5.71 \cdot 10^{-4}$	$2.4 \cdot 10^{-4}$	0	0	0	0
1.28	$2.85 \cdot 10^{-4}$	$1.67 \cdot 10^{-4}$	0	0	0	0
1.3	$1.05 \cdot 10^{-3}$	$3.32 \cdot 10^{-4}$	0	0	0	0
1.33	$1.05 \cdot 10^{-3}$	$3.32 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	0	0
1.35	$1.43 \cdot 10^{-3}$	$3.95 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	0	0
1.38	$2.66 \cdot 10^{-3}$	$5.69 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	0	0
1.4	$2.85 \cdot 10^{-3}$	$5.93 \cdot 10^{-4}$	$9.9 \cdot 10^{-4}$	$4.43 \cdot 10^{-4}$	$4.16 \cdot 10^{-4}$	$4.16 \cdot 10^{-4}$
1.43	$4.66 \cdot 10^{-3}$	$8.11 \cdot 10^{-4}$	$3.17 \cdot 10^{-3}$	$7.92 \cdot 10^{-4}$	$1.26 \cdot 10^{-3}$	$6.31 \cdot 10^{-4}$
1.45	$5.42 \cdot 10^{-3}$	$8.98 \cdot 10^{-4}$	$6.93 \cdot 10^{-3}$	$1.17 \cdot 10^{-3}$	$3.26 \cdot 10^{-3}$	$9.05 \cdot 10^{-4}$
1.48	$6.85 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	$1.27 \cdot 10^{-2}$	$1.58 \cdot 10^{-3}$	$8.81 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$
1.5	$1.07 \cdot 10^{-2}$	$1.47 \cdot 10^{-3}$	$1.86 \cdot 10^{-2}$	$1.92 \cdot 10^{-3}$	$1.56 \cdot 10^{-2}$	$1.94 \cdot 10^{-3}$
1.53	$1.26 \cdot 10^{-2}$	$1.67 \cdot 10^{-3}$	$2.24 \cdot 10^{-2}$	$2.1 \cdot 10^{-3}$	$3.9 \cdot 10^{-2}$	$3.13 \cdot 10^{-3}$
1.55	$1.69 \cdot 10^{-2}$	$2.11 \cdot 10^{-3}$	$3.46 \cdot 10^{-2}$	$2.62 \cdot 10^{-3}$	$5.43 \cdot 10^{-2}$	$3.61 \cdot 10^{-3}$
1.58	$1.56 \cdot 10^{-2}$	$1.97 \cdot 10^{-3}$	$4.08 \cdot 10^{-2}$	$2.84 \cdot 10^{-3}$	$5.45 \cdot 10^{-2}$	$3.79 \cdot 10^{-3}$
1.6	$1.77 \cdot 10^{-2}$	$2.19 \cdot 10^{-3}$	$4.16 \cdot 10^{-2}$	$2.87 \cdot 10^{-3}$	$4.92 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$
1.63	$2.07 \cdot 10^{-2}$	$2.5 \cdot 10^{-3}$	$4.99 \cdot 10^{-2}$	$3.14 \cdot 10^{-3}$	$3.56 \cdot 10^{-2}$	$2.96 \cdot 10^{-3}$
1.65	$2.36 \cdot 10^{-2}$	$2.78 \cdot 10^{-3}$	$4.99 \cdot 10^{-2}$	$3.14 \cdot 10^{-3}$	$4.07 \cdot 10^{-2}$	$3.11 \cdot 10^{-3}$
1.68	$2.14 \cdot 10^{-2}$	$2.56 \cdot 10^{-3}$	$5.64 \cdot 10^{-2}$	$3.34 \cdot 10^{-3}$	$3.25 \cdot 10^{-2}$	$2.82 \cdot 10^{-3}$

TABLE 25 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	$2.46 \cdot 10^{-2}$	$2.89 \cdot 10^{-3}$	$5.15 \cdot 10^{-2}$	$3.19 \cdot 10^{-3}$	$3.1 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$
1.73	$2.7 \cdot 10^{-2}$	$3.13 \cdot 10^{-3}$	$4.97 \cdot 10^{-2}$	$3.14 \cdot 10^{-3}$	$2.91 \cdot 10^{-2}$	$2.69 \cdot 10^{-3}$
1.75	$2.77 \cdot 10^{-2}$	$3.2 \cdot 10^{-3}$	$3.76 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$	$2.67 \cdot 10^{-2}$	$2.62 \cdot 10^{-3}$
1.78	$2.92 \cdot 10^{-2}$	$3.35 \cdot 10^{-3}$	$3.76 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$	$2.49 \cdot 10^{-2}$	$2.47 \cdot 10^{-3}$
1.8	$3.25 \cdot 10^{-2}$	$3.68 \cdot 10^{-3}$	$3.74 \cdot 10^{-2}$	$2.72 \cdot 10^{-3}$	$1.85 \cdot 10^{-2}$	$2.17 \cdot 10^{-3}$
1.83	$3.31 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$	$2.89 \cdot 10^{-2}$	$2.39 \cdot 10^{-3}$	$9.94 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$
1.85	$3.34 \cdot 10^{-2}$	$3.77 \cdot 10^{-3}$	$3.23 \cdot 10^{-2}$	$2.53 \cdot 10^{-3}$	$5.38 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$
1.88	$3.99 \cdot 10^{-2}$	$4.43 \cdot 10^{-3}$	$2.75 \cdot 10^{-2}$	$2.33 \cdot 10^{-3}$	$6.37 \cdot 10^{-3}$	$1.25 \cdot 10^{-3}$
1.9	$3.41 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$	$2.63 \cdot 10^{-2}$	$2.28 \cdot 10^{-3}$	$4.68 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$
1.93	$4.03 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$	$2.32 \cdot 10^{-2}$	$2.14 \cdot 10^{-3}$	$3.24 \cdot 10^{-3}$	$8.99 \cdot 10^{-4}$
1.95	$3.51 \cdot 10^{-2}$	$3.94 \cdot 10^{-3}$	$2.3 \cdot 10^{-2}$	$2.13 \cdot 10^{-3}$	$2.67 \cdot 10^{-3}$	$8.06 \cdot 10^{-4}$
1.98	$3.7 \cdot 10^{-2}$	$4.13 \cdot 10^{-3}$	$2.14 \cdot 10^{-2}$	$2.06 \cdot 10^{-3}$	$2.27 \cdot 10^{-3}$	$7.55 \cdot 10^{-4}$
2	$3.33 \cdot 10^{-2}$	$3.76 \cdot 10^{-3}$	$2.06 \cdot 10^{-2}$	$2.02 \cdot 10^{-3}$	$2.11 \cdot 10^{-3}$	$7.46 \cdot 10^{-4}$
2.03	$3.12 \cdot 10^{-2}$	$3.55 \cdot 10^{-3}$	$1.48 \cdot 10^{-2}$	$1.71 \cdot 10^{-3}$	$4.27 \cdot 10^{-4}$	$3.02 \cdot 10^{-4}$
2.05	$2.91 \cdot 10^{-2}$	$3.34 \cdot 10^{-3}$	$1.68 \cdot 10^{-2}$	$1.82 \cdot 10^{-3}$	$6.32 \cdot 10^{-4}$	$3.65 \cdot 10^{-4}$
2.08	$3.09 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$	$1.5 \cdot 10^{-2}$	$1.73 \cdot 10^{-3}$	$7.8 \cdot 10^{-4}$	$4.5 \cdot 10^{-4}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 26. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$3.34 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	$1.89 \cdot 10^{-3}$	$1.89 \cdot 10^{-3}$
1.28	$1.59 \cdot 10^{-2}$	$3.96 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$9.28 \cdot 10^{-3}$	$4.15 \cdot 10^{-3}$
1.3	$5.17 \cdot 10^{-2}$	$8.35 \cdot 10^{-3}$	$8.68 \cdot 10^{-3}$	$3.88 \cdot 10^{-3}$	$5.74 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
1.33	0.12	$1.55 \cdot 10^{-2}$	$5.38 \cdot 10^{-2}$	$9.67 \cdot 10^{-3}$	0.18	$1.97 \cdot 10^{-2}$
1.35	0.29	$3.3 \cdot 10^{-2}$	0.12	$1.42 \cdot 10^{-2}$	0.44	$3.07 \cdot 10^{-2}$
1.38	0.42	$4.63 \cdot 10^{-2}$	0.22	$1.96 \cdot 10^{-2}$	0.5	$3.6 \cdot 10^{-2}$
1.4	0.68	$7.22 \cdot 10^{-2}$	0.28	$2.2 \cdot 10^{-2}$	0.68	$4.89 \cdot 10^{-2}$
1.43	0.84	$8.72 \cdot 10^{-2}$	0.44	$2.77 \cdot 10^{-2}$	0.8	$5.89 \cdot 10^{-2}$
1.45	1.15	0.12	0.59	$3.21 \cdot 10^{-2}$	0.94	$6.12 \cdot 10^{-2}$
1.48	1.46	0.15	0.97	$4.1 \cdot 10^{-2}$	1.28	$6.7 \cdot 10^{-2}$
1.5	1.75	0.18	1.41	$4.95 \cdot 10^{-2}$	1.83	$7.32 \cdot 10^{-2}$
1.53	2.07	0.21	1.91	$5.75 \cdot 10^{-2}$	2.58	$8.74 \cdot 10^{-2}$
1.55	2.56	0.26	2.43	$6.5 \cdot 10^{-2}$	2.92	$8.95 \cdot 10^{-2}$
1.58	3.04	0.31	2.99	$7.21 \cdot 10^{-2}$	3.2	$9.45 \cdot 10^{-2}$
1.6	3.72	0.37	3.71	$8.03 \cdot 10^{-2}$	3.05	$9.16 \cdot 10^{-2}$
1.63	4.27	0.43	4.43	$8.77 \cdot 10^{-2}$	3.31	0.1
1.65	4.93	0.5	5.1	$9.42 \cdot 10^{-2}$	3.79	0.12
1.68	5.73	0.57	6.06	0.1	4.44	0.15

TABLE 26 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	6.4	0.64	6.85	0.11	4.91	0.15
1.73	6.9	0.69	7.44	0.11	5.03	0.15
1.75	7.45	0.75	8.37	0.12	4.78	0.13
1.78	7.96	0.8	8.59	0.12	4.63	0.13
1.8	8.42	0.84	9.09	0.13	4.35	0.12
1.83	8.73	0.87	9.67	0.13	4.5	0.12
1.85	9.12	0.91	10.31	0.13	4.16	0.12
1.88	9.35	0.93	10.69	0.14	4.14	0.12
1.9	9.64	0.96	11.43	0.14	3.85	0.11
1.93	10.02	1	11.77	0.14	3.74	0.1
1.95	10.29	1.03	11.9	0.14	3.38	0.11
1.98	10.57	1.06	12.22	0.15	3.28	0.11
2	10.92	1.09	12.69	0.15	3.1	0.12
2.03	10.99	1.1	13.25	0.15	3.01	0.13
2.05	11.27	1.13	13.04	0.15	2.85	0.12
2.08	11.27	1.13	12.98	0.15	2.73	0.11
2.1	11.26	1.12	13.24	0.15	2.51	0.1
2.13	11.3	1.13	13.35	0.15	2.45	$9.42 \cdot 10^{-2}$
2.15	11.08	1.11	13.35	0.15	2.24	$9.64 \cdot 10^{-2}$
2.18	10.99	1.1	13.27	0.15	2.04	$8.75 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 27. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$1.07 \cdot 10^{-3}$	$6.29 \cdot 10^{-4}$	0	0	0	0
1.18	$7.16 \cdot 10^{-4}$	$5.11 \cdot 10^{-4}$	0	0	0	0
1.2	$1.79 \cdot 10^{-3}$	$8.2 \cdot 10^{-4}$	0	0	0	0
1.23	$8.59 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$	0	0	$2.23 \cdot 10^{-3}$	$1.58 \cdot 10^{-3}$
1.25	$1.43 \cdot 10^{-2}$	$2.67 \cdot 10^{-3}$	$2.23 \cdot 10^{-3}$	$1.29 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$	$1.76 \cdot 10^{-3}$
1.28	$4.01 \cdot 10^{-2}$	$5.5 \cdot 10^{-3}$	$7.45 \cdot 10^{-3}$	$2.35 \cdot 10^{-3}$	$9.09 \cdot 10^{-3}$	$3.03 \cdot 10^{-3}$
1.3	$8.16 \cdot 10^{-2}$	$9.75 \cdot 10^{-3}$	$3.13 \cdot 10^{-2}$	$4.83 \cdot 10^{-3}$	$9.13 \cdot 10^{-2}$	$9.27 \cdot 10^{-3}$
1.33	0.16	$1.72 \cdot 10^{-2}$	$8.34 \cdot 10^{-2}$	$7.88 \cdot 10^{-3}$	0.28	$1.62 \cdot 10^{-2}$
1.35	0.25	$2.67 \cdot 10^{-2}$	0.16	$1.1 \cdot 10^{-2}$	0.4	$1.99 \cdot 10^{-2}$
1.38	0.35	$3.7 \cdot 10^{-2}$	0.23	$1.32 \cdot 10^{-2}$	0.46	$2.07 \cdot 10^{-2}$
1.4	0.45	$4.7 \cdot 10^{-2}$	0.3	$1.49 \cdot 10^{-2}$	0.54	$2.46 \cdot 10^{-2}$
1.43	0.55	$5.65 \cdot 10^{-2}$	0.39	$1.7 \cdot 10^{-2}$	0.54	$2.52 \cdot 10^{-2}$
1.45	0.66	$6.71 \cdot 10^{-2}$	0.46	$1.85 \cdot 10^{-2}$	0.65	$3.2 \cdot 10^{-2}$
1.48	0.79	$7.99 \cdot 10^{-2}$	0.62	$2.15 \cdot 10^{-2}$	0.85	$3.96 \cdot 10^{-2}$
1.5	0.9	$9.16 \cdot 10^{-2}$	0.76	$2.37 \cdot 10^{-2}$	1.24	$4.78 \cdot 10^{-2}$
1.53	1	0.1	0.88	$2.56 \cdot 10^{-2}$	1.51	$4.86 \cdot 10^{-2}$
1.55	1.14	0.12	1.06	$2.81 \cdot 10^{-2}$	1.48	$4.44 \cdot 10^{-2}$
1.58	1.24	0.12	1.11	$2.88 \cdot 10^{-2}$	1.41	$4.28 \cdot 10^{-2}$
1.6	1.33	0.13	1.27	$3.08 \cdot 10^{-2}$	1.37	$4.22 \cdot 10^{-2}$
1.63	1.53	0.15	1.4	$3.23 \cdot 10^{-2}$	1.34	$4.02 \cdot 10^{-2}$
1.65	1.71	0.17	1.63	$3.48 \cdot 10^{-2}$	1.47	$4.19 \cdot 10^{-2}$
1.68	1.87	0.19	1.8	$3.66 \cdot 10^{-2}$	1.63	$4.47 \cdot 10^{-2}$

TABLE 27 Continued.						
$d(e, e' \pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	2.04	0.2	1.95	$3.81 \cdot 10^{-2}$	1.73	$5.08 \cdot 10^{-2}$
1.73	2.14	0.21	2.01	$3.87 \cdot 10^{-2}$	1.61	$5.48 \cdot 10^{-2}$
1.75	2.22	0.22	2.08	$3.93 \cdot 10^{-2}$	1.38	$5.48 \cdot 10^{-2}$
1.78	2.28	0.23	2.01	$3.87 \cdot 10^{-2}$	1.21	$5.14 \cdot 10^{-2}$
1.8	2.36	0.24	2.16	$4.01 \cdot 10^{-2}$	1.03	$4.54 \cdot 10^{-2}$
1.83	2.48	0.25	2.27	$4.11 \cdot 10^{-2}$	0.95	$4.21 \cdot 10^{-2}$
1.85	2.57	0.26	2.39	$4.21 \cdot 10^{-2}$	0.92	$3.96 \cdot 10^{-2}$
1.88	2.8	0.28	2.46	$4.28 \cdot 10^{-2}$	0.9	$3.81 \cdot 10^{-2}$
1.9	2.93	0.29	2.62	$4.42 \cdot 10^{-2}$	0.89	$3.78 \cdot 10^{-2}$
1.93	3.12	0.31	2.83	$4.59 \cdot 10^{-2}$	0.83	$3.58 \cdot 10^{-2}$
1.95	3.33	0.33	2.88	$4.63 \cdot 10^{-2}$	0.78	$3.43 \cdot 10^{-2}$
1.98	3.51	0.35	2.99	$4.72 \cdot 10^{-2}$	0.82	$3.64 \cdot 10^{-2}$
2	3.66	0.37	3.05	$4.76 \cdot 10^{-2}$	0.72	$3.2 \cdot 10^{-2}$
2.03	3.91	0.39	3.17	$4.86 \cdot 10^{-2}$	0.74	$3.24 \cdot 10^{-2}$
2.05	4.13	0.41	3.35	$4.99 \cdot 10^{-2}$	0.78	$3.34 \cdot 10^{-2}$
2.08	4.33	0.43	3.54	$5.13 \cdot 10^{-2}$	0.76	$3.32 \cdot 10^{-2}$
2.1	4.55	0.45	3.62	$5.19 \cdot 10^{-2}$	0.68	$3.06 \cdot 10^{-2}$
2.13	4.72	0.47	3.65	$5.21 \cdot 10^{-2}$	0.61	$3.03 \cdot 10^{-2}$
2.15	4.8	0.48	3.75	$5.29 \cdot 10^{-2}$	0.57	$2.7 \cdot 10^{-2}$
2.18	4.97	0.5	3.74	$5.28 \cdot 10^{-2}$	0.48	$2.58 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 28. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	nb/sr/GeV^4					
1.1	0	0	0	0	0	0
1.13	$2.3 \cdot 10^{-4}$	$2.32 \cdot 10^{-4}$	0	0	0	0
1.15	$2.3 \cdot 10^{-4}$	$2.32 \cdot 10^{-4}$	0	0	0	0
1.18	$2.3 \cdot 10^{-3}$	$7.64 \cdot 10^{-4}$	0	0	0	0
1.2	$1.15 \cdot 10^{-3}$	$5.28 \cdot 10^{-4}$	0	0	0	0
1.23	$3.23 \cdot 10^{-3}$	$9.2 \cdot 10^{-4}$	0	0	0	0
1.25	$5.07 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	0	0	0	0
1.28	$5.76 \cdot 10^{-3}$	$1.29 \cdot 10^{-3}$	$4.8 \cdot 10^{-4}$	$4.8 \cdot 10^{-4}$	0	0
1.3	$1.18 \cdot 10^{-2}$	$2.02 \cdot 10^{-3}$	$1.92 \cdot 10^{-3}$	$9.59 \cdot 10^{-4}$	$5.4 \cdot 10^{-4}$	$5.4 \cdot 10^{-4}$
1.33	$2.07 \cdot 10^{-2}$	$3.01 \cdot 10^{-3}$	$1.92 \cdot 10^{-3}$	$9.59 \cdot 10^{-4}$	$4.48 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$
1.35	$3.29 \cdot 10^{-2}$	$4.28 \cdot 10^{-3}$	$1.53 \cdot 10^{-2}$	$2.71 \cdot 10^{-3}$	$1.45 \cdot 10^{-2}$	$2.89 \cdot 10^{-3}$
1.38	$5.46 \cdot 10^{-2}$	$6.49 \cdot 10^{-3}$	$4.6 \cdot 10^{-2}$	$4.7 \cdot 10^{-3}$	$5.44 \cdot 10^{-2}$	$5.5 \cdot 10^{-3}$
1.4	$9.22 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$	$9.45 \cdot 10^{-2}$	$6.73 \cdot 10^{-3}$	0.1	$7.84 \cdot 10^{-3}$
1.43	0.14	$1.47 \cdot 10^{-2}$	0.16	$8.8 \cdot 10^{-3}$	0.14	$9.11 \cdot 10^{-3}$
1.45	0.18	$1.9 \cdot 10^{-2}$	0.2	$9.85 \cdot 10^{-3}$	0.19	$1.07 \cdot 10^{-2}$
1.48	0.21	$2.21 \cdot 10^{-2}$	0.27	$1.14 \cdot 10^{-2}$	0.26	$1.29 \cdot 10^{-2}$
1.5	0.25	$2.57 \cdot 10^{-2}$	0.31	$1.22 \cdot 10^{-2}$	0.38	$1.61 \cdot 10^{-2}$
1.53	0.26	$2.73 \cdot 10^{-2}$	0.35	$1.29 \cdot 10^{-2}$	0.48	$1.98 \cdot 10^{-2}$
1.55	0.28	$2.94 \cdot 10^{-2}$	0.34	$1.27 \cdot 10^{-2}$	0.47	$2.24 \cdot 10^{-2}$
1.58	0.28	$2.85 \cdot 10^{-2}$	0.34	$1.28 \cdot 10^{-2}$	0.39	$2.14 \cdot 10^{-2}$
1.6	0.3	$3.12 \cdot 10^{-2}$	0.34	$1.28 \cdot 10^{-2}$	0.29	$1.85 \cdot 10^{-2}$
1.63	0.32	$3.32 \cdot 10^{-2}$	0.37	$1.33 \cdot 10^{-2}$	0.3	$1.86 \cdot 10^{-2}$
1.65	0.37	$3.76 \cdot 10^{-2}$	0.41	$1.41 \cdot 10^{-2}$	0.33	$1.84 \cdot 10^{-2}$
1.68	0.42	$4.32 \cdot 10^{-2}$	0.48	$1.52 \cdot 10^{-2}$	0.4	$1.87 \cdot 10^{-2}$

TABLE 28 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.46	$4.69 \cdot 10^{-2}$	0.52	$1.58 \cdot 10^{-2}$	0.45	$1.96 \cdot 10^{-2}$
1.73	0.5	$5.12 \cdot 10^{-2}$	0.53	$1.59 \cdot 10^{-2}$	0.44	$1.94 \cdot 10^{-2}$
1.75	0.54	$5.53 \cdot 10^{-2}$	0.57	$1.65 \cdot 10^{-2}$	0.41	$1.82 \cdot 10^{-2}$
1.78	0.56	$5.66 \cdot 10^{-2}$	0.56	$1.63 \cdot 10^{-2}$	0.37	$1.7 \cdot 10^{-2}$
1.8	0.6	$6.11 \cdot 10^{-2}$	0.56	$1.64 \cdot 10^{-2}$	0.34	$1.63 \cdot 10^{-2}$
1.83	0.61	$6.23 \cdot 10^{-2}$	0.6	$1.7 \cdot 10^{-2}$	0.31	$1.55 \cdot 10^{-2}$
1.85	0.66	$6.65 \cdot 10^{-2}$	0.58	$1.67 \cdot 10^{-2}$	0.27	$1.51 \cdot 10^{-2}$
1.88	0.66	$6.73 \cdot 10^{-2}$	0.55	$1.63 \cdot 10^{-2}$	0.26	$1.45 \cdot 10^{-2}$
1.9	0.7	$7.05 \cdot 10^{-2}$	0.58	$1.67 \cdot 10^{-2}$	0.19	$1.2 \cdot 10^{-2}$
1.93	0.75	$7.54 \cdot 10^{-2}$	0.54	$1.61 \cdot 10^{-2}$	0.17	$1.18 \cdot 10^{-2}$
1.95	0.75	$7.57 \cdot 10^{-2}$	0.53	$1.59 \cdot 10^{-2}$	0.16	$1.13 \cdot 10^{-2}$
1.98	0.78	$7.91 \cdot 10^{-2}$	0.56	$1.64 \cdot 10^{-2}$	0.12	$1.02 \cdot 10^{-2}$
2	0.85	$8.56 \cdot 10^{-2}$	0.55	$1.62 \cdot 10^{-2}$	0.12	$9.56 \cdot 10^{-3}$
2.03	0.85	$8.59 \cdot 10^{-2}$	0.52	$1.58 \cdot 10^{-2}$	$8.11 \cdot 10^{-2}$	$8.42 \cdot 10^{-3}$
2.05	0.93	$9.36 \cdot 10^{-2}$	0.53	$1.59 \cdot 10^{-2}$	$6.62 \cdot 10^{-2}$	$8.03 \cdot 10^{-3}$
2.08	0.93	$9.32 \cdot 10^{-2}$	0.55	$1.62 \cdot 10^{-2}$	$3.34 \cdot 10^{-2}$	$5.79 \cdot 10^{-3}$
2.1	0.95	$9.61 \cdot 10^{-2}$	0.52	$1.58 \cdot 10^{-2}$	$2.46 \cdot 10^{-2}$	$4.92 \cdot 10^{-3}$
2.13	1.02	0.1	0.52	$1.57 \cdot 10^{-2}$	$2.22 \cdot 10^{-2}$	$4.87 \cdot 10^{-3}$
2.15	1.03	0.1	0.53	$1.6 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$
2.18	1.04	0.1	0.52	$1.58 \cdot 10^{-2}$	$1.59 \cdot 10^{-2}$	$4.12 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 29. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e' \pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.38 \cdot 10^{-4}$	$1.7 \cdot 10^{-4}$	0	0	0	0
1.15	$2.38 \cdot 10^{-4}$	$1.7 \cdot 10^{-4}$	0	0	0	0
1.18	$2.38 \cdot 10^{-4}$	$1.7 \cdot 10^{-4}$	0	0	0	0
1.2	$7.13 \cdot 10^{-4}$	$3 \cdot 10^{-4}$	0	0	0	0
1.23	$1.07 \cdot 10^{-3}$	$3.72 \cdot 10^{-4}$	0	0	0	0
1.25	$1.31 \cdot 10^{-3}$	$4.15 \cdot 10^{-4}$	0	0	0	0
1.28	$1.55 \cdot 10^{-3}$	$4.55 \cdot 10^{-4}$	0	0	0	0
1.3	$4.75 \cdot 10^{-4}$	$2.42 \cdot 10^{-4}$	0	0	0	0
1.33	$1.78 \cdot 10^{-3}$	$4.93 \cdot 10^{-4}$	0	0	0	0
1.35	$1.78 \cdot 10^{-3}$	$4.93 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	0	0
1.38	$2.97 \cdot 10^{-3}$	$6.64 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	$7.31 \cdot 10^{-4}$	$5.17 \cdot 10^{-4}$
1.4	$6.3 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$	$4.95 \cdot 10^{-4}$	$3.5 \cdot 10^{-4}$	0	0
1.43	$8.68 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$2.23 \cdot 10^{-3}$	$7.42 \cdot 10^{-4}$	$5.2 \cdot 10^{-4}$	$3.68 \cdot 10^{-4}$
1.45	$1.34 \cdot 10^{-2}$	$1.84 \cdot 10^{-3}$	$1.19 \cdot 10^{-2}$	$1.71 \cdot 10^{-3}$	$4.08 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$
1.48	$1.89 \cdot 10^{-2}$	$2.41 \cdot 10^{-3}$	$2.1 \cdot 10^{-2}$	$2.28 \cdot 10^{-3}$	$1.51 \cdot 10^{-2}$	$2.13 \cdot 10^{-3}$
1.5	$2.78 \cdot 10^{-2}$	$3.31 \cdot 10^{-3}$	$4.75 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$	$4.42 \cdot 10^{-2}$	$3.67 \cdot 10^{-3}$
1.53	$3.19 \cdot 10^{-2}$	$3.72 \cdot 10^{-3}$	$6.8 \cdot 10^{-2}$	$4.1 \cdot 10^{-3}$	$8.02 \cdot 10^{-2}$	$5 \cdot 10^{-3}$
1.55	$3.92 \cdot 10^{-2}$	$4.46 \cdot 10^{-3}$	$8.96 \cdot 10^{-2}$	$4.71 \cdot 10^{-3}$	0.11	$5.69 \cdot 10^{-3}$
1.58	$3.66 \cdot 10^{-2}$	$4.2 \cdot 10^{-3}$	0.11	$5.14 \cdot 10^{-3}$	0.11	$5.88 \cdot 10^{-3}$
1.6	$4.52 \cdot 10^{-2}$	$5.06 \cdot 10^{-3}$	0.11	$5.27 \cdot 10^{-3}$	$9.66 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$
1.63	$4.83 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$	0.13	$5.6 \cdot 10^{-3}$	$9.22 \cdot 10^{-2}$	$5.43 \cdot 10^{-3}$
1.65	$5.24 \cdot 10^{-2}$	$5.78 \cdot 10^{-3}$	0.14	$5.92 \cdot 10^{-3}$	$8.48 \cdot 10^{-2}$	$5.15 \cdot 10^{-3}$
1.68	$5.61 \cdot 10^{-2}$	$6.15 \cdot 10^{-3}$	0.16	$6.38 \cdot 10^{-3}$	$9.28 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$

TABLE 29 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	$6.31 \cdot 10^{-2}$	$6.85 \cdot 10^{-3}$	0.15	$6.09 \cdot 10^{-3}$	$9.19 \cdot 10^{-2}$	$5.31 \cdot 10^{-3}$
1.73	$7.03 \cdot 10^{-2}$	$7.57 \cdot 10^{-3}$	0.14	$5.89 \cdot 10^{-3}$	$8.84 \cdot 10^{-2}$	$5.31 \cdot 10^{-3}$
1.75	$7.36 \cdot 10^{-2}$	$7.9 \cdot 10^{-3}$	0.12	$5.47 \cdot 10^{-3}$	$6.17 \cdot 10^{-2}$	$4.4 \cdot 10^{-3}$
1.78	$8.51 \cdot 10^{-2}$	$9.05 \cdot 10^{-3}$	$9.92 \cdot 10^{-2}$	$4.95 \cdot 10^{-3}$	$3.9 \cdot 10^{-2}$	$3.4 \cdot 10^{-3}$
1.8	$8.9 \cdot 10^{-2}$	$9.44 \cdot 10^{-3}$	$9.75 \cdot 10^{-2}$	$4.91 \cdot 10^{-3}$	$3.43 \cdot 10^{-2}$	$3.23 \cdot 10^{-3}$
1.83	$9.31 \cdot 10^{-2}$	$9.84 \cdot 10^{-3}$	$7.87 \cdot 10^{-2}$	$4.41 \cdot 10^{-3}$	$2.05 \cdot 10^{-2}$	$2.47 \cdot 10^{-3}$
1.85	0.1	$1.06 \cdot 10^{-2}$	$7.7 \cdot 10^{-2}$	$4.36 \cdot 10^{-3}$	$1.81 \cdot 10^{-2}$	$2.31 \cdot 10^{-3}$
1.88	$9.85 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$7.57 \cdot 10^{-2}$	$4.33 \cdot 10^{-3}$	$1.36 \cdot 10^{-2}$	$2.05 \cdot 10^{-3}$
1.9	0.11	$1.12 \cdot 10^{-2}$	$6.53 \cdot 10^{-2}$	$4.02 \cdot 10^{-3}$	$7.28 \cdot 10^{-3}$	$1.55 \cdot 10^{-3}$
1.93	0.1	$1.08 \cdot 10^{-2}$	$5.64 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$	$4.81 \cdot 10^{-3}$	$1.2 \cdot 10^{-3}$
1.95	0.11	$1.19 \cdot 10^{-2}$	$5.67 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$	$3.95 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$
1.98	0.1	$1.09 \cdot 10^{-2}$	$4.53 \cdot 10^{-2}$	$3.35 \cdot 10^{-3}$	$3.14 \cdot 10^{-3}$	$9.47 \cdot 10^{-4}$
2	0.11	$1.11 \cdot 10^{-2}$	$5.64 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$	$3.04 \cdot 10^{-3}$	$9.62 \cdot 10^{-4}$
2.03	$9.81 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$	$4.75 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$	$5.7 \cdot 10^{-4}$
2.05	$9.45 \cdot 10^{-2}$	$9.99 \cdot 10^{-3}$	$4.11 \cdot 10^{-2}$	$3.19 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$6.29 \cdot 10^{-4}$
2.08	$9.46 \cdot 10^{-2}$	$1 \cdot 10^{-2}$	$4.35 \cdot 10^{-2}$	$3.28 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	$5.21 \cdot 10^{-4}$
2.1	$9.3 \cdot 10^{-2}$	$9.83 \cdot 10^{-3}$	$4.55 \cdot 10^{-2}$	$3.36 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	$8.21 \cdot 10^{-4}$
2.13	$9.24 \cdot 10^{-2}$	$9.77 \cdot 10^{-3}$	$4.13 \cdot 10^{-2}$	$3.2 \cdot 10^{-3}$	$2.48 \cdot 10^{-4}$	$2.48 \cdot 10^{-4}$
2.15	$8.27 \cdot 10^{-2}$	$8.81 \cdot 10^{-3}$	$3.69 \cdot 10^{-2}$	$3.02 \cdot 10^{-3}$	$1.49 \cdot 10^{-3}$	$7.45 \cdot 10^{-4}$
2.18	$8.05 \cdot 10^{-2}$	$8.59 \cdot 10^{-3}$	$3.27 \cdot 10^{-2}$	$2.84 \cdot 10^{-3}$	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 30. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$1.11 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$	0	0	0	0
1.3	$5.56 \cdot 10^{-3}$	$2.55 \cdot 10^{-3}$	0	0	0	0
1.33	$2.56 \cdot 10^{-2}$	$5.91 \cdot 10^{-3}$	$9.26 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$9.91 \cdot 10^{-3}$	$4.95 \cdot 10^{-3}$
1.35	0.14	$1.86 \cdot 10^{-2}$	$5.33 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$	0.12	$2.18 \cdot 10^{-2}$
1.38	0.36	$4.11 \cdot 10^{-2}$	0.18	$2.02 \cdot 10^{-2}$	0.41	$3.4 \cdot 10^{-2}$
1.4	0.77	$8.18 \cdot 10^{-2}$	0.33	$2.77 \cdot 10^{-2}$	0.83	$4.98 \cdot 10^{-2}$
1.43	1.16	0.12	0.47	$3.32 \cdot 10^{-2}$	1.24	$6.29 \cdot 10^{-2}$
1.45	1.6	0.17	0.77	$4.21 \cdot 10^{-2}$	1.58	$8.06 \cdot 10^{-2}$
1.48	2.28	0.23	1.06	$4.95 \cdot 10^{-2}$	2.14	0.11
1.5	2.73	0.28	1.66	$6.19 \cdot 10^{-2}$	3.12	0.13
1.53	3.47	0.35	2.34	$7.37 \cdot 10^{-2}$	4.46	0.14
1.55	4.22	0.43	3.12	$8.5 \cdot 10^{-2}$	5.03	0.14
1.58	5.27	0.53	3.96	$9.57 \cdot 10^{-2}$	5.51	0.15
1.6	6.48	0.65	5.35	0.11	5.92	0.15
1.63	7.65	0.77	6.36	0.12	6.26	0.15
1.65	9.07	0.91	8.1	0.14	6.94	0.16
1.68	10.17	1.02	9.22	0.15	8.13	0.17

TABLE 30 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	11.81	1.18	10.9	0.16	9.51	0.19
1.73	13.06	1.31	12.1	0.17	9.75	0.23
1.75	13.74	1.37	13.09	0.17	9.44	0.24
1.78	14.51	1.45	14.1	0.18	9.6	0.25
1.8	15.28	1.53	15.11	0.19	9.17	0.22
1.83	15.7	1.57	16.39	0.19	8.84	0.21
1.85	16.36	1.63	17.39	0.2	8.32	0.2
1.88	16.76	1.67	18.38	0.21	8.14	0.19
1.9	17.4	1.74	18.8	0.21	7.75	0.19
1.93	17.7	1.77	19.7	0.21	7.22	0.18
1.95	18.22	1.82	20.46	0.22	6.52	0.17
1.98	18.77	1.87	21.41	0.22	6.39	0.16
2	18.99	1.9	21.7	0.22	6.08	0.17
2.03	19.26	1.92	21.82	0.22	5.52	0.15
2.05	19.5	1.95	22.43	0.23	5.58	0.17
2.08	19.63	1.96	22.47	0.23	5.14	0.18
2.1	19.9	1.99	22.35	0.23	5.03	0.19
2.13	19.99	2	22.69	0.23	4.74	0.18
2.15	19.79	1.98	22.69	0.23	4.64	0.17
2.18	19.84	1.98	23.15	0.23	4.43	0.16
2.2	19.85	1.98	22.87	0.23	4.27	0.15
2.23	19.88	1.98	22.45	0.23	3.9	0.14
2.25	19.91	1.99	23.16	0.23	3.55	0.13
2.28	19.26	1.92	22.55	0.23	3.25	0.12

TABLE 31. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.77 \cdot 10^{-4}$	$4.79 \cdot 10^{-4}$	0	0	0	0
1.15	$4.77 \cdot 10^{-4}$	$4.79 \cdot 10^{-4}$	0	0	0	0
1.18	$1.43 \cdot 10^{-3}$	$8.38 \cdot 10^{-4}$	0	0	0	0
1.2	$1.91 \cdot 10^{-3}$	$9.73 \cdot 10^{-4}$	0	0	0	0
1.23	$2.86 \cdot 10^{-3}$	$1.2 \cdot 10^{-3}$	0	0	0	0
1.25	$5.72 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.28	$9.54 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$	0	0	$1.08 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$
1.3	$2.05 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$	0	0	$9.9 \cdot 10^{-4}$	$9.9 \cdot 10^{-4}$
1.33	$9.25 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	$2.38 \cdot 10^{-2}$	$4.86 \cdot 10^{-3}$	$6.07 \cdot 10^{-2}$	$9.04 \cdot 10^{-3}$
1.35	0.21	$2.35 \cdot 10^{-2}$	$9.43 \cdot 10^{-2}$	$9.68 \cdot 10^{-3}$	0.25	$1.76 \cdot 10^{-2}$
1.38	0.44	$4.63 \cdot 10^{-2}$	0.21	$1.46 \cdot 10^{-2}$	0.65	$2.85 \cdot 10^{-2}$
1.4	0.72	$7.45 \cdot 10^{-2}$	0.43	$2.08 \cdot 10^{-2}$	0.91	$3.38 \cdot 10^{-2}$
1.43	0.94	$9.58 \cdot 10^{-2}$	0.54	$2.32 \cdot 10^{-2}$	1.04	$3.72 \cdot 10^{-2}$
1.45	1.2	0.12	0.75	$2.74 \cdot 10^{-2}$	1.19	$4.01 \cdot 10^{-2}$
1.48	1.46	0.15	0.96	$3.09 \cdot 10^{-2}$	1.58	$4.9 \cdot 10^{-2}$
1.5	1.68	0.17	1.16	$3.39 \cdot 10^{-2}$	2.19	$6.69 \cdot 10^{-2}$
1.53	1.94	0.2	1.45	$3.8 \cdot 10^{-2}$	2.54	$7.87 \cdot 10^{-2}$
1.55	2.07	0.21	1.68	$4.09 \cdot 10^{-2}$	2.82	$8.16 \cdot 10^{-2}$
1.58	2.24	0.23	1.76	$4.18 \cdot 10^{-2}$	2.49	$7.1 \cdot 10^{-2}$
1.6	2.49	0.25	1.99	$4.45 \cdot 10^{-2}$	2.39	$6.49 \cdot 10^{-2}$
1.63	2.81	0.28	2.23	$4.71 \cdot 10^{-2}$	2.61	$6.68 \cdot 10^{-2}$
1.65	3.16	0.32	2.59	$5.07 \cdot 10^{-2}$	2.97	$7.01 \cdot 10^{-2}$
1.68	3.57	0.36	2.93	$5.39 \cdot 10^{-2}$	3.25	$7.24 \cdot 10^{-2}$

TABLE 31 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	3.68	0.37	3.17	$5.61 \cdot 10^{-2}$	3.37	$7.32 \cdot 10^{-2}$
1.73	4	0.4	3.41	$5.82 \cdot 10^{-2}$	2.96	$6.94 \cdot 10^{-2}$
1.75	4.05	0.41	3.42	$5.82 \cdot 10^{-2}$	2.51	$6.72 \cdot 10^{-2}$
1.78	4.18	0.42	3.48	$5.88 \cdot 10^{-2}$	2.27	$7.24 \cdot 10^{-2}$
1.8	4.26	0.43	3.78	$6.12 \cdot 10^{-2}$	2.05	$7.47 \cdot 10^{-2}$
1.83	4.4	0.44	3.95	$6.26 \cdot 10^{-2}$	1.94	$7.42 \cdot 10^{-2}$
1.85	4.66	0.47	4.21	$6.46 \cdot 10^{-2}$	1.87	$7.29 \cdot 10^{-2}$
1.88	5	0.5	4.46	$6.66 \cdot 10^{-2}$	1.78	$6.79 \cdot 10^{-2}$
1.9	5.26	0.53	4.62	$6.77 \cdot 10^{-2}$	1.7	$6.39 \cdot 10^{-2}$
1.93	5.58	0.56	4.76	$6.87 \cdot 10^{-2}$	1.61	$6.13 \cdot 10^{-2}$
1.95	6.05	0.6	5.3	$7.26 \cdot 10^{-2}$	1.57	$5.8 \cdot 10^{-2}$
1.98	6.35	0.63	5.31	$7.26 \cdot 10^{-2}$	1.51	$5.74 \cdot 10^{-2}$
2	6.67	0.67	5.66	$7.5 \cdot 10^{-2}$	1.45	$5.56 \cdot 10^{-2}$
2.03	7.09	0.71	6	$7.72 \cdot 10^{-2}$	1.37	$5.5 \cdot 10^{-2}$
2.05	7.4	0.74	6.25	$7.87 \cdot 10^{-2}$	1.39	$5.46 \cdot 10^{-2}$
2.08	7.92	0.79	6.49	$8.03 \cdot 10^{-2}$	1.46	$5.56 \cdot 10^{-2}$
2.1	8.13	0.81	6.74	$8.18 \cdot 10^{-2}$	1.45	$5.27 \cdot 10^{-2}$
2.13	8.72	0.87	6.77	$8.2 \cdot 10^{-2}$	1.48	$5.29 \cdot 10^{-2}$
2.15	9.01	0.9	7.13	$8.42 \cdot 10^{-2}$	1.3	$4.86 \cdot 10^{-2}$
2.18	9.27	0.92	7.18	$8.44 \cdot 10^{-2}$	1.12	$4.73 \cdot 10^{-2}$
2.2	9.6	0.96	7.35	$8.54 \cdot 10^{-2}$	0.97	$4.32 \cdot 10^{-2}$
2.23	9.73	0.97	7.35	$8.54 \cdot 10^{-2}$	0.81	$4.07 \cdot 10^{-2}$
2.25	10.08	1.01	7.42	$8.58 \cdot 10^{-2}$	0.65	$3.7 \cdot 10^{-2}$
2.28	10.37	1.03	7.42	$8.58 \cdot 10^{-2}$	0.52	$3.22 \cdot 10^{-2}$

TABLE 32. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.15 \cdot 10^{-3}$	$8.41 \cdot 10^{-4}$	0	0	0	0
1.15	$1.54 \cdot 10^{-3}$	$7.04 \cdot 10^{-4}$	0	0	0	0
1.18	$3.69 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$	0	0	0	0
1.2	$4.3 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	0	0	0	0
1.23	$4.3 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	0	0	0	0
1.25	$7.07 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	0	0	0	0
1.28	$7.68 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$	0	0	0	0
1.3	$7.07 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	$6.39 \cdot 10^{-4}$	$6.39 \cdot 10^{-4}$	$1.3 \cdot 10^{-3}$	$9.17 \cdot 10^{-4}$
1.33	$1.14 \cdot 10^{-2}$	$2.18 \cdot 10^{-3}$	0	0	$6.85 \cdot 10^{-4}$	$6.85 \cdot 10^{-4}$
1.35	$2.33 \cdot 10^{-2}$	$3.55 \cdot 10^{-3}$	$5.12 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$	0	0
1.38	$5.59 \cdot 10^{-2}$	$6.94 \cdot 10^{-3}$	$1.28 \cdot 10^{-2}$	$2.86 \cdot 10^{-3}$	$2.41 \cdot 10^{-2}$	$4.07 \cdot 10^{-3}$
1.4	0.12	$1.34 \cdot 10^{-2}$	$7.61 \cdot 10^{-2}$	$6.98 \cdot 10^{-3}$	0.1	$8.84 \cdot 10^{-3}$
1.43	0.21	$2.24 \cdot 10^{-2}$	0.15	$9.78 \cdot 10^{-3}$	0.24	$1.38 \cdot 10^{-2}$
1.45	0.33	$3.41 \cdot 10^{-2}$	0.31	$1.4 \cdot 10^{-2}$	0.36	$1.67 \cdot 10^{-2}$
1.48	0.43	$4.46 \cdot 10^{-2}$	0.43	$1.65 \cdot 10^{-2}$	0.55	$2.08 \cdot 10^{-2}$
1.5	0.5	$5.1 \cdot 10^{-2}$	0.55	$1.88 \cdot 10^{-2}$	0.72	$2.41 \cdot 10^{-2}$
1.53	0.55	$5.6 \cdot 10^{-2}$	0.65	$2.04 \cdot 10^{-2}$	0.81	$2.54 \cdot 10^{-2}$
1.55	0.55	$5.65 \cdot 10^{-2}$	0.67	$2.07 \cdot 10^{-2}$	0.73	$2.66 \cdot 10^{-2}$
1.58	0.55	$5.65 \cdot 10^{-2}$	0.62	$1.99 \cdot 10^{-2}$	0.6	$2.64 \cdot 10^{-2}$
1.6	0.56	$5.72 \cdot 10^{-2}$	0.63	$2 \cdot 10^{-2}$	0.55	$2.9 \cdot 10^{-2}$
1.63	0.63	$6.37 \cdot 10^{-2}$	0.63	$2 \cdot 10^{-2}$	0.57	$3.04 \cdot 10^{-2}$
1.65	0.76	$7.73 \cdot 10^{-2}$	0.67	$2.07 \cdot 10^{-2}$	0.65	$3.15 \cdot 10^{-2}$
1.68	0.82	$8.34 \cdot 10^{-2}$	0.87	$2.36 \cdot 10^{-2}$	0.78	$3.2 \cdot 10^{-2}$

TABLE 32 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	0.92	$9.29 \cdot 10^{-2}$	0.96	$2.47 \cdot 10^{-2}$	0.9	$3.18 \cdot 10^{-2}$
1.73	1	0.1	0.98	$2.5 \cdot 10^{-2}$	0.84	$3.12 \cdot 10^{-2}$
1.75	1.04	0.1	1.04	$2.57 \cdot 10^{-2}$	0.73	$2.86 \cdot 10^{-2}$
1.78	1.1	0.11	1.04	$2.58 \cdot 10^{-2}$	0.66	$2.73 \cdot 10^{-2}$
1.8	1.13	0.11	1.11	$2.67 \cdot 10^{-2}$	0.63	$2.63 \cdot 10^{-2}$
1.83	1.2	0.12	1.14	$2.7 \cdot 10^{-2}$	0.56	$2.5 \cdot 10^{-2}$
1.85	1.2	0.12	1.17	$2.73 \cdot 10^{-2}$	0.55	$2.41 \cdot 10^{-2}$
1.88	1.29	0.13	1.17	$2.74 \cdot 10^{-2}$	0.48	$2.25 \cdot 10^{-2}$
1.9	1.3	0.13	1.18	$2.75 \cdot 10^{-2}$	0.46	$2.24 \cdot 10^{-2}$
1.93	1.38	0.14	1.19	$2.76 \cdot 10^{-2}$	0.43	$2.22 \cdot 10^{-2}$
1.95	1.46	0.15	1.17	$2.73 \cdot 10^{-2}$	0.36	$1.99 \cdot 10^{-2}$
1.98	1.5	0.15	1.11	$2.67 \cdot 10^{-2}$	0.32	$1.93 \cdot 10^{-2}$
2	1.55	0.16	1.08	$2.62 \cdot 10^{-2}$	0.26	$1.6 \cdot 10^{-2}$
2.03	1.61	0.16	1.07	$2.62 \cdot 10^{-2}$	0.21	$1.58 \cdot 10^{-2}$
2.05	1.68	0.17	1.05	$2.59 \cdot 10^{-2}$	0.14	$1.2 \cdot 10^{-2}$
2.08	1.77	0.18	1.06	$2.6 \cdot 10^{-2}$	$9.62 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
2.1	1.77	0.18	1.08	$2.63 \cdot 10^{-2}$	$4.55 \cdot 10^{-2}$	$7.7 \cdot 10^{-3}$
2.13	1.87	0.19	1.03	$2.57 \cdot 10^{-2}$	$4.03 \cdot 10^{-2}$	$7.61 \cdot 10^{-3}$
2.15	1.93	0.19	0.99	$2.52 \cdot 10^{-2}$	$3.85 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$
2.18	1.96	0.2	1.04	$2.58 \cdot 10^{-2}$	$2.66 \cdot 10^{-2}$	$5.24 \cdot 10^{-3}$
2.2	2.04	0.21	1.09	$2.64 \cdot 10^{-2}$	$2.61 \cdot 10^{-2}$	$5.83 \cdot 10^{-3}$
2.23	2.11	0.21	1.03	$2.56 \cdot 10^{-2}$	$2.53 \cdot 10^{-2}$	$5.94 \cdot 10^{-3}$
2.25	2.2	0.22	1.06	$2.6 \cdot 10^{-2}$	$2.47 \cdot 10^{-2}$	$6.53 \cdot 10^{-3}$
2.28	2.3	0.23	1.14	$2.7 \cdot 10^{-2}$	$2.29 \cdot 10^{-2}$	$5.93 \cdot 10^{-3}$

TABLE 33. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$6.34 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.15	$1.58 \cdot 10^{-3}$	$5.25 \cdot 10^{-4}$	0	0	0	0
1.18	$1.58 \cdot 10^{-3}$	$5.25 \cdot 10^{-4}$	0	0	0	0
1.2	$6.34 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.23	$2.06 \cdot 10^{-3}$	$6.07 \cdot 10^{-4}$	0	0	0	0
1.25	$2.22 \cdot 10^{-3}$	$6.33 \cdot 10^{-4}$	0	0	0	0
1.28	$3.33 \cdot 10^{-3}$	$7.98 \cdot 10^{-4}$	0	0	0	0
1.3	$2.22 \cdot 10^{-3}$	$6.33 \cdot 10^{-4}$	0	0	0	0
1.33	$1.74 \cdot 10^{-3}$	$5.54 \cdot 10^{-4}$	0	0	0	0
1.35	$2.06 \cdot 10^{-3}$	$6.07 \cdot 10^{-4}$	0	0	$3.1 \cdot 10^{-4}$	$3.1 \cdot 10^{-4}$
1.38	$5.23 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	0	0	0	0
1.4	$8.56 \cdot 10^{-3}$	$1.44 \cdot 10^{-3}$	$3.3 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$3.38 \cdot 10^{-4}$	$3.38 \cdot 10^{-4}$
1.43	$1.13 \cdot 10^{-2}$	$1.74 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$3.31 \cdot 10^{-4}$	$3.31 \cdot 10^{-4}$
1.45	$1.92 \cdot 10^{-2}$	$2.59 \cdot 10^{-3}$	$1.06 \cdot 10^{-2}$	$1.87 \cdot 10^{-3}$	$6.24 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$
1.48	$3.26 \cdot 10^{-2}$	$3.97 \cdot 10^{-3}$	$3.13 \cdot 10^{-2}$	$3.22 \cdot 10^{-3}$	$2.4 \cdot 10^{-2}$	$3.12 \cdot 10^{-3}$
1.5	$4.93 \cdot 10^{-2}$	$5.65 \cdot 10^{-3}$	$7.36 \cdot 10^{-2}$	$4.93 \cdot 10^{-3}$	$7.83 \cdot 10^{-2}$	$5.68 \cdot 10^{-3}$
1.53	$6.24 \cdot 10^{-2}$	$6.97 \cdot 10^{-3}$	0.12	$6.24 \cdot 10^{-3}$	0.11	$6.72 \cdot 10^{-3}$
1.55	$8.57 \cdot 10^{-2}$	$9.3 \cdot 10^{-3}$	0.17	$7.39 \cdot 10^{-3}$	0.17	$8.47 \cdot 10^{-3}$
1.58	$9.32 \cdot 10^{-2}$	$1 \cdot 10^{-2}$	0.21	$8.42 \cdot 10^{-3}$	0.17	$8.44 \cdot 10^{-3}$
1.6	$9.46 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	0.23	$8.77 \cdot 10^{-3}$	0.15	$7.78 \cdot 10^{-3}$
1.63	0.11	$1.14 \cdot 10^{-2}$	0.27	$9.38 \cdot 10^{-3}$	0.13	$7.37 \cdot 10^{-3}$
1.65	0.13	$1.35 \cdot 10^{-2}$	0.28	$9.67 \cdot 10^{-3}$	0.17	$8.44 \cdot 10^{-3}$
1.68	0.14	$1.47 \cdot 10^{-2}$	0.29	$9.86 \cdot 10^{-3}$	0.19	$8.72 \cdot 10^{-3}$

TABLE 33 Continued.						
$d(e, e' \pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	0.15	$1.55 \cdot 10^{-2}$	0.31	$1.01 \cdot 10^{-2}$	0.19	$8.86 \cdot 10^{-3}$
1.73	0.16	$1.7 \cdot 10^{-2}$	0.28	$9.67 \cdot 10^{-3}$	0.17	$8.32 \cdot 10^{-3}$
1.75	0.17	$1.75 \cdot 10^{-2}$	0.26	$9.32 \cdot 10^{-3}$	0.13	$7.16 \cdot 10^{-3}$
1.78	0.18	$1.84 \cdot 10^{-2}$	0.24	$8.9 \cdot 10^{-3}$	$8.81 \cdot 10^{-2}$	$6.03 \cdot 10^{-3}$
1.8	0.18	$1.9 \cdot 10^{-2}$	0.22	$8.42 \cdot 10^{-3}$	$7.08 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$
1.83	0.19	$2 \cdot 10^{-2}$	0.17	$7.52 \cdot 10^{-3}$	$4.65 \cdot 10^{-2}$	$4.44 \cdot 10^{-3}$
1.85	0.21	$2.18 \cdot 10^{-2}$	0.17	$7.52 \cdot 10^{-3}$	$2.75 \cdot 10^{-2}$	$3.2 \cdot 10^{-3}$
1.88	0.21	$2.2 \cdot 10^{-2}$	0.15	$7.01 \cdot 10^{-3}$	$2.02 \cdot 10^{-2}$	$2.97 \cdot 10^{-3}$
1.9	0.23	$2.36 \cdot 10^{-2}$	0.14	$6.88 \cdot 10^{-3}$	$8.18 \cdot 10^{-3}$	$1.88 \cdot 10^{-3}$
1.93	0.24	$2.49 \cdot 10^{-2}$	0.13	$6.59 \cdot 10^{-3}$	$8.59 \cdot 10^{-3}$	$1.92 \cdot 10^{-3}$
1.95	0.23	$2.33 \cdot 10^{-2}$	0.11	$6.15 \cdot 10^{-3}$	$6.71 \cdot 10^{-3}$	$1.73 \cdot 10^{-3}$
1.98	0.22	$2.27 \cdot 10^{-2}$	0.12	$6.26 \cdot 10^{-3}$	$6.25 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$
2	0.21	$2.21 \cdot 10^{-2}$	0.11	$6.15 \cdot 10^{-3}$	$5.99 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$
2.03	0.21	$2.17 \cdot 10^{-2}$	$9.83 \cdot 10^{-2}$	$5.7 \cdot 10^{-3}$	$3.62 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$
2.05	0.2	$2.11 \cdot 10^{-2}$	$9.27 \cdot 10^{-2}$	$5.53 \cdot 10^{-3}$	$2.77 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$
2.08	0.21	$2.16 \cdot 10^{-2}$	0.1	$5.8 \cdot 10^{-3}$	$5.1 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
2.1	0.19	$1.96 \cdot 10^{-2}$	$9.3 \cdot 10^{-2}$	$5.54 \cdot 10^{-3}$	$2.42 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$
2.13	0.19	$1.94 \cdot 10^{-2}$	$8.94 \cdot 10^{-2}$	$5.43 \cdot 10^{-3}$	$2.4 \cdot 10^{-3}$	$9.07 \cdot 10^{-4}$
2.15	0.18	$1.91 \cdot 10^{-2}$	$7.62 \cdot 10^{-2}$	$5.01 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$	$6.96 \cdot 10^{-4}$
2.18	0.17	$1.79 \cdot 10^{-2}$	$7.59 \cdot 10^{-2}$	$5 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$	$6.36 \cdot 10^{-4}$
2.2	0.18	$1.84 \cdot 10^{-2}$	$8.54 \cdot 10^{-2}$	$5.31 \cdot 10^{-3}$	$6.86 \cdot 10^{-4}$	$4.85 \cdot 10^{-4}$
2.23	0.16	$1.71 \cdot 10^{-2}$	$7.03 \cdot 10^{-2}$	$4.81 \cdot 10^{-3}$	$3.53 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$
2.25	0.16	$1.71 \cdot 10^{-2}$	$6.7 \cdot 10^{-2}$	$4.7 \cdot 10^{-3}$	$3.48 \cdot 10^{-4}$	$3.48 \cdot 10^{-4}$
2.28	0.15	$1.59 \cdot 10^{-2}$	$6.47 \cdot 10^{-2}$	$4.62 \cdot 10^{-3}$	$3.1 \cdot 10^{-4}$	$3.1 \cdot 10^{-4}$

B.4 3D CROSS SECTION TABLES FOR $D(E, E'\Pi^-)$ INTEGRATED OVER P_Π

TABLE 34. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0$ GeV², $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0$ GeV ² , $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c ²	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$9.2 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$
1.15	$1.25 \cdot 10^{-2}$	$3.4 \cdot 10^{-3}$	$1.04 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$1.15 \cdot 10^{-2}$	$4.36 \cdot 10^{-3}$
1.18	$2.7 \cdot 10^{-2}$	$5.78 \cdot 10^{-3}$	$1.51 \cdot 10^{-2}$	$4.17 \cdot 10^{-3}$	$2.95 \cdot 10^{-2}$	$6.29 \cdot 10^{-3}$
1.2	$3.29 \cdot 10^{-2}$	$6.7 \cdot 10^{-3}$	$6.02 \cdot 10^{-2}$	$8.35 \cdot 10^{-3}$	$5.79 \cdot 10^{-2}$	$8.64 \cdot 10^{-3}$
1.23	$6.84 \cdot 10^{-2}$	$1.21 \cdot 10^{-2}$	$7.41 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$	0.15	$1.56 \cdot 10^{-2}$
1.25	$6.97 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	$8.8 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	0.21	$2.05 \cdot 10^{-2}$
1.28	0.11	$1.76 \cdot 10^{-2}$	0.12	$1.17 \cdot 10^{-2}$	0.2	$2.1 \cdot 10^{-2}$
1.3	0.13	$2.13 \cdot 10^{-2}$	0.16	$1.36 \cdot 10^{-2}$	0.22	$2.45 \cdot 10^{-2}$
1.33	0.17	$2.75 \cdot 10^{-2}$	0.17	$1.4 \cdot 10^{-2}$	0.19	$2.35 \cdot 10^{-2}$
1.35	0.2	$3.18 \cdot 10^{-2}$	0.2	$1.52 \cdot 10^{-2}$	0.22	$2.33 \cdot 10^{-2}$
1.38	0.21	$3.31 \cdot 10^{-2}$	0.22	$1.58 \cdot 10^{-2}$	0.2	$2.09 \cdot 10^{-2}$
1.4	0.26	$4.04 \cdot 10^{-2}$	0.26	$1.74 \cdot 10^{-2}$	0.18	$1.99 \cdot 10^{-2}$
1.43	0.3	$4.63 \cdot 10^{-2}$	0.3	$1.86 \cdot 10^{-2}$	0.21	$2.38 \cdot 10^{-2}$
1.45	0.34	$5.15 \cdot 10^{-2}$	0.35	$2 \cdot 10^{-2}$	0.21	$2.03 \cdot 10^{-2}$
1.48	0.34	$5.2 \cdot 10^{-2}$	0.4	$2.15 \cdot 10^{-2}$	0.18	$2.36 \cdot 10^{-2}$
1.5	0.39	$6 \cdot 10^{-2}$	0.45	$2.29 \cdot 10^{-2}$	0.19	$2.47 \cdot 10^{-2}$
1.53	0.45	$6.84 \cdot 10^{-2}$	0.54	$2.5 \cdot 10^{-2}$	0.23	$2.71 \cdot 10^{-2}$
1.55	0.48	$7.32 \cdot 10^{-2}$	0.59	$2.62 \cdot 10^{-2}$	0.27	$2.99 \cdot 10^{-2}$
1.58	0.47	$7.1 \cdot 10^{-2}$	0.7	$2.84 \cdot 10^{-2}$	0.28	$2.92 \cdot 10^{-2}$
1.6	0.52	$7.91 \cdot 10^{-2}$	0.74	$2.93 \cdot 10^{-2}$	0.27	$2.62 \cdot 10^{-2}$
1.63	0.58	$8.75 \cdot 10^{-2}$	0.86	$3.15 \cdot 10^{-2}$	0.22	$2.15 \cdot 10^{-2}$
1.65	0.56	$8.47 \cdot 10^{-2}$	0.96	$3.34 \cdot 10^{-2}$	0.23	$2.22 \cdot 10^{-2}$
1.68	0.63	$9.54 \cdot 10^{-2}$	0.98	$3.37 \cdot 10^{-2}$	0.15	$1.87 \cdot 10^{-2}$

TABLE 34 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.64	$9.59 \cdot 10^{-2}$	0.93	$3.29 \cdot 10^{-2}$	0.2	$2.17 \cdot 10^{-2}$
1.73	0.65	$9.81 \cdot 10^{-2}$	0.97	$3.35 \cdot 10^{-2}$	0.17	$1.9 \cdot 10^{-2}$
1.75	0.68	0.1	0.99	$3.39 \cdot 10^{-2}$	0.15	$1.52 \cdot 10^{-2}$
1.78	0.67	0.1	0.99	$3.38 \cdot 10^{-2}$	0.14	$1.74 \cdot 10^{-2}$
1.8	0.69	0.1	1.05	$3.49 \cdot 10^{-2}$	0.15	$2.23 \cdot 10^{-2}$
1.83	0.65	$9.82 \cdot 10^{-2}$	1	$3.41 \cdot 10^{-2}$	0.17	$2.48 \cdot 10^{-2}$
1.85	0.64	$9.68 \cdot 10^{-2}$	0.97	$3.35 \cdot 10^{-2}$	0.14	$2.04 \cdot 10^{-2}$
1.88	0.64	$9.69 \cdot 10^{-2}$	1	$3.41 \cdot 10^{-2}$	0.14	$2.27 \cdot 10^{-2}$
1.9	0.6	$9.01 \cdot 10^{-2}$	0.97	$3.36 \cdot 10^{-2}$	0.13	$1.76 \cdot 10^{-2}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 35. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0$ GeV², $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0$ GeV ² , $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$1.13 \cdot 10^{-3}$	$5.88 \cdot 10^{-4}$	0	0	0	0
1.15	$3.38 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$9.93 \cdot 10^{-4}$	$4.69 \cdot 10^{-4}$	$4.69 \cdot 10^{-4}$
1.18	$5.36 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	$9.93 \cdot 10^{-4}$	$7.02 \cdot 10^{-4}$	$2.47 \cdot 10^{-3}$	$1.24 \cdot 10^{-3}$
1.2	$8.74 \cdot 10^{-3}$	$2.03 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$
1.23	$9.59 \cdot 10^{-3}$	$2.16 \cdot 10^{-3}$	$1.84 \cdot 10^{-2}$	$3.02 \cdot 10^{-3}$	$1.1 \cdot 10^{-2}$	$2.45 \cdot 10^{-3}$
1.25	$1.86 \cdot 10^{-2}$	$3.57 \cdot 10^{-3}$	$1.79 \cdot 10^{-2}$	$2.98 \cdot 10^{-3}$	$4 \cdot 10^{-2}$	$4.85 \cdot 10^{-3}$
1.28	$2.28 \cdot 10^{-2}$	$4.21 \cdot 10^{-3}$	$3.13 \cdot 10^{-2}$	$3.94 \cdot 10^{-3}$	$4.67 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$
1.3	$3.19 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$	$3.82 \cdot 10^{-2}$	$4.36 \cdot 10^{-3}$	$5.47 \cdot 10^{-2}$	$6.43 \cdot 10^{-3}$
1.33	$4.34 \cdot 10^{-2}$	$7.28 \cdot 10^{-3}$	$4.96 \cdot 10^{-2}$	$4.96 \cdot 10^{-3}$	$6.38 \cdot 10^{-2}$	$7.78 \cdot 10^{-3}$
1.35	$4.76 \cdot 10^{-2}$	$7.9 \cdot 10^{-3}$	$5.21 \cdot 10^{-2}$	$5.09 \cdot 10^{-3}$	$6.93 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$
1.38	$5.24 \cdot 10^{-2}$	$8.61 \cdot 10^{-3}$	$5.91 \cdot 10^{-2}$	$5.42 \cdot 10^{-3}$	$5.15 \cdot 10^{-2}$	$8.2 \cdot 10^{-3}$
1.4	$5.78 \cdot 10^{-2}$	$9.4 \cdot 10^{-3}$	$7.3 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	$5 \cdot 10^{-2}$	$7.66 \cdot 10^{-3}$
1.43	$7.33 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	$7.7 \cdot 10^{-2}$	$6.18 \cdot 10^{-3}$	$4.24 \cdot 10^{-2}$	$6.92 \cdot 10^{-3}$
1.45	$7.13 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	0.11	$7.3 \cdot 10^{-3}$	$4.24 \cdot 10^{-2}$	$6.56 \cdot 10^{-3}$
1.48	$8.29 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$	0.11	$7.31 \cdot 10^{-3}$	$6.02 \cdot 10^{-2}$	$7.75 \cdot 10^{-3}$
1.5	$9.7 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	0.11	$7.5 \cdot 10^{-3}$	$4.91 \cdot 10^{-2}$	$6.69 \cdot 10^{-3}$
1.53	0.12	$1.78 \cdot 10^{-2}$	0.15	$8.58 \cdot 10^{-3}$	$5.08 \cdot 10^{-2}$	$7.97 \cdot 10^{-3}$
1.55	0.12	$1.87 \cdot 10^{-2}$	0.18	$9.34 \cdot 10^{-3}$	$4.37 \cdot 10^{-2}$	$7.12 \cdot 10^{-3}$
1.58	0.14	$2.09 \cdot 10^{-2}$	0.22	$1.04 \cdot 10^{-2}$	$4.29 \cdot 10^{-2}$	$6.62 \cdot 10^{-3}$
1.6	0.15	$2.35 \cdot 10^{-2}$	0.25	$1.12 \cdot 10^{-2}$	$3.6 \cdot 10^{-2}$	$7.49 \cdot 10^{-3}$
1.63	0.16	$2.52 \cdot 10^{-2}$	0.31	$1.23 \cdot 10^{-2}$	$3.37 \cdot 10^{-2}$	$7.65 \cdot 10^{-3}$
1.65	0.19	$2.94 \cdot 10^{-2}$	0.34	$1.3 \cdot 10^{-2}$	$2.51 \cdot 10^{-2}$	$6.05 \cdot 10^{-3}$
1.68	0.2	$3.05 \cdot 10^{-2}$	0.4	$1.41 \cdot 10^{-2}$	$2.39 \cdot 10^{-2}$	$5.82 \cdot 10^{-3}$

TABLE 35 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.25	$3.76 \cdot 10^{-2}$	0.41	$1.42 \cdot 10^{-2}$	$3.36 \cdot 10^{-2}$	$6.45 \cdot 10^{-3}$
1.73	0.27	$4.01 \cdot 10^{-2}$	0.42	$1.45 \cdot 10^{-2}$	$2.18 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$
1.75	0.3	$4.47 \cdot 10^{-2}$	0.42	$1.44 \cdot 10^{-2}$	$2.09 \cdot 10^{-2}$	$4.9 \cdot 10^{-3}$
1.78	0.31	$4.65 \cdot 10^{-2}$	0.43	$1.45 \cdot 10^{-2}$	$2.31 \cdot 10^{-2}$	$4.83 \cdot 10^{-3}$
1.8	0.34	$5.1 \cdot 10^{-2}$	0.42	$1.45 \cdot 10^{-2}$	$2.66 \cdot 10^{-2}$	$5.02 \cdot 10^{-3}$
1.83	0.33	$5 \cdot 10^{-2}$	0.4	$1.4 \cdot 10^{-2}$	$2.1 \cdot 10^{-2}$	$3.98 \cdot 10^{-3}$
1.85	0.37	$5.53 \cdot 10^{-2}$	0.41	$1.43 \cdot 10^{-2}$	$2.24 \cdot 10^{-2}$	$4.11 \cdot 10^{-3}$
1.88	0.39	$5.87 \cdot 10^{-2}$	0.41	$1.43 \cdot 10^{-2}$	$2.48 \cdot 10^{-2}$	$4.63 \cdot 10^{-3}$
1.9	0.38	$5.67 \cdot 10^{-2}$	0.43	$1.47 \cdot 10^{-2}$	$2.36 \cdot 10^{-2}$	$4.34 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 36. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb/sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.63 \cdot 10^{-4}$	$2.62 \cdot 10^{-4}$	0	0	0	0
1.15	$3.63 \cdot 10^{-4}$	$2.62 \cdot 10^{-4}$	0	0	0	0
1.18	$9.08 \cdot 10^{-4}$	$4.27 \cdot 10^{-4}$	0	0	0	0
1.2	$5.45 \cdot 10^{-4}$	$3.24 \cdot 10^{-4}$	0	0	0	0
1.23	$7.26 \cdot 10^{-4}$	$3.78 \cdot 10^{-4}$	$3.2 \cdot 10^{-4}$	$3.2 \cdot 10^{-4}$	0	0
1.25	$9.08 \cdot 10^{-4}$	$4.27 \cdot 10^{-4}$	0	0	$3.02 \cdot 10^{-4}$	$3.02 \cdot 10^{-4}$
1.28	$1.45 \cdot 10^{-3}$	$5.56 \cdot 10^{-4}$	$1.6 \cdot 10^{-3}$	$7.15 \cdot 10^{-4}$	$6.82 \cdot 10^{-4}$	$4.83 \cdot 10^{-4}$
1.3	$3.27 \cdot 10^{-3}$	$9.08 \cdot 10^{-4}$	$1.92 \cdot 10^{-3}$	$7.83 \cdot 10^{-4}$	$1.25 \cdot 10^{-3}$	$6.23 \cdot 10^{-4}$
1.33	$3.81 \cdot 10^{-3}$	$1 \cdot 10^{-3}$	$2.88 \cdot 10^{-3}$	$9.59 \cdot 10^{-4}$	$2.5 \cdot 10^{-3}$	$9.46 \cdot 10^{-4}$
1.35	$4.9 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$5.44 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$4.81 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$
1.38	$7.44 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	$1.21 \cdot 10^{-2}$	$1.97 \cdot 10^{-3}$	$6.94 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$
1.4	$7.26 \cdot 10^{-3}$	$1.57 \cdot 10^{-3}$	$1.41 \cdot 10^{-2}$	$2.12 \cdot 10^{-3}$	$6.47 \cdot 10^{-3}$	$1.57 \cdot 10^{-3}$
1.43	$1.13 \cdot 10^{-2}$	$2.19 \cdot 10^{-3}$	$1.82 \cdot 10^{-2}$	$2.41 \cdot 10^{-3}$	$5.94 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$
1.45	$1.07 \cdot 10^{-2}$	$2.1 \cdot 10^{-3}$	$1.89 \cdot 10^{-2}$	$2.46 \cdot 10^{-3}$	$7.06 \cdot 10^{-3}$	$1.62 \cdot 10^{-3}$
1.48	$1.51 \cdot 10^{-2}$	$2.76 \cdot 10^{-3}$	$2.62 \cdot 10^{-2}$	$2.9 \cdot 10^{-3}$	$1.13 \cdot 10^{-2}$	$2.82 \cdot 10^{-3}$
1.5	$1.63 \cdot 10^{-2}$	$2.96 \cdot 10^{-3}$	$2.3 \cdot 10^{-2}$	$2.71 \cdot 10^{-3}$	$9.11 \cdot 10^{-3}$	$2.61 \cdot 10^{-3}$
1.53	$1.76 \cdot 10^{-2}$	$3.15 \cdot 10^{-3}$	$3.96 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	$1.03 \cdot 10^{-2}$	$2.75 \cdot 10^{-3}$
1.55	$1.85 \cdot 10^{-2}$	$3.28 \cdot 10^{-3}$	$3.39 \cdot 10^{-2}$	$3.29 \cdot 10^{-3}$	$9.67 \cdot 10^{-3}$	$2.65 \cdot 10^{-3}$
1.58	$1.8 \cdot 10^{-2}$	$3.2 \cdot 10^{-3}$	$3.87 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$	$5.88 \cdot 10^{-3}$	$2.22 \cdot 10^{-3}$
1.6	$2.29 \cdot 10^{-2}$	$3.93 \cdot 10^{-3}$	$4.32 \cdot 10^{-2}$	$3.71 \cdot 10^{-3}$	$5.79 \cdot 10^{-3}$	$1.96 \cdot 10^{-3}$
1.63	$2.58 \cdot 10^{-2}$	$4.36 \cdot 10^{-3}$	$6.52 \cdot 10^{-2}$	$4.57 \cdot 10^{-3}$	$7 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$
1.65	$3 \cdot 10^{-2}$	$4.98 \cdot 10^{-3}$	$7.83 \cdot 10^{-2}$	$5 \cdot 10^{-3}$	$5.77 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$
1.68	$3.7 \cdot 10^{-2}$	$6.03 \cdot 10^{-3}$	$9.34 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$	$2.51 \cdot 10^{-3}$	$8.89 \cdot 10^{-4}$

TABLE 36 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$3.69 \cdot 10^{-2}$	$6 \cdot 10^{-3}$	$9.88 \cdot 10^{-2}$	$5.62 \cdot 10^{-3}$	$6.3 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$
1.73	$4.74 \cdot 10^{-2}$	$7.56 \cdot 10^{-3}$	0.1	$5.7 \cdot 10^{-3}$	$6.41 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$
1.75	$4.88 \cdot 10^{-2}$	$7.77 \cdot 10^{-3}$	$9.27 \cdot 10^{-2}$	$5.44 \cdot 10^{-3}$	$4.77 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$
1.78	$5.83 \cdot 10^{-2}$	$9.16 \cdot 10^{-3}$	0.1	$5.73 \cdot 10^{-3}$	$7.09 \cdot 10^{-3}$	$1.91 \cdot 10^{-3}$
1.8	$6.72 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	0.1	$5.74 \cdot 10^{-3}$	$5.82 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$
1.83	$7.39 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$	$9.88 \cdot 10^{-2}$	$5.62 \cdot 10^{-3}$	$5.26 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$
1.85	$7.97 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	$8.95 \cdot 10^{-2}$	$5.35 \cdot 10^{-3}$	$5.24 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$
1.88	$8.9 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$	$9.62 \cdot 10^{-2}$	$5.55 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$
1.9	$9.28 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$	$9.4 \cdot 10^{-2}$	$5.48 \cdot 10^{-3}$	$4.89 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 37. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e' \pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$9.37 \cdot 10^{-5}$	$9.47 \cdot 10^{-5}$	0	0	0	0
1.15	$9.37 \cdot 10^{-5}$	$9.47 \cdot 10^{-5}$	0	0	0	0
1.18	$9.37 \cdot 10^{-5}$	$9.47 \cdot 10^{-5}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$9.37 \cdot 10^{-5}$	$9.47 \cdot 10^{-5}$	0	0	0	0
1.25	$9.37 \cdot 10^{-5}$	$9.47 \cdot 10^{-5}$	0	0	0	0
1.28	$2.81 \cdot 10^{-4}$	$1.67 \cdot 10^{-4}$	0	0	0	0
1.3	$1.87 \cdot 10^{-4}$	$1.35 \cdot 10^{-4}$	0	0	0	0
1.33	$4.68 \cdot 10^{-4}$	$2.2 \cdot 10^{-4}$	0	0	0	0
1.35	$5.62 \cdot 10^{-4}$	$2.44 \cdot 10^{-4}$	$1.65 \cdot 10^{-4}$	$1.65 \cdot 10^{-4}$	0	0
1.38	$4.68 \cdot 10^{-4}$	$2.2 \cdot 10^{-4}$	$1.65 \cdot 10^{-4}$	$1.65 \cdot 10^{-4}$	0	0
1.4	$4.68 \cdot 10^{-4}$	$2.2 \cdot 10^{-4}$	0	0	0	0
1.43	$4.68 \cdot 10^{-4}$	$2.2 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$3.33 \cdot 10^{-4}$	$2.35 \cdot 10^{-4}$
1.45	$6.56 \cdot 10^{-4}$	$2.66 \cdot 10^{-4}$	$1.65 \cdot 10^{-3}$	$5.22 \cdot 10^{-4}$	$1.67 \cdot 10^{-4}$	$1.67 \cdot 10^{-4}$
1.48	$9.37 \cdot 10^{-4}$	$3.27 \cdot 10^{-4}$	$2.47 \cdot 10^{-3}$	$6.39 \cdot 10^{-4}$	$4.88 \cdot 10^{-4}$	$3.45 \cdot 10^{-4}$
1.5	$1.78 \cdot 10^{-3}$	$4.85 \cdot 10^{-4}$	$3.3 \cdot 10^{-3}$	$7.38 \cdot 10^{-4}$	$6.84 \cdot 10^{-4}$	$3.95 \cdot 10^{-4}$
1.53	$2.15 \cdot 10^{-3}$	$5.5 \cdot 10^{-4}$	$6.6 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$	$6.42 \cdot 10^{-4}$
1.55	$2.44 \cdot 10^{-3}$	$5.97 \cdot 10^{-4}$	$5.61 \cdot 10^{-3}$	$9.62 \cdot 10^{-4}$	$2.44 \cdot 10^{-3}$	$6.51 \cdot 10^{-4}$
1.58	$2.9 \cdot 10^{-3}$	$6.74 \cdot 10^{-4}$	$6.76 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	$2.39 \cdot 10^{-3}$	$6.9 \cdot 10^{-4}$
1.6	$2.53 \cdot 10^{-3}$	$6.12 \cdot 10^{-4}$	$1.02 \cdot 10^{-2}$	$1.3 \cdot 10^{-3}$	$1.43 \cdot 10^{-3}$	$5.39 \cdot 10^{-4}$
1.63	$3.18 \cdot 10^{-3}$	$7.19 \cdot 10^{-4}$	$1.19 \cdot 10^{-2}$	$1.4 \cdot 10^{-3}$	$1.85 \cdot 10^{-3}$	$6.54 \cdot 10^{-4}$
1.65	$4.31 \cdot 10^{-3}$	$8.97 \cdot 10^{-4}$	$1.5 \cdot 10^{-2}$	$1.57 \cdot 10^{-3}$	$2.74 \cdot 10^{-3}$	$8.26 \cdot 10^{-4}$
1.68	$4.87 \cdot 10^{-3}$	$9.84 \cdot 10^{-4}$	$1.48 \cdot 10^{-2}$	$1.56 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$6.74 \cdot 10^{-4}$

TABLE 37 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$5.71 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	$1.93 \cdot 10^{-2}$	$1.78 \cdot 10^{-3}$	$1.85 \cdot 10^{-3}$	$5.85 \cdot 10^{-4}$
1.73	$5.9 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	$1.95 \cdot 10^{-2}$	$1.79 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$	$5.22 \cdot 10^{-4}$
1.75	$7.12 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$1.98 \cdot 10^{-2}$	$1.81 \cdot 10^{-3}$	$1.45 \cdot 10^{-3}$	$5.48 \cdot 10^{-4}$
1.78	$9.93 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	$1.73 \cdot 10^{-2}$	$1.69 \cdot 10^{-3}$	$6.75 \cdot 10^{-4}$	$3.37 \cdot 10^{-4}$
1.8	$9.74 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$	$2.13 \cdot 10^{-2}$	$1.87 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	$6.01 \cdot 10^{-4}$
1.83	$9.46 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	$1.67 \cdot 10^{-2}$	$1.66 \cdot 10^{-3}$	$8.46 \cdot 10^{-4}$	$4.23 \cdot 10^{-4}$
1.85	$1.23 \cdot 10^{-2}$	$2.1 \cdot 10^{-3}$	$1.42 \cdot 10^{-2}$	$1.53 \cdot 10^{-3}$	$9.48 \cdot 10^{-4}$	$4.24 \cdot 10^{-4}$
1.88	$1.41 \cdot 10^{-2}$	$2.36 \cdot 10^{-3}$	$1.67 \cdot 10^{-2}$	$1.66 \cdot 10^{-3}$	$3.31 \cdot 10^{-4}$	$2.34 \cdot 10^{-4}$
1.9	$1.38 \cdot 10^{-2}$	$2.32 \cdot 10^{-3}$	$1.5 \cdot 10^{-2}$	$1.57 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	$5.53 \cdot 10^{-4}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 38. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.89 \cdot 10^{-3}$	$2.75 \cdot 10^{-3}$	0	0	0	0
1.15	$1.34 \cdot 10^{-2}$	$3.8 \cdot 10^{-3}$	0	0	0	0
1.18	$2.13 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$	$5.56 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	$4.46 \cdot 10^{-3}$	$3.15 \cdot 10^{-3}$
1.2	$3.94 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$	$2.92 \cdot 10^{-2}$	$6.37 \cdot 10^{-3}$	$1.08 \cdot 10^{-2}$	$3.83 \cdot 10^{-3}$
1.23	$7.97 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$	$5.28 \cdot 10^{-2}$	$8.57 \cdot 10^{-3}$	0.12	$1.52 \cdot 10^{-2}$
1.25	0.15	$2.48 \cdot 10^{-2}$	0.15	$1.43 \cdot 10^{-2}$	0.32	$2.49 \cdot 10^{-2}$
1.28	0.23	$3.6 \cdot 10^{-2}$	0.24	$1.82 \cdot 10^{-2}$	0.45	$2.74 \cdot 10^{-2}$
1.3	0.3	$4.63 \cdot 10^{-2}$	0.28	$1.98 \cdot 10^{-2}$	0.52	$2.93 \cdot 10^{-2}$
1.33	0.43	$6.65 \cdot 10^{-2}$	0.37	$2.25 \cdot 10^{-2}$	0.57	$3.65 \cdot 10^{-2}$
1.35	0.53	$8.03 \cdot 10^{-2}$	0.39	$2.32 \cdot 10^{-2}$	0.6	$4.13 \cdot 10^{-2}$
1.38	0.59	$8.91 \cdot 10^{-2}$	0.43	$2.46 \cdot 10^{-2}$	0.58	$4.38 \cdot 10^{-2}$
1.4	0.67	0.1	0.46	$2.54 \cdot 10^{-2}$	0.68	$4.72 \cdot 10^{-2}$
1.43	0.76	0.12	0.56	$2.8 \cdot 10^{-2}$	0.67	$4.22 \cdot 10^{-2}$
1.45	0.9	0.13	0.63	$2.95 \cdot 10^{-2}$	0.65	$4.1 \cdot 10^{-2}$
1.48	1.04	0.16	0.85	$3.43 \cdot 10^{-2}$	0.69	$3.9 \cdot 10^{-2}$
1.5	1.12	0.17	0.92	$3.57 \cdot 10^{-2}$	0.81	$4.45 \cdot 10^{-2}$
1.53	1.26	0.19	1.11	$3.92 \cdot 10^{-2}$	1	$4.8 \cdot 10^{-2}$
1.55	1.44	0.21	1.4	$4.41 \cdot 10^{-2}$	1.06	$5.37 \cdot 10^{-2}$
1.58	1.58	0.24	1.62	$4.74 \cdot 10^{-2}$	1.08	$6.05 \cdot 10^{-2}$
1.6	1.65	0.25	1.92	$5.17 \cdot 10^{-2}$	1	$6.12 \cdot 10^{-2}$
1.63	1.73	0.26	2.02	$5.3 \cdot 10^{-2}$	0.95	$5.99 \cdot 10^{-2}$
1.65	1.86	0.28	2.28	$5.62 \cdot 10^{-2}$	0.86	$5.49 \cdot 10^{-2}$
1.68	2.04	0.3	2.51	$5.9 \cdot 10^{-2}$	0.72	$4.81 \cdot 10^{-2}$

TABLE 38 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	2.05	0.3	2.57	$5.98 \cdot 10^{-2}$	0.68	$4.12 \cdot 10^{-2}$
1.73	2.04	0.3	2.64	$6.06 \cdot 10^{-2}$	0.65	$4.15 \cdot 10^{-2}$
1.75	2.1	0.31	2.45	$5.83 \cdot 10^{-2}$	0.63	$4.19 \cdot 10^{-2}$
1.78	2.03	0.3	2.45	$5.83 \cdot 10^{-2}$	0.65	$4.35 \cdot 10^{-2}$
1.8	2.04	0.3	2.48	$5.87 \cdot 10^{-2}$	0.66	$4.08 \cdot 10^{-2}$
1.83	2.01	0.3	2.52	$5.92 \cdot 10^{-2}$	0.64	$3.75 \cdot 10^{-2}$
1.85	1.96	0.29	2.61	$6.02 \cdot 10^{-2}$	0.59	$3.54 \cdot 10^{-2}$
1.88	1.97	0.29	2.66	$6.08 \cdot 10^{-2}$	0.66	$4.25 \cdot 10^{-2}$
1.9	1.91	0.28	2.55	$5.95 \cdot 10^{-2}$	0.51	$4.01 \cdot 10^{-2}$
1.93	1.87	0.28	2.54	$5.94 \cdot 10^{-2}$	0.48	$4.26 \cdot 10^{-2}$
1.95	1.88	0.28	2.42	$5.8 \cdot 10^{-2}$	0.5	$4.65 \cdot 10^{-2}$
1.98	1.87	0.28	2.4	$5.77 \cdot 10^{-2}$	0.46	$4.18 \cdot 10^{-2}$
2	1.86	0.28	2.28	$5.63 \cdot 10^{-2}$	0.4	$3.53 \cdot 10^{-2}$
2.03	1.73	0.26	2.34	$5.7 \cdot 10^{-2}$	0.41	$3.3 \cdot 10^{-2}$
2.05	1.7	0.25	2.24	$5.58 \cdot 10^{-2}$	0.33	$3.39 \cdot 10^{-2}$
2.08	1.63	0.24	2.15	$5.47 \cdot 10^{-2}$	0.35	$2.89 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 39. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e' \pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.04 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	0	0	0	0
1.15	$2.37 \cdot 10^{-3}$	$9.6 \cdot 10^{-4}$	$5.96 \cdot 10^{-4}$	$5.96 \cdot 10^{-4}$	0	0
1.18	$4.4 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	0	0	$1.23 \cdot 10^{-3}$	$8.67 \cdot 10^{-4}$
1.2	$1.12 \cdot 10^{-2}$	$2.54 \cdot 10^{-3}$	$3.57 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	0	0
1.23	$1.45 \cdot 10^{-2}$	$3.08 \cdot 10^{-3}$	$5.96 \cdot 10^{-3}$	$1.88 \cdot 10^{-3}$	$2.95 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$
1.25	$3.25 \cdot 10^{-2}$	$5.81 \cdot 10^{-3}$	$2.03 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$2.58 \cdot 10^{-2}$	$4.42 \cdot 10^{-3}$
1.28	$5.14 \cdot 10^{-2}$	$8.63 \cdot 10^{-3}$	$3.99 \cdot 10^{-2}$	$4.88 \cdot 10^{-3}$	$7.84 \cdot 10^{-2}$	$7.58 \cdot 10^{-3}$
1.3	$8.15 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$	$7.45 \cdot 10^{-2}$	$6.66 \cdot 10^{-3}$	0.14	$1 \cdot 10^{-2}$
1.33	$9.78 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	0.11	$8.06 \cdot 10^{-3}$	0.18	$1.16 \cdot 10^{-2}$
1.35	0.14	$2.22 \cdot 10^{-2}$	0.17	$9.95 \cdot 10^{-3}$	0.21	$1.4 \cdot 10^{-2}$
1.38	0.17	$2.63 \cdot 10^{-2}$	0.18	$1.04 \cdot 10^{-2}$	0.23	$1.48 \cdot 10^{-2}$
1.4	0.2	$3 \cdot 10^{-2}$	0.18	$1.03 \cdot 10^{-2}$	0.19	$1.52 \cdot 10^{-2}$
1.43	0.22	$3.35 \cdot 10^{-2}$	0.19	$1.06 \cdot 10^{-2}$	0.22	$1.73 \cdot 10^{-2}$
1.45	0.25	$3.76 \cdot 10^{-2}$	0.24	$1.21 \cdot 10^{-2}$	0.22	$1.77 \cdot 10^{-2}$
1.48	0.28	$4.24 \cdot 10^{-2}$	0.25	$1.23 \cdot 10^{-2}$	0.2	$1.69 \cdot 10^{-2}$
1.5	0.31	$4.66 \cdot 10^{-2}$	0.29	$1.31 \cdot 10^{-2}$	0.23	$1.58 \cdot 10^{-2}$
1.53	0.33	$4.93 \cdot 10^{-2}$	0.33	$1.4 \cdot 10^{-2}$	0.24	$1.62 \cdot 10^{-2}$
1.55	0.36	$5.45 \cdot 10^{-2}$	0.39	$1.52 \cdot 10^{-2}$	0.23	$1.57 \cdot 10^{-2}$
1.58	0.4	$6.06 \cdot 10^{-2}$	0.46	$1.65 \cdot 10^{-2}$	0.18	$1.34 \cdot 10^{-2}$
1.6	0.44	$6.63 \cdot 10^{-2}$	0.59	$1.87 \cdot 10^{-2}$	0.16	$1.4 \cdot 10^{-2}$
1.63	0.51	$7.68 \cdot 10^{-2}$	0.69	$2.03 \cdot 10^{-2}$	0.17	$1.5 \cdot 10^{-2}$
1.65	0.56	$8.3 \cdot 10^{-2}$	0.81	$2.2 \cdot 10^{-2}$	0.14	$1.43 \cdot 10^{-2}$
1.68	0.66	$9.76 \cdot 10^{-2}$	0.91	$2.32 \cdot 10^{-2}$	0.16	$1.66 \cdot 10^{-2}$

TABLE 39 Continued.						
$d(e, e' \pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.71	0.1	0.94	$2.37 \cdot 10^{-2}$	0.14	$1.58 \cdot 10^{-2}$
1.73	0.76	0.11	1.04	$2.49 \cdot 10^{-2}$	0.15	$1.62 \cdot 10^{-2}$
1.75	0.82	0.12	1.01	$2.45 \cdot 10^{-2}$	0.15	$1.58 \cdot 10^{-2}$
1.78	0.89	0.13	1.01	$2.45 \cdot 10^{-2}$	0.14	$1.46 \cdot 10^{-2}$
1.8	0.88	0.13	1.03	$2.48 \cdot 10^{-2}$	0.13	$1.43 \cdot 10^{-2}$
1.83	0.94	0.14	1.04	$2.49 \cdot 10^{-2}$	0.12	$1.35 \cdot 10^{-2}$
1.85	0.92	0.14	1.05	$2.5 \cdot 10^{-2}$	0.12	$1.28 \cdot 10^{-2}$
1.88	0.96	0.14	1.06	$2.52 \cdot 10^{-2}$	0.11	$1.17 \cdot 10^{-2}$
1.9	1.01	0.15	1.11	$2.57 \cdot 10^{-2}$	0.1	$1.09 \cdot 10^{-2}$
1.93	1.03	0.15	1.17	$2.64 \cdot 10^{-2}$	$1 \cdot 10^{-1}$	$1.15 \cdot 10^{-2}$
1.95	1.09	0.16	1.2	$2.67 \cdot 10^{-2}$	$9.19 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$
1.98	1.06	0.16	1.22	$2.69 \cdot 10^{-2}$	$7.26 \cdot 10^{-2}$	$9.45 \cdot 10^{-3}$
2	1.15	0.17	1.15	$2.62 \cdot 10^{-2}$	$7.11 \cdot 10^{-2}$	$9.28 \cdot 10^{-3}$
2.03	1.13	0.17	1.17	$2.63 \cdot 10^{-2}$	$8.78 \cdot 10^{-2}$	$9.75 \cdot 10^{-3}$
2.05	1.1	0.16	1.13	$2.59 \cdot 10^{-2}$	$6.6 \cdot 10^{-2}$	$8.55 \cdot 10^{-3}$
2.08	1.14	0.17	1.11	$2.58 \cdot 10^{-2}$	$4.66 \cdot 10^{-2}$	$7.37 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 40. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.36 \cdot 10^{-4}$	$3.15 \cdot 10^{-4}$	0	0	0	0
1.15	$6.54 \cdot 10^{-4}$	$3.89 \cdot 10^{-4}$	$3.84 \cdot 10^{-4}$	$3.84 \cdot 10^{-4}$	0	0
1.18	$6.54 \cdot 10^{-4}$	$3.89 \cdot 10^{-4}$	0	0	0	0
1.2	$8.71 \cdot 10^{-4}$	$4.54 \cdot 10^{-4}$	0	0	0	0
1.23	$2.18 \cdot 10^{-3}$	$7.6 \cdot 10^{-4}$	0	0	$3.62 \cdot 10^{-4}$	$3.62 \cdot 10^{-4}$
1.25	$3.05 \cdot 10^{-3}$	$9.3 \cdot 10^{-4}$	0	0	0	0
1.28	$2.61 \cdot 10^{-3}$	$8.47 \cdot 10^{-4}$	$3.84 \cdot 10^{-4}$	$3.84 \cdot 10^{-4}$	0	0
1.3	$5.45 \cdot 10^{-3}$	$1.35 \cdot 10^{-3}$	$7.67 \cdot 10^{-4}$	$5.43 \cdot 10^{-4}$	0	0
1.33	$7.19 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	$4.99 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	$7.21 \cdot 10^{-3}$	$1.8 \cdot 10^{-3}$
1.35	$1.57 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$	$1.61 \cdot 10^{-2}$	$2.49 \cdot 10^{-3}$	$1.55 \cdot 10^{-2}$	$2.74 \cdot 10^{-3}$
1.38	$1.92 \cdot 10^{-2}$	$3.48 \cdot 10^{-3}$	$2.26 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$	$1.93 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$
1.4	$2.42 \cdot 10^{-2}$	$4.23 \cdot 10^{-3}$	$3.03 \cdot 10^{-2}$	$3.41 \cdot 10^{-3}$	$2.91 \cdot 10^{-2}$	$3.69 \cdot 10^{-3}$
1.43	$3.36 \cdot 10^{-2}$	$5.62 \cdot 10^{-3}$	$5.45 \cdot 10^{-2}$	$4.57 \cdot 10^{-3}$	$4.51 \cdot 10^{-2}$	$4.78 \cdot 10^{-3}$
1.45	$4.23 \cdot 10^{-2}$	$6.91 \cdot 10^{-3}$	$6.45 \cdot 10^{-2}$	$4.97 \cdot 10^{-3}$	$4.01 \cdot 10^{-2}$	$4.41 \cdot 10^{-3}$
1.48	$5.38 \cdot 10^{-2}$	$8.62 \cdot 10^{-3}$	$5.91 \cdot 10^{-2}$	$4.76 \cdot 10^{-3}$	$4.72 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$
1.5	$6.19 \cdot 10^{-2}$	$9.81 \cdot 10^{-3}$	$8.25 \cdot 10^{-2}$	$5.63 \cdot 10^{-3}$	$4.46 \cdot 10^{-2}$	$6.05 \cdot 10^{-3}$
1.53	$6.91 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$	$8.48 \cdot 10^{-2}$	$5.7 \cdot 10^{-3}$	$5.95 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$
1.55	$6.3 \cdot 10^{-2}$	$9.97 \cdot 10^{-3}$	$9.82 \cdot 10^{-2}$	$6.14 \cdot 10^{-3}$	$5.02 \cdot 10^{-2}$	$6.85 \cdot 10^{-3}$
1.58	$6.6 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$9.71 \cdot 10^{-2}$	$6.1 \cdot 10^{-3}$	$3.48 \cdot 10^{-2}$	$5.5 \cdot 10^{-3}$
1.6	$7.15 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	0.12	$6.83 \cdot 10^{-3}$	$2.5 \cdot 10^{-2}$	$4.7 \cdot 10^{-3}$
1.63	$8.74 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	0.15	$7.54 \cdot 10^{-3}$	$2.92 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$
1.65	$9.78 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$	0.17	$8.14 \cdot 10^{-3}$	$2.51 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$
1.68	0.11	$1.66 \cdot 10^{-2}$	0.24	$9.58 \cdot 10^{-3}$	$3.18 \cdot 10^{-2}$	$4.82 \cdot 10^{-3}$

TABLE 40 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	0.13	$1.93 \cdot 10^{-2}$	0.26	$9.94 \cdot 10^{-3}$	$3.39 \cdot 10^{-2}$	$4.85 \cdot 10^{-3}$
1.73	0.14	$2.09 \cdot 10^{-2}$	0.27	$1.02 \cdot 10^{-2}$	$2.96 \cdot 10^{-2}$	$4.51 \cdot 10^{-3}$
1.75	0.15	$2.29 \cdot 10^{-2}$	0.25	$9.86 \cdot 10^{-3}$	$3.1 \cdot 10^{-2}$	$3.76 \cdot 10^{-3}$
1.78	0.18	$2.65 \cdot 10^{-2}$	0.26	$9.94 \cdot 10^{-3}$	$2.93 \cdot 10^{-2}$	$4.23 \cdot 10^{-3}$
1.8	0.19	$2.87 \cdot 10^{-2}$	0.26	$9.94 \cdot 10^{-3}$	$3.21 \cdot 10^{-2}$	$4.45 \cdot 10^{-3}$
1.83	0.21	$3.11 \cdot 10^{-2}$	0.24	$9.53 \cdot 10^{-3}$	$2.98 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$
1.85	0.21	$3.17 \cdot 10^{-2}$	0.26	$1 \cdot 10^{-2}$	$3.24 \cdot 10^{-2}$	$4.59 \cdot 10^{-3}$
1.88	0.26	$3.89 \cdot 10^{-2}$	0.25	$9.78 \cdot 10^{-3}$	$2.97 \cdot 10^{-2}$	$4.2 \cdot 10^{-3}$
1.9	0.26	$3.83 \cdot 10^{-2}$	0.26	$9.97 \cdot 10^{-3}$	$2.06 \cdot 10^{-2}$	$3.65 \cdot 10^{-3}$
1.93	0.28	$4.19 \cdot 10^{-2}$	0.24	$9.51 \cdot 10^{-3}$	$2.37 \cdot 10^{-2}$	$4.21 \cdot 10^{-3}$
1.95	0.29	$4.33 \cdot 10^{-2}$	0.24	$9.68 \cdot 10^{-3}$	$2.11 \cdot 10^{-2}$	$3.78 \cdot 10^{-3}$
1.98	0.29	$4.39 \cdot 10^{-2}$	0.25	$9.8 \cdot 10^{-3}$	$1.28 \cdot 10^{-2}$	$3.19 \cdot 10^{-3}$
2	0.32	$4.8 \cdot 10^{-2}$	0.24	$9.68 \cdot 10^{-3}$	$1.1 \cdot 10^{-2}$	$3.05 \cdot 10^{-3}$
2.03	0.34	$5.08 \cdot 10^{-2}$	0.24	$9.56 \cdot 10^{-3}$	$1.14 \cdot 10^{-2}$	$2.81 \cdot 10^{-3}$
2.05	0.38	$5.59 \cdot 10^{-2}$	0.23	$9.49 \cdot 10^{-3}$	$7.23 \cdot 10^{-3}$	$1.93 \cdot 10^{-3}$
2.08	0.36	$5.41 \cdot 10^{-2}$	0.24	$9.63 \cdot 10^{-3}$	$3.67 \cdot 10^{-3}$	$1.86 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 41. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.12 \cdot 10^{-4}$	$1.14 \cdot 10^{-4}$	0	0	0	0
1.15	$2.25 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	0	0	0	0
1.18	$1.12 \cdot 10^{-4}$	$1.14 \cdot 10^{-4}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$1.12 \cdot 10^{-4}$	$1.14 \cdot 10^{-4}$	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$2.25 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	$1.98 \cdot 10^{-4}$	0	0
1.3	$6.74 \cdot 10^{-4}$	$2.93 \cdot 10^{-4}$	0	0	0	0
1.33	$3.37 \cdot 10^{-4}$	$2.01 \cdot 10^{-4}$	0	0	0	0
1.35	$1.01 \cdot 10^{-3}$	$3.69 \cdot 10^{-4}$	0	0	0	0
1.38	$1.69 \cdot 10^{-3}$	$5.01 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$2.8 \cdot 10^{-4}$	0	0
1.4	$1.57 \cdot 10^{-3}$	$4.8 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$2.8 \cdot 10^{-4}$	0	0
1.43	$1.24 \cdot 10^{-3}$	$4.15 \cdot 10^{-4}$	$2.38 \cdot 10^{-3}$	$6.86 \cdot 10^{-4}$	$1.1 \cdot 10^{-3}$	$5.5 \cdot 10^{-4}$
1.45	$3.15 \cdot 10^{-3}$	$7.53 \cdot 10^{-4}$	$3.96 \cdot 10^{-3}$	$8.85 \cdot 10^{-4}$	$1.42 \cdot 10^{-3}$	$5.38 \cdot 10^{-4}$
1.48	$4.27 \cdot 10^{-3}$	$9.35 \cdot 10^{-4}$	$6.73 \cdot 10^{-3}$	$1.15 \cdot 10^{-3}$	$3.4 \cdot 10^{-3}$	$9.09 \cdot 10^{-4}$
1.5	$5.4 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	$7.92 \cdot 10^{-3}$	$1.25 \cdot 10^{-3}$	$6.04 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$
1.53	$7.19 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$	$1.35 \cdot 10^{-2}$	$1.63 \cdot 10^{-3}$	$9.58 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$
1.55	$8.88 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	$2.02 \cdot 10^{-2}$	$2 \cdot 10^{-3}$	$1.15 \cdot 10^{-2}$	$1.68 \cdot 10^{-3}$
1.58	$1.12 \cdot 10^{-2}$	$2 \cdot 10^{-3}$	$2.55 \cdot 10^{-2}$	$2.25 \cdot 10^{-3}$	$1.04 \cdot 10^{-2}$	$1.56 \cdot 10^{-3}$
1.6	$1.1 \cdot 10^{-2}$	$1.96 \cdot 10^{-3}$	$3.38 \cdot 10^{-2}$	$2.59 \cdot 10^{-3}$	$1.36 \cdot 10^{-2}$	$1.78 \cdot 10^{-3}$
1.63	$1.29 \cdot 10^{-2}$	$2.25 \cdot 10^{-3}$	$4.24 \cdot 10^{-2}$	$2.9 \cdot 10^{-3}$	$1.47 \cdot 10^{-2}$	$1.94 \cdot 10^{-3}$
1.65	$1.62 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$	$4.39 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$	$1.38 \cdot 10^{-2}$	$1.81 \cdot 10^{-3}$
1.68	$1.72 \cdot 10^{-2}$	$2.88 \cdot 10^{-3}$	$5.17 \cdot 10^{-2}$	$3.2 \cdot 10^{-3}$	$1.06 \cdot 10^{-2}$	$1.56 \cdot 10^{-3}$

TABLE 41 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	$2.07 \cdot 10^{-2}$	$3.4 \cdot 10^{-3}$	$5.3 \cdot 10^{-2}$	$3.24 \cdot 10^{-3}$	$8.94 \cdot 10^{-3}$	$1.49 \cdot 10^{-3}$
1.73	$2.29 \cdot 10^{-2}$	$3.73 \cdot 10^{-3}$	$6.12 \cdot 10^{-2}$	$3.48 \cdot 10^{-3}$	$6.48 \cdot 10^{-3}$	$1.25 \cdot 10^{-3}$
1.75	$2.74 \cdot 10^{-2}$	$4.4 \cdot 10^{-3}$	$5.09 \cdot 10^{-2}$	$3.17 \cdot 10^{-3}$	$4.62 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$
1.78	$2.99 \cdot 10^{-2}$	$4.76 \cdot 10^{-3}$	$5.01 \cdot 10^{-2}$	$3.15 \cdot 10^{-3}$	$3.06 \cdot 10^{-3}$	$8.18 \cdot 10^{-4}$
1.8	$3.38 \cdot 10^{-2}$	$5.34 \cdot 10^{-3}$	$4.22 \cdot 10^{-2}$	$2.89 \cdot 10^{-3}$	$4.6 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$
1.83	$3.25 \cdot 10^{-2}$	$5.14 \cdot 10^{-3}$	$4.47 \cdot 10^{-2}$	$2.98 \cdot 10^{-3}$	$3.14 \cdot 10^{-3}$	$8.1 \cdot 10^{-4}$
1.85	$3.92 \cdot 10^{-2}$	$6.14 \cdot 10^{-3}$	$4.45 \cdot 10^{-2}$	$2.97 \cdot 10^{-3}$	$4.28 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$
1.88	$4.02 \cdot 10^{-2}$	$6.28 \cdot 10^{-3}$	$3.88 \cdot 10^{-2}$	$2.77 \cdot 10^{-3}$	$2.95 \cdot 10^{-3}$	$8.18 \cdot 10^{-4}$
1.9	$4.43 \cdot 10^{-2}$	$6.88 \cdot 10^{-3}$	$3.88 \cdot 10^{-2}$	$2.77 \cdot 10^{-3}$	$3.53 \cdot 10^{-3}$	$9.44 \cdot 10^{-4}$
1.93	$4.38 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$	$3.46 \cdot 10^{-2}$	$2.62 \cdot 10^{-3}$	$2.15 \cdot 10^{-3}$	$7.18 \cdot 10^{-4}$
1.95	$5.04 \cdot 10^{-2}$	$7.77 \cdot 10^{-3}$	$3.17 \cdot 10^{-2}$	$2.5 \cdot 10^{-3}$	$5.85 \cdot 10^{-4}$	$3.38 \cdot 10^{-4}$
1.98	$5.25 \cdot 10^{-2}$	$8.09 \cdot 10^{-3}$	$3.29 \cdot 10^{-2}$	$2.55 \cdot 10^{-3}$	$9.74 \cdot 10^{-4}$	$4.87 \cdot 10^{-4}$
2	$5.4 \cdot 10^{-2}$	$8.3 \cdot 10^{-3}$	$2.59 \cdot 10^{-2}$	$2.27 \cdot 10^{-3}$	$3.98 \cdot 10^{-4}$	$2.81 \cdot 10^{-4}$
2.03	$5.4 \cdot 10^{-2}$	$8.3 \cdot 10^{-3}$	$2.49 \cdot 10^{-2}$	$2.22 \cdot 10^{-3}$	$3.52 \cdot 10^{-4}$	$2.49 \cdot 10^{-4}$
2.05	$5.13 \cdot 10^{-2}$	$7.91 \cdot 10^{-3}$	$2.51 \cdot 10^{-2}$	$2.23 \cdot 10^{-3}$	$6.54 \cdot 10^{-4}$	$3.78 \cdot 10^{-4}$
2.08	$5.45 \cdot 10^{-2}$	$8.38 \cdot 10^{-3}$	$2.73 \cdot 10^{-2}$	$2.33 \cdot 10^{-3}$	$3.99 \cdot 10^{-4}$	$2.82 \cdot 10^{-4}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 42. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9$ GeV², $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9$ GeV ² , $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$1.97 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0	0	0
1.15	$1.97 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0	0	0
1.18	$3.94 \cdot 10^{-3}$	$2.06 \cdot 10^{-3}$	0	0	0	0
1.2	$8.88 \cdot 10^{-3}$	$3.23 \cdot 10^{-3}$	0	0	$1.68 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$
1.23	$3.45 \cdot 10^{-2}$	$7.73 \cdot 10^{-3}$	$3.47 \cdot 10^{-3}$	$2.46 \cdot 10^{-3}$	$5.13 \cdot 10^{-3}$	$2.96 \cdot 10^{-3}$
1.25	$9.37 \cdot 10^{-2}$	$1.68 \cdot 10^{-2}$	$2.26 \cdot 10^{-2}$	$6.26 \cdot 10^{-3}$	$6.54 \cdot 10^{-2}$	$1.21 \cdot 10^{-2}$
1.28	0.21	$3.45 \cdot 10^{-2}$	0.14	$1.58 \cdot 10^{-2}$	0.34	$2.63 \cdot 10^{-2}$
1.3	0.38	$5.98 \cdot 10^{-2}$	0.36	$2.5 \cdot 10^{-2}$	1.02	$4.79 \cdot 10^{-2}$
1.33	0.67	0.1	0.45	$2.78 \cdot 10^{-2}$	1.37	$5.32 \cdot 10^{-2}$
1.35	0.93	0.14	0.71	$3.51 \cdot 10^{-2}$	1.72	$6.05 \cdot 10^{-2}$
1.38	1.19	0.18	0.81	$3.75 \cdot 10^{-2}$	1.7	$6.7 \cdot 10^{-2}$
1.4	1.43	0.21	0.84	$3.82 \cdot 10^{-2}$	1.8	$7.88 \cdot 10^{-2}$
1.43	1.63	0.24	1.04	$4.24 \cdot 10^{-2}$	1.73	$8.41 \cdot 10^{-2}$
1.45	1.86	0.28	1.18	$4.53 \cdot 10^{-2}$	1.89	$8.77 \cdot 10^{-2}$
1.48	2.1	0.31	1.37	$4.88 \cdot 10^{-2}$	2.16	$8.73 \cdot 10^{-2}$
1.5	2.34	0.35	1.71	$5.46 \cdot 10^{-2}$	2.47	$8.86 \cdot 10^{-2}$
1.53	2.69	0.4	2.06	$5.98 \cdot 10^{-2}$	3.02	$9.38 \cdot 10^{-2}$
1.55	3.08	0.46	2.57	$6.68 \cdot 10^{-2}$	3.44	$9.93 \cdot 10^{-2}$
1.58	3.43	0.51	3.04	$7.27 \cdot 10^{-2}$	3.47	$9.77 \cdot 10^{-2}$
1.6	3.7	0.55	3.54	$7.84 \cdot 10^{-2}$	3.15	$9.38 \cdot 10^{-2}$
1.63	4.03	0.6	4.13	$8.47 \cdot 10^{-2}$	2.9	$9.27 \cdot 10^{-2}$
1.65	4.41	0.65	4.68	$9.01 \cdot 10^{-2}$	2.61	0.1
1.68	4.64	0.68	5.31	$9.61 \cdot 10^{-2}$	2.42	0.11

TABLE 42 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	4.8	0.71	5.43	$9.71 \cdot 10^{-2}$	2.34	0.11
1.73	5.1	0.75	5.48	$9.76 \cdot 10^{-2}$	2.29	$9.87 \cdot 10^{-2}$
1.75	5.15	0.76	5.57	$9.84 \cdot 10^{-2}$	2.23	$9.42 \cdot 10^{-2}$
1.78	5.1	0.75	5.32	$9.61 \cdot 10^{-2}$	2.17	$9 \cdot 10^{-2}$
1.8	5	0.74	5.37	$9.66 \cdot 10^{-2}$	2.1	$8.14 \cdot 10^{-2}$
1.83	5	0.74	5.37	$9.66 \cdot 10^{-2}$	1.95	$7.77 \cdot 10^{-2}$
1.85	5	0.74	5.49	$9.77 \cdot 10^{-2}$	1.91	$7.65 \cdot 10^{-2}$
1.88	4.97	0.73	5.46	$9.74 \cdot 10^{-2}$	1.84	$7.54 \cdot 10^{-2}$
1.9	5.14	0.76	5.48	$9.76 \cdot 10^{-2}$	1.61	$7.11 \cdot 10^{-2}$
1.93	5.16	0.76	5.68	$9.93 \cdot 10^{-2}$	1.66	$6.98 \cdot 10^{-2}$
1.95	5.02	0.74	5.48	$9.76 \cdot 10^{-2}$	1.45	$6.73 \cdot 10^{-2}$
1.98	5.09	0.75	5.36	$9.65 \cdot 10^{-2}$	1.43	$6.9 \cdot 10^{-2}$
2	4.99	0.74	5.34	$9.63 \cdot 10^{-2}$	1.32	$7.5 \cdot 10^{-2}$
2.03	4.86	0.72	5.11	$9.42 \cdot 10^{-2}$	1.27	$7.8 \cdot 10^{-2}$
2.05	4.59	0.68	5.01	$9.32 \cdot 10^{-2}$	1.21	$7.59 \cdot 10^{-2}$
2.08	4.63	0.68	4.65	$8.99 \cdot 10^{-2}$	1.17	$7 \cdot 10^{-2}$
2.1	4.39	0.65	4.56	$8.9 \cdot 10^{-2}$	1.08	$6.51 \cdot 10^{-2}$
2.13	4.34	0.64	4.41	$8.75 \cdot 10^{-2}$	1.02	$5.77 \cdot 10^{-2}$
2.15	4.02	0.59	4.27	$8.61 \cdot 10^{-2}$	0.92	$5.53 \cdot 10^{-2}$
2.18	3.72	0.55	4.14	$8.48 \cdot 10^{-2}$	0.75	$5.02 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 43. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$1.69 \cdot 10^{-3}$	$8.82 \cdot 10^{-4}$	0	0	0	0
1.18	$1.69 \cdot 10^{-3}$	$8.82 \cdot 10^{-4}$	0	0	0	0
1.2	$7.19 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$	0	0	$7.27 \cdot 10^{-4}$	$7.27 \cdot 10^{-4}$
1.23	$7.61 \cdot 10^{-3}$	$2.11 \cdot 10^{-3}$	$7.45 \cdot 10^{-4}$	$7.45 \cdot 10^{-4}$	0	0
1.25	$1.99 \cdot 10^{-2}$	$4.12 \cdot 10^{-3}$	$4.47 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$	$3.16 \cdot 10^{-3}$	$1.58 \cdot 10^{-3}$
1.28	$4.44 \cdot 10^{-2}$	$7.83 \cdot 10^{-3}$	$1.04 \cdot 10^{-2}$	$2.79 \cdot 10^{-3}$	$1.97 \cdot 10^{-2}$	$4.03 \cdot 10^{-3}$
1.3	$9.81 \cdot 10^{-2}$	$1.58 \cdot 10^{-2}$	$5.81 \cdot 10^{-2}$	$6.58 \cdot 10^{-3}$	0.13	$1.09 \cdot 10^{-2}$
1.33	0.19	$2.96 \cdot 10^{-2}$	0.13	$9.99 \cdot 10^{-3}$	0.34	$1.74 \cdot 10^{-2}$
1.35	0.27	$4.06 \cdot 10^{-2}$	0.24	$1.32 \cdot 10^{-2}$	0.52	$2.12 \cdot 10^{-2}$
1.38	0.37	$5.64 \cdot 10^{-2}$	0.32	$1.55 \cdot 10^{-2}$	0.64	$2.48 \cdot 10^{-2}$
1.4	0.46	$6.83 \cdot 10^{-2}$	0.39	$1.71 \cdot 10^{-2}$	0.67	$2.64 \cdot 10^{-2}$
1.43	0.55	$8.2 \cdot 10^{-2}$	0.44	$1.82 \cdot 10^{-2}$	0.65	$2.71 \cdot 10^{-2}$
1.45	0.64	$9.5 \cdot 10^{-2}$	0.51	$1.94 \cdot 10^{-2}$	0.71	$3.21 \cdot 10^{-2}$
1.48	0.72	0.11	0.55	$2.03 \cdot 10^{-2}$	0.84	$3.81 \cdot 10^{-2}$
1.5	0.77	0.11	0.6	$2.12 \cdot 10^{-2}$	0.93	$4.1 \cdot 10^{-2}$
1.53	0.82	0.12	0.73	$2.33 \cdot 10^{-2}$	0.93	$3.93 \cdot 10^{-2}$
1.55	0.88	0.13	0.79	$2.43 \cdot 10^{-2}$	0.89	$3.67 \cdot 10^{-2}$
1.58	0.91	0.13	0.97	$2.69 \cdot 10^{-2}$	0.75	$3.29 \cdot 10^{-2}$
1.6	1	0.15	1.15	$2.93 \cdot 10^{-2}$	0.65	$3.04 \cdot 10^{-2}$
1.63	1.14	0.17	1.46	$3.3 \cdot 10^{-2}$	0.57	$2.7 \cdot 10^{-2}$
1.65	1.35	0.2	1.7	$3.56 \cdot 10^{-2}$	0.59	$2.95 \cdot 10^{-2}$
1.68	1.5	0.22	1.98	$3.84 \cdot 10^{-2}$	0.64	$3.06 \cdot 10^{-2}$

TABLE 43 Continued.						
$d(e, e' \pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	1.64	0.24	2.17	$4.02 \cdot 10^{-2}$	0.69	$3.24 \cdot 10^{-2}$
1.73	1.81	0.27	2.33	$4.16 \cdot 10^{-2}$	0.62	$3.35 \cdot 10^{-2}$
1.75	1.92	0.28	2.28	$4.12 \cdot 10^{-2}$	0.61	$3.62 \cdot 10^{-2}$
1.78	1.96	0.29	2.19	$4.04 \cdot 10^{-2}$	0.59	$3.6 \cdot 10^{-2}$
1.8	2.07	0.31	2.24	$4.09 \cdot 10^{-2}$	0.55	$3.45 \cdot 10^{-2}$
1.83	2.15	0.32	2.37	$4.2 \cdot 10^{-2}$	0.46	$3.09 \cdot 10^{-2}$
1.85	2.18	0.32	2.4	$4.23 \cdot 10^{-2}$	0.45	$2.96 \cdot 10^{-2}$
1.88	2.33	0.34	2.58	$4.39 \cdot 10^{-2}$	0.44	$2.8 \cdot 10^{-2}$
1.9	2.41	0.36	2.62	$4.42 \cdot 10^{-2}$	0.42	$2.58 \cdot 10^{-2}$
1.93	2.45	0.36	2.66	$4.45 \cdot 10^{-2}$	0.36	$2.37 \cdot 10^{-2}$
1.95	2.6	0.38	2.77	$4.54 \cdot 10^{-2}$	0.37	$2.42 \cdot 10^{-2}$
1.98	2.63	0.39	2.63	$4.42 \cdot 10^{-2}$	0.35	$2.34 \cdot 10^{-2}$
2	2.64	0.39	2.72	$4.5 \cdot 10^{-2}$	0.33	$2.29 \cdot 10^{-2}$
2.03	2.74	0.4	2.77	$4.54 \cdot 10^{-2}$	0.34	$2.16 \cdot 10^{-2}$
2.05	2.83	0.42	2.7	$4.49 \cdot 10^{-2}$	0.3	$2.2 \cdot 10^{-2}$
2.08	2.75	0.41	2.69	$4.48 \cdot 10^{-2}$	0.33	$2.22 \cdot 10^{-2}$
2.1	2.85	0.42	2.61	$4.41 \cdot 10^{-2}$	0.24	$1.77 \cdot 10^{-2}$
2.13	2.82	0.42	2.5	$4.32 \cdot 10^{-2}$	0.22	$1.81 \cdot 10^{-2}$
2.15	2.79	0.41	2.55	$4.36 \cdot 10^{-2}$	0.2	$1.64 \cdot 10^{-2}$
2.18	2.77	0.41	2.39	$4.22 \cdot 10^{-2}$	0.17	$1.6 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 44. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$8.17 \cdot 10^{-4}$	$4.87 \cdot 10^{-4}$	0	0	0	0
1.15	$1.36 \cdot 10^{-3}$	$6.41 \cdot 10^{-4}$	0	0	0	0
1.18	$1.63 \cdot 10^{-3}$	$7.09 \cdot 10^{-4}$	0	0	0	0
1.2	$1.36 \cdot 10^{-3}$	$6.41 \cdot 10^{-4}$	0	0	0	0
1.23	$1.91 \cdot 10^{-3}$	$7.73 \cdot 10^{-4}$	0	0	0	0
1.25	$2.45 \cdot 10^{-3}$	$8.93 \cdot 10^{-4}$	0	0	0	0
1.28	$3.27 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	0	0	0	0
1.3	$5.17 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$	$4.8 \cdot 10^{-4}$	$4.8 \cdot 10^{-4}$	0	0
1.33	$1.2 \cdot 10^{-2}$	$2.52 \cdot 10^{-3}$	$3.84 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	$6.67 \cdot 10^{-3}$	$2.22 \cdot 10^{-3}$
1.35	$2.23 \cdot 10^{-2}$	$4.11 \cdot 10^{-3}$	$1.1 \cdot 10^{-2}$	$2.3 \cdot 10^{-3}$	$1.69 \cdot 10^{-2}$	$3.31 \cdot 10^{-3}$
1.38	$4.06 \cdot 10^{-2}$	$6.83 \cdot 10^{-3}$	$3.45 \cdot 10^{-2}$	$4.07 \cdot 10^{-3}$	$5.79 \cdot 10^{-2}$	$5.85 \cdot 10^{-3}$
1.4	$5.07 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$	$5.66 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$	$8.92 \cdot 10^{-2}$	$7.12 \cdot 10^{-3}$
1.43	$8.52 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$	$9.93 \cdot 10^{-2}$	$6.9 \cdot 10^{-3}$	0.13	$8.61 \cdot 10^{-3}$
1.45	0.11	$1.74 \cdot 10^{-2}$	0.13	$7.85 \cdot 10^{-3}$	0.15	$9.61 \cdot 10^{-3}$
1.48	0.13	$1.99 \cdot 10^{-2}$	0.17	$8.96 \cdot 10^{-3}$	0.18	$1.03 \cdot 10^{-2}$
1.5	0.15	$2.28 \cdot 10^{-2}$	0.18	$9.32 \cdot 10^{-3}$	0.22	$1.23 \cdot 10^{-2}$
1.53	0.17	$2.54 \cdot 10^{-2}$	0.21	$9.93 \cdot 10^{-3}$	0.22	$1.33 \cdot 10^{-2}$
1.55	0.18	$2.7 \cdot 10^{-2}$	0.23	$1.05 \cdot 10^{-2}$	0.2	$1.41 \cdot 10^{-2}$
1.58	0.17	$2.58 \cdot 10^{-2}$	0.24	$1.08 \cdot 10^{-2}$	0.15	$1.29 \cdot 10^{-2}$
1.6	0.17	$2.55 \cdot 10^{-2}$	0.27	$1.13 \cdot 10^{-2}$	0.12	$1.17 \cdot 10^{-2}$
1.63	0.2	$2.96 \cdot 10^{-2}$	0.3	$1.2 \cdot 10^{-2}$	0.11	$1.12 \cdot 10^{-2}$
1.65	0.23	$3.45 \cdot 10^{-2}$	0.41	$1.4 \cdot 10^{-2}$	0.11	$1.06 \cdot 10^{-2}$
1.68	0.26	$3.85 \cdot 10^{-2}$	0.48	$1.51 \cdot 10^{-2}$	0.13	$1.11 \cdot 10^{-2}$

TABLE 44 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.3	$4.44 \cdot 10^{-2}$	0.56	$1.64 \cdot 10^{-2}$	0.15	$1.17 \cdot 10^{-2}$
1.73	0.31	$4.67 \cdot 10^{-2}$	0.62	$1.72 \cdot 10^{-2}$	0.14	$1.08 \cdot 10^{-2}$
1.75	0.37	$5.47 \cdot 10^{-2}$	0.6	$1.69 \cdot 10^{-2}$	0.14	$1.11 \cdot 10^{-2}$
1.78	0.41	$6.12 \cdot 10^{-2}$	0.61	$1.71 \cdot 10^{-2}$	0.13	$1 \cdot 10^{-2}$
1.8	0.45	$6.7 \cdot 10^{-2}$	0.62	$1.72 \cdot 10^{-2}$	0.15	$1.1 \cdot 10^{-2}$
1.83	0.48	$7.16 \cdot 10^{-2}$	0.63	$1.74 \cdot 10^{-2}$	0.15	$1.12 \cdot 10^{-2}$
1.85	0.52	$7.74 \cdot 10^{-2}$	0.67	$1.79 \cdot 10^{-2}$	0.14	$1.04 \cdot 10^{-2}$
1.88	0.56	$8.37 \cdot 10^{-2}$	0.65	$1.76 \cdot 10^{-2}$	0.15	$1.05 \cdot 10^{-2}$
1.9	0.62	$9.24 \cdot 10^{-2}$	0.65	$1.76 \cdot 10^{-2}$	0.13	$1.06 \cdot 10^{-2}$
1.93	0.64	$9.56 \cdot 10^{-2}$	0.64	$1.76 \cdot 10^{-2}$	0.12	$9.35 \cdot 10^{-3}$
1.95	0.71	0.1	0.61	$1.71 \cdot 10^{-2}$	0.11	$9.42 \cdot 10^{-3}$
1.98	0.74	0.11	0.63	$1.73 \cdot 10^{-2}$	$9.92 \cdot 10^{-2}$	$8.38 \cdot 10^{-3}$
2	0.84	0.12	0.6	$1.69 \cdot 10^{-2}$	$7.08 \cdot 10^{-2}$	$7.53 \cdot 10^{-3}$
2.03	0.83	0.12	0.59	$1.69 \cdot 10^{-2}$	$5.06 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$
2.05	0.88	0.13	0.58	$1.67 \cdot 10^{-2}$	$4.15 \cdot 10^{-2}$	$6.12 \cdot 10^{-3}$
2.08	0.94	0.14	0.6	$1.7 \cdot 10^{-2}$	$3.22 \cdot 10^{-2}$	$5.45 \cdot 10^{-3}$
2.1	0.98	0.15	0.55	$1.62 \cdot 10^{-2}$	$1.72 \cdot 10^{-2}$	$3.62 \cdot 10^{-3}$
2.13	1.05	0.16	0.59	$1.68 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$	$3.27 \cdot 10^{-3}$
2.15	1.1	0.16	0.58	$1.66 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$	$3.72 \cdot 10^{-3}$
2.18	1.13	0.17	0.6	$1.7 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 45. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.41 \cdot 10^{-4}$	$1.42 \cdot 10^{-4}$	0	0	0	0
1.15	$4.22 \cdot 10^{-4}$	$2.51 \cdot 10^{-4}$	0	0	0	0
1.18	$2.81 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	0	0
1.2	$1.41 \cdot 10^{-4}$	$1.42 \cdot 10^{-4}$	0	0	0	0
1.23	$5.62 \cdot 10^{-4}$	$2.93 \cdot 10^{-4}$	0	0	0	0
1.25	$2.81 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	0	0
1.28	$5.62 \cdot 10^{-4}$	$2.93 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	0	0
1.3	$7.03 \cdot 10^{-4}$	$3.31 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	$2.47 \cdot 10^{-4}$	0	0
1.33	$1.26 \cdot 10^{-3}$	$4.61 \cdot 10^{-4}$	0	0	0	0
1.35	$9.84 \cdot 10^{-4}$	$3.99 \cdot 10^{-4}$	0	0	0	0
1.38	$2.39 \cdot 10^{-3}$	$6.77 \cdot 10^{-4}$	$4.95 \cdot 10^{-4}$	$3.5 \cdot 10^{-4}$	0	0
1.4	$1.83 \cdot 10^{-3}$	$5.73 \cdot 10^{-4}$	$1.48 \cdot 10^{-3}$	$6.06 \cdot 10^{-4}$	0	0
1.43	$3.65 \cdot 10^{-3}$	$8.95 \cdot 10^{-4}$	$7.42 \cdot 10^{-4}$	$4.29 \cdot 10^{-4}$	$5.06 \cdot 10^{-4}$	$3.58 \cdot 10^{-4}$
1.45	$5.9 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$7.42 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	$4.36 \cdot 10^{-3}$	$1.21 \cdot 10^{-3}$
1.48	$1.35 \cdot 10^{-2}$	$2.41 \cdot 10^{-3}$	$1.78 \cdot 10^{-2}$	$2.1 \cdot 10^{-3}$	$1.44 \cdot 10^{-2}$	$2.14 \cdot 10^{-3}$
1.5	$1.46 \cdot 10^{-2}$	$2.58 \cdot 10^{-3}$	$2.55 \cdot 10^{-2}$	$2.51 \cdot 10^{-3}$	$2.23 \cdot 10^{-2}$	$2.56 \cdot 10^{-3}$
1.53	$2.09 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$	$5.32 \cdot 10^{-2}$	$3.63 \cdot 10^{-3}$	$3.8 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$
1.55	$2.43 \cdot 10^{-2}$	$4.02 \cdot 10^{-3}$	$6.26 \cdot 10^{-2}$	$3.94 \cdot 10^{-3}$	$4.69 \cdot 10^{-2}$	$3.78 \cdot 10^{-3}$
1.58	$2.56 \cdot 10^{-2}$	$4.21 \cdot 10^{-3}$	$7.27 \cdot 10^{-2}$	$4.24 \cdot 10^{-3}$	$4.31 \cdot 10^{-2}$	$3.63 \cdot 10^{-3}$
1.6	$2.94 \cdot 10^{-2}$	$4.77 \cdot 10^{-3}$	$8.96 \cdot 10^{-2}$	$4.71 \cdot 10^{-3}$	$4.04 \cdot 10^{-2}$	$3.41 \cdot 10^{-3}$
1.63	$3.06 \cdot 10^{-2}$	$4.96 \cdot 10^{-3}$	0.11	$5.23 \cdot 10^{-3}$	$4.52 \cdot 10^{-2}$	$3.73 \cdot 10^{-3}$
1.65	$3.62 \cdot 10^{-2}$	$5.79 \cdot 10^{-3}$	0.12	$5.54 \cdot 10^{-3}$	$4.97 \cdot 10^{-2}$	$3.84 \cdot 10^{-3}$
1.68	$3.86 \cdot 10^{-2}$	$6.14 \cdot 10^{-3}$	0.14	$5.88 \cdot 10^{-3}$	$4.32 \cdot 10^{-2}$	$3.54 \cdot 10^{-3}$

TABLE 45 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$4.61 \cdot 10^{-2}$	$7.23 \cdot 10^{-3}$	0.15	$6 \cdot 10^{-3}$	$3.49 \cdot 10^{-2}$	$3.24 \cdot 10^{-3}$
1.73	$5.76 \cdot 10^{-2}$	$8.93 \cdot 10^{-3}$	0.15	$6.12 \cdot 10^{-3}$	$3.54 \cdot 10^{-2}$	$3.37 \cdot 10^{-3}$
1.75	$6.11 \cdot 10^{-2}$	$9.45 \cdot 10^{-3}$	0.16	$6.2 \cdot 10^{-3}$	$3.13 \cdot 10^{-2}$	$3.04 \cdot 10^{-3}$
1.78	$7.28 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	0.14	$5.9 \cdot 10^{-3}$	$2.72 \cdot 10^{-2}$	$2.9 \cdot 10^{-3}$
1.8	$8.94 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	0.14	$5.91 \cdot 10^{-3}$	$1.95 \cdot 10^{-2}$	$2.43 \cdot 10^{-3}$
1.83	0.1	$1.52 \cdot 10^{-2}$	0.12	$5.39 \cdot 10^{-3}$	$2.16 \cdot 10^{-2}$	$2.6 \cdot 10^{-3}$
1.85	$9.99 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	0.11	$5.12 \cdot 10^{-3}$	$1.21 \cdot 10^{-2}$	$1.85 \cdot 10^{-3}$
1.88	0.11	$1.73 \cdot 10^{-2}$	0.1	$5.02 \cdot 10^{-3}$	$1.38 \cdot 10^{-2}$	$2.02 \cdot 10^{-3}$
1.9	0.11	$1.74 \cdot 10^{-2}$	$9.3 \cdot 10^{-2}$	$4.8 \cdot 10^{-3}$	$6.91 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$
1.93	0.13	$1.9 \cdot 10^{-2}$	$8.31 \cdot 10^{-2}$	$4.54 \cdot 10^{-3}$	$6.83 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$
1.95	0.14	$2.08 \cdot 10^{-2}$	$7.6 \cdot 10^{-2}$	$4.34 \cdot 10^{-3}$	$6.94 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$
1.98	0.14	$2.07 \cdot 10^{-2}$	$7.32 \cdot 10^{-2}$	$4.26 \cdot 10^{-3}$	$5.69 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$
2	0.15	$2.24 \cdot 10^{-2}$	$6.38 \cdot 10^{-2}$	$3.97 \cdot 10^{-3}$	$4.32 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$
2.03	0.16	$2.39 \cdot 10^{-2}$	$7.05 \cdot 10^{-2}$	$4.18 \cdot 10^{-3}$	$3.39 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$
2.05	0.15	$2.29 \cdot 10^{-2}$	$7.25 \cdot 10^{-2}$	$4.24 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$6.57 \cdot 10^{-4}$
2.08	0.15	$2.19 \cdot 10^{-2}$	$6.95 \cdot 10^{-2}$	$4.15 \cdot 10^{-3}$	$3.7 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$
2.1	0.15	$2.3 \cdot 10^{-2}$	$7 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$	$1.57 \cdot 10^{-3}$	$6.4 \cdot 10^{-4}$
2.13	0.16	$2.35 \cdot 10^{-2}$	$6.56 \cdot 10^{-2}$	$4.03 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	$5.21 \cdot 10^{-4}$
2.15	0.16	$2.41 \cdot 10^{-2}$	$7.37 \cdot 10^{-2}$	$4.27 \cdot 10^{-3}$	$2.68 \cdot 10^{-3}$	$8.48 \cdot 10^{-4}$
2.18	0.16	$2.39 \cdot 10^{-2}$	$6.68 \cdot 10^{-2}$	$4.07 \cdot 10^{-3}$	$2.89 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 46. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5$ GeV², $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5$ GeV ² , $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.1	0	0	0	0	0	0
1.13	$1.31 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	$3.94 \cdot 10^{-3}$	$2.35 \cdot 10^{-3}$	0	0	0	0
1.23	$1.31 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	0	0	0	0
1.25	$1.18 \cdot 10^{-2}$	$4.31 \cdot 10^{-3}$	0	0	0	0
1.28	$4.73 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$9.63 \cdot 10^{-3}$	$4.81 \cdot 10^{-3}$
1.3	0.15	$2.55 \cdot 10^{-2}$	$3.47 \cdot 10^{-2}$	$8.97 \cdot 10^{-3}$	0.21	$2.49 \cdot 10^{-2}$
1.33	0.52	$8.15 \cdot 10^{-2}$	0.34	$2.79 \cdot 10^{-2}$	1.18	$5.79 \cdot 10^{-2}$
1.35	1.11	0.17	0.72	$4.08 \cdot 10^{-2}$	2.7	$8.73 \cdot 10^{-2}$
1.38	1.82	0.27	1.09	$5.02 \cdot 10^{-2}$	3.39	$9.7 \cdot 10^{-2}$
1.4	2.43	0.36	1.35	$5.6 \cdot 10^{-2}$	3.74	0.1
1.43	3.02	0.45	1.48	$5.86 \cdot 10^{-2}$	4	0.11
1.45	3.5	0.52	1.73	$6.33 \cdot 10^{-2}$	4.24	0.13
1.48	4	0.59	2.11	$6.99 \cdot 10^{-2}$	4.67	0.16
1.5	4.55	0.67	2.54	$7.66 \cdot 10^{-2}$	5.88	0.18
1.53	5.19	0.77	3.17	$8.57 \cdot 10^{-2}$	6.87	0.18
1.55	5.66	0.84	3.7	$9.25 \cdot 10^{-2}$	7.96	0.18
1.58	6.31	0.93	4.18	$9.84 \cdot 10^{-2}$	7.54	0.17
1.6	7.15	1.06	5.05	0.11	7.05	0.16
1.63	7.86	1.16	6.35	0.12	6.42	0.15
1.65	8.5	1.25	7.3	0.13	5.66	0.15
1.68	8.92	1.32	8.11	0.14	5.06	0.13

TABLE 46 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	9.33	1.38	8.48	0.14	5.32	0.15
1.73	9.62	1.42	8.66	0.14	5.22	0.17
1.75	9.77	1.44	8.88	0.14	5.02	0.18
1.78	10.01	1.47	8.45	0.14	4.82	0.17
1.8	9.74	1.44	8.84	0.14	4.58	0.16
1.83	10.15	1.5	8.55	0.14	4.12	0.14
1.85	10.07	1.48	8.77	0.14	4.25	0.14
1.88	9.73	1.43	8.61	0.14	3.88	0.13
1.9	10.04	1.48	8.67	0.14	3.57	0.12
1.93	9.93	1.46	8.6	0.14	3.25	0.11
1.95	9.91	1.46	8.74	0.14	3.16	0.11
1.98	9.58	1.41	8.33	0.14	3.1	0.11
2	9.71	1.43	8.11	0.14	2.9	0.11
2.03	9.38	1.38	8.22	0.14	2.59	$9.59 \cdot 10^{-2}$
2.05	9.15	1.35	7.87	0.14	2.4	0.11
2.08	8.83	1.3	7.63	0.13	2.33	0.12
2.1	8.34	1.23	7.11	0.13	2.06	0.11
2.13	8.12	1.2	7.07	0.13	1.99	0.11
2.15	7.6	1.12	6.83	0.13	1.87	$9.91 \cdot 10^{-2}$
2.18	7.19	1.06	6.38	0.12	1.87	$9.25 \cdot 10^{-2}$
2.2	6.85	1.01	6.06	0.12	1.6	$8.59 \cdot 10^{-2}$
2.23	6.33	0.94	5.64	0.11	1.58	$8.44 \cdot 10^{-2}$
2.25	6.05	0.89	5.47	0.11	1.43	$7.3 \cdot 10^{-2}$
2.28	5.66	0.84	5.2	0.11	1.28	$7.37 \cdot 10^{-2}$

TABLE 47. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.64 \cdot 10^{-4}$	$5.7 \cdot 10^{-4}$	0	0	0	0
1.15	$1.69 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$	0	0	0	0
1.18	$2.26 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	0	0	0	0
1.2	$2.26 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	0	0	0	0
1.23	$3.95 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.25	$3.38 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	0	0	0	0
1.28	$1.13 \cdot 10^{-2}$	$3.02 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$	$8.24 \cdot 10^{-4}$	$8.24 \cdot 10^{-4}$
1.3	$3.89 \cdot 10^{-2}$	$7.39 \cdot 10^{-3}$	$6.95 \cdot 10^{-3}$	$2.63 \cdot 10^{-3}$	$7.31 \cdot 10^{-3}$	$2.76 \cdot 10^{-3}$
1.33	0.12	$1.88 \cdot 10^{-2}$	$4.17 \cdot 10^{-2}$	$6.44 \cdot 10^{-3}$	0.1	$1.09 \cdot 10^{-2}$
1.35	0.26	$3.98 \cdot 10^{-2}$	0.17	$1.31 \cdot 10^{-2}$	0.53	$2.57 \cdot 10^{-2}$
1.38	0.56	$8.44 \cdot 10^{-2}$	0.34	$1.85 \cdot 10^{-2}$	1.1	$3.66 \cdot 10^{-2}$
1.4	0.85	0.13	0.6	$2.43 \cdot 10^{-2}$	1.48	$4.34 \cdot 10^{-2}$
1.43	1.15	0.17	0.78	$2.78 \cdot 10^{-2}$	1.74	$4.68 \cdot 10^{-2}$
1.45	1.4	0.21	0.94	$3.06 \cdot 10^{-2}$	1.89	$4.91 \cdot 10^{-2}$
1.48	1.62	0.24	1.03	$3.19 \cdot 10^{-2}$	2.16	$5.55 \cdot 10^{-2}$
1.5	1.76	0.26	1.23	$3.5 \cdot 10^{-2}$	2.43	$6.68 \cdot 10^{-2}$
1.53	1.88	0.28	1.29	$3.57 \cdot 10^{-2}$	2.61	$7.77 \cdot 10^{-2}$
1.55	1.93	0.29	1.46	$3.81 \cdot 10^{-2}$	2.4	$7.6 \cdot 10^{-2}$
1.58	1.95	0.29	1.61	$4 \cdot 10^{-2}$	2.08	$6.82 \cdot 10^{-2}$
1.6	2.13	0.32	1.74	$4.16 \cdot 10^{-2}$	1.85	$6.21 \cdot 10^{-2}$
1.63	2.41	0.36	2.19	$4.67 \cdot 10^{-2}$	1.64	$5.61 \cdot 10^{-2}$
1.65	2.81	0.42	2.95	$5.42 \cdot 10^{-2}$	1.72	$5.61 \cdot 10^{-2}$
1.68	3.05	0.45	3.6	$5.98 \cdot 10^{-2}$	1.74	$5.47 \cdot 10^{-2}$

TABLE 47 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	3.47	0.51	3.92	$6.24 \cdot 10^{-2}$	1.82	$5.58 \cdot 10^{-2}$
1.73	3.85	0.57	4.11	$6.39 \cdot 10^{-2}$	1.79	$5.53 \cdot 10^{-2}$
1.75	4.03	0.59	4.12	$6.4 \cdot 10^{-2}$	1.71	$5.65 \cdot 10^{-2}$
1.78	4.16	0.61	4.1	$6.38 \cdot 10^{-2}$	1.6	$5.97 \cdot 10^{-2}$
1.8	4.24	0.62	4.3	$6.53 \cdot 10^{-2}$	1.51	$6.33 \cdot 10^{-2}$
1.83	4.33	0.64	4.56	$6.73 \cdot 10^{-2}$	1.41	$6.51 \cdot 10^{-2}$
1.85	4.46	0.66	4.63	$6.78 \cdot 10^{-2}$	1.32	$6.08 \cdot 10^{-2}$
1.88	4.62	0.68	4.76	$6.88 \cdot 10^{-2}$	1.29	$5.92 \cdot 10^{-2}$
1.9	4.7	0.69	4.8	$6.9 \cdot 10^{-2}$	1.12	$5.3 \cdot 10^{-2}$
1.93	4.76	0.7	5.05	$7.08 \cdot 10^{-2}$	1.1	$5.1 \cdot 10^{-2}$
1.95	4.97	0.73	5.05	$7.08 \cdot 10^{-2}$	0.97	$4.85 \cdot 10^{-2}$
1.98	4.98	0.73	4.93	$7 \cdot 10^{-2}$	0.88	$4.43 \cdot 10^{-2}$
2	5.03	0.74	5.1	$7.11 \cdot 10^{-2}$	0.84	$4.19 \cdot 10^{-2}$
2.03	5.27	0.78	4.98	$7.03 \cdot 10^{-2}$	0.83	$4.23 \cdot 10^{-2}$
2.05	5.2	0.77	5.19	$7.18 \cdot 10^{-2}$	0.75	$3.95 \cdot 10^{-2}$
2.08	5.23	0.77	5.09	$7.11 \cdot 10^{-2}$	0.79	$4 \cdot 10^{-2}$
2.1	5.43	0.8	5.11	$7.12 \cdot 10^{-2}$	0.76	$3.95 \cdot 10^{-2}$
2.13	5.37	0.79	4.95	$7.01 \cdot 10^{-2}$	0.78	$3.86 \cdot 10^{-2}$
2.15	5.32	0.78	4.77	$6.88 \cdot 10^{-2}$	0.7	$3.79 \cdot 10^{-2}$
2.18	5.34	0.79	4.6	$6.76 \cdot 10^{-2}$	0.59	$3.33 \cdot 10^{-2}$
2.2	5.24	0.77	4.52	$6.7 \cdot 10^{-2}$	0.45	$3.01 \cdot 10^{-2}$
2.23	5.35	0.79	4.29	$6.53 \cdot 10^{-2}$	0.42	$2.87 \cdot 10^{-2}$
2.25	5.36	0.79	4.05	$6.34 \cdot 10^{-2}$	0.31	$2.52 \cdot 10^{-2}$
2.28	5.18	0.76	4.03	$6.33 \cdot 10^{-2}$	0.28	$2.49 \cdot 10^{-2}$

TABLE 48. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e' \pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.45 \cdot 10^{-3}$	$7.57 \cdot 10^{-4}$	0	0	0	0
1.15	$1.09 \cdot 10^{-3}$	$6.49 \cdot 10^{-4}$	0	0	0	0
1.18	$1.09 \cdot 10^{-3}$	$6.49 \cdot 10^{-4}$	0	0	0	0
1.2	$3.27 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	0	0	0	0
1.23	$1.82 \cdot 10^{-3}$	$8.55 \cdot 10^{-4}$	0	0	0	0
1.25	$2.18 \cdot 10^{-3}$	$9.45 \cdot 10^{-4}$	0	0	0	0
1.28	$1.45 \cdot 10^{-3}$	$7.57 \cdot 10^{-4}$	0	0	0	0
1.3	$4.72 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$	$6.39 \cdot 10^{-4}$	$6.39 \cdot 10^{-4}$	0	0
1.33	$7.63 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	0	0	$6.04 \cdot 10^{-4}$	$6.04 \cdot 10^{-4}$
1.35	$2.22 \cdot 10^{-2}$	$4.32 \cdot 10^{-3}$	$2.56 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$
1.38	$3.74 \cdot 10^{-2}$	$6.62 \cdot 10^{-3}$	$1.34 \cdot 10^{-2}$	$2.93 \cdot 10^{-3}$	$1.33 \cdot 10^{-2}$	$3.06 \cdot 10^{-3}$
1.4	$7.95 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	$5.95 \cdot 10^{-2}$	$6.17 \cdot 10^{-3}$	0.13	$1.04 \cdot 10^{-2}$
1.43	0.16	$2.44 \cdot 10^{-2}$	0.13	$9.2 \cdot 10^{-3}$	0.26	$1.41 \cdot 10^{-2}$
1.45	0.22	$3.3 \cdot 10^{-2}$	0.22	$1.19 \cdot 10^{-2}$	0.36	$1.69 \cdot 10^{-2}$
1.48	0.28	$4.24 \cdot 10^{-2}$	0.3	$1.38 \cdot 10^{-2}$	0.47	$1.92 \cdot 10^{-2}$
1.5	0.34	$5.06 \cdot 10^{-2}$	0.38	$1.57 \cdot 10^{-2}$	0.58	$2.14 \cdot 10^{-2}$
1.53	0.38	$5.67 \cdot 10^{-2}$	0.42	$1.65 \cdot 10^{-2}$	0.63	$2.29 \cdot 10^{-2}$
1.55	0.36	$5.44 \cdot 10^{-2}$	0.43	$1.66 \cdot 10^{-2}$	0.57	$2.28 \cdot 10^{-2}$
1.58	0.36	$5.48 \cdot 10^{-2}$	0.49	$1.78 \cdot 10^{-2}$	0.4	$2.17 \cdot 10^{-2}$
1.6	0.36	$5.44 \cdot 10^{-2}$	0.5	$1.79 \cdot 10^{-2}$	0.32	$2.14 \cdot 10^{-2}$
1.63	0.41	$6.09 \cdot 10^{-2}$	0.55	$1.88 \cdot 10^{-2}$	0.35	$2.39 \cdot 10^{-2}$
1.65	0.45	$6.68 \cdot 10^{-2}$	0.67	$2.08 \cdot 10^{-2}$	0.35	$2.34 \cdot 10^{-2}$
1.68	0.51	$7.58 \cdot 10^{-2}$	0.83	$2.31 \cdot 10^{-2}$	0.41	$2.46 \cdot 10^{-2}$

TABLE 48 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.6	$8.96 \cdot 10^{-2}$	1.04	$2.58 \cdot 10^{-2}$	0.42	$2.31 \cdot 10^{-2}$
1.73	0.67	$9.99 \cdot 10^{-2}$	1.11	$2.66 \cdot 10^{-2}$	0.47	$2.43 \cdot 10^{-2}$
1.75	0.78	0.12	1.12	$2.67 \cdot 10^{-2}$	0.38	$2.16 \cdot 10^{-2}$
1.78	0.81	0.12	1.2	$2.77 \cdot 10^{-2}$	0.41	$2.14 \cdot 10^{-2}$
1.8	0.9	0.13	1.23	$2.8 \cdot 10^{-2}$	0.41	$2.14 \cdot 10^{-2}$
1.83	0.93	0.14	1.26	$2.84 \cdot 10^{-2}$	0.39	$2.08 \cdot 10^{-2}$
1.85	1.03	0.15	1.39	$2.98 \cdot 10^{-2}$	0.38	$2.03 \cdot 10^{-2}$
1.88	1.12	0.17	1.38	$2.97 \cdot 10^{-2}$	0.4	$2.08 \cdot 10^{-2}$
1.9	1.25	0.18	1.5	$3.1 \cdot 10^{-2}$	0.4	$2.02 \cdot 10^{-2}$
1.93	1.27	0.19	1.42	$3.01 \cdot 10^{-2}$	0.38	$1.93 \cdot 10^{-2}$
1.95	1.33	0.2	1.42	$3.01 \cdot 10^{-2}$	0.35	$1.92 \cdot 10^{-2}$
1.98	1.48	0.22	1.4	$2.99 \cdot 10^{-2}$	0.32	$1.9 \cdot 10^{-2}$
2	1.48	0.22	1.33	$2.92 \cdot 10^{-2}$	0.31	$1.77 \cdot 10^{-2}$
2.03	1.64	0.24	1.36	$2.95 \cdot 10^{-2}$	0.27	$1.76 \cdot 10^{-2}$
2.05	1.69	0.25	1.3	$2.88 \cdot 10^{-2}$	0.16	$1.3 \cdot 10^{-2}$
2.08	1.82	0.27	1.29	$2.88 \cdot 10^{-2}$	0.12	$1.21 \cdot 10^{-2}$
2.1	1.91	0.28	1.2	$2.77 \cdot 10^{-2}$	$6.89 \cdot 10^{-2}$	$9.37 \cdot 10^{-3}$
2.13	2.04	0.3	1.2	$2.78 \cdot 10^{-2}$	$5.15 \cdot 10^{-2}$	$7.96 \cdot 10^{-3}$
2.15	2.16	0.32	1.25	$2.82 \cdot 10^{-2}$	$3.94 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$
2.18	2.19	0.32	1.24	$2.82 \cdot 10^{-2}$	$4.4 \cdot 10^{-2}$	$7.84 \cdot 10^{-3}$
2.2	2.32	0.34	1.23	$2.8 \cdot 10^{-2}$	$4.2 \cdot 10^{-2}$	$8.16 \cdot 10^{-3}$
2.23	2.44	0.36	1.25	$2.83 \cdot 10^{-2}$	$2.15 \cdot 10^{-2}$	$5.17 \cdot 10^{-3}$
2.25	2.57	0.38	1.23	$2.8 \cdot 10^{-2}$	$2.86 \cdot 10^{-2}$	$6.52 \cdot 10^{-3}$
2.28	2.65	0.39	1.31	$2.9 \cdot 10^{-2}$	$2.8 \cdot 10^{-2}$	$6.34 \cdot 10^{-3}$

TABLE 49. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.62 \cdot 10^{-4}$	$3.35 \cdot 10^{-4}$	0	0	0	0
1.15	$1.87 \cdot 10^{-4}$	$1.89 \cdot 10^{-4}$	0	0	0	0
1.18	$3.75 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.2	$3.75 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.23	$3.75 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.25	$1.87 \cdot 10^{-4}$	$1.89 \cdot 10^{-4}$	0	0	0	0
1.28	$7.49 \cdot 10^{-4}$	$3.91 \cdot 10^{-4}$	0	0	0	0
1.3	$9.37 \cdot 10^{-4}$	$4.41 \cdot 10^{-4}$	0	0	0	0
1.33	$9.37 \cdot 10^{-4}$	$4.41 \cdot 10^{-4}$	0	0	0	0
1.35	$1.31 \cdot 10^{-3}$	$5.32 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	0	0
1.38	$7.49 \cdot 10^{-4}$	$3.91 \cdot 10^{-4}$	0	0	0	0
1.4	$2.44 \cdot 10^{-3}$	$7.64 \cdot 10^{-4}$	0	0	$1.12 \cdot 10^{-3}$	$7.89 \cdot 10^{-4}$
1.43	$5.25 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	0	0
1.45	$1.07 \cdot 10^{-2}$	$2.11 \cdot 10^{-3}$	$7.92 \cdot 10^{-3}$	$1.62 \cdot 10^{-3}$	$1.25 \cdot 10^{-3}$	$6.27 \cdot 10^{-4}$
1.48	$1.59 \cdot 10^{-2}$	$2.91 \cdot 10^{-3}$	$1.72 \cdot 10^{-2}$	$2.38 \cdot 10^{-3}$	$2.23 \cdot 10^{-2}$	$2.96 \cdot 10^{-3}$
1.5	$3.15 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$	$5.48 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$	$5.07 \cdot 10^{-2}$	$4.51 \cdot 10^{-3}$
1.53	$4.51 \cdot 10^{-2}$	$7.24 \cdot 10^{-3}$	$8.51 \cdot 10^{-2}$	$5.3 \cdot 10^{-3}$	$9.48 \cdot 10^{-2}$	$6.17 \cdot 10^{-3}$
1.55	$5.25 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$	0.13	$6.42 \cdot 10^{-3}$	0.12	$7.08 \cdot 10^{-3}$
1.58	$5.23 \cdot 10^{-2}$	$8.29 \cdot 10^{-3}$	0.17	$7.56 \cdot 10^{-3}$	0.11	$6.57 \cdot 10^{-3}$
1.6	$5.23 \cdot 10^{-2}$	$8.29 \cdot 10^{-3}$	0.2	$8.2 \cdot 10^{-3}$	0.11	$6.47 \cdot 10^{-3}$
1.63	$6.37 \cdot 10^{-2}$	$9.98 \cdot 10^{-3}$	0.23	$8.77 \cdot 10^{-3}$	0.12	$7.05 \cdot 10^{-3}$
1.65	$6.48 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	0.27	$9.4 \cdot 10^{-3}$	0.12	$6.95 \cdot 10^{-3}$
1.68	$8.41 \cdot 10^{-2}$	$1.3 \cdot 10^{-2}$	0.31	$1.01 \cdot 10^{-2}$	0.12	$6.97 \cdot 10^{-3}$

TABLE 49 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$9.33 \cdot 10^{-2}$	$1.43 \cdot 10^{-2}$	0.33	$1.05 \cdot 10^{-2}$	0.13	$7.22 \cdot 10^{-3}$
1.73	0.11	$1.67 \cdot 10^{-2}$	0.34	$1.07 \cdot 10^{-2}$	0.11	$6.82 \cdot 10^{-3}$
1.75	0.14	$2.08 \cdot 10^{-2}$	0.34	$1.06 \cdot 10^{-2}$	$9.62 \cdot 10^{-2}$	$6.13 \cdot 10^{-3}$
1.78	0.15	$2.25 \cdot 10^{-2}$	0.33	$1.04 \cdot 10^{-2}$	$8.87 \cdot 10^{-2}$	$5.98 \cdot 10^{-3}$
1.8	0.18	$2.69 \cdot 10^{-2}$	0.3	$9.91 \cdot 10^{-3}$	$7.71 \cdot 10^{-2}$	$5.57 \cdot 10^{-3}$
1.83	0.19	$2.9 \cdot 10^{-2}$	0.26	$9.3 \cdot 10^{-3}$	$5.97 \cdot 10^{-2}$	$4.84 \cdot 10^{-3}$
1.85	0.22	$3.25 \cdot 10^{-2}$	0.25	$9.04 \cdot 10^{-3}$	$5.02 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$
1.88	0.24	$3.66 \cdot 10^{-2}$	0.22	$8.59 \cdot 10^{-3}$	$4.07 \cdot 10^{-2}$	$4.07 \cdot 10^{-3}$
1.9	0.27	$4.02 \cdot 10^{-2}$	0.21	$8.3 \cdot 10^{-3}$	$3.51 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$
1.93	0.28	$4.18 \cdot 10^{-2}$	0.19	$7.93 \cdot 10^{-3}$	$1.89 \cdot 10^{-2}$	$2.68 \cdot 10^{-3}$
1.95	0.3	$4.53 \cdot 10^{-2}$	0.17	$7.57 \cdot 10^{-3}$	$1.92 \cdot 10^{-2}$	$2.86 \cdot 10^{-3}$
1.98	0.3	$4.42 \cdot 10^{-2}$	0.17	$7.59 \cdot 10^{-3}$	$1.25 \cdot 10^{-2}$	$2.28 \cdot 10^{-3}$
2	0.31	$4.61 \cdot 10^{-2}$	0.15	$7.14 \cdot 10^{-3}$	$9.4 \cdot 10^{-3}$	$2 \cdot 10^{-3}$
2.03	0.32	$4.69 \cdot 10^{-2}$	0.16	$7.3 \cdot 10^{-3}$	$1.31 \cdot 10^{-2}$	$2.43 \cdot 10^{-3}$
2.05	0.32	$4.83 \cdot 10^{-2}$	0.15	$7 \cdot 10^{-3}$	$8.33 \cdot 10^{-3}$	$1.78 \cdot 10^{-3}$
2.08	0.31	$4.64 \cdot 10^{-2}$	0.15	$7.08 \cdot 10^{-3}$	$4.99 \cdot 10^{-3}$	$1.29 \cdot 10^{-3}$
2.1	0.34	$5.07 \cdot 10^{-2}$	0.15	$6.99 \cdot 10^{-3}$	$8.19 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$
2.13	0.33	$4.88 \cdot 10^{-2}$	0.15	$7.03 \cdot 10^{-3}$	$6.07 \cdot 10^{-3}$	$1.57 \cdot 10^{-3}$
2.15	0.34	$5.1 \cdot 10^{-2}$	0.16	$7.24 \cdot 10^{-3}$	$4.44 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$
2.18	0.36	$5.29 \cdot 10^{-2}$	0.16	$7.31 \cdot 10^{-3}$	$2.51 \cdot 10^{-3}$	$9.47 \cdot 10^{-4}$
2.2	0.36	$5.35 \cdot 10^{-2}$	0.16	$7.16 \cdot 10^{-3}$	$6.29 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$
2.23	0.37	$5.56 \cdot 10^{-2}$	0.15	$7.14 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$7.01 \cdot 10^{-4}$
2.25	0.39	$5.8 \cdot 10^{-2}$	0.15	$7.14 \cdot 10^{-3}$	$2.68 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$
2.28	0.39	$5.8 \cdot 10^{-2}$	0.16	$7.21 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	$7.14 \cdot 10^{-4}$

**B.5 3D CROSS SECTION TABLES FOR $D(E, E'\Pi^+)$ INTEGRATED
OVER $\Theta_{\Pi Q}$**

TABLE 50. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.02 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	0	0	$6 \cdot 10^{-4}$	$6 \cdot 10^{-4}$
1.15	$7.13 \cdot 10^{-3}$	$1.55 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	$9.52 \cdot 10^{-4}$	0	0
1.18	$7.4 \cdot 10^{-3}$	$1.58 \cdot 10^{-3}$	$3.85 \cdot 10^{-3}$	$1.45 \cdot 10^{-3}$	$3.93 \cdot 10^{-3}$	$2.05 \cdot 10^{-3}$
1.2	$1.77 \cdot 10^{-2}$	$2.79 \cdot 10^{-3}$	$6.6 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	$1.12 \cdot 10^{-2}$	$3.79 \cdot 10^{-3}$
1.23	$2.69 \cdot 10^{-2}$	$3.78 \cdot 10^{-3}$	$2.03 \cdot 10^{-2}$	$3.34 \cdot 10^{-3}$	$3.41 \cdot 10^{-2}$	$6.8 \cdot 10^{-3}$
1.25	$3.75 \cdot 10^{-2}$	$4.88 \cdot 10^{-3}$	$3.96 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$	$6.3 \cdot 10^{-2}$	$9.11 \cdot 10^{-3}$
1.28	$5.39 \cdot 10^{-2}$	$6.56 \cdot 10^{-3}$	$4.67 \cdot 10^{-2}$	$5.07 \cdot 10^{-3}$	0.13	$1.41 \cdot 10^{-2}$
1.3	$6.92 \cdot 10^{-2}$	$8.11 \cdot 10^{-3}$	$6.6 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	0.16	$1.6 \cdot 10^{-2}$
1.33	$8.56 \cdot 10^{-2}$	$9.76 \cdot 10^{-3}$	$6.76 \cdot 10^{-2}$	$6.1 \cdot 10^{-3}$	0.14	$1.52 \cdot 10^{-2}$
1.35	$9.99 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	$8.96 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$	0.15	$1.69 \cdot 10^{-2}$
1.38	0.11	$1.17 \cdot 10^{-2}$	0.11	$7.91 \cdot 10^{-3}$	0.12	$1.48 \cdot 10^{-2}$
1.4	0.11	$1.18 \cdot 10^{-2}$	0.13	$8.54 \cdot 10^{-3}$	$8.67 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
1.43	0.11	$1.23 \cdot 10^{-2}$	0.17	$9.63 \cdot 10^{-3}$	$6.07 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
1.45	0.13	$1.43 \cdot 10^{-2}$	0.2	$1.05 \cdot 10^{-2}$	$7.67 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
1.48	0.12	$1.36 \cdot 10^{-2}$	0.26	$1.2 \cdot 10^{-2}$	$7.55 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
1.5	0.15	$1.6 \cdot 10^{-2}$	0.28	$1.25 \cdot 10^{-2}$	0.11	$1.42 \cdot 10^{-2}$
1.53	0.17	$1.85 \cdot 10^{-2}$	0.33	$1.34 \cdot 10^{-2}$	0.13	$1.58 \cdot 10^{-2}$
1.55	0.2	$2.12 \cdot 10^{-2}$	0.37	$1.43 \cdot 10^{-2}$	0.12	$1.63 \cdot 10^{-2}$
1.58	0.22	$2.28 \cdot 10^{-2}$	0.41	$1.51 \cdot 10^{-2}$	0.12	$1.59 \cdot 10^{-2}$
1.6	0.23	$2.4 \cdot 10^{-2}$	0.45	$1.57 \cdot 10^{-2}$	$8.1 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$
1.63	0.24	$2.52 \cdot 10^{-2}$	0.46	$1.58 \cdot 10^{-2}$	$5 \cdot 10^{-2}$	$9.95 \cdot 10^{-3}$
1.65	0.25	$2.64 \cdot 10^{-2}$	0.47	$1.61 \cdot 10^{-2}$	$6.51 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
1.68	0.27	$2.81 \cdot 10^{-2}$	0.53	$1.7 \cdot 10^{-2}$	$4.21 \cdot 10^{-2}$	$9.02 \cdot 10^{-3}$

TABLE 50 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.28	$2.88 \cdot 10^{-2}$	0.55	$1.74 \cdot 10^{-2}$	$4.84 \cdot 10^{-2}$	$9.74 \cdot 10^{-3}$
1.73	0.29	$3.04 \cdot 10^{-2}$	0.52	$1.7 \cdot 10^{-2}$	$4.54 \cdot 10^{-2}$	$7.58 \cdot 10^{-3}$
1.75	0.31	$3.17 \cdot 10^{-2}$	0.51	$1.67 \cdot 10^{-2}$	$4.7 \cdot 10^{-2}$	$7.72 \cdot 10^{-3}$
1.78	0.33	$3.43 \cdot 10^{-2}$	0.48	$1.62 \cdot 10^{-2}$	$3.82 \cdot 10^{-2}$	$7.06 \cdot 10^{-3}$
1.8	0.35	$3.65 \cdot 10^{-2}$	0.54	$1.72 \cdot 10^{-2}$	$2.34 \cdot 10^{-2}$	$6.29 \cdot 10^{-3}$
1.83	0.36	$3.7 \cdot 10^{-2}$	0.5	$1.65 \cdot 10^{-2}$	$2.16 \cdot 10^{-2}$	$5.76 \cdot 10^{-3}$
1.85	0.36	$3.67 \cdot 10^{-2}$	0.5	$1.67 \cdot 10^{-2}$	$1.92 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$
1.88	0.38	$3.91 \cdot 10^{-2}$	0.56	$1.75 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$3.87 \cdot 10^{-3}$
1.9	0.39	$4 \cdot 10^{-2}$	0.52	$1.69 \cdot 10^{-2}$	$6.96 \cdot 10^{-3}$	$3.16 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 51. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.17 \cdot 10^{-4}$	$2.26 \cdot 10^{-4}$	0	0	0	0
1.15	$6.34 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.18	$1.11 \cdot 10^{-3}$	$4.34 \cdot 10^{-4}$	0	0	0	0
1.2	$1.58 \cdot 10^{-3}$	$5.25 \cdot 10^{-4}$	0	0	$6.72 \cdot 10^{-4}$	$6.72 \cdot 10^{-4}$
1.23	$4.44 \cdot 10^{-3}$	$9.48 \cdot 10^{-4}$	0	0	$3.51 \cdot 10^{-4}$	$3.51 \cdot 10^{-4}$
1.25	$5.71 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$4.67 \cdot 10^{-4}$	$1.96 \cdot 10^{-3}$	$8.77 \cdot 10^{-4}$
1.28	$8.72 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	$4.62 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	$8.96 \cdot 10^{-3}$	$2.63 \cdot 10^{-3}$
1.3	$1.97 \cdot 10^{-2}$	$2.63 \cdot 10^{-3}$	$5.94 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$2.65 \cdot 10^{-2}$	$4.13 \cdot 10^{-3}$
1.33	$2.96 \cdot 10^{-2}$	$3.66 \cdot 10^{-3}$	$1.88 \cdot 10^{-2}$	$2.49 \cdot 10^{-3}$	$5.23 \cdot 10^{-2}$	$5.95 \cdot 10^{-3}$
1.35	$4.53 \cdot 10^{-2}$	$5.25 \cdot 10^{-3}$	$2.97 \cdot 10^{-2}$	$3.13 \cdot 10^{-3}$	$9.04 \cdot 10^{-2}$	$8.34 \cdot 10^{-3}$
1.38	$5.86 \cdot 10^{-2}$	$6.58 \cdot 10^{-3}$	$4.32 \cdot 10^{-2}$	$3.78 \cdot 10^{-3}$	0.12	$9.58 \cdot 10^{-3}$
1.4	$8.38 \cdot 10^{-2}$	$9.11 \cdot 10^{-3}$	$6.8 \cdot 10^{-2}$	$4.74 \cdot 10^{-3}$	0.15	$1.13 \cdot 10^{-2}$
1.43	0.11	$1.19 \cdot 10^{-2}$	$9.04 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$	0.15	$1.12 \cdot 10^{-2}$
1.45	0.14	$1.43 \cdot 10^{-2}$	0.13	$6.52 \cdot 10^{-3}$	0.17	$1.29 \cdot 10^{-2}$
1.48	0.15	$1.52 \cdot 10^{-2}$	0.13	$6.66 \cdot 10^{-3}$	0.21	$1.49 \cdot 10^{-2}$
1.5	0.17	$1.76 \cdot 10^{-2}$	0.2	$8.03 \cdot 10^{-3}$	0.29	$1.79 \cdot 10^{-2}$
1.53	0.18	$1.9 \cdot 10^{-2}$	0.22	$8.47 \cdot 10^{-3}$	0.33	$1.92 \cdot 10^{-2}$
1.55	0.2	$2.11 \cdot 10^{-2}$	0.22	$8.42 \cdot 10^{-3}$	0.26	$1.74 \cdot 10^{-2}$
1.58	0.21	$2.15 \cdot 10^{-2}$	0.25	$9.11 \cdot 10^{-3}$	0.21	$1.5 \cdot 10^{-2}$
1.6	0.21	$2.17 \cdot 10^{-2}$	0.26	$9.35 \cdot 10^{-3}$	0.14	$1.22 \cdot 10^{-2}$
1.63	0.22	$2.24 \cdot 10^{-2}$	0.29	$9.71 \cdot 10^{-3}$	0.14	$1.21 \cdot 10^{-2}$
1.65	0.24	$2.5 \cdot 10^{-2}$	0.31	$1.02 \cdot 10^{-2}$	0.12	$1.16 \cdot 10^{-2}$
1.68	0.25	$2.53 \cdot 10^{-2}$	0.36	$1.1 \cdot 10^{-2}$	0.11	$1.09 \cdot 10^{-2}$

TABLE 51 Continued.						
$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.25	$2.54 \cdot 10^{-2}$	0.37	$1.11 \cdot 10^{-2}$	0.11	$1.12 \cdot 10^{-2}$
1.73	0.28	$2.84 \cdot 10^{-2}$	0.41	$1.17 \cdot 10^{-2}$	0.11	$1.08 \cdot 10^{-2}$
1.75	0.29	$2.96 \cdot 10^{-2}$	0.42	$1.17 \cdot 10^{-2}$	$9.05 \cdot 10^{-2}$	$9.35 \cdot 10^{-3}$
1.78	0.31	$3.21 \cdot 10^{-2}$	0.4	$1.16 \cdot 10^{-2}$	$7.39 \cdot 10^{-2}$	$8.29 \cdot 10^{-3}$
1.8	0.32	$3.3 \cdot 10^{-2}$	0.41	$1.17 \cdot 10^{-2}$	$6.15 \cdot 10^{-2}$	$7.4 \cdot 10^{-3}$
1.83	0.33	$3.33 \cdot 10^{-2}$	0.42	$1.17 \cdot 10^{-2}$	$5.22 \cdot 10^{-2}$	$6.83 \cdot 10^{-3}$
1.85	0.33	$3.41 \cdot 10^{-2}$	0.43	$1.19 \cdot 10^{-2}$	$4.71 \cdot 10^{-2}$	$6.9 \cdot 10^{-3}$
1.88	0.35	$3.55 \cdot 10^{-2}$	0.44	$1.2 \cdot 10^{-2}$	$3.7 \cdot 10^{-2}$	$5.95 \cdot 10^{-3}$
1.9	0.34	$3.5 \cdot 10^{-2}$	0.42	$1.18 \cdot 10^{-2}$	$1.89 \cdot 10^{-2}$	$4.4 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 52. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$1.13 \cdot 10^{-4}$	$1.14 \cdot 10^{-4}$	0	0	0	0
1.33	0	0	0	0	0	0
1.35	$1.13 \cdot 10^{-4}$	$1.14 \cdot 10^{-4}$	0	0	0	0
1.38	$2.26 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	0	0	0	0
1.4	$6.79 \cdot 10^{-4}$	$2.85 \cdot 10^{-4}$	$2.36 \cdot 10^{-4}$	$2.36 \cdot 10^{-4}$	0	0
1.43	$1.25 \cdot 10^{-3}$	$3.95 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	$3.33 \cdot 10^{-4}$	$5.08 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$
1.45	$2.72 \cdot 10^{-3}$	$6.17 \cdot 10^{-4}$	$1.65 \cdot 10^{-3}$	$6.23 \cdot 10^{-4}$	$3.37 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$
1.48	$5.43 \cdot 10^{-3}$	$9.53 \cdot 10^{-4}$	$5.89 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	$9.12 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$
1.5	$9.62 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.3 \cdot 10^{-2}$	$1.75 \cdot 10^{-3}$	$2.01 \cdot 10^{-2}$	$2.63 \cdot 10^{-3}$
1.53	$2.07 \cdot 10^{-2}$	$2.57 \cdot 10^{-3}$	$2.26 \cdot 10^{-2}$	$2.31 \cdot 10^{-3}$	$5.74 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$
1.55	$2.99 \cdot 10^{-2}$	$3.5 \cdot 10^{-3}$	$3.68 \cdot 10^{-2}$	$2.94 \cdot 10^{-3}$	$7.8 \cdot 10^{-2}$	$5.51 \cdot 10^{-3}$
1.58	$4.71 \cdot 10^{-2}$	$5.23 \cdot 10^{-3}$	$4.5 \cdot 10^{-2}$	$3.26 \cdot 10^{-3}$	$8.99 \cdot 10^{-2}$	$6.52 \cdot 10^{-3}$
1.6	$6.74 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$	$5.73 \cdot 10^{-2}$	$3.67 \cdot 10^{-3}$	0.13	$8.38 \cdot 10^{-3}$
1.63	$8.73 \cdot 10^{-2}$	$9.24 \cdot 10^{-3}$	$7.68 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$	0.14	$8.85 \cdot 10^{-3}$
1.65	0.11	$1.14 \cdot 10^{-2}$	$9.66 \cdot 10^{-2}$	$4.77 \cdot 10^{-3}$	0.15	$9.05 \cdot 10^{-3}$
1.68	0.13	$1.39 \cdot 10^{-2}$	0.12	$5.25 \cdot 10^{-3}$	0.19	$1.05 \cdot 10^{-2}$

TABLE 52 Continued.						
$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0$ GeV ² , $1.5 \leq P_\pi < 2.2$ GeV/ c						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	0.14	$1.49 \cdot 10^{-2}$	0.14	$5.69 \cdot 10^{-3}$	0.22	$1.15 \cdot 10^{-2}$
1.73	0.17	$1.73 \cdot 10^{-2}$	0.14	$5.79 \cdot 10^{-3}$	0.23	$1.15 \cdot 10^{-2}$
1.75	0.19	$1.91 \cdot 10^{-2}$	0.17	$6.35 \cdot 10^{-3}$	0.2	$1.07 \cdot 10^{-2}$
1.78	0.2	$2.07 \cdot 10^{-2}$	0.18	$6.57 \cdot 10^{-3}$	0.16	$9.71 \cdot 10^{-3}$
1.8	0.21	$2.15 \cdot 10^{-2}$	0.21	$7.06 \cdot 10^{-3}$	0.14	$9.27 \cdot 10^{-3}$
1.83	0.22	$2.29 \cdot 10^{-2}$	0.22	$7.13 \cdot 10^{-3}$	0.12	$8.45 \cdot 10^{-3}$
1.85	0.22	$2.2 \cdot 10^{-2}$	0.22	$7.15 \cdot 10^{-3}$	0.11	$8.11 \cdot 10^{-3}$
1.88	0.23	$2.32 \cdot 10^{-2}$	0.24	$7.47 \cdot 10^{-3}$	$8.98 \cdot 10^{-2}$	$7.24 \cdot 10^{-3}$
1.9	0.23	$2.36 \cdot 10^{-2}$	0.25	$7.7 \cdot 10^{-3}$	$7.3 \cdot 10^{-2}$	$6.5 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 53. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	$3.17 \cdot 10^{-4}$	$2.26 \cdot 10^{-4}$	0	0	0	0
1.6	$3.17 \cdot 10^{-4}$	$2.26 \cdot 10^{-4}$	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	$1.58 \cdot 10^{-4}$	$1.59 \cdot 10^{-4}$	0	0	0	0

TABLE 53 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.58 \cdot 10^{-4}$	$1.59 \cdot 10^{-4}$	0	0	$3.29 \cdot 10^{-4}$	$3.29 \cdot 10^{-4}$
1.73	$1.58 \cdot 10^{-4}$	$1.59 \cdot 10^{-4}$	0	0	0	0
1.75	$1.58 \cdot 10^{-3}$	$5.25 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$1.09 \cdot 10^{-3}$	$6.28 \cdot 10^{-4}$
1.78	$3.8 \cdot 10^{-3}$	$8.64 \cdot 10^{-4}$	$2.31 \cdot 10^{-3}$	$8.73 \cdot 10^{-4}$	$5.41 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$
1.8	$6.97 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$3.63 \cdot 10^{-3}$	$1.09 \cdot 10^{-3}$	$1.14 \cdot 10^{-2}$	$2.19 \cdot 10^{-3}$
1.83	$1.62 \cdot 10^{-2}$	$2.27 \cdot 10^{-3}$	$8.58 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	$2.47 \cdot 10^{-2}$	$3.24 \cdot 10^{-3}$
1.85	$2.74 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$	$2.31 \cdot 10^{-2}$	$2.76 \cdot 10^{-3}$	$4.36 \cdot 10^{-2}$	$4.18 \cdot 10^{-3}$
1.88	$3.88 \cdot 10^{-2}$	$4.59 \cdot 10^{-3}$	$2.44 \cdot 10^{-2}$	$2.84 \cdot 10^{-3}$	$5.57 \cdot 10^{-2}$	$4.74 \cdot 10^{-3}$
1.9	$5.64 \cdot 10^{-2}$	$6.36 \cdot 10^{-3}$	$2.87 \cdot 10^{-2}$	$3.08 \cdot 10^{-3}$	$7.01 \cdot 10^{-2}$	$5.3 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 54. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.22 \cdot 10^{-3}$	$8.67 \cdot 10^{-4}$	0	0	0	0
1.15	$3.17 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	$6.61 \cdot 10^{-4}$	$6.61 \cdot 10^{-4}$
1.18	$8.24 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$	0	0	0	0
1.2	$2.16 \cdot 10^{-2}$	$3.38 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	$1.43 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$
1.23	$2.69 \cdot 10^{-2}$	$3.97 \cdot 10^{-3}$	$3.3 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$	$6.16 \cdot 10^{-3}$	$3.32 \cdot 10^{-3}$
1.25	$5.42 \cdot 10^{-2}$	$6.8 \cdot 10^{-3}$	$1.52 \cdot 10^{-2}$	$3.16 \cdot 10^{-3}$	$3.24 \cdot 10^{-2}$	$7.98 \cdot 10^{-3}$
1.28	$9.83 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	$5.67 \cdot 10^{-2}$	$6.12 \cdot 10^{-3}$	0.13	$1.57 \cdot 10^{-2}$
1.3	0.15	$1.66 \cdot 10^{-2}$	$9.7 \cdot 10^{-2}$	$8 \cdot 10^{-3}$	0.27	$2.21 \cdot 10^{-2}$
1.33	0.22	$2.38 \cdot 10^{-2}$	0.16	$1.01 \cdot 10^{-2}$	0.42	$2.91 \cdot 10^{-2}$
1.35	0.29	$3.07 \cdot 10^{-2}$	0.22	$1.21 \cdot 10^{-2}$	0.42	$2.98 \cdot 10^{-2}$
1.38	0.35	$3.6 \cdot 10^{-2}$	0.26	$1.3 \cdot 10^{-2}$	0.44	$3.18 \cdot 10^{-2}$
1.4	0.4	$4.12 \cdot 10^{-2}$	0.32	$1.45 \cdot 10^{-2}$	0.36	$2.9 \cdot 10^{-2}$
1.43	0.43	$4.46 \cdot 10^{-2}$	0.34	$1.49 \cdot 10^{-2}$	0.31	$2.84 \cdot 10^{-2}$
1.45	0.42	$4.29 \cdot 10^{-2}$	0.39	$1.6 \cdot 10^{-2}$	0.28	$2.59 \cdot 10^{-2}$
1.48	0.48	$4.91 \cdot 10^{-2}$	0.54	$1.88 \cdot 10^{-2}$	0.27	$2.64 \cdot 10^{-2}$
1.5	0.48	$4.95 \cdot 10^{-2}$	0.59	$1.97 \cdot 10^{-2}$	0.34	$2.93 \cdot 10^{-2}$
1.53	0.51	$5.23 \cdot 10^{-2}$	0.73	$2.2 \cdot 10^{-2}$	0.4	$3.22 \cdot 10^{-2}$
1.55	0.6	$6.09 \cdot 10^{-2}$	0.84	$2.36 \cdot 10^{-2}$	0.4	$3.12 \cdot 10^{-2}$
1.58	0.67	$6.84 \cdot 10^{-2}$	1.02	$2.59 \cdot 10^{-2}$	0.35	$2.92 \cdot 10^{-2}$
1.6	0.71	$7.22 \cdot 10^{-2}$	1.11	$2.71 \cdot 10^{-2}$	0.25	$2.35 \cdot 10^{-2}$
1.63	0.8	$8.09 \cdot 10^{-2}$	1.19	$2.81 \cdot 10^{-2}$	0.18	$2.11 \cdot 10^{-2}$
1.65	0.82	$8.36 \cdot 10^{-2}$	1.29	$2.91 \cdot 10^{-2}$	0.17	$1.87 \cdot 10^{-2}$
1.68	0.85	$8.61 \cdot 10^{-2}$	1.35	$2.98 \cdot 10^{-2}$	0.14	$1.8 \cdot 10^{-2}$

TABLE 54 Continued.						
$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.91	$9.18 \cdot 10^{-2}$	1.33	$2.97 \cdot 10^{-2}$	0.13	$1.6 \cdot 10^{-2}$
1.73	0.93	$9.46 \cdot 10^{-2}$	1.31	$2.94 \cdot 10^{-2}$	0.12	$1.59 \cdot 10^{-2}$
1.75	0.94	$9.53 \cdot 10^{-2}$	1.3	$2.92 \cdot 10^{-2}$	$9.85 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$
1.78	0.93	$9.42 \cdot 10^{-2}$	1.25	$2.87 \cdot 10^{-2}$	$9.73 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$
1.8	0.98	$9.87 \cdot 10^{-2}$	1.31	$2.94 \cdot 10^{-2}$	$7.45 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
1.83	0.98	$9.91 \cdot 10^{-2}$	1.31	$2.94 \cdot 10^{-2}$	$4.35 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$
1.85	1.02	0.1	1.34	$2.97 \cdot 10^{-2}$	$3.01 \cdot 10^{-2}$	$8.79 \cdot 10^{-3}$
1.88	1.08	0.11	1.34	$2.97 \cdot 10^{-2}$	$2.39 \cdot 10^{-2}$	$5.72 \cdot 10^{-3}$
1.9	1.08	0.11	1.41	$3.05 \cdot 10^{-2}$	$2.75 \cdot 10^{-2}$	$9.32 \cdot 10^{-3}$
1.93	1.11	0.11	1.35	$2.98 \cdot 10^{-2}$	$1.93 \cdot 10^{-2}$	$7.11 \cdot 10^{-3}$
1.95	1.17	0.12	1.44	$3.09 \cdot 10^{-2}$	$1.3 \cdot 10^{-2}$	$5.51 \cdot 10^{-3}$
1.98	1.2	0.12	1.42	$3.06 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	$6.35 \cdot 10^{-3}$
2	1.18	0.12	1.45	$3.09 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	$6.59 \cdot 10^{-3}$
2.03	1.23	0.12	1.44	$3.08 \cdot 10^{-2}$	$7 \cdot 10^{-3}$	$4.38 \cdot 10^{-3}$
2.05	1.28	0.13	1.52	$3.17 \cdot 10^{-2}$	$9.02 \cdot 10^{-3}$	$5.22 \cdot 10^{-3}$
2.08	1.26	0.13	1.52	$3.17 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$5.98 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 55. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$7.61 \cdot 10^{-4}$	$3.88 \cdot 10^{-4}$	0	0	0	0
1.2	$7.61 \cdot 10^{-4}$	$3.88 \cdot 10^{-4}$	0	0	0	0
1.23	$7.61 \cdot 10^{-4}$	$3.88 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	0	0
1.25	$2.28 \cdot 10^{-3}$	$6.97 \cdot 10^{-4}$	0	0	$8.48 \cdot 10^{-4}$	$8.48 \cdot 10^{-4}$
1.28	$3.04 \cdot 10^{-3}$	$8.19 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$8.07 \cdot 10^{-4}$	$8.07 \cdot 10^{-4}$
1.3	$7.99 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	$1.58 \cdot 10^{-3}$	$7.92 \cdot 10^{-4}$	$4.03 \cdot 10^{-4}$	$4.03 \cdot 10^{-4}$
1.33	$1.71 \cdot 10^{-2}$	$2.48 \cdot 10^{-3}$	$3.17 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$	$5.73 \cdot 10^{-3}$	$2.4 \cdot 10^{-3}$
1.35	$3.29 \cdot 10^{-2}$	$4.12 \cdot 10^{-3}$	$1.27 \cdot 10^{-2}$	$2.24 \cdot 10^{-3}$	$2.57 \cdot 10^{-2}$	$4.05 \cdot 10^{-3}$
1.38	$6.11 \cdot 10^{-2}$	$6.97 \cdot 10^{-3}$	$2.89 \cdot 10^{-2}$	$3.38 \cdot 10^{-3}$	$8.98 \cdot 10^{-2}$	$8.71 \cdot 10^{-3}$
1.4	0.12	$1.28 \cdot 10^{-2}$	$6.14 \cdot 10^{-2}$	$4.93 \cdot 10^{-3}$	0.15	$1.18 \cdot 10^{-2}$
1.43	0.17	$1.81 \cdot 10^{-2}$	0.12	$6.83 \cdot 10^{-3}$	0.22	$1.52 \cdot 10^{-2}$
1.45	0.25	$2.55 \cdot 10^{-2}$	0.18	$8.52 \cdot 10^{-3}$	0.32	$1.87 \cdot 10^{-2}$
1.48	0.33	$3.43 \cdot 10^{-2}$	0.27	$1.03 \cdot 10^{-2}$	0.41	$2.12 \cdot 10^{-2}$
1.5	0.42	$4.23 \cdot 10^{-2}$	0.33	$1.15 \cdot 10^{-2}$	0.67	$2.86 \cdot 10^{-2}$
1.53	0.49	$4.96 \cdot 10^{-2}$	0.44	$1.31 \cdot 10^{-2}$	0.86	$3.37 \cdot 10^{-2}$
1.55	0.55	$5.55 \cdot 10^{-2}$	0.5	$1.4 \cdot 10^{-2}$	0.98	$3.62 \cdot 10^{-2}$
1.58	0.62	$6.26 \cdot 10^{-2}$	0.56	$1.48 \cdot 10^{-2}$	0.87	$3.46 \cdot 10^{-2}$
1.6	0.66	$6.63 \cdot 10^{-2}$	0.6	$1.54 \cdot 10^{-2}$	0.68	$3.11 \cdot 10^{-2}$
1.63	0.68	$6.85 \cdot 10^{-2}$	0.64	$1.59 \cdot 10^{-2}$	0.63	$3 \cdot 10^{-2}$
1.65	0.73	$7.32 \cdot 10^{-2}$	0.71	$1.67 \cdot 10^{-2}$	0.58	$2.8 \cdot 10^{-2}$
1.68	0.76	$7.69 \cdot 10^{-2}$	0.81	$1.79 \cdot 10^{-2}$	0.5	$2.52 \cdot 10^{-2}$

TABLE 55 Continued.						
$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.8	$8.06 \cdot 10^{-2}$	0.89	$1.88 \cdot 10^{-2}$	0.49	$2.49 \cdot 10^{-2}$
1.73	0.83	$8.36 \cdot 10^{-2}$	0.96	$1.95 \cdot 10^{-2}$	0.4	$2.22 \cdot 10^{-2}$
1.75	0.86	$8.64 \cdot 10^{-2}$	0.98	$1.97 \cdot 10^{-2}$	0.33	$2.05 \cdot 10^{-2}$
1.78	0.9	$9.05 \cdot 10^{-2}$	1.04	$2.03 \cdot 10^{-2}$	0.26	$1.78 \cdot 10^{-2}$
1.8	0.9	$9.03 \cdot 10^{-2}$	1.04	$2.03 \cdot 10^{-2}$	0.2	$1.55 \cdot 10^{-2}$
1.83	0.93	$9.33 \cdot 10^{-2}$	1.06	$2.04 \cdot 10^{-2}$	0.15	$1.26 \cdot 10^{-2}$
1.85	0.95	$9.51 \cdot 10^{-2}$	1.09	$2.08 \cdot 10^{-2}$	0.13	$1.24 \cdot 10^{-2}$
1.88	0.94	$9.47 \cdot 10^{-2}$	1.13	$2.11 \cdot 10^{-2}$	0.11	$1.18 \cdot 10^{-2}$
1.9	0.94	$9.41 \cdot 10^{-2}$	1.11	$2.09 \cdot 10^{-2}$	0.1	$1.11 \cdot 10^{-2}$
1.93	0.98	$9.85 \cdot 10^{-2}$	1.11	$2.09 \cdot 10^{-2}$	$9.2 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
1.95	0.97	$9.79 \cdot 10^{-2}$	1.1	$2.09 \cdot 10^{-2}$	$8.29 \cdot 10^{-2}$	$9.89 \cdot 10^{-3}$
1.98	0.97	$9.73 \cdot 10^{-2}$	1.15	$2.13 \cdot 10^{-2}$	$7.13 \cdot 10^{-2}$	$9.38 \cdot 10^{-3}$
2	0.98	$9.88 \cdot 10^{-2}$	1.14	$2.13 \cdot 10^{-2}$	$5.02 \cdot 10^{-2}$	$7.75 \cdot 10^{-3}$
2.03	0.99	$9.99 \cdot 10^{-2}$	1.13	$2.11 \cdot 10^{-2}$	$3.43 \cdot 10^{-2}$	$6.55 \cdot 10^{-3}$
2.05	1.04	0.1	1.11	$2.1 \cdot 10^{-2}$	$3.59 \cdot 10^{-2}$	$6.72 \cdot 10^{-3}$
2.08	1.05	0.11	1.15	$2.13 \cdot 10^{-2}$	$2.46 \cdot 10^{-2}$	$5.9 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 56. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	$2.88 \cdot 10^{-4}$	$2.88 \cdot 10^{-4}$
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$1.36 \cdot 10^{-4}$	$1.37 \cdot 10^{-4}$	$5.66 \cdot 10^{-4}$	$4 \cdot 10^{-4}$	0	0
1.33	$1.36 \cdot 10^{-4}$	$1.37 \cdot 10^{-4}$	0	0	0	0
1.35	0	0	$2.83 \cdot 10^{-4}$	$2.83 \cdot 10^{-4}$	0	0
1.38	$1.36 \cdot 10^{-4}$	$1.37 \cdot 10^{-4}$	0	0	0	0
1.4	$4.08 \cdot 10^{-4}$	$2.39 \cdot 10^{-4}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$5.43 \cdot 10^{-4}$	$2.77 \cdot 10^{-4}$	0	0	0	0
1.48	$1.09 \cdot 10^{-3}$	$3.99 \cdot 10^{-4}$	0	0	0	0
1.5	$8.15 \cdot 10^{-4}$	$3.43 \cdot 10^{-4}$	$2.83 \cdot 10^{-4}$	$2.83 \cdot 10^{-4}$	0	0
1.53	$4.75 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	$5.66 \cdot 10^{-4}$	$4 \cdot 10^{-4}$	$1.44 \cdot 10^{-3}$	$6.44 \cdot 10^{-4}$
1.55	$1.02 \cdot 10^{-2}$	$1.55 \cdot 10^{-3}$	$3.39 \cdot 10^{-3}$	$9.8 \cdot 10^{-4}$	$1.53 \cdot 10^{-2}$	$2.68 \cdot 10^{-3}$
1.58	$2.84 \cdot 10^{-2}$	$3.44 \cdot 10^{-3}$	$1.72 \cdot 10^{-2}$	$2.21 \cdot 10^{-3}$	$3.98 \cdot 10^{-2}$	$4.13 \cdot 10^{-3}$
1.6	$5.41 \cdot 10^{-2}$	$6.03 \cdot 10^{-3}$	$3.53 \cdot 10^{-2}$	$3.16 \cdot 10^{-3}$	0.1	$6.77 \cdot 10^{-3}$
1.63	0.1	$1.1 \cdot 10^{-2}$	$6.56 \cdot 10^{-2}$	$4.31 \cdot 10^{-3}$	0.17	$9.36 \cdot 10^{-3}$
1.65	0.17	$1.79 \cdot 10^{-2}$	0.11	$5.66 \cdot 10^{-3}$	0.29	$1.28 \cdot 10^{-2}$
1.68	0.24	$2.45 \cdot 10^{-2}$	0.17	$6.93 \cdot 10^{-3}$	0.43	$1.65 \cdot 10^{-2}$

TABLE 56 Continued.						
$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.31	$3.15 \cdot 10^{-2}$	0.2	$7.55 \cdot 10^{-3}$	0.53	$1.88 \cdot 10^{-2}$
1.73	0.36	$3.67 \cdot 10^{-2}$	0.23	$8.14 \cdot 10^{-3}$	0.6	$2.03 \cdot 10^{-2}$
1.75	0.4	$4.07 \cdot 10^{-2}$	0.28	$8.82 \cdot 10^{-3}$	0.52	$1.88 \cdot 10^{-2}$
1.78	0.45	$4.56 \cdot 10^{-2}$	0.3	$9.18 \cdot 10^{-3}$	0.48	$1.79 \cdot 10^{-2}$
1.8	0.47	$4.72 \cdot 10^{-2}$	0.34	$9.82 \cdot 10^{-3}$	0.5	$1.84 \cdot 10^{-2}$
1.83	0.5	$5.05 \cdot 10^{-2}$	0.35	$9.99 \cdot 10^{-3}$	0.46	$1.77 \cdot 10^{-2}$
1.85	0.54	$5.41 \cdot 10^{-2}$	0.42	$1.09 \cdot 10^{-2}$	0.47	$1.79 \cdot 10^{-2}$
1.88	0.56	$5.64 \cdot 10^{-2}$	0.45	$1.13 \cdot 10^{-2}$	0.43	$1.72 \cdot 10^{-2}$
1.9	0.59	$5.96 \cdot 10^{-2}$	0.5	$1.19 \cdot 10^{-2}$	0.4	$1.65 \cdot 10^{-2}$
1.93	0.62	$6.28 \cdot 10^{-2}$	0.54	$1.23 \cdot 10^{-2}$	0.35	$1.56 \cdot 10^{-2}$
1.95	0.65	$6.49 \cdot 10^{-2}$	0.56	$1.26 \cdot 10^{-2}$	0.3	$1.44 \cdot 10^{-2}$
1.98	0.65	$6.55 \cdot 10^{-2}$	0.58	$1.29 \cdot 10^{-2}$	0.24	$1.26 \cdot 10^{-2}$
2	0.67	$6.72 \cdot 10^{-2}$	0.63	$1.34 \cdot 10^{-2}$	0.21	$1.17 \cdot 10^{-2}$
2.03	0.67	$6.75 \cdot 10^{-2}$	0.62	$1.33 \cdot 10^{-2}$	0.18	$1.02 \cdot 10^{-2}$
2.05	0.65	$6.55 \cdot 10^{-2}$	0.65	$1.36 \cdot 10^{-2}$	0.15	$9.35 \cdot 10^{-3}$
2.08	0.68	$6.83 \cdot 10^{-2}$	0.66	$1.36 \cdot 10^{-2}$	0.16	$9.37 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 57. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	$3.96 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	0	0
1.65	$1.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 57 Continued.						
$d(e, e' \pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$1.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	0	0	0	0
1.78	$1.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	0	0	0	0
1.8	0	0	0	0	0	0
1.83	$1.9 \cdot 10^{-4}$	$1.91 \cdot 10^{-4}$	0	0	$8.48 \cdot 10^{-4}$	$6 \cdot 10^{-4}$
1.85	$1.33 \cdot 10^{-3}$	$5.2 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$4.17 \cdot 10^{-4}$	$4.17 \cdot 10^{-4}$
1.88	$4.18 \cdot 10^{-3}$	$9.84 \cdot 10^{-4}$	$2.77 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	$1.38 \cdot 10^{-2}$	$2.48 \cdot 10^{-3}$
1.9	$1.71 \cdot 10^{-2}$	$2.48 \cdot 10^{-3}$	$9.9 \cdot 10^{-3}$	$1.98 \cdot 10^{-3}$	$3.66 \cdot 10^{-2}$	$4.1 \cdot 10^{-3}$
1.93	$4.24 \cdot 10^{-2}$	$5.09 \cdot 10^{-3}$	$1.82 \cdot 10^{-2}$	$2.69 \cdot 10^{-3}$	$9.39 \cdot 10^{-2}$	$6.76 \cdot 10^{-3}$
1.95	$6.79 \cdot 10^{-2}$	$7.65 \cdot 10^{-3}$	$3.72 \cdot 10^{-2}$	$3.84 \cdot 10^{-3}$	0.16	$8.71 \cdot 10^{-3}$
1.98	0.13	$1.43 \cdot 10^{-2}$	$5.54 \cdot 10^{-2}$	$4.68 \cdot 10^{-3}$	0.22	$1.04 \cdot 10^{-2}$
2	0.17	$1.81 \cdot 10^{-2}$	$7.32 \cdot 10^{-2}$	$5.38 \cdot 10^{-3}$	0.23	$1.06 \cdot 10^{-2}$
2.03	0.19	$2.03 \cdot 10^{-2}$	$9.54 \cdot 10^{-2}$	$6.15 \cdot 10^{-3}$	0.28	$1.19 \cdot 10^{-2}$
2.05	0.22	$2.33 \cdot 10^{-2}$	0.11	$6.57 \cdot 10^{-3}$	0.25	$1.1 \cdot 10^{-2}$
2.08	0.24	$2.44 \cdot 10^{-2}$	0.12	$6.81 \cdot 10^{-3}$	0.25	$1.13 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 58. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.92 \cdot 10^{-4}$	$5.66 \cdot 10^{-4}$	0	0	0	0
1.15	$1.58 \cdot 10^{-3}$	$8.08 \cdot 10^{-4}$	0	0	0	0
1.18	$4.36 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	0	0	0	0
1.2	$5.94 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	0	0	0	0
1.23	$1.62 \cdot 10^{-2}$	$3.01 \cdot 10^{-3}$	0	0	$2.47 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$
1.25	$2.69 \cdot 10^{-2}$	$4.23 \cdot 10^{-3}$	$2.47 \cdot 10^{-3}$	$1.43 \cdot 10^{-3}$	$3.66 \cdot 10^{-3}$	$2.85 \cdot 10^{-3}$
1.28	$6.38 \cdot 10^{-2}$	$8.1 \cdot 10^{-3}$	$9.9 \cdot 10^{-3}$	$2.86 \cdot 10^{-3}$	$1.45 \cdot 10^{-2}$	$5.33 \cdot 10^{-3}$
1.3	0.13	$1.51 \cdot 10^{-2}$	$4.21 \cdot 10^{-2}$	$5.89 \cdot 10^{-3}$	0.13	$1.65 \cdot 10^{-2}$
1.33	0.27	$2.85 \cdot 10^{-2}$	0.12	$1 \cdot 10^{-2}$	0.4	$3.01 \cdot 10^{-2}$
1.35	0.47	$4.88 \cdot 10^{-2}$	0.26	$1.48 \cdot 10^{-2}$	0.68	$4.08 \cdot 10^{-2}$
1.38	0.67	$6.9 \cdot 10^{-2}$	0.44	$1.91 \cdot 10^{-2}$	0.84	$4.92 \cdot 10^{-2}$
1.4	0.95	$9.61 \cdot 10^{-2}$	0.61	$2.24 \cdot 10^{-2}$	1.06	$5.55 \cdot 10^{-2}$
1.43	1.11	0.11	0.84	$2.64 \cdot 10^{-2}$	1.05	$5.67 \cdot 10^{-2}$
1.45	1.27	0.13	0.97	$2.82 \cdot 10^{-2}$	1.08	$5.81 \cdot 10^{-2}$
1.48	1.31	0.13	1.16	$3.1 \cdot 10^{-2}$	1.13	$6.1 \cdot 10^{-2}$
1.5	1.33	0.13	1.35	$3.33 \cdot 10^{-2}$	1.24	$6.44 \cdot 10^{-2}$
1.53	1.35	0.14	1.55	$3.58 \cdot 10^{-2}$	1.3	$6.64 \cdot 10^{-2}$
1.55	1.43	0.14	1.85	$3.91 \cdot 10^{-2}$	1.1	$5.79 \cdot 10^{-2}$
1.58	1.45	0.15	2.14	$4.2 \cdot 10^{-2}$	0.9	$5.49 \cdot 10^{-2}$
1.6	1.6	0.16	2.41	$4.46 \cdot 10^{-2}$	0.62	$4.54 \cdot 10^{-2}$
1.63	1.81	0.18	2.7	$4.72 \cdot 10^{-2}$	0.53	$4.2 \cdot 10^{-2}$
1.65	1.95	0.2	2.98	$4.96 \cdot 10^{-2}$	0.41	$3.58 \cdot 10^{-2}$
1.68	2.12	0.21	3.33	$5.24 \cdot 10^{-2}$	0.41	$3.55 \cdot 10^{-2}$

TABLE 58 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.25	0.23	3.29	$5.21 \cdot 10^{-2}$	0.39	$3.3 \cdot 10^{-2}$
1.73	2.27	0.23	3.19	$5.13 \cdot 10^{-2}$	0.37	$3.21 \cdot 10^{-2}$
1.75	2.36	0.24	3.23	$5.16 \cdot 10^{-2}$	0.27	$2.93 \cdot 10^{-2}$
1.78	2.38	0.24	2.95	$4.93 \cdot 10^{-2}$	0.18	$2.44 \cdot 10^{-2}$
1.8	2.43	0.24	2.97	$4.95 \cdot 10^{-2}$	0.15	$2.15 \cdot 10^{-2}$
1.83	2.45	0.25	2.99	$4.97 \cdot 10^{-2}$	0.1	$1.85 \cdot 10^{-2}$
1.85	2.53	0.25	3.12	$5.07 \cdot 10^{-2}$	$8.85 \cdot 10^{-2}$	$1.72 \cdot 10^{-2}$
1.88	2.57	0.26	3.16	$5.11 \cdot 10^{-2}$	$7.11 \cdot 10^{-2}$	$1.59 \cdot 10^{-2}$
1.9	2.66	0.27	3.21	$5.15 \cdot 10^{-2}$	$4.72 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$
1.93	2.74	0.27	3.26	$5.18 \cdot 10^{-2}$	$3.4 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
1.95	2.85	0.29	3.28	$5.2 \cdot 10^{-2}$	$3.28 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
1.98	2.89	0.29	3.32	$5.24 \cdot 10^{-2}$	$3.53 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
2	2.97	0.3	3.45	$5.33 \cdot 10^{-2}$	$2.55 \cdot 10^{-2}$	$9.68 \cdot 10^{-3}$
2.03	3.08	0.31	3.46	$5.34 \cdot 10^{-2}$	$2.02 \cdot 10^{-2}$	$8.63 \cdot 10^{-3}$
2.05	3.21	0.32	3.41	$5.3 \cdot 10^{-2}$	$2.05 \cdot 10^{-2}$	$9.55 \cdot 10^{-3}$
2.08	3.21	0.32	3.53	$5.39 \cdot 10^{-2}$	$1.74 \cdot 10^{-2}$	$8.3 \cdot 10^{-3}$
2.1	3.35	0.34	3.45	$5.33 \cdot 10^{-2}$	$1.88 \cdot 10^{-2}$	$8.46 \cdot 10^{-3}$
2.13	3.45	0.35	3.5	$5.38 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$4.89 \cdot 10^{-3}$
2.15	3.37	0.34	3.48	$5.36 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$	$6.83 \cdot 10^{-3}$
2.18	3.44	0.34	3.52	$5.39 \cdot 10^{-2}$	$8.54 \cdot 10^{-3}$	$5.62 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 59. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.38 \cdot 10^{-4}$	$2.39 \cdot 10^{-4}$	0	0	0	0
1.15	$4.75 \cdot 10^{-4}$	$3.4 \cdot 10^{-4}$	0	0	0	0
1.18	$7.13 \cdot 10^{-4}$	$4.18 \cdot 10^{-4}$	0	0	0	0
1.2	$2.38 \cdot 10^{-4}$	$2.39 \cdot 10^{-4}$	0	0	0	0
1.23	$9.51 \cdot 10^{-4}$	$4.85 \cdot 10^{-4}$	0	0	0	0
1.25	$2.14 \cdot 10^{-3}$	$7.44 \cdot 10^{-4}$	0	0	0	0
1.28	$1.9 \cdot 10^{-3}$	$6.99 \cdot 10^{-4}$	0	0	0	0
1.3	$2.14 \cdot 10^{-3}$	$7.44 \cdot 10^{-4}$	0	0	0	0
1.33	$2.38 \cdot 10^{-3}$	$7.88 \cdot 10^{-4}$	0	0	0	0
1.35	$5.23 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	0	0	$5.1 \cdot 10^{-4}$	$5.1 \cdot 10^{-4}$
1.38	$1.4 \cdot 10^{-2}$	$2.3 \cdot 10^{-3}$	$9.9 \cdot 10^{-4}$	$7 \cdot 10^{-4}$	$2.07 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$
1.4	$3.59 \cdot 10^{-2}$	$4.62 \cdot 10^{-3}$	$9.4 \cdot 10^{-3}$	$2.16 \cdot 10^{-3}$	$2.61 \cdot 10^{-2}$	$5.09 \cdot 10^{-3}$
1.43	$9.44 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	$4.95 \cdot 10^{-2}$	$4.95 \cdot 10^{-3}$	$9.95 \cdot 10^{-2}$	$9.67 \cdot 10^{-3}$
1.45	0.21	$2.23 \cdot 10^{-2}$	0.13	$7.9 \cdot 10^{-3}$	0.26	$1.69 \cdot 10^{-2}$
1.48	0.41	$4.15 \cdot 10^{-2}$	0.31	$1.24 \cdot 10^{-2}$	0.55	$2.64 \cdot 10^{-2}$
1.5	0.61	$6.2 \cdot 10^{-2}$	0.51	$1.59 \cdot 10^{-2}$	1.09	$3.75 \cdot 10^{-2}$
1.53	0.78	$7.9 \cdot 10^{-2}$	0.69	$1.85 \cdot 10^{-2}$	1.61	$4.77 \cdot 10^{-2}$
1.55	1	0.1	0.81	$2.01 \cdot 10^{-2}$	1.86	$5.42 \cdot 10^{-2}$
1.58	1.17	0.12	0.87	$2.08 \cdot 10^{-2}$	1.94	$5.63 \cdot 10^{-2}$
1.6	1.38	0.14	1.03	$2.26 \cdot 10^{-2}$	1.9	$5.62 \cdot 10^{-2}$
1.63	1.57	0.16	1.2	$2.44 \cdot 10^{-2}$	2	$5.83 \cdot 10^{-2}$
1.65	1.79	0.18	1.43	$2.66 \cdot 10^{-2}$	2.22	$6.25 \cdot 10^{-2}$
1.68	1.97	0.2	1.65	$2.86 \cdot 10^{-2}$	2.34	$6.44 \cdot 10^{-2}$

TABLE 59 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.06	0.21	1.9	$3.07 \cdot 10^{-2}$	2.13	$6.1 \cdot 10^{-2}$
1.73	2.05	0.21	2.02	$3.16 \cdot 10^{-2}$	1.58	$5.21 \cdot 10^{-2}$
1.75	2.08	0.21	2.17	$3.28 \cdot 10^{-2}$	1.12	$4.35 \cdot 10^{-2}$
1.78	2.11	0.21	2.22	$3.31 \cdot 10^{-2}$	0.81	$3.65 \cdot 10^{-2}$
1.8	2.19	0.22	2.35	$3.41 \cdot 10^{-2}$	0.61	$3.18 \cdot 10^{-2}$
1.83	2.24	0.22	2.5	$3.52 \cdot 10^{-2}$	0.46	$2.72 \cdot 10^{-2}$
1.85	2.3	0.23	2.53	$3.54 \cdot 10^{-2}$	0.39	$2.5 \cdot 10^{-2}$
1.88	2.39	0.24	2.55	$3.55 \cdot 10^{-2}$	0.35	$2.31 \cdot 10^{-2}$
1.9	2.4	0.24	2.71	$3.66 \cdot 10^{-2}$	0.26	$1.97 \cdot 10^{-2}$
1.93	2.46	0.25	2.67	$3.64 \cdot 10^{-2}$	0.22	$1.82 \cdot 10^{-2}$
1.95	2.41	0.24	2.64	$3.62 \cdot 10^{-2}$	0.21	$1.8 \cdot 10^{-2}$
1.98	2.4	0.24	2.61	$3.59 \cdot 10^{-2}$	0.17	$1.64 \cdot 10^{-2}$
2	2.46	0.25	2.59	$3.58 \cdot 10^{-2}$	0.16	$1.57 \cdot 10^{-2}$
2.03	2.42	0.24	2.64	$3.62 \cdot 10^{-2}$	0.11	$1.33 \cdot 10^{-2}$
2.05	2.46	0.25	2.63	$3.6 \cdot 10^{-2}$	$9.65 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$
2.08	2.51	0.25	2.56	$3.56 \cdot 10^{-2}$	$5.92 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$
2.1	2.57	0.26	2.57	$3.57 \cdot 10^{-2}$	$4.22 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$
2.13	2.62	0.26	2.54	$3.54 \cdot 10^{-2}$	$4.67 \cdot 10^{-2}$	$9.31 \cdot 10^{-3}$
2.15	2.64	0.26	2.57	$3.56 \cdot 10^{-2}$	$3.56 \cdot 10^{-2}$	$8.07 \cdot 10^{-3}$
2.18	2.67	0.27	2.42	$3.46 \cdot 10^{-2}$	$2.84 \cdot 10^{-2}$	$6.94 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 60. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$3.4 \cdot 10^{-4}$	$2.43 \cdot 10^{-4}$	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$1.7 \cdot 10^{-4}$	$1.71 \cdot 10^{-4}$	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	$3.4 \cdot 10^{-4}$	$2.43 \cdot 10^{-4}$	0	0	0	0
1.4	$5.09 \cdot 10^{-4}$	$2.98 \cdot 10^{-4}$	0	0	0	0
1.43	$3.4 \cdot 10^{-4}$	$2.43 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	0	0
1.45	$1.7 \cdot 10^{-4}$	$1.71 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	0	0
1.48	$3.4 \cdot 10^{-4}$	$2.43 \cdot 10^{-4}$	0	0	0	0
1.5	$3.4 \cdot 10^{-4}$	$2.43 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.54 \cdot 10^{-4}$	$3.54 \cdot 10^{-4}$
1.53	$3.4 \cdot 10^{-4}$	$2.43 \cdot 10^{-4}$	0	0	0	0
1.55	$1.7 \cdot 10^{-4}$	$1.71 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$
1.58	$1.87 \cdot 10^{-3}$	$5.93 \cdot 10^{-4}$	0	0	0	0
1.6	$3.06 \cdot 10^{-3}$	$7.82 \cdot 10^{-4}$	0	0	$7.09 \cdot 10^{-4}$	$7.09 \cdot 10^{-4}$
1.63	$9.68 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	$2.47 \cdot 10^{-3}$	$9.35 \cdot 10^{-4}$	$1.02 \cdot 10^{-2}$	$2.12 \cdot 10^{-3}$
1.65	$4.6 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$	$1.98 \cdot 10^{-2}$	$2.65 \cdot 10^{-3}$	$6.67 \cdot 10^{-2}$	$5.72 \cdot 10^{-3}$
1.68	0.13	$1.35 \cdot 10^{-2}$	$6.96 \cdot 10^{-2}$	$4.96 \cdot 10^{-3}$	0.26	$1.12 \cdot 10^{-2}$

TABLE 60 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.26	$2.68 \cdot 10^{-2}$	0.15	$7.21 \cdot 10^{-3}$	0.6	$1.93 \cdot 10^{-2}$
1.73	0.45	$4.57 \cdot 10^{-2}$	0.25	$9.34 \cdot 10^{-3}$	0.96	$2.64 \cdot 10^{-2}$
1.75	0.58	$5.83 \cdot 10^{-2}$	0.35	$1.11 \cdot 10^{-2}$	1.1	$2.95 \cdot 10^{-2}$
1.78	0.71	$7.11 \cdot 10^{-2}$	0.41	$1.2 \cdot 10^{-2}$	1.19	$3.11 \cdot 10^{-2}$
1.8	0.8	$8.02 \cdot 10^{-2}$	0.47	$1.3 \cdot 10^{-2}$	1.18	$3.13 \cdot 10^{-2}$
1.83	0.89	$8.91 \cdot 10^{-2}$	0.53	$1.37 \cdot 10^{-2}$	1.25	$3.23 \cdot 10^{-2}$
1.85	0.98	$9.8 \cdot 10^{-2}$	0.63	$1.49 \cdot 10^{-2}$	1.19	$3.16 \cdot 10^{-2}$
1.88	1.06	0.11	0.69	$1.56 \cdot 10^{-2}$	1.2	$3.22 \cdot 10^{-2}$
1.9	1.16	0.12	0.78	$1.66 \cdot 10^{-2}$	1.15	$3.14 \cdot 10^{-2}$
1.93	1.28	0.13	0.91	$1.8 \cdot 10^{-2}$	1.11	$3.08 \cdot 10^{-2}$
1.95	1.44	0.14	0.96	$1.85 \cdot 10^{-2}$	1.01	$2.92 \cdot 10^{-2}$
1.98	1.58	0.16	1.09	$1.96 \cdot 10^{-2}$	0.99	$2.92 \cdot 10^{-2}$
2	1.65	0.17	1.17	$2.04 \cdot 10^{-2}$	0.84	$2.69 \cdot 10^{-2}$
2.03	1.69	0.17	1.24	$2.1 \cdot 10^{-2}$	0.73	$2.53 \cdot 10^{-2}$
2.05	1.74	0.17	1.29	$2.13 \cdot 10^{-2}$	0.57	$2.23 \cdot 10^{-2}$
2.08	1.72	0.17	1.34	$2.18 \cdot 10^{-2}$	0.45	$1.92 \cdot 10^{-2}$
2.1	1.67	0.17	1.43	$2.25 \cdot 10^{-2}$	0.36	$1.64 \cdot 10^{-2}$
2.13	1.69	0.17	1.44	$2.25 \cdot 10^{-2}$	0.31	$1.46 \cdot 10^{-2}$
2.15	1.66	0.17	1.47	$2.28 \cdot 10^{-2}$	0.29	$1.45 \cdot 10^{-2}$
2.18	1.66	0.17	1.48	$2.29 \cdot 10^{-2}$	0.24	$1.26 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 61. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 61 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$2.38 \cdot 10^{-4}$	$2.39 \cdot 10^{-4}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	$4.75 \cdot 10^{-4}$	$3.4 \cdot 10^{-4}$	0	0	0	0
1.83	$2.38 \cdot 10^{-4}$	$2.39 \cdot 10^{-4}$	0	0	0	0
1.85	$4.75 \cdot 10^{-4}$	$3.4 \cdot 10^{-4}$	0	0	0	0
1.88	$2.38 \cdot 10^{-4}$	$2.39 \cdot 10^{-4}$	0	0	0	0
1.9	0	0	0	0	0	0
1.93	$4.75 \cdot 10^{-4}$	$3.4 \cdot 10^{-4}$	0	0	$4.93 \cdot 10^{-4}$	$4.93 \cdot 10^{-4}$
1.95	$3.09 \cdot 10^{-3}$	$9.11 \cdot 10^{-4}$	0	0	$3.63 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$
1.98	$2.04 \cdot 10^{-2}$	$3 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$	$8.57 \cdot 10^{-4}$	$3.62 \cdot 10^{-2}$	$4.68 \cdot 10^{-3}$
2	$7.13 \cdot 10^{-2}$	$8.21 \cdot 10^{-3}$	$2.33 \cdot 10^{-2}$	$3.39 \cdot 10^{-3}$	0.14	$9.32 \cdot 10^{-3}$
2.03	0.17	$1.81 \cdot 10^{-2}$	$6.04 \cdot 10^{-2}$	$5.47 \cdot 10^{-3}$	0.29	$1.34 \cdot 10^{-2}$
2.05	0.28	$2.92 \cdot 10^{-2}$	$9.35 \cdot 10^{-2}$	$6.8 \cdot 10^{-3}$	0.49	$1.72 \cdot 10^{-2}$
2.08	0.39	$4.05 \cdot 10^{-2}$	0.14	$8.3 \cdot 10^{-3}$	0.61	$1.96 \cdot 10^{-2}$
2.1	0.48	$4.85 \cdot 10^{-2}$	0.16	$8.95 \cdot 10^{-3}$	0.64	$1.98 \cdot 10^{-2}$
2.13	0.54	$5.47 \cdot 10^{-2}$	0.2	$9.84 \cdot 10^{-3}$	0.65	$1.98 \cdot 10^{-2}$
2.15	0.59	$5.97 \cdot 10^{-2}$	0.21	$1.02 \cdot 10^{-2}$	0.59	$1.87 \cdot 10^{-2}$
2.18	0.6	$6.13 \cdot 10^{-2}$	0.26	$1.13 \cdot 10^{-2}$	0.55	$1.84 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 62. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.28 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.15	$7.92 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$	0	0	0	0
1.18	$1.16 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$	0	0	0	0
1.2	$6.34 \cdot 10^{-3}$	$1.94 \cdot 10^{-3}$	0	0	0	0
1.23	$1.32 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$	0	0	0	0
1.25	$1.74 \cdot 10^{-2}$	$3.5 \cdot 10^{-3}$	0	0	0	0
1.28	$2.91 \cdot 10^{-2}$	$4.87 \cdot 10^{-3}$	0	0	$1.2 \cdot 10^{-3}$	$1.2 \cdot 10^{-3}$
1.3	$3.7 \cdot 10^{-2}$	$5.75 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$3.33 \cdot 10^{-3}$	$2.67 \cdot 10^{-3}$
1.33	0.13	$1.57 \cdot 10^{-2}$	$3.08 \cdot 10^{-2}$	$5.82 \cdot 10^{-3}$	$7.31 \cdot 10^{-2}$	$1.35 \cdot 10^{-2}$
1.35	0.34	$3.63 \cdot 10^{-2}$	0.14	$1.23 \cdot 10^{-2}$	0.33	$2.87 \cdot 10^{-2}$
1.38	0.77	$7.91 \cdot 10^{-2}$	0.34	$1.94 \cdot 10^{-2}$	0.96	$5.47 \cdot 10^{-2}$
1.4	1.4	0.14	0.77	$2.91 \cdot 10^{-2}$	1.57	$7.74 \cdot 10^{-2}$
1.43	1.97	0.2	1.09	$3.46 \cdot 10^{-2}$	2.15	$9.35 \cdot 10^{-2}$
1.45	2.65	0.27	1.75	$4.38 \cdot 10^{-2}$	2.67	0.11
1.48	3.3	0.33	2.29	$5.01 \cdot 10^{-2}$	3.49	0.13
1.5	3.5	0.35	2.78	$5.53 \cdot 10^{-2}$	4.15	0.14
1.53	3.48	0.35	3.2	$5.93 \cdot 10^{-2}$	3.68	0.13
1.55	3.23	0.32	3.43	$6.14 \cdot 10^{-2}$	2.86	0.12
1.58	3.14	0.31	3.64	$6.33 \cdot 10^{-2}$	1.92	$9.57 \cdot 10^{-2}$
1.6	3.24	0.33	4.25	$6.84 \cdot 10^{-2}$	1.4	$8.07 \cdot 10^{-2}$
1.63	3.51	0.35	4.86	$7.31 \cdot 10^{-2}$	1.12	$7.3 \cdot 10^{-2}$
1.65	4.02	0.4	5.61	$7.86 \cdot 10^{-2}$	1.06	$6.96 \cdot 10^{-2}$
1.68	4.44	0.45	6.04	$8.15 \cdot 10^{-2}$	0.92	$6.29 \cdot 10^{-2}$

TABLE 62 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.81	0.48	6.52	$8.46 \cdot 10^{-2}$	0.81	$5.66 \cdot 10^{-2}$
1.73	5.04	0.5	6.49	$8.45 \cdot 10^{-2}$	0.76	$5.54 \cdot 10^{-2}$
1.75	5.1	0.51	6.2	$8.25 \cdot 10^{-2}$	0.55	$4.65 \cdot 10^{-2}$
1.78	5.06	0.51	6.09	$8.18 \cdot 10^{-2}$	0.43	$4.39 \cdot 10^{-2}$
1.8	4.96	0.5	6.09	$8.18 \cdot 10^{-2}$	0.35	$3.85 \cdot 10^{-2}$
1.83	4.9	0.49	6.02	$8.14 \cdot 10^{-2}$	0.24	$3.39 \cdot 10^{-2}$
1.85	4.91	0.49	6.19	$8.25 \cdot 10^{-2}$	0.18	$2.98 \cdot 10^{-2}$
1.88	5	0.5	6.31	$8.33 \cdot 10^{-2}$	0.13	$2.59 \cdot 10^{-2}$
1.9	5.05	0.51	6.23	$8.28 \cdot 10^{-2}$	$9.46 \cdot 10^{-2}$	$2.3 \cdot 10^{-2}$
1.93	5.23	0.52	6.35	$8.35 \cdot 10^{-2}$	$9.28 \cdot 10^{-2}$	$2.23 \cdot 10^{-2}$
1.95	5.38	0.54	6.45	$8.42 \cdot 10^{-2}$	$8.25 \cdot 10^{-2}$	$2.11 \cdot 10^{-2}$
1.98	5.47	0.55	6.45	$8.42 \cdot 10^{-2}$	$6.56 \cdot 10^{-2}$	$1.94 \cdot 10^{-2}$
2	5.59	0.56	6.59	$8.52 \cdot 10^{-2}$	$6.03 \cdot 10^{-2}$	$1.76 \cdot 10^{-2}$
2.03	5.76	0.58	6.57	$8.5 \cdot 10^{-2}$	$5.58 \cdot 10^{-2}$	$1.67 \cdot 10^{-2}$
2.05	5.91	0.59	6.41	$8.4 \cdot 10^{-2}$	$4.23 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.08	6.1	0.61	6.69	$8.58 \cdot 10^{-2}$	$4.82 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$
2.1	6.06	0.61	6.71	$8.59 \cdot 10^{-2}$	$3.08 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
2.13	6.41	0.64	6.52	$8.47 \cdot 10^{-2}$	$2.72 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$
2.15	6.38	0.64	6.64	$8.55 \cdot 10^{-2}$	$1.95 \cdot 10^{-2}$	$9.53 \cdot 10^{-3}$
2.18	6.55	0.65	6.6	$8.52 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$	$7.67 \cdot 10^{-3}$
2.2	6.63	0.66	6.54	$8.48 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$	$8.16 \cdot 10^{-3}$
2.23	6.76	0.68	6.52	$8.47 \cdot 10^{-2}$	$2.18 \cdot 10^{-2}$	$9.39 \cdot 10^{-3}$
2.25	6.91	0.69	6.56	$8.49 \cdot 10^{-2}$	$1.58 \cdot 10^{-2}$	$8.2 \cdot 10^{-3}$
2.28	6.94	0.69	6.65	$8.55 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	$7.64 \cdot 10^{-3}$

TABLE 63. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$6.34 \cdot 10^{-4}$	$4.53 \cdot 10^{-4}$	0	0	0	0
1.15	$3.17 \cdot 10^{-4}$	$3.19 \cdot 10^{-4}$	0	0	0	0
1.18	$9.51 \cdot 10^{-4}$	$5.57 \cdot 10^{-4}$	0	0	0	0
1.2	$3.17 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	0	0	0	0
1.23	$2.54 \cdot 10^{-3}$	$9.31 \cdot 10^{-4}$	0	0	0	0
1.25	$4.75 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	0	0	0	0
1.28	$3.8 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$	0	0	0	0
1.3	$4.12 \cdot 10^{-3}$	$1.21 \cdot 10^{-3}$	0	0	0	0
1.33	$2.85 \cdot 10^{-3}$	$9.92 \cdot 10^{-4}$	0	0	0	0
1.35	$5.71 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	0	0	$1.27 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$
1.38	$2.85 \cdot 10^{-3}$	$9.92 \cdot 10^{-4}$	0	0	0	0
1.4	$3.8 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$	0	0	0	0
1.43	$8.56 \cdot 10^{-3}$	$1.85 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$
1.45	$3.65 \cdot 10^{-2}$	$4.97 \cdot 10^{-3}$	$1.06 \cdot 10^{-2}$	$2.64 \cdot 10^{-3}$	$2.06 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$
1.48	0.15	$1.64 \cdot 10^{-2}$	$7.26 \cdot 10^{-2}$	$6.92 \cdot 10^{-3}$	0.18	$1.47 \cdot 10^{-2}$
1.5	0.4	$4.18 \cdot 10^{-2}$	0.29	$1.38 \cdot 10^{-2}$	0.76	$3.39 \cdot 10^{-2}$
1.53	0.88	$8.88 \cdot 10^{-2}$	0.62	$2.02 \cdot 10^{-2}$	1.8	$5.38 \cdot 10^{-2}$
1.55	1.38	0.14	0.97	$2.53 \cdot 10^{-2}$	2.68	$6.91 \cdot 10^{-2}$
1.58	1.86	0.19	1.18	$2.79 \cdot 10^{-2}$	3.03	$7.6 \cdot 10^{-2}$
1.6	2.32	0.23	1.41	$3.05 \cdot 10^{-2}$	3.3	$8.28 \cdot 10^{-2}$
1.63	2.8	0.28	1.56	$3.21 \cdot 10^{-2}$	3.71	$9.07 \cdot 10^{-2}$
1.65	3.31	0.33	1.92	$3.56 \cdot 10^{-2}$	4.34	$9.97 \cdot 10^{-2}$
1.68	3.73	0.37	2.44	$4.01 \cdot 10^{-2}$	5.1	0.11

TABLE 63 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.15	0.41	2.9	$4.38 \cdot 10^{-2}$	5.75	0.12
1.73	4.59	0.46	3.36	$4.71 \cdot 10^{-2}$	5.24	0.11
1.75	4.58	0.46	3.7	$4.94 \cdot 10^{-2}$	4.18	0.1
1.78	4.5	0.45	3.79	$5 \cdot 10^{-2}$	2.93	$8.43 \cdot 10^{-2}$
1.8	4.45	0.44	4.09	$5.19 \cdot 10^{-2}$	1.93	$6.75 \cdot 10^{-2}$
1.83	4.38	0.44	4.31	$5.33 \cdot 10^{-2}$	1.34	$5.65 \cdot 10^{-2}$
1.85	4.55	0.45	4.65	$5.54 \cdot 10^{-2}$	1.06	$4.94 \cdot 10^{-2}$
1.88	4.71	0.47	4.76	$5.61 \cdot 10^{-2}$	0.82	$4.31 \cdot 10^{-2}$
1.9	4.84	0.48	4.89	$5.68 \cdot 10^{-2}$	0.69	$3.88 \cdot 10^{-2}$
1.93	4.95	0.49	4.94	$5.71 \cdot 10^{-2}$	0.6	$3.59 \cdot 10^{-2}$
1.95	5.01	0.5	5.06	$5.78 \cdot 10^{-2}$	0.48	$3.13 \cdot 10^{-2}$
1.98	4.99	0.5	4.99	$5.74 \cdot 10^{-2}$	0.44	$3.02 \cdot 10^{-2}$
2	4.87	0.49	5.01	$5.75 \cdot 10^{-2}$	0.39	$2.94 \cdot 10^{-2}$
2.03	4.83	0.48	4.91	$5.69 \cdot 10^{-2}$	0.31	$2.64 \cdot 10^{-2}$
2.05	4.73	0.47	5.01	$5.75 \cdot 10^{-2}$	0.24	$2.33 \cdot 10^{-2}$
2.08	4.81	0.48	4.87	$5.67 \cdot 10^{-2}$	0.18	$2.06 \cdot 10^{-2}$
2.1	4.82	0.48	4.8	$5.63 \cdot 10^{-2}$	0.1	$1.59 \cdot 10^{-2}$
2.13	4.93	0.49	4.77	$5.61 \cdot 10^{-2}$	$9.48 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.15	4.98	0.5	4.63	$5.53 \cdot 10^{-2}$	$8.96 \cdot 10^{-2}$	$1.45 \cdot 10^{-2}$
2.18	5.04	0.5	4.71	$5.57 \cdot 10^{-2}$	$8.14 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$
2.2	5.25	0.52	4.76	$5.6 \cdot 10^{-2}$	$6.16 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
2.23	5.3	0.53	4.6	$5.51 \cdot 10^{-2}$	$5.78 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$
2.25	5.41	0.54	4.59	$5.5 \cdot 10^{-2}$	$5.72 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$
2.28	5.54	0.55	4.53	$5.47 \cdot 10^{-2}$	$4.48 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$

TABLE 64. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$2.26 \cdot 10^{-4}$	$2.28 \cdot 10^{-4}$	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$4.53 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.33	$6.79 \cdot 10^{-4}$	$3.98 \cdot 10^{-4}$	0	0	0	0
1.35	$2.26 \cdot 10^{-4}$	$2.28 \cdot 10^{-4}$	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$2.26 \cdot 10^{-4}$	$2.28 \cdot 10^{-4}$	0	0	0	0
1.43	$4.53 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.45	$4.53 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.48	$4.53 \cdot 10^{-4}$	$3.23 \cdot 10^{-4}$	0	0	0	0
1.5	$6.79 \cdot 10^{-4}$	$3.98 \cdot 10^{-4}$	0	0	0	0
1.53	$1.36 \cdot 10^{-3}$	$5.71 \cdot 10^{-4}$	0	0	0	0
1.55	$1.36 \cdot 10^{-3}$	$5.71 \cdot 10^{-4}$	$9.43 \cdot 10^{-4}$	$6.67 \cdot 10^{-4}$	0	0
1.58	$1.13 \cdot 10^{-3}$	$5.19 \cdot 10^{-4}$	0	0	0	0
1.6	$1.13 \cdot 10^{-3}$	$5.19 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	0	0
1.63	$1.13 \cdot 10^{-3}$	$5.19 \cdot 10^{-4}$	0	0	0	0
1.65	$2.26 \cdot 10^{-3}$	$7.51 \cdot 10^{-4}$	$9.43 \cdot 10^{-4}$	$6.67 \cdot 10^{-4}$	$5.37 \cdot 10^{-4}$	$5.37 \cdot 10^{-4}$
1.68	$3.85 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$	$9.43 \cdot 10^{-4}$	$6.67 \cdot 10^{-4}$	$1.01 \cdot 10^{-3}$	$7.13 \cdot 10^{-4}$

TABLE 64 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.29 \cdot 10^{-2}$	$2.14 \cdot 10^{-3}$	$3.77 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$8.87 \cdot 10^{-3}$	$2.15 \cdot 10^{-3}$
1.73	$8.97 \cdot 10^{-2}$	$1 \cdot 10^{-2}$	$2.69 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	0.19	$1.11 \cdot 10^{-2}$
1.75	0.27	$2.79 \cdot 10^{-2}$	0.13	$7.69 \cdot 10^{-3}$	0.61	$2.12 \cdot 10^{-2}$
1.78	0.61	$6.18 \cdot 10^{-2}$	0.31	$1.21 \cdot 10^{-2}$	1.36	$3.43 \cdot 10^{-2}$
1.8	0.92	$9.29 \cdot 10^{-2}$	0.47	$1.49 \cdot 10^{-2}$	1.88	$4.31 \cdot 10^{-2}$
1.83	1.21	0.12	0.63	$1.73 \cdot 10^{-2}$	2.13	$4.8 \cdot 10^{-2}$
1.85	1.38	0.14	0.67	$1.77 \cdot 10^{-2}$	2.2	$4.96 \cdot 10^{-2}$
1.88	1.53	0.15	0.83	$1.98 \cdot 10^{-2}$	2.25	$5.05 \cdot 10^{-2}$
1.9	1.7	0.17	0.93	$2.1 \cdot 10^{-2}$	2.21	$5.02 \cdot 10^{-2}$
1.93	1.83	0.18	1.08	$2.26 \cdot 10^{-2}$	2.09	$4.89 \cdot 10^{-2}$
1.95	2.09	0.21	1.32	$2.5 \cdot 10^{-2}$	1.97	$4.74 \cdot 10^{-2}$
1.98	2.35	0.23	1.54	$2.69 \cdot 10^{-2}$	1.92	$4.69 \cdot 10^{-2}$
2	2.6	0.26	1.66	$2.79 \cdot 10^{-2}$	1.82	$4.56 \cdot 10^{-2}$
2.03	2.85	0.28	1.9	$2.99 \cdot 10^{-2}$	1.69	$4.38 \cdot 10^{-2}$
2.05	3.08	0.31	2.1	$3.15 \cdot 10^{-2}$	1.69	$4.42 \cdot 10^{-2}$
2.08	3.22	0.32	2.21	$3.23 \cdot 10^{-2}$	1.5	$4.19 \cdot 10^{-2}$
2.1	3.2	0.32	2.31	$3.3 \cdot 10^{-2}$	1.18	$3.71 \cdot 10^{-2}$
2.13	3.17	0.32	2.4	$3.36 \cdot 10^{-2}$	0.9	$3.16 \cdot 10^{-2}$
2.15	3.16	0.32	2.53	$3.45 \cdot 10^{-2}$	0.72	$2.72 \cdot 10^{-2}$
2.18	3.1	0.31	2.62	$3.52 \cdot 10^{-2}$	0.57	$2.37 \cdot 10^{-2}$
2.2	3.08	0.31	2.65	$3.54 \cdot 10^{-2}$	0.49	$2.18 \cdot 10^{-2}$
2.23	3.06	0.31	2.59	$3.49 \cdot 10^{-2}$	0.41	$2.01 \cdot 10^{-2}$
2.25	3.06	0.31	2.67	$3.55 \cdot 10^{-2}$	0.33	$1.79 \cdot 10^{-2}$
2.28	2.96	0.3	2.54	$3.46 \cdot 10^{-2}$	0.25	$1.52 \cdot 10^{-2}$

TABLE 65. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	$3.17 \cdot 10^{-4}$	$3.19 \cdot 10^{-4}$	0	0	0	0

TABLE 65 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$3.17 \cdot 10^{-4}$	$3.19 \cdot 10^{-4}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	0	0	0	0	0	0
1.83	0	0	0	0	0	0
1.85	0	0	0	0	$7.38 \cdot 10^{-4}$	$7.38 \cdot 10^{-4}$
1.88	0	0	0	0	0	0
1.9	$3.17 \cdot 10^{-4}$	$3.19 \cdot 10^{-4}$	0	0	0	0
1.93	0	0	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$7.2 \cdot 10^{-4}$	$7.2 \cdot 10^{-4}$
1.95	$6.34 \cdot 10^{-4}$	$4.53 \cdot 10^{-4}$	0	0	0	0
1.98	$9.51 \cdot 10^{-4}$	$5.57 \cdot 10^{-4}$	0	0	0	0
2	$9.51 \cdot 10^{-4}$	$5.57 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	0	0
2.03	$3.8 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$	0	0	$6.71 \cdot 10^{-4}$	$6.71 \cdot 10^{-4}$
2.05	$2.76 \cdot 10^{-2}$	$4.03 \cdot 10^{-3}$	$7.26 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$	$3.38 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$
2.08	0.12	$1.38 \cdot 10^{-2}$	$3.1 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$	0.24	$1.37 \cdot 10^{-2}$
2.1	0.34	$3.51 \cdot 10^{-2}$	$9.11 \cdot 10^{-2}$	$7.75 \cdot 10^{-3}$	0.67	$2.33 \cdot 10^{-2}$
2.13	0.58	$5.95 \cdot 10^{-2}$	0.17	$1.05 \cdot 10^{-2}$	1	$2.87 \cdot 10^{-2}$
2.15	0.76	$7.69 \cdot 10^{-2}$	0.23	$1.22 \cdot 10^{-2}$	1.12	$3.04 \cdot 10^{-2}$
2.18	0.87	$8.78 \cdot 10^{-2}$	0.25	$1.29 \cdot 10^{-2}$	1.15	$3.07 \cdot 10^{-2}$
2.2	0.96	$9.67 \cdot 10^{-2}$	0.3	$1.4 \cdot 10^{-2}$	1.13	$3.04 \cdot 10^{-2}$
2.23	1	0.1	0.35	$1.53 \cdot 10^{-2}$	1.03	$2.92 \cdot 10^{-2}$
2.25	1.13	0.11	0.49	$1.8 \cdot 10^{-2}$	0.95	$2.78 \cdot 10^{-2}$
2.28	1.2	0.12	0.58	$1.95 \cdot 10^{-2}$	0.89	$2.72 \cdot 10^{-2}$

B.6 3D CROSS SECTION TABLES FOR $D(E, E'\pi^-)$ INTEGRATED OVER $\Theta_{\Pi Q}$

TABLE 66. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5 \cdot 10^{-3}$	$1.45 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$7.78 \cdot 10^{-4}$	$6.92 \cdot 10^{-4}$	$6.92 \cdot 10^{-4}$
1.15	$9.99 \cdot 10^{-3}$	$2.3 \cdot 10^{-3}$	$7.15 \cdot 10^{-3}$	$1.98 \cdot 10^{-3}$	$6 \cdot 10^{-3}$	$2.59 \cdot 10^{-3}$
1.18	$1.84 \cdot 10^{-2}$	$3.62 \cdot 10^{-3}$	$8.25 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$1.67 \cdot 10^{-2}$	$4.36 \cdot 10^{-3}$
1.2	$2.19 \cdot 10^{-2}$	$4.14 \cdot 10^{-3}$	$3.3 \cdot 10^{-2}$	$4.26 \cdot 10^{-3}$	$3.03 \cdot 10^{-2}$	$5.33 \cdot 10^{-3}$
1.23	$3.75 \cdot 10^{-2}$	$6.48 \cdot 10^{-3}$	$5.44 \cdot 10^{-2}$	$5.47 \cdot 10^{-3}$	$8.13 \cdot 10^{-2}$	$9.57 \cdot 10^{-3}$
1.25	$4.68 \cdot 10^{-2}$	$7.87 \cdot 10^{-3}$	$5.94 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$	0.14	$1.41 \cdot 10^{-2}$
1.28	$6.53 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$	$8.19 \cdot 10^{-2}$	$6.71 \cdot 10^{-3}$	0.14	$1.4 \cdot 10^{-2}$
1.3	$7.74 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$	$9.46 \cdot 10^{-2}$	$7.21 \cdot 10^{-3}$	0.14	$1.51 \cdot 10^{-2}$
1.33	$9.62 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	0.1	$7.46 \cdot 10^{-3}$	0.11	$1.36 \cdot 10^{-2}$
1.35	$9.59 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$	$9.51 \cdot 10^{-2}$	$7.23 \cdot 10^{-3}$	$9.58 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
1.38	$9.37 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$	0.1	$7.44 \cdot 10^{-3}$	$5.5 \cdot 10^{-2}$	$9.96 \cdot 10^{-3}$
1.4	$8.93 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$	0.1	$7.46 \cdot 10^{-3}$	$4.74 \cdot 10^{-2}$	$9.37 \cdot 10^{-3}$
1.43	0.11	$1.66 \cdot 10^{-2}$	0.11	$7.78 \cdot 10^{-3}$	$3.11 \cdot 10^{-2}$	$8.58 \cdot 10^{-3}$
1.45	0.1	$1.61 \cdot 10^{-2}$	0.13	$8.32 \cdot 10^{-3}$	$2.34 \cdot 10^{-2}$	$6.67 \cdot 10^{-3}$
1.48	0.11	$1.75 \cdot 10^{-2}$	0.16	$9.35 \cdot 10^{-3}$	$3.25 \cdot 10^{-2}$	$9.03 \cdot 10^{-3}$
1.5	0.13	$2.06 \cdot 10^{-2}$	0.17	$9.73 \cdot 10^{-3}$	$1.92 \cdot 10^{-2}$	$6.55 \cdot 10^{-3}$
1.53	0.15	$2.35 \cdot 10^{-2}$	0.25	$1.17 \cdot 10^{-2}$	$2.46 \cdot 10^{-2}$	$8.12 \cdot 10^{-3}$
1.55	0.17	$2.62 \cdot 10^{-2}$	0.26	$1.19 \cdot 10^{-2}$	$2.94 \cdot 10^{-2}$	$8.77 \cdot 10^{-3}$
1.58	0.17	$2.55 \cdot 10^{-2}$	0.31	$1.31 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$	$6.35 \cdot 10^{-3}$
1.6	0.19	$2.87 \cdot 10^{-2}$	0.34	$1.37 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	$6.01 \cdot 10^{-3}$
1.63	0.2	$3 \cdot 10^{-2}$	0.39	$1.46 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$	$5.9 \cdot 10^{-3}$
1.65	0.22	$3.3 \cdot 10^{-2}$	0.39	$1.46 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$	$4.02 \cdot 10^{-3}$
1.68	0.24	$3.65 \cdot 10^{-2}$	0.39	$1.47 \cdot 10^{-2}$	$7.66 \cdot 10^{-3}$	$2.8 \cdot 10^{-3}$

TABLE 66 Continued.						
$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.25	$3.78 \cdot 10^{-2}$	0.4	$1.48 \cdot 10^{-2}$	$7.91 \cdot 10^{-3}$	$3.34 \cdot 10^{-3}$
1.73	0.25	$3.71 \cdot 10^{-2}$	0.36	$1.4 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	$2.51 \cdot 10^{-3}$
1.75	0.27	$4.02 \cdot 10^{-2}$	0.35	$1.38 \cdot 10^{-2}$	$4.83 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$
1.78	0.27	$4.04 \cdot 10^{-2}$	0.31	$1.3 \cdot 10^{-2}$	$3.31 \cdot 10^{-3}$	$2.18 \cdot 10^{-3}$
1.8	0.28	$4.17 \cdot 10^{-2}$	0.34	$1.37 \cdot 10^{-2}$	$4.48 \cdot 10^{-3}$	$2 \cdot 10^{-3}$
1.83	0.29	$4.29 \cdot 10^{-2}$	0.29	$1.26 \cdot 10^{-2}$	$3.93 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$
1.85	0.33	$4.98 \cdot 10^{-2}$	0.27	$1.22 \cdot 10^{-2}$	$3.16 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.88	0.32	$4.81 \cdot 10^{-2}$	0.29	$1.26 \cdot 10^{-2}$	$1.1 \cdot 10^{-3}$	$7.8 \cdot 10^{-4}$
1.9	0.31	$4.64 \cdot 10^{-2}$	0.27	$1.22 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$	$1.84 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 67. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$9.37 \cdot 10^{-4}$	$4.41 \cdot 10^{-4}$	0	0	0	0
1.15	$3.75 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.18	$1.31 \cdot 10^{-3}$	$5.32 \cdot 10^{-4}$	0	0	0	0
1.2	$2.62 \cdot 10^{-3}$	$8 \cdot 10^{-4}$	0	0	0	0
1.23	$4.31 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$9.9 \cdot 10^{-4}$	$5.71 \cdot 10^{-4}$	$3.22 \cdot 10^{-4}$	$3.22 \cdot 10^{-4}$
1.25	$5.25 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$2.09 \cdot 10^{-3}$	$9.37 \cdot 10^{-4}$
1.28	$8.06 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$	$6.93 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$	$5.05 \cdot 10^{-3}$	$1.52 \cdot 10^{-3}$
1.3	$1.55 \cdot 10^{-2}$	$2.85 \cdot 10^{-3}$	$1.62 \cdot 10^{-2}$	$2.31 \cdot 10^{-3}$	$1.55 \cdot 10^{-2}$	$2.81 \cdot 10^{-3}$
1.33	$2.51 \cdot 10^{-2}$	$4.28 \cdot 10^{-3}$	$2.38 \cdot 10^{-2}$	$2.8 \cdot 10^{-3}$	$3.37 \cdot 10^{-2}$	$4.66 \cdot 10^{-3}$
1.35	$3.78 \cdot 10^{-2}$	$6.17 \cdot 10^{-3}$	$4.02 \cdot 10^{-2}$	$3.64 \cdot 10^{-3}$	$5.49 \cdot 10^{-2}$	$5.9 \cdot 10^{-3}$
1.38	$4.68 \cdot 10^{-2}$	$7.49 \cdot 10^{-3}$	$5.31 \cdot 10^{-2}$	$4.19 \cdot 10^{-3}$	$6.58 \cdot 10^{-2}$	$7.11 \cdot 10^{-3}$
1.4	$6.71 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	$7.62 \cdot 10^{-2}$	$5.01 \cdot 10^{-3}$	$6.21 \cdot 10^{-2}$	$6.76 \cdot 10^{-3}$
1.43	$8.21 \cdot 10^{-2}$	$1.27 \cdot 10^{-2}$	$8.91 \cdot 10^{-2}$	$5.42 \cdot 10^{-3}$	$7.57 \cdot 10^{-2}$	$7.51 \cdot 10^{-3}$
1.45	$9.16 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$	0.12	$6.18 \cdot 10^{-3}$	$8.12 \cdot 10^{-2}$	$7.82 \cdot 10^{-3}$
1.48	$9.89 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	0.12	$6.18 \cdot 10^{-3}$	$7.99 \cdot 10^{-2}$	$8.72 \cdot 10^{-3}$
1.5	0.11	$1.7 \cdot 10^{-2}$	0.12	$6.34 \cdot 10^{-3}$	$7.19 \cdot 10^{-2}$	$8.49 \cdot 10^{-3}$
1.53	0.12	$1.86 \cdot 10^{-2}$	0.13	$6.6 \cdot 10^{-3}$	$7.17 \cdot 10^{-2}$	$8.68 \cdot 10^{-3}$
1.55	0.11	$1.74 \cdot 10^{-2}$	0.14	$6.85 \cdot 10^{-3}$	$4.85 \cdot 10^{-2}$	$7.08 \cdot 10^{-3}$
1.58	0.12	$1.76 \cdot 10^{-2}$	0.16	$7.3 \cdot 10^{-3}$	$4.18 \cdot 10^{-2}$	$6.6 \cdot 10^{-3}$
1.6	0.12	$1.79 \cdot 10^{-2}$	0.17	$7.49 \cdot 10^{-3}$	$2.91 \cdot 10^{-2}$	$5.54 \cdot 10^{-3}$
1.63	0.13	$1.98 \cdot 10^{-2}$	0.22	$8.45 \cdot 10^{-3}$	$1.97 \cdot 10^{-2}$	$4.61 \cdot 10^{-3}$
1.65	0.13	$1.99 \cdot 10^{-2}$	0.27	$9.37 \cdot 10^{-3}$	$1.68 \cdot 10^{-2}$	$4.42 \cdot 10^{-3}$
1.68	0.14	$2.18 \cdot 10^{-2}$	0.3	$9.99 \cdot 10^{-3}$	$1.08 \cdot 10^{-2}$	$3.58 \cdot 10^{-3}$

TABLE 67 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.16	$2.44 \cdot 10^{-2}$	0.3	$9.96 \cdot 10^{-3}$	$1.55 \cdot 10^{-2}$	$4.43 \cdot 10^{-3}$
1.73	0.18	$2.76 \cdot 10^{-2}$	0.31	$1.01 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	$3.42 \cdot 10^{-3}$
1.75	0.19	$2.89 \cdot 10^{-2}$	0.28	$9.66 \cdot 10^{-3}$	$8.76 \cdot 10^{-3}$	$2.59 \cdot 10^{-3}$
1.78	0.2	$3.07 \cdot 10^{-2}$	0.3	$1 \cdot 10^{-2}$	$7.66 \cdot 10^{-3}$	$2.12 \cdot 10^{-3}$
1.8	0.22	$3.26 \cdot 10^{-2}$	0.28	$9.69 \cdot 10^{-3}$	$7.93 \cdot 10^{-3}$	$3.21 \cdot 10^{-3}$
1.83	0.21	$3.09 \cdot 10^{-2}$	0.27	$9.38 \cdot 10^{-3}$	$6.9 \cdot 10^{-3}$	$2.6 \cdot 10^{-3}$
1.85	0.2	$3.04 \cdot 10^{-2}$	0.27	$9.38 \cdot 10^{-3}$	$6.04 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$
1.88	0.22	$3.3 \cdot 10^{-2}$	0.26	$9.31 \cdot 10^{-3}$	$3.36 \cdot 10^{-3}$	$2.07 \cdot 10^{-3}$
1.9	0.21	$3.15 \cdot 10^{-2}$	0.27	$9.4 \cdot 10^{-3}$	$5.37 \cdot 10^{-3}$	$1.78 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 68. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	$2.68 \cdot 10^{-4}$	$1.93 \cdot 10^{-4}$	0	0	0	0
1.4	$2.68 \cdot 10^{-4}$	$1.93 \cdot 10^{-4}$	$2.36 \cdot 10^{-4}$	$2.36 \cdot 10^{-4}$	0	0
1.43	$9.37 \cdot 10^{-4}$	$3.8 \cdot 10^{-4}$	$7.07 \cdot 10^{-4}$	$4.08 \cdot 10^{-4}$	$4.45 \cdot 10^{-4}$	$4.45 \cdot 10^{-4}$
1.45	$1.47 \cdot 10^{-3}$	$4.94 \cdot 10^{-4}$	$9.43 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	$2.3 \cdot 10^{-4}$	$2.3 \cdot 10^{-4}$
1.48	$2.01 \cdot 10^{-3}$	$5.96 \cdot 10^{-4}$	$4.48 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$	$3.43 \cdot 10^{-3}$	$9.5 \cdot 10^{-4}$
1.5	$4.01 \cdot 10^{-3}$	$9.41 \cdot 10^{-4}$	$6.83 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$	$1.04 \cdot 10^{-2}$	$1.81 \cdot 10^{-3}$
1.53	$9.5 \cdot 10^{-3}$	$1.79 \cdot 10^{-3}$	$1.77 \cdot 10^{-2}$	$2.04 \cdot 10^{-3}$	$2.03 \cdot 10^{-2}$	$2.55 \cdot 10^{-3}$
1.55	$1.82 \cdot 10^{-2}$	$3.1 \cdot 10^{-3}$	$2.54 \cdot 10^{-2}$	$2.45 \cdot 10^{-3}$	$3.86 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$
1.58	$2.33 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$	$3.56 \cdot 10^{-2}$	$2.9 \cdot 10^{-3}$	$4.8 \cdot 10^{-2}$	$4.26 \cdot 10^{-3}$
1.6	$3.55 \cdot 10^{-2}$	$5.65 \cdot 10^{-3}$	$4.9 \cdot 10^{-2}$	$3.4 \cdot 10^{-3}$	$5.16 \cdot 10^{-2}$	$4.56 \cdot 10^{-3}$
1.63	$4.26 \cdot 10^{-2}$	$6.69 \cdot 10^{-3}$	$6.46 \cdot 10^{-2}$	$3.9 \cdot 10^{-3}$	$4.86 \cdot 10^{-2}$	$4.85 \cdot 10^{-3}$
1.65	$4.72 \cdot 10^{-2}$	$7.38 \cdot 10^{-3}$	$7.99 \cdot 10^{-2}$	$4.34 \cdot 10^{-3}$	$5.08 \cdot 10^{-2}$	$4.96 \cdot 10^{-3}$
1.68	$5.26 \cdot 10^{-2}$	$8.17 \cdot 10^{-3}$	$9.47 \cdot 10^{-2}$	$4.72 \cdot 10^{-3}$	$3.68 \cdot 10^{-2}$	$4.43 \cdot 10^{-3}$

TABLE 68 Continued.						
$d(e, e' \pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$6.09 \cdot 10^{-2}$	$9.39 \cdot 10^{-3}$	$9.64 \cdot 10^{-2}$	$4.77 \cdot 10^{-3}$	$4.93 \cdot 10^{-2}$	$5.19 \cdot 10^{-3}$
1.73	$6.61 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	0.13	$5.48 \cdot 10^{-3}$	$4.03 \cdot 10^{-2}$	$4.68 \cdot 10^{-3}$
1.75	$7.45 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	0.15	$5.86 \cdot 10^{-3}$	$3.68 \cdot 10^{-2}$	$4.28 \cdot 10^{-3}$
1.78	$7.87 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$	0.15	$6.01 \cdot 10^{-3}$	$3.76 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$
1.8	$8.95 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	0.17	$6.31 \cdot 10^{-3}$	$3.71 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$
1.83	$8.54 \cdot 10^{-2}$	$1.3 \cdot 10^{-2}$	0.17	$6.28 \cdot 10^{-3}$	$3.62 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$
1.85	$8.76 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$	0.16	$6.14 \cdot 10^{-3}$	$3.05 \cdot 10^{-2}$	$4.13 \cdot 10^{-3}$
1.88	$9.43 \cdot 10^{-2}$	$1.43 \cdot 10^{-2}$	0.16	$6.18 \cdot 10^{-3}$	$2.1 \cdot 10^{-2}$	$3.45 \cdot 10^{-3}$
1.9	$9.07 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	0.16	$6.18 \cdot 10^{-3}$	$1.67 \cdot 10^{-2}$	$3 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 69. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	$3.3 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 69 Continued.						
$d(e, e' \pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$1.87 \cdot 10^{-4}$	$1.89 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$3.3 \cdot 10^{-4}$	$3.11 \cdot 10^{-4}$	$3.11 \cdot 10^{-4}$
1.78	$2.44 \cdot 10^{-3}$	$7.64 \cdot 10^{-4}$	$1.98 \cdot 10^{-3}$	$8.08 \cdot 10^{-4}$	$2.97 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$
1.8	$4.31 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$5.28 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$7.5 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$
1.83	$6.93 \cdot 10^{-3}$	$1.53 \cdot 10^{-3}$	$9.24 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	$9.21 \cdot 10^{-3}$	$2.06 \cdot 10^{-3}$
1.85	$1.11 \cdot 10^{-2}$	$2.17 \cdot 10^{-3}$	$1.95 \cdot 10^{-2}$	$2.53 \cdot 10^{-3}$	$1.2 \cdot 10^{-2}$	$2.31 \cdot 10^{-3}$
1.88	$1.99 \cdot 10^{-2}$	$3.5 \cdot 10^{-3}$	$2.9 \cdot 10^{-2}$	$3.09 \cdot 10^{-3}$	$2.53 \cdot 10^{-2}$	$3.33 \cdot 10^{-3}$
1.9	$2.36 \cdot 10^{-2}$	$4.06 \cdot 10^{-3}$	$3.43 \cdot 10^{-2}$	$3.36 \cdot 10^{-3}$	$2.93 \cdot 10^{-2}$	$3.37 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 70. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.87 \cdot 10^{-3}$	$2.07 \cdot 10^{-3}$	0	0	0	0
1.15	$1.09 \cdot 10^{-2}$	$2.57 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	0	0
1.18	$1.54 \cdot 10^{-2}$	$3.29 \cdot 10^{-3}$	$2.64 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$3.47 \cdot 10^{-3}$	$2.46 \cdot 10^{-3}$
1.2	$3.18 \cdot 10^{-2}$	$5.82 \cdot 10^{-3}$	$1.78 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$	$5.15 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$
1.23	$5.73 \cdot 10^{-2}$	$9.61 \cdot 10^{-3}$	$3.17 \cdot 10^{-2}$	$4.57 \cdot 10^{-3}$	$6.17 \cdot 10^{-2}$	$9.31 \cdot 10^{-3}$
1.25	0.11	$1.76 \cdot 10^{-2}$	$9.24 \cdot 10^{-2}$	$7.81 \cdot 10^{-3}$	0.18	$1.59 \cdot 10^{-2}$
1.28	0.17	$2.55 \cdot 10^{-2}$	0.16	$1.02 \cdot 10^{-2}$	0.3	$2.14 \cdot 10^{-2}$
1.3	0.23	$3.44 \cdot 10^{-2}$	0.22	$1.19 \cdot 10^{-2}$	0.41	$2.5 \cdot 10^{-2}$
1.33	0.3	$4.52 \cdot 10^{-2}$	0.29	$1.38 \cdot 10^{-2}$	0.48	$3.05 \cdot 10^{-2}$
1.35	0.38	$5.65 \cdot 10^{-2}$	0.36	$1.55 \cdot 10^{-2}$	0.5	$3.22 \cdot 10^{-2}$
1.38	0.39	$5.79 \cdot 10^{-2}$	0.35	$1.52 \cdot 10^{-2}$	0.42	$2.98 \cdot 10^{-2}$
1.4	0.39	$5.84 \cdot 10^{-2}$	0.31	$1.44 \cdot 10^{-2}$	0.32	$2.7 \cdot 10^{-2}$
1.43	0.41	$6.08 \cdot 10^{-2}$	0.33	$1.47 \cdot 10^{-2}$	0.27	$2.61 \cdot 10^{-2}$
1.45	0.41	$6.18 \cdot 10^{-2}$	0.37	$1.55 \cdot 10^{-2}$	0.2	$2.29 \cdot 10^{-2}$
1.48	0.43	$6.47 \cdot 10^{-2}$	0.38	$1.58 \cdot 10^{-2}$	0.17	$2.09 \cdot 10^{-2}$
1.5	0.46	$6.82 \cdot 10^{-2}$	0.45	$1.72 \cdot 10^{-2}$	0.13	$1.9 \cdot 10^{-2}$
1.53	0.49	$7.36 \cdot 10^{-2}$	0.53	$1.87 \cdot 10^{-2}$	0.13	$1.86 \cdot 10^{-2}$
1.55	0.54	$8.12 \cdot 10^{-2}$	0.68	$2.12 \cdot 10^{-2}$	0.12	$1.8 \cdot 10^{-2}$
1.58	0.62	$9.17 \cdot 10^{-2}$	0.81	$2.31 \cdot 10^{-2}$	$8.14 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$
1.6	0.67	$9.92 \cdot 10^{-2}$	0.98	$2.55 \cdot 10^{-2}$	$7.92 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$
1.63	0.73	0.11	1.09	$2.69 \cdot 10^{-2}$	$7.79 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$
1.65	0.76	0.11	1.15	$2.75 \cdot 10^{-2}$	$6.05 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$
1.68	0.83	0.12	1.18	$2.79 \cdot 10^{-2}$	$5.21 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$

TABLE 70 Continued.						
$d(e, e' \pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.84	0.12	1.14	$2.74 \cdot 10^{-2}$	$3.84 \cdot 10^{-2}$	$9.18 \cdot 10^{-3}$
1.73	0.83	0.12	1.16	$2.76 \cdot 10^{-2}$	$2.89 \cdot 10^{-2}$	$7.98 \cdot 10^{-3}$
1.75	0.85	0.13	0.98	$2.54 \cdot 10^{-2}$	$1.99 \cdot 10^{-2}$	$6.21 \cdot 10^{-3}$
1.78	0.89	0.13	0.9	$2.43 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$	$6.15 \cdot 10^{-3}$
1.8	0.87	0.13	0.87	$2.4 \cdot 10^{-2}$	$2.39 \cdot 10^{-2}$	$7.51 \cdot 10^{-3}$
1.83	0.88	0.13	0.84	$2.36 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$	$5.26 \cdot 10^{-3}$
1.85	0.86	0.13	0.82	$2.33 \cdot 10^{-2}$	$2.28 \cdot 10^{-2}$	$7.12 \cdot 10^{-3}$
1.88	0.93	0.14	0.79	$2.29 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$	$4.3 \cdot 10^{-3}$
1.9	0.89	0.13	0.79	$2.28 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$	$6.58 \cdot 10^{-3}$
1.93	0.92	0.14	0.75	$2.23 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$	$6.62 \cdot 10^{-3}$
1.95	0.94	0.14	0.74	$2.21 \cdot 10^{-2}$	$6.96 \cdot 10^{-3}$	$4.6 \cdot 10^{-3}$
1.98	0.93	0.14	0.77	$2.25 \cdot 10^{-2}$	$6.47 \cdot 10^{-3}$	$4.28 \cdot 10^{-3}$
2	0.96	0.14	0.7	$2.14 \cdot 10^{-2}$	$4.79 \cdot 10^{-3}$	$3.21 \cdot 10^{-3}$
2.03	0.95	0.14	0.68	$2.12 \cdot 10^{-2}$	$3.96 \cdot 10^{-3}$	$2.79 \cdot 10^{-3}$
2.05	0.95	0.14	0.68	$2.12 \cdot 10^{-2}$	$3.01 \cdot 10^{-3}$	$2.09 \cdot 10^{-3}$
2.08	0.92	0.14	0.63	$2.04 \cdot 10^{-2}$	$4.91 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 71. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.25 \cdot 10^{-4}$	$2.27 \cdot 10^{-4}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$6.74 \cdot 10^{-4}$	$4.02 \cdot 10^{-4}$	0	0	0	0
1.2	$4.5 \cdot 10^{-4}$	$3.25 \cdot 10^{-4}$	0	0	0	0
1.23	$4.5 \cdot 10^{-4}$	$3.25 \cdot 10^{-4}$	0	0	0	0
1.25	$8.99 \cdot 10^{-4}$	$4.69 \cdot 10^{-4}$	0	0	$4.98 \cdot 10^{-4}$	$4.98 \cdot 10^{-4}$
1.28	$2.92 \cdot 10^{-3}$	$9.17 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	$3.96 \cdot 10^{-4}$	0	0
1.3	$1.06 \cdot 10^{-2}$	$2.19 \cdot 10^{-3}$	$1.58 \cdot 10^{-3}$	$7.92 \cdot 10^{-4}$	0	0
1.33	$1.75 \cdot 10^{-2}$	$3.25 \cdot 10^{-3}$	$8.71 \cdot 10^{-3}$	$1.86 \cdot 10^{-3}$	$6.28 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$
1.35	$3.87 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$	$1.9 \cdot 10^{-2}$	$2.74 \cdot 10^{-3}$	$3.02 \cdot 10^{-2}$	$4.59 \cdot 10^{-3}$
1.38	$7.37 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$	$5.7 \cdot 10^{-2}$	$4.75 \cdot 10^{-3}$	$8.14 \cdot 10^{-2}$	$7.48 \cdot 10^{-3}$
1.4	0.12	$1.78 \cdot 10^{-2}$	$9.5 \cdot 10^{-2}$	$6.13 \cdot 10^{-3}$	0.16	$1.12 \cdot 10^{-2}$
1.43	0.16	$2.4 \cdot 10^{-2}$	0.15	$7.7 \cdot 10^{-3}$	0.22	$1.39 \cdot 10^{-2}$
1.45	0.22	$3.35 \cdot 10^{-2}$	0.2	$8.8 \cdot 10^{-3}$	0.26	$1.53 \cdot 10^{-2}$
1.48	0.29	$4.3 \cdot 10^{-2}$	0.25	$1 \cdot 10^{-2}$	0.29	$1.76 \cdot 10^{-2}$
1.5	0.33	$4.85 \cdot 10^{-2}$	0.28	$1.06 \cdot 10^{-2}$	0.36	$2 \cdot 10^{-2}$
1.53	0.36	$5.41 \cdot 10^{-2}$	0.33	$1.14 \cdot 10^{-2}$	0.44	$2.35 \cdot 10^{-2}$
1.55	0.4	$5.96 \cdot 10^{-2}$	0.38	$1.23 \cdot 10^{-2}$	0.45	$2.31 \cdot 10^{-2}$
1.58	0.42	$6.29 \cdot 10^{-2}$	0.41	$1.28 \cdot 10^{-2}$	0.39	$2.13 \cdot 10^{-2}$
1.6	0.42	$6.21 \cdot 10^{-2}$	0.49	$1.4 \cdot 10^{-2}$	0.31	$1.91 \cdot 10^{-2}$
1.63	0.43	$6.38 \cdot 10^{-2}$	0.51	$1.42 \cdot 10^{-2}$	0.24	$1.74 \cdot 10^{-2}$
1.65	0.46	$6.78 \cdot 10^{-2}$	0.59	$1.53 \cdot 10^{-2}$	0.15	$1.44 \cdot 10^{-2}$
1.68	0.48	$7.15 \cdot 10^{-2}$	0.74	$1.71 \cdot 10^{-2}$	0.13	$1.33 \cdot 10^{-2}$

TABLE 71 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.51	$7.58 \cdot 10^{-2}$	0.78	$1.75 \cdot 10^{-2}$	$9.46 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
1.73	0.54	$8.06 \cdot 10^{-2}$	0.83	$1.81 \cdot 10^{-2}$	$7.93 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
1.75	0.56	$8.33 \cdot 10^{-2}$	0.78	$1.76 \cdot 10^{-2}$	$7.49 \cdot 10^{-2}$	$1 \cdot 10^{-2}$
1.78	0.58	$8.67 \cdot 10^{-2}$	0.8	$1.78 \cdot 10^{-2}$	$5.54 \cdot 10^{-2}$	$9 \cdot 10^{-3}$
1.8	0.59	$8.76 \cdot 10^{-2}$	0.77	$1.75 \cdot 10^{-2}$	$4.81 \cdot 10^{-2}$	$7.91 \cdot 10^{-3}$
1.83	0.6	$8.92 \cdot 10^{-2}$	0.74	$1.72 \cdot 10^{-2}$	$4.52 \cdot 10^{-2}$	$7.7 \cdot 10^{-3}$
1.85	0.59	$8.75 \cdot 10^{-2}$	0.76	$1.73 \cdot 10^{-2}$	$3.59 \cdot 10^{-2}$	$5.59 \cdot 10^{-3}$
1.88	0.61	$9.01 \cdot 10^{-2}$	0.74	$1.71 \cdot 10^{-2}$	$3.9 \cdot 10^{-2}$	$6.76 \cdot 10^{-3}$
1.9	0.63	$9.34 \cdot 10^{-2}$	0.73	$1.7 \cdot 10^{-2}$	$2.3 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$
1.93	0.62	$9.25 \cdot 10^{-2}$	0.71	$1.67 \cdot 10^{-2}$	$2.58 \cdot 10^{-2}$	$5.15 \cdot 10^{-3}$
1.95	0.63	$9.35 \cdot 10^{-2}$	0.69	$1.66 \cdot 10^{-2}$	$2.58 \cdot 10^{-2}$	$5.24 \cdot 10^{-3}$
1.98	0.62	$9.25 \cdot 10^{-2}$	0.68	$1.64 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$	$4.29 \cdot 10^{-3}$
2	0.66	$9.84 \cdot 10^{-2}$	0.63	$1.58 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$3.83 \cdot 10^{-3}$
2.03	0.64	$9.41 \cdot 10^{-2}$	0.63	$1.59 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$	$3.04 \cdot 10^{-3}$
2.05	0.63	$9.3 \cdot 10^{-2}$	0.6	$1.54 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$3.87 \cdot 10^{-3}$
2.08	0.65	$9.57 \cdot 10^{-2}$	0.6	$1.54 \cdot 10^{-2}$	$2.88 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 72. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$1.61 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$1.61 \cdot 10^{-4}$	$1.62 \cdot 10^{-4}$	0	0	0	0
1.48	0	0	0	0	0	0
1.5	$4.82 \cdot 10^{-4}$	$2.87 \cdot 10^{-4}$	0	0	$3.36 \cdot 10^{-4}$	$3.36 \cdot 10^{-4}$
1.53	$2.09 \cdot 10^{-3}$	$6.55 \cdot 10^{-4}$	$5.66 \cdot 10^{-4}$	$4 \cdot 10^{-4}$	$2.76 \cdot 10^{-4}$	$2.76 \cdot 10^{-4}$
1.55	$5.78 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	$3.39 \cdot 10^{-3}$	$9.8 \cdot 10^{-4}$	$8.25 \cdot 10^{-3}$	$1.62 \cdot 10^{-3}$
1.58	$1.3 \cdot 10^{-2}$	$2.4 \cdot 10^{-3}$	$1.33 \cdot 10^{-2}$	$1.94 \cdot 10^{-3}$	$3.06 \cdot 10^{-2}$	$3.28 \cdot 10^{-3}$
1.6	$3.18 \cdot 10^{-2}$	$5.19 \cdot 10^{-3}$	$3.62 \cdot 10^{-2}$	$3.2 \cdot 10^{-3}$	$6.85 \cdot 10^{-2}$	$5.12 \cdot 10^{-3}$
1.63	$5.89 \cdot 10^{-2}$	$9.19 \cdot 10^{-3}$	$7.55 \cdot 10^{-2}$	$4.62 \cdot 10^{-3}$	0.11	$7.22 \cdot 10^{-3}$
1.65	$8.82 \cdot 10^{-2}$	$1.35 \cdot 10^{-2}$	0.12	$5.84 \cdot 10^{-3}$	0.14	$8.4 \cdot 10^{-3}$
1.68	0.13	$1.97 \cdot 10^{-2}$	0.16	$6.74 \cdot 10^{-3}$	0.15	$9.06 \cdot 10^{-3}$

TABLE 72 Continued.						
$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.15	$2.29 \cdot 10^{-2}$	0.19	$7.4 \cdot 10^{-3}$	0.16	$9.81 \cdot 10^{-3}$
1.73	0.17	$2.52 \cdot 10^{-2}$	0.23	$8.11 \cdot 10^{-3}$	0.16	$1.04 \cdot 10^{-2}$
1.75	0.2	$3.03 \cdot 10^{-2}$	0.26	$8.54 \cdot 10^{-3}$	0.17	$1.05 \cdot 10^{-2}$
1.78	0.21	$3.11 \cdot 10^{-2}$	0.28	$8.94 \cdot 10^{-3}$	0.18	$1.1 \cdot 10^{-2}$
1.8	0.23	$3.37 \cdot 10^{-2}$	0.32	$9.55 \cdot 10^{-3}$	0.18	$1.1 \cdot 10^{-2}$
1.83	0.25	$3.67 \cdot 10^{-2}$	0.36	$1 \cdot 10^{-2}$	0.18	$1.05 \cdot 10^{-2}$
1.85	0.26	$3.82 \cdot 10^{-2}$	0.39	$1.05 \cdot 10^{-2}$	0.17	$1.08 \cdot 10^{-2}$
1.88	0.28	$4.1 \cdot 10^{-2}$	0.42	$1.08 \cdot 10^{-2}$	0.18	$1.07 \cdot 10^{-2}$
1.9	0.28	$4.24 \cdot 10^{-2}$	0.43	$1.1 \cdot 10^{-2}$	0.14	$9.53 \cdot 10^{-3}$
1.93	0.29	$4.27 \cdot 10^{-2}$	0.45	$1.12 \cdot 10^{-2}$	0.12	$8.92 \cdot 10^{-3}$
1.95	0.3	$4.53 \cdot 10^{-2}$	0.45	$1.12 \cdot 10^{-2}$	$9.87 \cdot 10^{-2}$	$8.33 \cdot 10^{-3}$
1.98	0.29	$4.27 \cdot 10^{-2}$	0.44	$1.12 \cdot 10^{-2}$	$6.13 \cdot 10^{-2}$	$6.47 \cdot 10^{-3}$
2	0.29	$4.31 \cdot 10^{-2}$	0.43	$1.11 \cdot 10^{-2}$	$4.6 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$
2.03	0.29	$4.38 \cdot 10^{-2}$	0.44	$1.12 \cdot 10^{-2}$	$4.78 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
2.05	0.3	$4.44 \cdot 10^{-2}$	0.42	$1.09 \cdot 10^{-2}$	$3.76 \cdot 10^{-2}$	$4.73 \cdot 10^{-3}$
2.08	0.29	$4.32 \cdot 10^{-2}$	0.43	$1.1 \cdot 10^{-2}$	$2.43 \cdot 10^{-2}$	$3.87 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 73. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 73 Continued.						
$d(e, e' \pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	0	0	0	0	0	0
1.78	0	0	0	0	0	0
1.8	$2.25 \cdot 10^{-4}$	$2.27 \cdot 10^{-4}$	0	0	0	0
1.83	0	0	0	0	0	0
1.85	$1.57 \cdot 10^{-3}$	$6.38 \cdot 10^{-4}$	$7.92 \cdot 10^{-4}$	$5.6 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$
1.88	$1.57 \cdot 10^{-3}$	$6.38 \cdot 10^{-4}$	$2.77 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	$5.61 \cdot 10^{-3}$	$1.5 \cdot 10^{-3}$
1.9	$8.32 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$	$1.07 \cdot 10^{-2}$	$2.06 \cdot 10^{-3}$	$1.78 \cdot 10^{-2}$	$2.89 \cdot 10^{-3}$
1.93	$2 \cdot 10^{-2}$	$3.63 \cdot 10^{-3}$	$2.73 \cdot 10^{-2}$	$3.29 \cdot 10^{-3}$	$3.28 \cdot 10^{-2}$	$3.92 \cdot 10^{-3}$
1.95	$4.29 \cdot 10^{-2}$	$7.03 \cdot 10^{-3}$	$3.8 \cdot 10^{-2}$	$3.88 \cdot 10^{-3}$	$5.71 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
1.98	$6.59 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$6.18 \cdot 10^{-2}$	$4.94 \cdot 10^{-3}$	$8.8 \cdot 10^{-2}$	$6.56 \cdot 10^{-3}$
2	$8.77 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$6.18 \cdot 10^{-2}$	$4.94 \cdot 10^{-3}$	$9.37 \cdot 10^{-2}$	$6.66 \cdot 10^{-3}$
2.03	$8.86 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	$7.44 \cdot 10^{-2}$	$5.43 \cdot 10^{-3}$	0.11	$7.26 \cdot 10^{-3}$
2.05	$9.19 \cdot 10^{-2}$	$1.43 \cdot 10^{-2}$	$8.43 \cdot 10^{-2}$	$5.78 \cdot 10^{-3}$	$8.34 \cdot 10^{-2}$	$6.36 \cdot 10^{-3}$
2.08	0.1	$1.56 \cdot 10^{-2}$	$8.12 \cdot 10^{-2}$	$5.67 \cdot 10^{-3}$	$9.53 \cdot 10^{-2}$	$6.74 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 74. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.87 \cdot 10^{-3}$	$9.76 \cdot 10^{-4}$	0	0	0	0
1.15	$5.62 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$	0	0	0	0
1.18	$5.62 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$	0	0	0	0
1.2	$1.45 \cdot 10^{-2}$	$3.37 \cdot 10^{-3}$	0	0	$7.96 \cdot 10^{-4}$	$7.96 \cdot 10^{-4}$
1.23	$2.95 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$	$2.47 \cdot 10^{-3}$	$1.43 \cdot 10^{-3}$	$2.44 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.25	$7.12 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$	$3.6 \cdot 10^{-3}$	$3.45 \cdot 10^{-2}$	$7.51 \cdot 10^{-3}$
1.28	0.16	$2.45 \cdot 10^{-2}$	$8.08 \cdot 10^{-2}$	$8.16 \cdot 10^{-3}$	0.18	$1.7 \cdot 10^{-2}$
1.3	0.3	$4.57 \cdot 10^{-2}$	0.24	$1.4 \cdot 10^{-2}$	0.62	$3.41 \cdot 10^{-2}$
1.33	0.55	$8.25 \cdot 10^{-2}$	0.37	$1.74 \cdot 10^{-2}$	1.04	$4.84 \cdot 10^{-2}$
1.35	0.77	0.11	0.62	$2.25 \cdot 10^{-2}$	1.42	$5.8 \cdot 10^{-2}$
1.38	1.03	0.15	0.8	$2.56 \cdot 10^{-2}$	1.61	$6.55 \cdot 10^{-2}$
1.4	1.2	0.18	0.89	$2.7 \cdot 10^{-2}$	1.66	$6.78 \cdot 10^{-2}$
1.43	1.35	0.2	1.01	$2.89 \cdot 10^{-2}$	1.47	$6.57 \cdot 10^{-2}$
1.45	1.39	0.21	1.01	$2.89 \cdot 10^{-2}$	1.29	$6.48 \cdot 10^{-2}$
1.48	1.35	0.2	1.03	$2.92 \cdot 10^{-2}$	1.12	$6.14 \cdot 10^{-2}$
1.5	1.31	0.19	1.03	$2.92 \cdot 10^{-2}$	0.97	$5.79 \cdot 10^{-2}$
1.53	1.32	0.2	1.26	$3.23 \cdot 10^{-2}$	0.77	$5.18 \cdot 10^{-2}$
1.55	1.39	0.21	1.42	$3.42 \cdot 10^{-2}$	0.64	$4.87 \cdot 10^{-2}$
1.58	1.46	0.22	1.77	$3.82 \cdot 10^{-2}$	0.44	$4.08 \cdot 10^{-2}$
1.6	1.58	0.23	2.11	$4.17 \cdot 10^{-2}$	0.32	$3.43 \cdot 10^{-2}$
1.63	1.76	0.26	2.58	$4.61 \cdot 10^{-2}$	0.27	$3.11 \cdot 10^{-2}$
1.65	1.95	0.29	2.96	$4.94 \cdot 10^{-2}$	0.26	$2.94 \cdot 10^{-2}$
1.68	2.09	0.31	3.24	$5.17 \cdot 10^{-2}$	0.22	$2.76 \cdot 10^{-2}$

TABLE 74 Continued.						
$d(e, e' \pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.17	0.32	3.13	$5.08 \cdot 10^{-2}$	0.17	$2.31 \cdot 10^{-2}$
1.73	2.23	0.33	2.94	$4.93 \cdot 10^{-2}$	0.16	$2.28 \cdot 10^{-2}$
1.75	2.24	0.33	2.64	$4.67 \cdot 10^{-2}$	0.16	$2.32 \cdot 10^{-2}$
1.78	2.19	0.32	2.35	$4.4 \cdot 10^{-2}$	0.12	$1.99 \cdot 10^{-2}$
1.8	2.24	0.33	2.23	$4.28 \cdot 10^{-2}$	$9.62 \cdot 10^{-2}$	$1.64 \cdot 10^{-2}$
1.83	2.27	0.34	2.08	$4.14 \cdot 10^{-2}$	$9.89 \cdot 10^{-2}$	$1.68 \cdot 10^{-2}$
1.85	2.18	0.32	2.08	$4.14 \cdot 10^{-2}$	$5.74 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
1.88	2.26	0.33	2.08	$4.14 \cdot 10^{-2}$	$6.27 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
1.9	2.3	0.34	1.98	$4.04 \cdot 10^{-2}$	$3.75 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$
1.93	2.28	0.34	1.92	$3.98 \cdot 10^{-2}$	$3.09 \cdot 10^{-2}$	$8.29 \cdot 10^{-3}$
1.95	2.37	0.35	1.88	$3.94 \cdot 10^{-2}$	$3.47 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
1.98	2.4	0.35	1.8	$3.85 \cdot 10^{-2}$	$2.43 \cdot 10^{-2}$	$7.33 \cdot 10^{-3}$
2	2.48	0.37	1.71	$3.75 \cdot 10^{-2}$	$2.64 \cdot 10^{-2}$	$8.36 \cdot 10^{-3}$
2.03	2.46	0.36	1.81	$3.86 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$	$7.32 \cdot 10^{-3}$
2.05	2.49	0.37	1.69	$3.73 \cdot 10^{-2}$	$1.82 \cdot 10^{-2}$	$7.21 \cdot 10^{-3}$
2.08	2.41	0.36	1.63	$3.67 \cdot 10^{-2}$	$2.05 \cdot 10^{-2}$	$8.02 \cdot 10^{-3}$
2.1	2.48	0.37	1.57	$3.6 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$
2.13	2.51	0.37	1.5	$3.52 \cdot 10^{-2}$	$7.55 \cdot 10^{-3}$	$4.43 \cdot 10^{-3}$
2.15	2.53	0.37	1.57	$3.6 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$	$4.57 \cdot 10^{-3}$
2.18	2.5	0.37	1.49	$3.51 \cdot 10^{-2}$	$1.68 \cdot 10^{-2}$	$7.37 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 75. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.62 \cdot 10^{-4}$	$4.06 \cdot 10^{-4}$	0	0	0	0
1.15	$5.62 \cdot 10^{-4}$	$4.06 \cdot 10^{-4}$	0	0	0	0
1.18	$1.12 \cdot 10^{-3}$	$5.86 \cdot 10^{-4}$	0	0	0	0
1.2	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	$4.83 \cdot 10^{-4}$	$4.83 \cdot 10^{-4}$
1.23	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	0	0
1.25	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	0	0
1.28	$5.62 \cdot 10^{-4}$	$4.06 \cdot 10^{-4}$	0	0	0	0
1.3	$1.41 \cdot 10^{-3}$	$6.61 \cdot 10^{-4}$	0	0	$4.68 \cdot 10^{-4}$	$4.68 \cdot 10^{-4}$
1.33	$2.25 \cdot 10^{-3}$	$8.61 \cdot 10^{-4}$	0	0	0	0
1.35	$5.06 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	0	0	0	0
1.38	$1.85 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	$3.96 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$6.15 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$
1.4	$4.83 \cdot 10^{-2}$	$8 \cdot 10^{-3}$	$2.97 \cdot 10^{-2}$	$3.83 \cdot 10^{-3}$	$5.23 \cdot 10^{-2}$	$6.65 \cdot 10^{-3}$
1.43	0.12	$1.8 \cdot 10^{-2}$	$8.56 \cdot 10^{-2}$	$6.51 \cdot 10^{-3}$	0.17	$1.22 \cdot 10^{-2}$
1.45	0.25	$3.71 \cdot 10^{-2}$	0.21	$1.03 \cdot 10^{-2}$	0.4	$1.98 \cdot 10^{-2}$
1.48	0.43	$6.42 \cdot 10^{-2}$	0.35	$1.31 \cdot 10^{-2}$	0.72	$2.83 \cdot 10^{-2}$
1.5	0.57	$8.54 \cdot 10^{-2}$	0.51	$1.58 \cdot 10^{-2}$	1.01	$3.56 \cdot 10^{-2}$
1.53	0.73	0.11	0.63	$1.77 \cdot 10^{-2}$	1.33	$4.18 \cdot 10^{-2}$
1.55	0.86	0.13	0.77	$1.95 \cdot 10^{-2}$	1.5	$4.56 \cdot 10^{-2}$
1.58	0.93	0.14	0.85	$2.05 \cdot 10^{-2}$	1.46	$4.58 \cdot 10^{-2}$
1.6	1	0.15	0.96	$2.18 \cdot 10^{-2}$	1.34	$4.48 \cdot 10^{-2}$
1.63	1.1	0.16	1.12	$2.36 \cdot 10^{-2}$	1.24	$4.27 \cdot 10^{-2}$
1.65	1.26	0.19	1.32	$2.55 \cdot 10^{-2}$	1.13	$4.23 \cdot 10^{-2}$
1.68	1.29	0.19	1.55	$2.77 \cdot 10^{-2}$	1.02	$4.13 \cdot 10^{-2}$

TABLE 75 Continued.						
$d(e, e' \pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.34	0.2	1.75	$2.95 \cdot 10^{-2}$	0.89	$3.94 \cdot 10^{-2}$
1.73	1.37	0.2	1.89	$3.06 \cdot 10^{-2}$	0.62	$3.2 \cdot 10^{-2}$
1.75	1.4	0.21	1.91	$3.07 \cdot 10^{-2}$	0.48	$2.78 \cdot 10^{-2}$
1.78	1.39	0.21	1.84	$3.02 \cdot 10^{-2}$	0.36	$2.46 \cdot 10^{-2}$
1.8	1.41	0.21	1.88	$3.05 \cdot 10^{-2}$	0.3	$2.21 \cdot 10^{-2}$
1.83	1.45	0.21	1.93	$3.09 \cdot 10^{-2}$	0.24	$1.97 \cdot 10^{-2}$
1.85	1.47	0.22	1.88	$3.05 \cdot 10^{-2}$	0.21	$1.82 \cdot 10^{-2}$
1.88	1.51	0.22	1.86	$3.04 \cdot 10^{-2}$	0.2	$1.7 \cdot 10^{-2}$
1.9	1.57	0.23	1.83	$3.01 \cdot 10^{-2}$	0.17	$1.54 \cdot 10^{-2}$
1.93	1.58	0.23	1.82	$3 \cdot 10^{-2}$	0.15	$1.49 \cdot 10^{-2}$
1.95	1.61	0.24	1.75	$2.94 \cdot 10^{-2}$	0.13	$1.28 \cdot 10^{-2}$
1.98	1.6	0.24	1.66	$2.87 \cdot 10^{-2}$	0.12	$1.15 \cdot 10^{-2}$
2	1.61	0.24	1.64	$2.85 \cdot 10^{-2}$	$8.48 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
2.03	1.59	0.24	1.54	$2.76 \cdot 10^{-2}$	$6.41 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$
2.05	1.62	0.24	1.47	$2.7 \cdot 10^{-2}$	$5.34 \cdot 10^{-2}$	$8.93 \cdot 10^{-3}$
2.08	1.61	0.24	1.42	$2.65 \cdot 10^{-2}$	$4.01 \cdot 10^{-2}$	$7.46 \cdot 10^{-3}$
2.1	1.66	0.24	1.31	$2.55 \cdot 10^{-2}$	$2.6 \cdot 10^{-2}$	$6.61 \cdot 10^{-3}$
2.13	1.66	0.24	1.31	$2.55 \cdot 10^{-2}$	$1.91 \cdot 10^{-2}$	$5.04 \cdot 10^{-3}$
2.15	1.62	0.24	1.27	$2.51 \cdot 10^{-2}$	$2 \cdot 10^{-2}$	$5.69 \cdot 10^{-3}$
2.18	1.64	0.24	1.23	$2.46 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$	$4.74 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 76. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$2.01 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	0	0
1.3	0	0	0	0	0	0
1.33	$2.01 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	0	0
1.35	$2.01 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$2.01 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	$2.01 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$	0	0	$3.58 \cdot 10^{-4}$	$3.58 \cdot 10^{-4}$
1.55	$6.02 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$	0	0	0	0
1.58	$6.02 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$	0	0	0	0
1.6	$2.61 \cdot 10^{-3}$	$8.19 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.53 \cdot 10^{-4}$	$3.69 \cdot 10^{-4}$	$3.69 \cdot 10^{-4}$
1.63	$7.43 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	$7.78 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$	$5.28 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$
1.65	$2.71 \cdot 10^{-2}$	$4.61 \cdot 10^{-3}$	$2.93 \cdot 10^{-2}$	$3.22 \cdot 10^{-3}$	$4.55 \cdot 10^{-2}$	$5.01 \cdot 10^{-3}$
1.68	$7.65 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$7.95 \cdot 10^{-2}$	$5.3 \cdot 10^{-3}$	0.13	$8.22 \cdot 10^{-3}$

TABLE 76 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.16	$2.36 \cdot 10^{-2}$	0.17	$7.7 \cdot 10^{-3}$	0.26	$1.23 \cdot 10^{-2}$
1.73	0.28	$4.12 \cdot 10^{-2}$	0.28	$9.93 \cdot 10^{-3}$	0.4	$1.62 \cdot 10^{-2}$
1.75	0.36	$5.29 \cdot 10^{-2}$	0.38	$1.17 \cdot 10^{-2}$	0.49	$1.91 \cdot 10^{-2}$
1.78	0.44	$6.53 \cdot 10^{-2}$	0.45	$1.26 \cdot 10^{-2}$	0.54	$2.08 \cdot 10^{-2}$
1.8	0.49	$7.32 \cdot 10^{-2}$	0.52	$1.35 \cdot 10^{-2}$	0.57	$2.17 \cdot 10^{-2}$
1.83	0.53	$7.85 \cdot 10^{-2}$	0.58	$1.43 \cdot 10^{-2}$	0.54	$2.11 \cdot 10^{-2}$
1.85	0.59	$8.73 \cdot 10^{-2}$	0.67	$1.54 \cdot 10^{-2}$	0.55	$2.13 \cdot 10^{-2}$
1.88	0.64	$9.54 \cdot 10^{-2}$	0.74	$1.62 \cdot 10^{-2}$	0.55	$2.15 \cdot 10^{-2}$
1.9	0.71	0.11	0.82	$1.7 \cdot 10^{-2}$	0.5	$2.06 \cdot 10^{-2}$
1.93	0.76	0.11	0.89	$1.77 \cdot 10^{-2}$	0.49	$2.01 \cdot 10^{-2}$
1.95	0.8	0.12	0.93	$1.81 \cdot 10^{-2}$	0.45	$1.94 \cdot 10^{-2}$
1.98	0.85	0.13	0.94	$1.83 \cdot 10^{-2}$	0.43	$1.9 \cdot 10^{-2}$
2	0.85	0.13	0.98	$1.87 \cdot 10^{-2}$	0.36	$1.78 \cdot 10^{-2}$
2.03	0.85	0.13	0.98	$1.86 \cdot 10^{-2}$	0.31	$1.61 \cdot 10^{-2}$
2.05	0.8	0.12	0.99	$1.87 \cdot 10^{-2}$	0.22	$1.36 \cdot 10^{-2}$
2.08	0.81	0.12	0.96	$1.84 \cdot 10^{-2}$	0.2	$1.25 \cdot 10^{-2}$
2.1	0.77	0.11	0.96	$1.84 \cdot 10^{-2}$	0.13	$1.02 \cdot 10^{-2}$
2.13	0.79	0.12	0.93	$1.81 \cdot 10^{-2}$	0.11	$8.78 \cdot 10^{-3}$
2.15	0.75	0.11	0.89	$1.78 \cdot 10^{-2}$	$9.99 \cdot 10^{-2}$	$8.31 \cdot 10^{-3}$
2.18	0.71	0.11	0.87	$1.75 \cdot 10^{-2}$	$8.29 \cdot 10^{-2}$	$7.56 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 77. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 77 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	0	0
1.75	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	0	0	0	0	0	0
1.83	0	0	0	0	0	0
1.85	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	0	0
1.88	0	0	0	0	0	0
1.9	0	0	0	0	$5.02 \cdot 10^{-4}$	$5.02 \cdot 10^{-4}$
1.93	$2.81 \cdot 10^{-4}$	$2.84 \cdot 10^{-4}$	0	0	0	0
1.95	$1.97 \cdot 10^{-3}$	$7.98 \cdot 10^{-4}$	0	0	$3.45 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
1.98	$1.55 \cdot 10^{-2}$	$3.08 \cdot 10^{-3}$	$7.92 \cdot 10^{-3}$	$1.98 \cdot 10^{-3}$	$2.45 \cdot 10^{-2}$	$3.92 \cdot 10^{-3}$
2	$5.45 \cdot 10^{-2}$	$8.92 \cdot 10^{-3}$	$2.77 \cdot 10^{-2}$	$3.7 \cdot 10^{-3}$	$6.95 \cdot 10^{-2}$	$6.42 \cdot 10^{-3}$
2.03	0.11	$1.72 \cdot 10^{-2}$	$5.34 \cdot 10^{-2}$	$5.14 \cdot 10^{-3}$	0.14	$9.1 \cdot 10^{-3}$
2.05	0.17	$2.53 \cdot 10^{-2}$	0.1	$7.14 \cdot 10^{-3}$	0.22	$1.16 \cdot 10^{-2}$
2.08	0.21	$3.21 \cdot 10^{-2}$	0.13	$8.04 \cdot 10^{-3}$	0.27	$1.28 \cdot 10^{-2}$
2.1	0.24	$3.64 \cdot 10^{-2}$	0.14	$8.47 \cdot 10^{-3}$	0.27	$1.28 \cdot 10^{-2}$
2.13	0.24	$3.68 \cdot 10^{-2}$	0.15	$8.56 \cdot 10^{-3}$	0.28	$1.29 \cdot 10^{-2}$
2.15	0.27	$4.03 \cdot 10^{-2}$	0.19	$9.72 \cdot 10^{-3}$	0.25	$1.21 \cdot 10^{-2}$
2.18	0.26	$3.87 \cdot 10^{-2}$	0.19	$9.65 \cdot 10^{-3}$	0.2	$1.09 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 78. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5 \cdot 10^{-3}$	$1.91 \cdot 10^{-3}$	0	0	0	0
1.15	$3.12 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	0	0	0	0
1.18	$3.12 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	0	0	0	0
1.2	$5.62 \cdot 10^{-3}$	$2.05 \cdot 10^{-3}$	0	0	0	0
1.23	$7.49 \cdot 10^{-3}$	$2.43 \cdot 10^{-3}$	0	0	0	0
1.25	$9.99 \cdot 10^{-3}$	$2.9 \cdot 10^{-3}$	0	0	0	0
1.28	$3.87 \cdot 10^{-2}$	$7.52 \cdot 10^{-3}$	$7.7 \cdot 10^{-3}$	$2.91 \cdot 10^{-3}$	$5.48 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$
1.3	0.12	$1.98 \cdot 10^{-2}$	$2.53 \cdot 10^{-2}$	$5.27 \cdot 10^{-3}$	0.11	$1.49 \cdot 10^{-2}$
1.33	0.39	$5.95 \cdot 10^{-2}$	0.21	$1.5 \cdot 10^{-2}$	0.67	$4.07 \cdot 10^{-2}$
1.35	0.85	0.13	0.54	$2.43 \cdot 10^{-2}$	1.87	$7.27 \cdot 10^{-2}$
1.38	1.55	0.23	0.92	$3.18 \cdot 10^{-2}$	2.85	$9.19 \cdot 10^{-2}$
1.4	2.24	0.33	1.41	$3.93 \cdot 10^{-2}$	3.64	0.12
1.43	2.97	0.44	1.8	$4.45 \cdot 10^{-2}$	4.26	0.13
1.45	3.54	0.52	2.24	$4.97 \cdot 10^{-2}$	4.67	0.14
1.48	3.93	0.58	2.54	$5.29 \cdot 10^{-2}$	4.98	0.15
1.5	3.99	0.59	2.82	$5.57 \cdot 10^{-2}$	4.81	0.15
1.53	3.78	0.56	2.79	$5.53 \cdot 10^{-2}$	3.84	0.13
1.55	3.33	0.49	2.79	$5.54 \cdot 10^{-2}$	2.76	0.12
1.58	3.14	0.46	3.12	$5.85 \cdot 10^{-2}$	1.65	$8.99 \cdot 10^{-2}$
1.6	3.2	0.47	3.57	$6.26 \cdot 10^{-2}$	1.16	$7.66 \cdot 10^{-2}$
1.63	3.61	0.53	4.4	$6.96 \cdot 10^{-2}$	0.99	$6.97 \cdot 10^{-2}$
1.65	4.03	0.59	5.45	$7.74 \cdot 10^{-2}$	0.84	$6.4 \cdot 10^{-2}$
1.68	4.36	0.64	6.17	$8.24 \cdot 10^{-2}$	0.7	$5.66 \cdot 10^{-2}$

TABLE 78 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.76	0.7	6.39	$8.38 \cdot 10^{-2}$	0.66	$5.21 \cdot 10^{-2}$
1.73	4.81	0.71	5.94	$8.08 \cdot 10^{-2}$	0.57	$4.97 \cdot 10^{-2}$
1.75	4.9	0.72	5.31	$7.64 \cdot 10^{-2}$	0.49	$4.66 \cdot 10^{-2}$
1.78	4.83	0.71	4.78	$7.25 \cdot 10^{-2}$	0.4	$4.05 \cdot 10^{-2}$
1.8	4.65	0.69	4.52	$7.05 \cdot 10^{-2}$	0.35	$3.8 \cdot 10^{-2}$
1.83	4.54	0.67	4.46	$7 \cdot 10^{-2}$	0.29	$3.46 \cdot 10^{-2}$
1.85	4.6	0.68	4.24	$6.83 \cdot 10^{-2}$	0.23	$2.98 \cdot 10^{-2}$
1.88	4.64	0.68	4.04	$6.67 \cdot 10^{-2}$	0.2	$2.97 \cdot 10^{-2}$
1.9	4.7	0.69	4.03	$6.66 \cdot 10^{-2}$	0.17	$2.66 \cdot 10^{-2}$
1.93	4.71	0.69	3.94	$6.58 \cdot 10^{-2}$	$9.2 \cdot 10^{-2}$	$1.86 \cdot 10^{-2}$
1.95	4.75	0.7	3.78	$6.45 \cdot 10^{-2}$	0.12	$2.31 \cdot 10^{-2}$
1.98	4.84	0.71	3.68	$6.36 \cdot 10^{-2}$	$9.58 \cdot 10^{-2}$	$2.13 \cdot 10^{-2}$
2	4.78	0.7	3.52	$6.22 \cdot 10^{-2}$	$5.74 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.03	4.87	0.72	3.56	$6.26 \cdot 10^{-2}$	$7.32 \cdot 10^{-2}$	$1.71 \cdot 10^{-2}$
2.05	4.78	0.7	3.42	$6.13 \cdot 10^{-2}$	$4.97 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$
2.08	4.83	0.71	3.35	$6.07 \cdot 10^{-2}$	$3.58 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$
2.1	4.91	0.72	3.09	$5.83 \cdot 10^{-2}$	$4.98 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$
2.13	4.94	0.73	3.07	$5.81 \cdot 10^{-2}$	$3.83 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
2.15	4.92	0.72	2.92	$5.66 \cdot 10^{-2}$	$3.49 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
2.18	4.92	0.72	2.92	$5.67 \cdot 10^{-2}$	$3.33 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
2.2	4.98	0.73	2.93	$5.67 \cdot 10^{-2}$	$3.8 \cdot 10^{-2}$	$1.21 \cdot 10^{-2}$
2.23	5.11	0.75	2.77	$5.52 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$6.14 \cdot 10^{-3}$
2.25	5.09	0.75	2.68	$5.43 \cdot 10^{-2}$	$2.52 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$
2.28	5.06	0.75	2.66	$5.41 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$	$7.77 \cdot 10^{-3}$

TABLE 79. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
1.15	$7.49 \cdot 10^{-4}$	$5.41 \cdot 10^{-4}$	0	0	0	0
1.18	$1.5 \cdot 10^{-3}$	$7.81 \cdot 10^{-4}$	0	0	0	0
1.2	$3.37 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	0	0	0	0
1.23	$1.12 \cdot 10^{-3}$	$6.7 \cdot 10^{-4}$	0	0	0	0
1.25	$2.25 \cdot 10^{-3}$	$9.75 \cdot 10^{-4}$	0	0	0	0
1.28	$7.49 \cdot 10^{-4}$	$5.41 \cdot 10^{-4}$	0	0	0	0
1.3	$1.5 \cdot 10^{-3}$	$7.81 \cdot 10^{-4}$	0	0	0	0
1.33	$1.5 \cdot 10^{-3}$	$7.81 \cdot 10^{-4}$	0	0	0	0
1.35	$1.12 \cdot 10^{-3}$	$6.7 \cdot 10^{-4}$	0	0	0	0
1.38	$1.87 \cdot 10^{-3}$	$8.82 \cdot 10^{-4}$	0	0	0	0
1.4	$3.37 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$7.84 \cdot 10^{-4}$	$7.84 \cdot 10^{-4}$
1.43	$1.09 \cdot 10^{-2}$	$2.57 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	$3.32 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$
1.45	$4.57 \cdot 10^{-2}$	$7.89 \cdot 10^{-3}$	$1.85 \cdot 10^{-2}$	$3.49 \cdot 10^{-3}$	$3.96 \cdot 10^{-2}$	$6.22 \cdot 10^{-3}$
1.48	0.18	$2.74 \cdot 10^{-2}$	0.1	$8.21 \cdot 10^{-3}$	0.31	$1.83 \cdot 10^{-2}$
1.5	0.48	$7.2 \cdot 10^{-2}$	0.36	$1.53 \cdot 10^{-2}$	1.11	$3.81 \cdot 10^{-2}$
1.53	0.94	0.14	0.69	$2.14 \cdot 10^{-2}$	2.22	$5.83 \cdot 10^{-2}$
1.55	1.37	0.2	1.05	$2.63 \cdot 10^{-2}$	3.03	$7.02 \cdot 10^{-2}$
1.58	1.69	0.25	1.25	$2.87 \cdot 10^{-2}$	3.17	$7.54 \cdot 10^{-2}$
1.6	2.01	0.3	1.38	$3.02 \cdot 10^{-2}$	3.08	$7.68 \cdot 10^{-2}$
1.63	2.22	0.33	1.66	$3.31 \cdot 10^{-2}$	2.93	$7.76 \cdot 10^{-2}$
1.65	2.46	0.36	2	$3.64 \cdot 10^{-2}$	2.86	$7.83 \cdot 10^{-2}$
1.68	2.64	0.39	2.48	$4.04 \cdot 10^{-2}$	2.85	$7.99 \cdot 10^{-2}$

TABLE 79 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.91	0.43	2.92	$4.39 \cdot 10^{-2}$	3.02	$8.25 \cdot 10^{-2}$
1.73	3.24	0.48	3.41	$4.74 \cdot 10^{-2}$	2.9	$8.2 \cdot 10^{-2}$
1.75	3.32	0.49	3.66	$4.91 \cdot 10^{-2}$	2.41	$7.46 \cdot 10^{-2}$
1.78	3.21	0.47	3.65	$4.91 \cdot 10^{-2}$	1.83	$6.52 \cdot 10^{-2}$
1.8	3.11	0.46	3.73	$4.96 \cdot 10^{-2}$	1.33	$5.37 \cdot 10^{-2}$
1.83	3.11	0.46	3.64	$4.9 \cdot 10^{-2}$	0.98	$4.61 \cdot 10^{-2}$
1.85	3.12	0.46	3.76	$4.98 \cdot 10^{-2}$	0.79	$4.12 \cdot 10^{-2}$
1.88	3.16	0.47	3.68	$4.93 \cdot 10^{-2}$	0.66	$3.73 \cdot 10^{-2}$
1.9	3.29	0.49	3.68	$4.93 \cdot 10^{-2}$	0.54	$3.24 \cdot 10^{-2}$
1.93	3.24	0.48	3.61	$4.88 \cdot 10^{-2}$	0.5	$3.04 \cdot 10^{-2}$
1.95	3.28	0.48	3.51	$4.81 \cdot 10^{-2}$	0.43	$2.78 \cdot 10^{-2}$
1.98	3.21	0.47	3.32	$4.68 \cdot 10^{-2}$	0.37	$2.53 \cdot 10^{-2}$
2	3.15	0.46	3.17	$4.58 \cdot 10^{-2}$	0.36	$2.48 \cdot 10^{-2}$
2.03	3.22	0.47	3.06	$4.49 \cdot 10^{-2}$	0.33	$2.44 \cdot 10^{-2}$
2.05	3.17	0.47	2.95	$4.41 \cdot 10^{-2}$	0.2	$1.95 \cdot 10^{-2}$
2.08	3.16	0.47	2.82	$4.32 \cdot 10^{-2}$	0.16	$1.77 \cdot 10^{-2}$
2.1	3.25	0.48	2.7	$4.22 \cdot 10^{-2}$	$9.63 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$
2.13	3.17	0.47	2.54	$4.1 \cdot 10^{-2}$	$7.55 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
2.15	3.21	0.47	2.48	$4.04 \cdot 10^{-2}$	$5.55 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$
2.18	3.19	0.47	2.33	$3.92 \cdot 10^{-2}$	$4.71 \cdot 10^{-2}$	$9.02 \cdot 10^{-3}$
2.2	3.18	0.47	2.19	$3.8 \cdot 10^{-2}$	$5.25 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$
2.23	3.21	0.47	2.18	$3.8 \cdot 10^{-2}$	$3.96 \cdot 10^{-2}$	$9.51 \cdot 10^{-3}$
2.25	3.26	0.48	2.06	$3.69 \cdot 10^{-2}$	$3.05 \cdot 10^{-2}$	$6.56 \cdot 10^{-3}$
2.28	3.23	0.48	2.08	$3.7 \cdot 10^{-2}$	$4.19 \cdot 10^{-2}$	$9.74 \cdot 10^{-3}$

TABLE 80. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$5.35 \cdot 10^{-4}$	$3.87 \cdot 10^{-4}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$2.68 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.48	0	0	0	0	0	0
1.5	$2.68 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.53	$2.68 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.55	$8.03 \cdot 10^{-4}$	$4.78 \cdot 10^{-4}$	0	0	0	0
1.58	$1.07 \cdot 10^{-3}$	$5.58 \cdot 10^{-4}$	0	0	0	0
1.6	$2.68 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.63	$2.68 \cdot 10^{-4}$	$2.71 \cdot 10^{-4}$	0	0	0	0
1.65	$5.35 \cdot 10^{-4}$	$3.87 \cdot 10^{-4}$	0	0	0	0
1.68	$8.03 \cdot 10^{-4}$	$4.78 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$	0	0

TABLE 80 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$7.76 \cdot 10^{-3}$	$1.84 \cdot 10^{-3}$	$2.36 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	$8.65 \cdot 10^{-3}$	$2.1 \cdot 10^{-3}$
1.73	$6.18 \cdot 10^{-2}$	$9.95 \cdot 10^{-3}$	$4.29 \cdot 10^{-2}$	$4.5 \cdot 10^{-3}$	0.1	$7.72 \cdot 10^{-3}$
1.75	0.19	$2.95 \cdot 10^{-2}$	0.18	$9.28 \cdot 10^{-3}$	0.32	$1.46 \cdot 10^{-2}$
1.78	0.46	$6.8 \cdot 10^{-2}$	0.37	$1.32 \cdot 10^{-2}$	0.69	$2.38 \cdot 10^{-2}$
1.8	0.7	0.1	0.57	$1.64 \cdot 10^{-2}$	0.95	$3.07 \cdot 10^{-2}$
1.83	0.92	0.14	0.69	$1.8 \cdot 10^{-2}$	1.06	$3.4 \cdot 10^{-2}$
1.85	1.04	0.15	0.86	$2.01 \cdot 10^{-2}$	1.18	$3.59 \cdot 10^{-2}$
1.88	1.1	0.16	0.99	$2.16 \cdot 10^{-2}$	1.2	$3.67 \cdot 10^{-2}$
1.9	1.21	0.18	1.09	$2.26 \cdot 10^{-2}$	1.14	$3.58 \cdot 10^{-2}$
1.93	1.29	0.19	1.2	$2.38 \cdot 10^{-2}$	1.09	$3.54 \cdot 10^{-2}$
1.95	1.42	0.21	1.34	$2.52 \cdot 10^{-2}$	1.03	$3.44 \cdot 10^{-2}$
1.98	1.46	0.22	1.37	$2.54 \cdot 10^{-2}$	1	$3.38 \cdot 10^{-2}$
2	1.6	0.24	1.5	$2.66 \cdot 10^{-2}$	0.95	$3.28 \cdot 10^{-2}$
2.03	1.68	0.25	1.57	$2.72 \cdot 10^{-2}$	0.87	$3.13 \cdot 10^{-2}$
2.05	1.72	0.25	1.66	$2.8 \cdot 10^{-2}$	0.79	$2.97 \cdot 10^{-2}$
2.08	1.68	0.25	1.66	$2.8 \cdot 10^{-2}$	0.73	$2.89 \cdot 10^{-2}$
2.1	1.59	0.23	1.64	$2.78 \cdot 10^{-2}$	0.57	$2.55 \cdot 10^{-2}$
2.13	1.56	0.23	1.64	$2.78 \cdot 10^{-2}$	0.47	$2.23 \cdot 10^{-2}$
2.15	1.48	0.22	1.64	$2.78 \cdot 10^{-2}$	0.37	$1.9 \cdot 10^{-2}$
2.18	1.46	0.22	1.55	$2.71 \cdot 10^{-2}$	0.29	$1.62 \cdot 10^{-2}$
2.2	1.41	0.21	1.51	$2.67 \cdot 10^{-2}$	0.22	$1.39 \cdot 10^{-2}$
2.23	1.37	0.2	1.4	$2.57 \cdot 10^{-2}$	0.2	$1.28 \cdot 10^{-2}$
2.25	1.4	0.21	1.33	$2.5 \cdot 10^{-2}$	0.15	$1.12 \cdot 10^{-2}$
2.28	1.33	0.2	1.29	$2.47 \cdot 10^{-2}$	0.13	$1.02 \cdot 10^{-2}$

TABLE 81. 3D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$).

$d(e, e' \pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 81 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	0	0	0	0	0	0
1.83	0	0	0	0	0	0
1.85	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
1.88	0	0	0	0	0	0
1.9	0	0	0	0	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
2	0	0	0	0	0	0
2.03	$1.12 \cdot 10^{-3}$	$6.7 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	0	0
2.05	$1.65 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$9.9 \cdot 10^{-3}$	$2.56 \cdot 10^{-3}$	$2.56 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$
2.08	$9.29 \cdot 10^{-2}$	$1.49 \cdot 10^{-2}$	$3.1 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$	0.12	$1.02 \cdot 10^{-2}$
2.1	0.22	$3.3 \cdot 10^{-2}$	0.11	$8.4 \cdot 10^{-3}$	0.26	$1.45 \cdot 10^{-2}$
2.13	0.31	$4.75 \cdot 10^{-2}$	0.17	$1.05 \cdot 10^{-2}$	0.39	$1.76 \cdot 10^{-2}$
2.15	0.38	$5.7 \cdot 10^{-2}$	0.2	$1.16 \cdot 10^{-2}$	0.45	$1.89 \cdot 10^{-2}$
2.18	0.39	$5.79 \cdot 10^{-2}$	0.22	$1.2 \cdot 10^{-2}$	0.5	$2.03 \cdot 10^{-2}$
2.2	0.4	$6.05 \cdot 10^{-2}$	0.25	$1.27 \cdot 10^{-2}$	0.43	$1.89 \cdot 10^{-2}$
2.23	0.43	$6.46 \cdot 10^{-2}$	0.25	$1.27 \cdot 10^{-2}$	0.43	$1.87 \cdot 10^{-2}$
2.25	0.44	$6.65 \cdot 10^{-2}$	0.3	$1.41 \cdot 10^{-2}$	0.39	$1.76 \cdot 10^{-2}$
2.28	0.45	$6.78 \cdot 10^{-2}$	0.35	$1.52 \cdot 10^{-2}$	0.35	$1.68 \cdot 10^{-2}$

B.7 4D CROSS SECTION TABLES FOR $D(E, E'\Pi^+)$

TABLE 82. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$3.71 \cdot 10^{-3}$	$3.73 \cdot 10^{-3}$	0	0	0	0
1.3	$1.48 \cdot 10^{-2}$	$7.74 \cdot 10^{-3}$	0	0	0	0
1.33	$8.16 \cdot 10^{-2}$	$1.92 \cdot 10^{-2}$	$3.09 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$	$3.3 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$
1.35	0.46	$6.13 \cdot 10^{-2}$	0.18	$3.7 \cdot 10^{-2}$	0.37	$5.8 \cdot 10^{-2}$
1.38	1.2	0.14	0.59	$6.73 \cdot 10^{-2}$	1.37	0.11
1.4	2.54	0.27	1.1	$9.23 \cdot 10^{-2}$	2.77	0.17
1.43	3.82	0.4	1.58	0.11	4.12	0.2
1.45	5.06	0.52	2.43	0.14	5.04	0.22
1.48	6.3	0.65	2.8	0.15	5.24	0.22
1.5	5.81	0.6	3.02	0.15	3.64	0.19
1.53	5.1	0.53	3.18	0.16	1.27	0.11
1.55	4.75	0.49	4.65	0.19	0.73	$8.35 \cdot 10^{-2}$
1.58	5.78	0.6	7.14	0.23	0.62	$7.88 \cdot 10^{-2}$
1.6	7.35	0.75	11.05	0.29	0.5	$6.88 \cdot 10^{-2}$
1.63	9.12	0.93	13.79	0.33	0.54	$7.22 \cdot 10^{-2}$
1.65	11.17	1.13	17.07	0.36	0.43	$6.32 \cdot 10^{-2}$
1.68	12.32	1.25	17.75	0.37	0.36	$6.05 \cdot 10^{-2}$

TABLE 82 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	13.39	1.36	19.9	0.39	0.31	$5.32 \cdot 10^{-2}$
1.73	13.15	1.33	20.44	0.4	0.41	$6.51 \cdot 10^{-2}$
1.75	12.85	1.31	19.49	0.39	0.23	$4.55 \cdot 10^{-2}$
1.78	12.1	1.22	20.16	0.39	0.25	$4.84 \cdot 10^{-2}$
1.8	11.51	1.17	20.08	0.39	0.28	$5 \cdot 10^{-2}$
1.83	11.3	1.15	20.7	0.4	0.2	$4.38 \cdot 10^{-2}$
1.85	11.14	1.13	21.19	0.4	0.17	$3.98 \cdot 10^{-2}$
1.88	10.94	1.11	21.98	0.41	$8.69 \cdot 10^{-2}$	$2.9 \cdot 10^{-2}$
1.9	11.46	1.16	21.47	0.41	0.14	$3.8 \cdot 10^{-2}$
1.93	11.33	1.15	22.13	0.41	$4.79 \cdot 10^{-2}$	$1.95 \cdot 10^{-2}$
1.95	11.26	1.14	22.18	0.41	$7.25 \cdot 10^{-2}$	$2.42 \cdot 10^{-2}$
1.98	11.35	1.15	22.37	0.42	$6.68 \cdot 10^{-2}$	$2.53 \cdot 10^{-2}$
2	11.24	1.14	22.27	0.41	$9.98 \cdot 10^{-2}$	$2.88 \cdot 10^{-2}$
2.03	11.27	1.14	21.8	0.41	$4.11 \cdot 10^{-2}$	$1.84 \cdot 10^{-2}$
2.05	11.14	1.13	21.31	0.41	$8.81 \cdot 10^{-2}$	$3.11 \cdot 10^{-2}$
2.08	11.02	1.12	20.98	0.4	$2.36 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$
2.1	10.76	1.09	20.84	0.4	$3.13 \cdot 10^{-2}$	$1.81 \cdot 10^{-2}$
2.13	11.09	1.12	20.43	0.4	$2.3 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
2.15	10.12	1.03	20.09	0.39	$2.41 \cdot 10^{-2}$	$1.7 \cdot 10^{-2}$
2.18	10.07	1.02	19.27	0.39	$8.8 \cdot 10^{-3}$	$8.8 \cdot 10^{-3}$
2.2	9.56	0.97	18.7	0.38	$7.69 \cdot 10^{-3}$	$7.69 \cdot 10^{-3}$
2.23	9.71	0.99	18.4	0.38	$7.86 \cdot 10^{-3}$	$7.86 \cdot 10^{-3}$
2.25	9.46	0.96	18.51	0.38	0	0
2.28	9.21	0.93	17.83	0.37	$1.65 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$

TABLE 83. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$2.23 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	0	0	0	0
1.33	$2.23 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	0	0	0	0
1.35	$4.45 \cdot 10^{-3}$	$3.33 \cdot 10^{-3}$	0	0	$8.91 \cdot 10^{-3}$	$8.91 \cdot 10^{-3}$
1.38	$2.23 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	0	0	0	0
1.4	$8.9 \cdot 10^{-3}$	$4.54 \cdot 10^{-3}$	0	0	0	0
1.43	$2.45 \cdot 10^{-2}$	$8 \cdot 10^{-3}$	0	0	$5.21 \cdot 10^{-3}$	$5.21 \cdot 10^{-3}$
1.45	0.17	$2.55 \cdot 10^{-2}$	$7.41 \cdot 10^{-2}$	$1.85 \cdot 10^{-2}$	0.14	$2.95 \cdot 10^{-2}$
1.48	0.76	$8.81 \cdot 10^{-2}$	0.44	$4.49 \cdot 10^{-2}$	1.13	$8.02 \cdot 10^{-2}$
1.5	1.97	0.21	1.5	$8.34 \cdot 10^{-2}$	4.05	0.15
1.53	3.88	0.4	2.78	0.11	8.15	0.22
1.55	5.58	0.57	3.45	0.13	9.62	0.24
1.58	7.07	0.71	3.63	0.13	10.65	0.25
1.6	8.55	0.86	4.07	0.14	11.54	0.26
1.63	9.83	0.99	4.44	0.14	12.2	0.27
1.65	11.43	1.15	5.96	0.17	13.62	0.28
1.68	12.94	1.3	7.79	0.19	16.04	0.3

TABLE 83 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	15.48	1.55	9.84	0.21	18.75	0.33
1.73	17.39	1.75	11.68	0.23	17.42	0.32
1.75	17.23	1.73	13.28	0.25	12.84	0.27
1.78	16.21	1.63	13.35	0.25	6.43	0.19
1.8	15.74	1.58	14.47	0.26	2.27	0.11
1.83	15.02	1.51	16.27	0.27	1.38	$8.94 \cdot 10^{-2}$
1.85	15.7	1.57	18.22	0.29	0.96	$7.45 \cdot 10^{-2}$
1.88	16.08	1.61	19.01	0.3	0.86	$7.21 \cdot 10^{-2}$
1.9	15.93	1.6	19.34	0.3	0.64	$6.07 \cdot 10^{-2}$
1.93	15.78	1.58	19.75	0.3	0.56	$5.73 \cdot 10^{-2}$
1.95	14.93	1.5	19.49	0.3	0.47	$5.3 \cdot 10^{-2}$
1.98	14.17	1.42	19.5	0.3	0.31	$4.12 \cdot 10^{-2}$
2	13.14	1.32	19.36	0.3	0.48	$5.52 \cdot 10^{-2}$
2.03	12.13	1.22	18.47	0.29	0.28	$4.09 \cdot 10^{-2}$
2.05	11.55	1.16	18.44	0.29	0.3	$4.02 \cdot 10^{-2}$
2.08	11.01	1.11	17.88	0.29	0.23	$3.57 \cdot 10^{-2}$
2.1	11.14	1.12	17.04	0.28	0.18	$3.2 \cdot 10^{-2}$
2.13	10.89	1.1	16.96	0.28	0.18	$3.11 \cdot 10^{-2}$
2.15	10.53	1.06	15.98	0.27	0.14	$2.74 \cdot 10^{-2}$
2.18	10.65	1.07	16.26	0.27	0.15	$2.8 \cdot 10^{-2}$
2.2	10.51	1.06	15.86	0.27	$9.68 \cdot 10^{-2}$	$2.35 \cdot 10^{-2}$
2.23	10.76	1.08	14.99	0.26	$8.11 \cdot 10^{-2}$	$2.03 \cdot 10^{-2}$
2.25	10.43	1.05	15.07	0.26	$6.23 \cdot 10^{-2}$	$1.73 \cdot 10^{-2}$
2.28	9.98	1	14.51	0.26	$4.29 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$

TABLE 84. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$1.59 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.48	$3.18 \cdot 10^{-3}$	$2.27 \cdot 10^{-3}$	0	0	0	0
1.5	$1.59 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	$1.59 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.63	0	0	0	0	0	0
1.65	$3.18 \cdot 10^{-3}$	$2.27 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$3.77 \cdot 10^{-3}$	$3.77 \cdot 10^{-3}$
1.68	$1.27 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$7.08 \cdot 10^{-3}$	$5.01 \cdot 10^{-3}$

TABLE 84 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$7.79 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$2.32 \cdot 10^{-2}$	$8.75 \cdot 10^{-3}$	$6.22 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$
1.73	0.61	$6.8 \cdot 10^{-2}$	0.19	$2.48 \cdot 10^{-2}$	1.31	$7.37 \cdot 10^{-2}$
1.75	1.81	0.19	0.86	$5.33 \cdot 10^{-2}$	4.21	0.13
1.78	3.96	0.4	1.96	$8.06 \cdot 10^{-2}$	9.01	0.19
1.8	5.65	0.57	2.65	$9.36 \cdot 10^{-2}$	11.35	0.22
1.83	6.87	0.69	2.92	$9.83 \cdot 10^{-2}$	11.56	0.22
1.85	7.38	0.74	2.76	$9.55 \cdot 10^{-2}$	11.13	0.22
1.88	7.77	0.78	3.26	0.1	10.98	0.21
1.9	8.57	0.86	3.84	0.11	10.56	0.21
1.93	9.16	0.92	4.56	0.12	9.89	0.2
1.95	10.53	1.06	5.8	0.14	8.95	0.19
1.98	11.83	1.19	7.07	0.15	8.87	0.19
2	12.91	1.3	7.62	0.16	8.3	0.18
2.03	14.01	1.4	8.64	0.17	7.66	0.18
2.05	14.7	1.47	9.7	0.18	7.56	0.18
2.08	14.84	1.48	10.19	0.18	5.99	0.16
2.1	14.17	1.42	10.37	0.19	3.69	0.12
2.13	13.11	1.31	10.71	0.19	1.61	$8.1 \cdot 10^{-2}$
2.15	12.63	1.27	11.26	0.19	0.87	$5.94 \cdot 10^{-2}$
2.18	12.08	1.21	11.94	0.2	0.48	$4.52 \cdot 10^{-2}$
2.2	11.97	1.2	11.84	0.2	0.38	$4.05 \cdot 10^{-2}$
2.23	11.54	1.16	11.71	0.2	0.36	$3.91 \cdot 10^{-2}$
2.25	11.27	1.13	11.95	0.2	0.27	$3.48 \cdot 10^{-2}$
2.28	10.45	1.05	11.32	0.19	0.15	$2.47 \cdot 10^{-2}$

TABLE 85. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	$2.23 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	0	0	0	0

TABLE 85 Continued.						
$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$2.23 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	0	0	0	0	0	0
1.83	0	0	0	0	0	0
1.85	0	0	0	0	$5.18 \cdot 10^{-3}$	$5.18 \cdot 10^{-3}$
1.88	0	0	0	0	0	0
1.9	$2.23 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	0	0	0	0
1.93	0	0	$4.63 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$5.05 \cdot 10^{-3}$	$5.05 \cdot 10^{-3}$
1.95	$4.45 \cdot 10^{-3}$	$3.18 \cdot 10^{-3}$	0	0	0	0
1.98	$6.68 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	0	0	0	0
2	$6.68 \cdot 10^{-3}$	$3.91 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	0	0
2.03	$2.67 \cdot 10^{-2}$	$8.21 \cdot 10^{-3}$	0	0	$4.71 \cdot 10^{-3}$	$4.71 \cdot 10^{-3}$
2.05	0.19	$2.83 \cdot 10^{-2}$	$5.09 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$	0.24	$3.66 \cdot 10^{-2}$
2.08	0.87	$9.84 \cdot 10^{-2}$	0.22	$3.18 \cdot 10^{-2}$	1.66	$9.63 \cdot 10^{-2}$
2.1	2.36	0.25	0.64	$5.44 \cdot 10^{-2}$	4.71	0.16
2.13	4.09	0.42	1.17	$7.37 \cdot 10^{-2}$	7.02	0.2
2.15	5.31	0.54	1.58	$8.57 \cdot 10^{-2}$	7.89	0.21
2.18	6.08	0.62	1.77	$9.06 \cdot 10^{-2}$	8.05	0.22
2.2	6.71	0.68	2.1	$9.86 \cdot 10^{-2}$	7.92	0.21
2.23	7.03	0.71	2.48	0.11	7.21	0.21
2.25	7.93	0.8	3.43	0.13	6.66	0.2
2.28	8.39	0.85	4.04	0.14	6.24	0.19

TABLE 86. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.59 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.15	$1.59 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.18	$3.18 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	0	0
1.2	$3.18 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	0	0
1.23	$7.95 \cdot 10^{-3}$	$3.64 \cdot 10^{-3}$	0	0	0	0
1.25	$1.59 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$	0	0	0	0
1.28	$2.86 \cdot 10^{-2}$	$7.51 \cdot 10^{-3}$	0	0	$3.61 \cdot 10^{-3}$	$3.61 \cdot 10^{-3}$
1.3	$6.2 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$	0	0	$3.3 \cdot 10^{-3}$	$3.3 \cdot 10^{-3}$
1.33	0.3	$3.87 \cdot 10^{-2}$	$7.94 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$	0.2	$3.01 \cdot 10^{-2}$
1.35	0.7	$7.84 \cdot 10^{-2}$	0.31	$3.23 \cdot 10^{-2}$	0.83	$5.86 \cdot 10^{-2}$
1.38	1.46	0.15	0.71	$4.85 \cdot 10^{-2}$	2.18	$9.51 \cdot 10^{-2}$
1.4	2.41	0.25	1.45	$6.92 \cdot 10^{-2}$	3.03	0.11
1.43	3.11	0.32	1.8	$7.73 \cdot 10^{-2}$	3.48	0.12
1.45	3.95	0.4	2.52	$9.12 \cdot 10^{-2}$	3.95	0.13
1.48	4.68	0.47	3.15	0.1	5.18	0.15
1.5	5	0.51	3.48	0.11	6.4	0.16
1.53	4.88	0.49	3.72	0.11	5.24	0.15
1.55	4.11	0.42	3.25	0.1	2.9	0.11
1.58	3.45	0.35	2.66	$9.38 \cdot 10^{-2}$	0.92	$6.25 \cdot 10^{-2}$
1.6	3.28	0.33	2.97	$9.91 \cdot 10^{-2}$	0.44	$4.18 \cdot 10^{-2}$
1.63	3.37	0.34	3.72	0.11	0.33	$3.67 \cdot 10^{-2}$
1.65	3.64	0.37	4.6	0.12	0.26	$3.34 \cdot 10^{-2}$
1.68	4.35	0.44	5.3	0.13	0.24	$3.13 \cdot 10^{-2}$

TABLE 86 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.63	0.47	5.52	0.14	0.22	$3.07 \cdot 10^{-2}$
1.73	5.04	0.51	5.63	0.14	0.17	$2.63 \cdot 10^{-2}$
1.75	5.09	0.52	5.23	0.13	0.13	$2.28 \cdot 10^{-2}$
1.78	4.88	0.49	5.01	0.13	0.16	$2.62 \cdot 10^{-2}$
1.8	4.76	0.48	5.1	0.13	0.1	$1.94 \cdot 10^{-2}$
1.83	4.45	0.45	5.11	0.13	$7.35 \cdot 10^{-2}$	$1.69 \cdot 10^{-2}$
1.85	4.46	0.45	5.4	0.13	0.11	$2.28 \cdot 10^{-2}$
1.88	4.64	0.47	5.62	0.14	$8.19 \cdot 10^{-2}$	$1.88 \cdot 10^{-2}$
1.9	4.63	0.47	5.54	0.14	$7.15 \cdot 10^{-2}$	$1.64 \cdot 10^{-2}$
1.93	5.02	0.51	5.55	0.14	$7.22 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$
1.95	5.49	0.55	6.03	0.14	$6.41 \cdot 10^{-2}$	$1.66 \cdot 10^{-2}$
1.98	5.74	0.58	6.05	0.14	$4.8 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$
2	5.97	0.6	6.53	0.15	$4.8 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$
2.03	6.35	0.64	6.77	0.15	$5.82 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.05	6.69	0.67	6.57	0.15	$4.4 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$
2.08	7.01	0.71	7.23	0.15	$4.24 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$
2.1	7.24	0.73	7.47	0.16	$2.41 \cdot 10^{-2}$	$9.09 \cdot 10^{-3}$
2.13	7.91	0.8	7.27	0.16	$2.39 \cdot 10^{-2}$	$9.77 \cdot 10^{-3}$
2.15	8.02	0.81	8	0.16	$3.41 \cdot 10^{-3}$	$3.41 \cdot 10^{-3}$
2.18	8.66	0.87	8.03	0.16	$2.14 \cdot 10^{-2}$	$9.56 \cdot 10^{-3}$
2.2	8.8	0.88	8.04	0.16	$2.38 \cdot 10^{-2}$	$8.98 \cdot 10^{-3}$
2.23	9.16	0.92	8.22	0.16	$3.45 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$
2.25	9.4	0.94	8.26	0.17	$1.66 \cdot 10^{-2}$	$7.44 \cdot 10^{-3}$
2.28	9.62	0.97	8.58	0.17	$3.54 \cdot 10^{-3}$	$3.54 \cdot 10^{-3}$

TABLE 87. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$9.54 \cdot 10^{-4}$	$9.59 \cdot 10^{-4}$	0	0	0	0
1.2	$1.91 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.23	$9.54 \cdot 10^{-4}$	$9.59 \cdot 10^{-4}$	0	0	0	0
1.25	$9.54 \cdot 10^{-4}$	$9.59 \cdot 10^{-4}$	0	0	0	0
1.28	$1.91 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.3	$1.91 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.33	$3.82 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$	0	0	0	0
1.35	$5.72 \cdot 10^{-3}$	$2.41 \cdot 10^{-3}$	0	0	0	0
1.38	$3.82 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$	0	0	0	0
1.4	$2.86 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.43	$8.59 \cdot 10^{-3}$	$3.05 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$
1.45	$2.39 \cdot 10^{-2}$	$5.33 \cdot 10^{-3}$	0	0	$4.07 \cdot 10^{-3}$	$2.88 \cdot 10^{-3}$
1.48	0.11	$1.59 \cdot 10^{-2}$	$3.18 \cdot 10^{-2}$	$7.94 \cdot 10^{-3}$	$4.34 \cdot 10^{-2}$	$9.95 \cdot 10^{-3}$
1.5	0.35	$4.01 \cdot 10^{-2}$	0.23	$2.12 \cdot 10^{-2}$	0.54	$3.6 \cdot 10^{-2}$
1.53	0.94	$9.87 \cdot 10^{-2}$	0.67	$3.65 \cdot 10^{-2}$	1.93	$6.91 \cdot 10^{-2}$
1.55	1.68	0.17	1.41	$5.29 \cdot 10^{-2}$	3.9	$9.83 \cdot 10^{-2}$
1.58	2.4	0.24	1.92	$6.18 \cdot 10^{-2}$	4.42	0.1
1.6	3.02	0.31	2.2	$6.62 \cdot 10^{-2}$	4.5	0.1
1.63	3.6	0.36	2.23	$6.65 \cdot 10^{-2}$	5.02	0.11
1.65	4.12	0.41	2.41	$6.93 \cdot 10^{-2}$	5.79	0.12
1.68	4.53	0.46	2.67	$7.29 \cdot 10^{-2}$	6.36	0.13

TABLE 87 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.58	0.46	3.02	$7.74 \cdot 10^{-2}$	6.6	0.13
1.73	4.96	0.5	3.43	$8.26 \cdot 10^{-2}$	5.81	0.12
1.75	5.01	0.5	3.68	$8.55 \cdot 10^{-2}$	4.9	0.11
1.78	5.24	0.53	3.83	$8.72 \cdot 10^{-2}$	4.1	0.1
1.8	5.17	0.52	4.11	$9.03 \cdot 10^{-2}$	2.95	$8.57 \cdot 10^{-2}$
1.83	5.15	0.52	3.92	$8.83 \cdot 10^{-2}$	1.78	$6.73 \cdot 10^{-2}$
1.85	5.27	0.53	4.02	$8.93 \cdot 10^{-2}$	1.1	$5.26 \cdot 10^{-2}$
1.88	5.43	0.55	4.01	$8.92 \cdot 10^{-2}$	0.64	$3.93 \cdot 10^{-2}$
1.9	5.71	0.58	4.29	$9.23 \cdot 10^{-2}$	0.41	$3.2 \cdot 10^{-2}$
1.93	5.93	0.59	4.35	$9.3 \cdot 10^{-2}$	0.3	$2.76 \cdot 10^{-2}$
1.95	6.31	0.63	4.89	$9.85 \cdot 10^{-2}$	0.19	$2.13 \cdot 10^{-2}$
1.98	6.47	0.65	4.76	$9.73 \cdot 10^{-2}$	0.22	$2.39 \cdot 10^{-2}$
2	6.54	0.66	4.99	$9.96 \cdot 10^{-2}$	0.19	$2.12 \cdot 10^{-2}$
2.03	6.76	0.68	5.13	0.1	0.2	$2.21 \cdot 10^{-2}$
2.05	6.63	0.66	5.51	0.1	0.17	$2.11 \cdot 10^{-2}$
2.08	6.96	0.7	5.44	0.1	0.17	$2.07 \cdot 10^{-2}$
2.1	6.92	0.69	5.5	0.1	0.12	$1.69 \cdot 10^{-2}$
2.13	7.2	0.72	5.5	0.1	$9.7 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.15	7.46	0.75	5.58	0.11	0.11	$1.61 \cdot 10^{-2}$
2.18	7.53	0.76	5.65	0.11	0.1	$1.63 \cdot 10^{-2}$
2.2	8.11	0.81	5.8	0.11	$6.92 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
2.23	8	0.8	5.9	0.11	$7.5 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
2.25	8.38	0.84	5.79	0.11	$8.53 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$
2.28	8.75	0.88	5.76	0.11	$6.45 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$

TABLE 88. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e' \pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$6.81 \cdot 10^{-4}$	$6.85 \cdot 10^{-4}$	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$1.36 \cdot 10^{-3}$	$9.73 \cdot 10^{-4}$	0	0	0	0
1.33	$2.04 \cdot 10^{-3}$	$1.2 \cdot 10^{-3}$	0	0	0	0
1.35	$6.81 \cdot 10^{-4}$	$6.85 \cdot 10^{-4}$	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$6.81 \cdot 10^{-4}$	$6.85 \cdot 10^{-4}$	0	0	0	0
1.43	$1.36 \cdot 10^{-3}$	$9.73 \cdot 10^{-4}$	0	0	0	0
1.45	$6.81 \cdot 10^{-4}$	$6.85 \cdot 10^{-4}$	0	0	0	0
1.48	0	0	0	0	0	0
1.5	$1.36 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$	0	0	0	0
1.53	$4.09 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$	0	0	0	0
1.55	$4.09 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$	$2.84 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	0	0
1.58	$3.41 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.6	$2.73 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0
1.63	$3.41 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$	0	0	0	0
1.65	$5.45 \cdot 10^{-3}$	$2 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0
1.68	$6.13 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0

TABLE 88 Continued.						
$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$5.45 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0
1.73	$9.54 \cdot 10^{-3}$	$2.74 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$2.77 \cdot 10^{-3}$	$1.96 \cdot 10^{-3}$
1.75	$3.27 \cdot 10^{-2}$	$5.89 \cdot 10^{-3}$	$8.51 \cdot 10^{-3}$	$3.47 \cdot 10^{-3}$	$2.54 \cdot 10^{-2}$	$7.03 \cdot 10^{-3}$
1.78	0.14	$1.69 \cdot 10^{-2}$	$9.22 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	0.24	$2.04 \cdot 10^{-2}$
1.8	0.35	$3.84 \cdot 10^{-2}$	0.27	$1.97 \cdot 10^{-2}$	0.78	$3.71 \cdot 10^{-2}$
1.83	0.69	$7.24 \cdot 10^{-2}$	0.65	$3.03 \cdot 10^{-2}$	1.46	$5.08 \cdot 10^{-2}$
1.85	0.99	0.1	0.82	$3.42 \cdot 10^{-2}$	1.84	$5.68 \cdot 10^{-2}$
1.88	1.28	0.13	1.1	$3.96 \cdot 10^{-2}$	2.06	$6.09 \cdot 10^{-2}$
1.9	1.45	0.15	1.16	$4.06 \cdot 10^{-2}$	2.11	$6.14 \cdot 10^{-2}$
1.93	1.58	0.16	1.31	$4.31 \cdot 10^{-2}$	2.05	$6.04 \cdot 10^{-2}$
1.95	1.79	0.18	1.5	$4.61 \cdot 10^{-2}$	2.08	$6.06 \cdot 10^{-2}$
1.98	1.99	0.2	1.59	$4.76 \cdot 10^{-2}$	1.98	$5.9 \cdot 10^{-2}$
2	2.29	0.23	1.72	$4.94 \cdot 10^{-2}$	1.91	$5.83 \cdot 10^{-2}$
2.03	2.57	0.26	2.01	$5.34 \cdot 10^{-2}$	1.79	$5.62 \cdot 10^{-2}$
2.05	2.98	0.3	2.17	$5.54 \cdot 10^{-2}$	1.84	$5.69 \cdot 10^{-2}$
2.08	3.34	0.34	2.29	$5.7 \cdot 10^{-2}$	1.95	$5.89 \cdot 10^{-2}$
2.1	3.57	0.36	2.49	$5.95 \cdot 10^{-2}$	1.98	$5.93 \cdot 10^{-2}$
2.13	3.93	0.39	2.63	$6.11 \cdot 10^{-2}$	2.03	$6.03 \cdot 10^{-2}$
2.15	4.1	0.41	2.77	$6.27 \cdot 10^{-2}$	1.78	$5.64 \cdot 10^{-2}$
2.18	4.14	0.42	2.77	$6.27 \cdot 10^{-2}$	1.52	$5.18 \cdot 10^{-2}$
2.2	4.15	0.42	2.91	$6.42 \cdot 10^{-2}$	1.32	$4.84 \cdot 10^{-2}$
2.23	4.26	0.43	2.77	$6.27 \cdot 10^{-2}$	1.09	$4.39 \cdot 10^{-2}$
2.25	4.38	0.44	2.92	$6.43 \cdot 10^{-2}$	0.87	$3.89 \cdot 10^{-2}$
2.28	4.44	0.45	2.81	$6.31 \cdot 10^{-2}$	0.69	$3.5 \cdot 10^{-2}$

TABLE 89. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$5.12 \cdot 10^{-3}$	$2.35 \cdot 10^{-3}$	0	0	0	0
1.15	$4.1 \cdot 10^{-3}$	$2.2 \cdot 10^{-3}$	0	0	0	0
1.18	$1.02 \cdot 10^{-2}$	$3.39 \cdot 10^{-3}$	0	0	0	0
1.2	$6.14 \cdot 10^{-3}$	$2.58 \cdot 10^{-3}$	0	0	0	0
1.23	$7.17 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$	0	0	0	0
1.25	$9.22 \cdot 10^{-3}$	$3.21 \cdot 10^{-3}$	0	0	0	0
1.28	$1.54 \cdot 10^{-2}$	$4.4 \cdot 10^{-3}$	0	0	0	0
1.3	$1.33 \cdot 10^{-2}$	$3.92 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$4.32 \cdot 10^{-3}$	$3.06 \cdot 10^{-3}$
1.33	$3.38 \cdot 10^{-2}$	$6.8 \cdot 10^{-3}$	0	0	$2.28 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$
1.35	$6.76 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$	$1.71 \cdot 10^{-2}$	$6.03 \cdot 10^{-3}$	0	0
1.38	0.18	$2.33 \cdot 10^{-2}$	$4.26 \cdot 10^{-2}$	$9.53 \cdot 10^{-3}$	$8.03 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$
1.4	0.4	$4.58 \cdot 10^{-2}$	0.25	$2.33 \cdot 10^{-2}$	0.33	$2.95 \cdot 10^{-2}$
1.43	0.69	$7.53 \cdot 10^{-2}$	0.5	$3.26 \cdot 10^{-2}$	0.79	$4.59 \cdot 10^{-2}$
1.45	1.08	0.11	1.03	$4.67 \cdot 10^{-2}$	1.2	$5.57 \cdot 10^{-2}$
1.48	1.43	0.15	1.43	$5.51 \cdot 10^{-2}$	1.82	$6.92 \cdot 10^{-2}$
1.5	1.63	0.17	1.84	$6.27 \cdot 10^{-2}$	2.41	$8.05 \cdot 10^{-2}$
1.53	1.79	0.18	2.16	$6.79 \cdot 10^{-2}$	2.69	$8.47 \cdot 10^{-2}$
1.55	1.75	0.18	2.2	$6.85 \cdot 10^{-2}$	2.4	$7.99 \cdot 10^{-2}$
1.58	1.66	0.17	1.99	$6.51 \cdot 10^{-2}$	1.85	$6.89 \cdot 10^{-2}$
1.6	1.53	0.16	1.77	$6.15 \cdot 10^{-2}$	1.34	$6.01 \cdot 10^{-2}$
1.63	1.43	0.15	1.49	$5.64 \cdot 10^{-2}$	0.94	$5.04 \cdot 10^{-2}$
1.65	1.53	0.16	1.36	$5.39 \cdot 10^{-2}$	0.65	$4.13 \cdot 10^{-2}$
1.68	1.51	0.16	1.5	$5.65 \cdot 10^{-2}$	0.31	$2.86 \cdot 10^{-2}$

TABLE 89 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.68	0.17	1.58	$5.8 \cdot 10^{-2}$	0.13	$1.8 \cdot 10^{-2}$
1.73	1.84	0.19	1.47	$5.6 \cdot 10^{-2}$	0.13	$1.86 \cdot 10^{-2}$
1.75	1.98	0.2	1.56	$5.76 \cdot 10^{-2}$	$9.79 \cdot 10^{-2}$	$1.66 \cdot 10^{-2}$
1.78	2.19	0.22	1.46	$5.58 \cdot 10^{-2}$	$9.88 \cdot 10^{-2}$	$1.58 \cdot 10^{-2}$
1.8	2.18	0.22	1.58	$5.81 \cdot 10^{-2}$	$7.29 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
1.83	2.27	0.23	1.56	$5.76 \cdot 10^{-2}$	$7.08 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
1.85	2.2	0.22	1.57	$5.79 \cdot 10^{-2}$	$4.97 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$
1.88	2.3	0.24	1.58	$5.79 \cdot 10^{-2}$	$4.73 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
1.9	2.16	0.22	1.65	$5.94 \cdot 10^{-2}$	$4.67 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
1.93	2.22	0.23	1.77	$6.14 \cdot 10^{-2}$	$6.45 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$
1.95	2.32	0.24	1.75	$6.11 \cdot 10^{-2}$	$5.52 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$
1.98	2.35	0.24	1.67	$5.96 \cdot 10^{-2}$	$3.74 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
2	2.49	0.25	1.69	$6 \cdot 10^{-2}$	$1.97 \cdot 10^{-2}$	$6.56 \cdot 10^{-3}$
2.03	2.61	0.27	1.72	$6.06 \cdot 10^{-2}$	$3.59 \cdot 10^{-2}$	$9.97 \cdot 10^{-3}$
2.05	2.74	0.28	1.71	$6.04 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$
2.08	2.91	0.3	1.86	$6.29 \cdot 10^{-2}$	$2.66 \cdot 10^{-2}$	$8.03 \cdot 10^{-3}$
2.1	2.88	0.29	1.83	$6.25 \cdot 10^{-2}$	$1.99 \cdot 10^{-2}$	$7.04 \cdot 10^{-3}$
2.13	3.05	0.31	1.74	$6.09 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	$6.33 \cdot 10^{-3}$
2.15	3.22	0.33	1.69	$6 \cdot 10^{-2}$	$2 \cdot 10^{-2}$	$7.06 \cdot 10^{-3}$
2.18	3.23	0.33	1.81	$6.21 \cdot 10^{-2}$	$2.17 \cdot 10^{-3}$	$2.17 \cdot 10^{-3}$
2.2	3.41	0.34	1.78	$6.17 \cdot 10^{-2}$	$6.76 \cdot 10^{-3}$	$4.78 \cdot 10^{-3}$
2.23	3.46	0.35	1.81	$6.2 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	$6.32 \cdot 10^{-3}$
2.25	3.68	0.37	1.84	$6.27 \cdot 10^{-2}$	$1.77 \cdot 10^{-2}$	$8.85 \cdot 10^{-3}$
2.28	3.73	0.38	2.02	$6.57 \cdot 10^{-2}$	$2.07 \cdot 10^{-2}$	$7.3 \cdot 10^{-3}$

TABLE 90. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$9.54 \cdot 10^{-4}$	$9.59 \cdot 10^{-4}$	0	0	0	0
1.2	$1.91 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.23	$9.54 \cdot 10^{-4}$	$9.59 \cdot 10^{-4}$	0	0	0	0
1.25	$9.54 \cdot 10^{-4}$	$9.59 \cdot 10^{-4}$	0	0	0	0
1.28	$1.91 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.3	$1.91 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.33	$3.82 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$	0	0	0	0
1.35	$5.72 \cdot 10^{-3}$	$2.41 \cdot 10^{-3}$	0	0	0	0
1.38	$3.82 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$	0	0	0	0
1.4	$2.86 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.43	$8.59 \cdot 10^{-3}$	$3.05 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$
1.45	$2.39 \cdot 10^{-2}$	$5.33 \cdot 10^{-3}$	0	0	$4.07 \cdot 10^{-3}$	$2.88 \cdot 10^{-3}$
1.48	0.11	$1.59 \cdot 10^{-2}$	$3.18 \cdot 10^{-2}$	$7.94 \cdot 10^{-3}$	$4.34 \cdot 10^{-2}$	$9.95 \cdot 10^{-3}$
1.5	0.35	$4.01 \cdot 10^{-2}$	0.23	$2.12 \cdot 10^{-2}$	0.54	$3.6 \cdot 10^{-2}$
1.53	0.94	$9.87 \cdot 10^{-2}$	0.67	$3.65 \cdot 10^{-2}$	1.93	$6.91 \cdot 10^{-2}$
1.55	1.68	0.17	1.41	$5.29 \cdot 10^{-2}$	3.9	$9.83 \cdot 10^{-2}$
1.58	2.4	0.24	1.92	$6.18 \cdot 10^{-2}$	4.42	0.1
1.6	3.02	0.31	2.2	$6.62 \cdot 10^{-2}$	4.5	0.1
1.63	3.6	0.36	2.23	$6.65 \cdot 10^{-2}$	5.02	0.11
1.65	4.12	0.41	2.41	$6.93 \cdot 10^{-2}$	5.79	0.12
1.68	4.53	0.46	2.67	$7.29 \cdot 10^{-2}$	6.36	0.13

TABLE 90 Continued.						
$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.58	0.46	3.02	$7.74 \cdot 10^{-2}$	6.6	0.13
1.73	4.96	0.5	3.43	$8.26 \cdot 10^{-2}$	5.81	0.12
1.75	5.01	0.5	3.68	$8.55 \cdot 10^{-2}$	4.9	0.11
1.78	5.24	0.53	3.83	$8.72 \cdot 10^{-2}$	4.1	0.1
1.8	5.17	0.52	4.11	$9.03 \cdot 10^{-2}$	2.95	$8.57 \cdot 10^{-2}$
1.83	5.15	0.52	3.92	$8.83 \cdot 10^{-2}$	1.78	$6.73 \cdot 10^{-2}$
1.85	5.27	0.53	4.02	$8.93 \cdot 10^{-2}$	1.1	$5.26 \cdot 10^{-2}$
1.88	5.43	0.55	4.01	$8.92 \cdot 10^{-2}$	0.64	$3.93 \cdot 10^{-2}$
1.9	5.71	0.58	4.29	$9.23 \cdot 10^{-2}$	0.41	$3.2 \cdot 10^{-2}$
1.93	5.93	0.59	4.35	$9.3 \cdot 10^{-2}$	0.3	$2.76 \cdot 10^{-2}$
1.95	6.31	0.63	4.89	$9.85 \cdot 10^{-2}$	0.19	$2.13 \cdot 10^{-2}$
1.98	6.47	0.65	4.76	$9.73 \cdot 10^{-2}$	0.22	$2.39 \cdot 10^{-2}$
2	6.54	0.66	4.99	$9.96 \cdot 10^{-2}$	0.19	$2.12 \cdot 10^{-2}$
2.03	6.76	0.68	5.13	0.1	0.2	$2.21 \cdot 10^{-2}$
2.05	6.63	0.66	5.51	0.1	0.17	$2.11 \cdot 10^{-2}$
2.08	6.96	0.7	5.44	0.1	0.17	$2.07 \cdot 10^{-2}$
2.1	6.92	0.69	5.5	0.1	0.12	$1.69 \cdot 10^{-2}$
2.13	7.2	0.72	5.5	0.1	$9.7 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.15	7.46	0.75	5.58	0.11	0.11	$1.61 \cdot 10^{-2}$
2.18	7.53	0.76	5.65	0.11	0.1	$1.63 \cdot 10^{-2}$
2.2	8.11	0.81	5.8	0.11	$6.92 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
2.23	8	0.8	5.9	0.11	$7.5 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
2.25	8.38	0.84	5.79	0.11	$8.53 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$
2.28	8.75	0.88	5.76	0.11	$6.45 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$

TABLE 91. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.11 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$	0	0	0	0
1.15	$5.28 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.18	$5.28 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.2	$2.11 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$	0	0	0	0
1.23	$6.87 \cdot 10^{-3}$	$2.02 \cdot 10^{-3}$	0	0	0	0
1.25	$7.4 \cdot 10^{-3}$	$2.11 \cdot 10^{-3}$	0	0	0	0
1.28	$1.11 \cdot 10^{-2}$	$2.76 \cdot 10^{-3}$	0	0	0	0
1.3	$7.4 \cdot 10^{-3}$	$2.23 \cdot 10^{-3}$	0	0	0	0
1.33	$5.81 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	0	0	0	0
1.35	$6.87 \cdot 10^{-3}$	$2.02 \cdot 10^{-3}$	0	0	$1.03 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$
1.38	$1.74 \cdot 10^{-2}$	$3.51 \cdot 10^{-3}$	0	0	0	0
1.4	$2.85 \cdot 10^{-2}$	$4.81 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$
1.43	$3.75 \cdot 10^{-2}$	$5.81 \cdot 10^{-3}$	$4.4 \cdot 10^{-3}$	$2.2 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$
1.45	$6.39 \cdot 10^{-2}$	$8.71 \cdot 10^{-3}$	$3.52 \cdot 10^{-2}$	$6.22 \cdot 10^{-3}$	$2.08 \cdot 10^{-2}$	$5.2 \cdot 10^{-3}$
1.48	0.11	$1.36 \cdot 10^{-2}$	0.1	$1.07 \cdot 10^{-2}$	$8 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
1.5	0.16	$1.92 \cdot 10^{-2}$	0.25	$1.64 \cdot 10^{-2}$	0.26	$1.89 \cdot 10^{-2}$
1.53	0.21	$2.32 \cdot 10^{-2}$	0.39	$2.08 \cdot 10^{-2}$	0.36	$2.24 \cdot 10^{-2}$
1.55	0.29	$3.1 \cdot 10^{-2}$	0.55	$2.46 \cdot 10^{-2}$	0.56	$2.82 \cdot 10^{-2}$
1.58	0.31	$3.35 \cdot 10^{-2}$	0.72	$2.81 \cdot 10^{-2}$	0.57	$2.81 \cdot 10^{-2}$
1.6	0.32	$3.42 \cdot 10^{-2}$	0.78	$2.92 \cdot 10^{-2}$	0.5	$2.59 \cdot 10^{-2}$
1.63	0.36	$3.81 \cdot 10^{-2}$	0.89	$3.13 \cdot 10^{-2}$	0.45	$2.46 \cdot 10^{-2}$
1.65	0.43	$4.51 \cdot 10^{-2}$	0.95	$3.22 \cdot 10^{-2}$	0.58	$2.81 \cdot 10^{-2}$
1.68	0.47	$4.92 \cdot 10^{-2}$	0.98	$3.29 \cdot 10^{-2}$	0.62	$2.91 \cdot 10^{-2}$

TABLE 91 Continued.						
$d(e, e'\pi^+), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.49	$5.19 \cdot 10^{-2}$	1.03	$3.37 \cdot 10^{-2}$	0.63	$2.95 \cdot 10^{-2}$
1.73	0.54	$5.68 \cdot 10^{-2}$	0.95	$3.22 \cdot 10^{-2}$	0.58	$2.77 \cdot 10^{-2}$
1.75	0.56	$5.84 \cdot 10^{-2}$	0.88	$3.11 \cdot 10^{-2}$	0.42	$2.39 \cdot 10^{-2}$
1.78	0.59	$6.12 \cdot 10^{-2}$	0.8	$2.97 \cdot 10^{-2}$	0.29	$2.01 \cdot 10^{-2}$
1.8	0.61	$6.39 \cdot 10^{-2}$	0.72	$2.81 \cdot 10^{-2}$	0.24	$1.82 \cdot 10^{-2}$
1.83	0.64	$6.66 \cdot 10^{-2}$	0.57	$2.51 \cdot 10^{-2}$	0.16	$1.48 \cdot 10^{-2}$
1.85	0.7	$7.27 \cdot 10^{-2}$	0.57	$2.51 \cdot 10^{-2}$	$9.16 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
1.88	0.71	$7.34 \cdot 10^{-2}$	0.5	$2.34 \cdot 10^{-2}$	$6.72 \cdot 10^{-2}$	$9.91 \cdot 10^{-3}$
1.9	0.77	$7.9 \cdot 10^{-2}$	0.48	$2.29 \cdot 10^{-2}$	$2.73 \cdot 10^{-2}$	$6.25 \cdot 10^{-3}$
1.93	0.81	$8.32 \cdot 10^{-2}$	0.44	$2.2 \cdot 10^{-2}$	$2.86 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$
1.95	0.75	$7.78 \cdot 10^{-2}$	0.38	$2.05 \cdot 10^{-2}$	$2.24 \cdot 10^{-2}$	$5.78 \cdot 10^{-3}$
1.98	0.73	$7.57 \cdot 10^{-2}$	0.4	$2.09 \cdot 10^{-2}$	$2.08 \cdot 10^{-2}$	$5.38 \cdot 10^{-3}$
2	0.71	$7.37 \cdot 10^{-2}$	0.38	$2.05 \cdot 10^{-2}$	$2 \cdot 10^{-2}$	$5.53 \cdot 10^{-3}$
2.03	0.7	$7.22 \cdot 10^{-2}$	0.33	$1.9 \cdot 10^{-2}$	$1.21 \cdot 10^{-2}$	$3.81 \cdot 10^{-3}$
2.05	0.68	$7.05 \cdot 10^{-2}$	0.31	$1.84 \cdot 10^{-2}$	$9.23 \cdot 10^{-3}$	$3.49 \cdot 10^{-3}$
2.08	0.7	$7.2 \cdot 10^{-2}$	0.34	$1.93 \cdot 10^{-2}$	$1.7 \cdot 10^{-2}$	$5.13 \cdot 10^{-3}$
2.1	0.63	$6.54 \cdot 10^{-2}$	0.31	$1.85 \cdot 10^{-2}$	$8.07 \cdot 10^{-3}$	$3.61 \cdot 10^{-3}$
2.13	0.62	$6.46 \cdot 10^{-2}$	0.3	$1.81 \cdot 10^{-2}$	$8 \cdot 10^{-3}$	$3.02 \cdot 10^{-3}$
2.15	0.61	$6.38 \cdot 10^{-2}$	0.25	$1.67 \cdot 10^{-2}$	$4.64 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$
2.18	0.57	$5.96 \cdot 10^{-2}$	0.25	$1.67 \cdot 10^{-2}$	$4.24 \cdot 10^{-3}$	$2.12 \cdot 10^{-3}$
2.2	0.59	$6.13 \cdot 10^{-2}$	0.28	$1.77 \cdot 10^{-2}$	$2.29 \cdot 10^{-3}$	$1.62 \cdot 10^{-3}$
2.23	0.55	$5.72 \cdot 10^{-2}$	0.23	$1.6 \cdot 10^{-2}$	$1.18 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$
2.25	0.55	$5.69 \cdot 10^{-2}$	0.22	$1.57 \cdot 10^{-2}$	$1.16 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$
2.28	0.51	$5.29 \cdot 10^{-2}$	0.22	$1.54 \cdot 10^{-2}$	$1.03 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$

TABLE 92. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$1.11 \cdot 10^{-2}$	$5.8 \cdot 10^{-3}$	0	0	$6.32 \cdot 10^{-3}$	$6.32 \cdot 10^{-3}$
1.28	$5.28 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$	$5.79 \cdot 10^{-3}$	$5.79 \cdot 10^{-3}$	$3.09 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$
1.3	0.17	$2.77 \cdot 10^{-2}$	$2.89 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	0.19	$3.75 \cdot 10^{-2}$
1.33	0.39	$5.09 \cdot 10^{-2}$	0.18	$3.22 \cdot 10^{-2}$	0.59	$6.55 \cdot 10^{-2}$
1.35	0.94	0.11	0.39	$4.74 \cdot 10^{-2}$	1.48	0.1
1.38	1.34	0.15	0.72	$6.47 \cdot 10^{-2}$	1.63	0.11
1.4	2.03	0.22	0.85	$7.02 \cdot 10^{-2}$	2	0.12
1.43	2.04	0.22	0.97	$7.48 \cdot 10^{-2}$	1.62	0.11
1.45	2.19	0.23	0.94	$7.39 \cdot 10^{-2}$	0.85	$7.74 \cdot 10^{-2}$
1.48	2.07	0.23	1.02	$7.68 \cdot 10^{-2}$	0.49	$5.98 \cdot 10^{-2}$
1.5	1.88	0.2	1.71	$9.94 \cdot 10^{-2}$	0.23	$3.97 \cdot 10^{-2}$
1.53	2.21	0.24	2.74	0.13	0.28	$4.64 \cdot 10^{-2}$
1.55	2.72	0.29	4.1	0.15	0.18	$3.62 \cdot 10^{-2}$
1.58	3.3	0.34	5.52	0.18	0.23	$4.18 \cdot 10^{-2}$
1.6	4.25	0.44	6.94	0.2	0.2	$3.78 \cdot 10^{-2}$
1.63	5.06	0.52	7.93	0.21	0.16	$3.53 \cdot 10^{-2}$
1.65	5.42	0.55	8.75	0.23	0.15	$3.26 \cdot 10^{-2}$
1.68	5.92	0.61	9.88	0.24	0.22	$3.84 \cdot 10^{-2}$

TABLE 92 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	5.8	0.59	9.94	0.24	$7.32 \cdot 10^{-2}$	$2.31 \cdot 10^{-2}$
1.73	5.55	0.57	9.87	0.24	$8.95 \cdot 10^{-2}$	$2.59 \cdot 10^{-2}$
1.75	5.77	0.59	10.41	0.25	0.1	$2.65 \cdot 10^{-2}$
1.78	5.66	0.58	9.96	0.24	$8.57 \cdot 10^{-2}$	$2.58 \cdot 10^{-2}$
1.8	5.69	0.58	10.26	0.24	$7.25 \cdot 10^{-2}$	$2.29 \cdot 10^{-2}$
1.83	5.77	0.59	10.29	0.24	$6.04 \cdot 10^{-2}$	$2.13 \cdot 10^{-2}$
1.85	5.84	0.6	11.08	0.25	$3.62 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$
1.88	6.05	0.62	11.29	0.26	$6.68 \cdot 10^{-2}$	$2.36 \cdot 10^{-2}$
1.9	6.05	0.62	11.5	0.26	$3.56 \cdot 10^{-2}$	$1.45 \cdot 10^{-2}$
1.93	6.37	0.65	11.68	0.26	$5.94 \cdot 10^{-3}$	$5.94 \cdot 10^{-3}$
1.95	6.23	0.63	11.79	0.26	$2.93 \cdot 10^{-2}$	$1.47 \cdot 10^{-2}$
1.98	6.23	0.63	11.61	0.26	$2.41 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$
2	6.4	0.65	12.08	0.26	$2.91 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$
2.03	6.26	0.64	12.35	0.27	$1.26 \cdot 10^{-2}$	$8.92 \cdot 10^{-3}$
2.05	6.39	0.65	12.08	0.26	$2.46 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
2.08	6.1	0.62	11.94	0.26	$1.85 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
2.1	6.19	0.63	11.24	0.26	$1.77 \cdot 10^{-2}$	$1.25 \cdot 10^{-2}$
2.13	6.12	0.62	11.42	0.26	0	0
2.15	5.6	0.57	10.99	0.25	$1.18 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
2.18	5.57	0.57	10.87	0.25	$1.15 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 93. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$1.67 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.33	$5.01 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$	0	0	0	0
1.35	$2.17 \cdot 10^{-2}$	$6.52 \cdot 10^{-3}$	0	0	0	0
1.38	$4.84 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$6.95 \cdot 10^{-3}$	$4.91 \cdot 10^{-3}$	$1.45 \cdot 10^{-2}$	$8.38 \cdot 10^{-3}$
1.4	0.15	$2.18 \cdot 10^{-2}$	$4.52 \cdot 10^{-2}$	$1.25 \cdot 10^{-2}$	0.16	$2.63 \cdot 10^{-2}$
1.43	0.45	$5.22 \cdot 10^{-2}$	0.3	$3.24 \cdot 10^{-2}$	0.64	$5.28 \cdot 10^{-2}$
1.45	0.98	0.11	0.62	$4.63 \cdot 10^{-2}$	1.37	$7.6 \cdot 10^{-2}$
1.48	1.67	0.17	1.33	$6.79 \cdot 10^{-2}$	2.26	$9.81 \cdot 10^{-2}$
1.5	2.38	0.25	1.79	$7.89 \cdot 10^{-2}$	3.52	0.12
1.53	2.8	0.29	2.17	$8.68 \cdot 10^{-2}$	5	0.15
1.55	3.5	0.36	2.4	$9.12 \cdot 10^{-2}$	5.73	0.16
1.58	4.08	0.42	2.67	$9.63 \cdot 10^{-2}$	6.27	0.16
1.6	4.87	0.5	3.26	0.11	5.98	0.16
1.63	5.42	0.55	4.07	0.12	6.43	0.17
1.65	6.19	0.63	4.77	0.13	6.83	0.17
1.68	6.71	0.68	5.53	0.14	6.2	0.16

TABLE 93 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	6.96	0.7	6.38	0.15	4.17	0.13
1.73	6.61	0.67	6.82	0.15	1.73	$8.56 \cdot 10^{-2}$
1.75	6.71	0.68	7.93	0.17	0.86	$6.15 \cdot 10^{-2}$
1.78	7.01	0.71	8.53	0.17	0.5	$4.55 \cdot 10^{-2}$
1.8	7.48	0.75	9.23	0.18	0.44	$4.42 \cdot 10^{-2}$
1.83	7.59	0.76	10	0.19	0.31	$3.67 \cdot 10^{-2}$
1.85	7.7	0.78	10.38	0.19	0.34	$3.78 \cdot 10^{-2}$
1.88	7.65	0.77	10.25	0.19	0.25	$3.32 \cdot 10^{-2}$
1.9	7.46	0.75	10.95	0.19	0.18	$2.87 \cdot 10^{-2}$
1.93	7.25	0.73	10.76	0.19	0.15	$2.5 \cdot 10^{-2}$
1.95	6.75	0.68	10.52	0.19	0.19	$2.85 \cdot 10^{-2}$
1.98	6.42	0.65	10.32	0.19	0.15	$2.53 \cdot 10^{-2}$
2	6.37	0.64	10.1	0.19	0.15	$2.63 \cdot 10^{-2}$
2.03	6.15	0.62	10.43	0.19	0.12	$2.4 \cdot 10^{-2}$
2.05	5.99	0.6	9.85	0.18	$9.68 \cdot 10^{-2}$	$2.22 \cdot 10^{-2}$
2.08	6.04	0.61	9.38	0.18	$6.14 \cdot 10^{-2}$	$1.58 \cdot 10^{-2}$
2.1	6.01	0.61	9.39	0.18	$2.91 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
2.13	5.83	0.59	9.07	0.18	$4.28 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$
2.15	5.71	0.58	9.23	0.18	$5.96 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$
2.18	5.72	0.58	8.53	0.17	$3.03 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 94. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	$2.48 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	$2.48 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	0	0
1.58	$8.34 \cdot 10^{-3}$	$3.26 \cdot 10^{-3}$	0	0	0	0
1.6	$1.43 \cdot 10^{-2}$	$4.37 \cdot 10^{-3}$	0	0	0	0
1.63	$6.08 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$	$1.74 \cdot 10^{-2}$	$6.56 \cdot 10^{-3}$	$7.13 \cdot 10^{-2}$	$1.49 \cdot 10^{-2}$
1.65	0.31	$3.59 \cdot 10^{-2}$	0.13	$1.82 \cdot 10^{-2}$	0.47	$3.74 \cdot 10^{-2}$
1.68	0.85	$9.01 \cdot 10^{-2}$	0.48	$3.46 \cdot 10^{-2}$	1.83	$7.51 \cdot 10^{-2}$

TABLE 94 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.68	0.17	0.96	$4.88 \cdot 10^{-2}$	4	0.11
1.73	2.76	0.28	1.53	$6.16 \cdot 10^{-2}$	5.91	0.14
1.75	3.38	0.34	1.83	$6.74 \cdot 10^{-2}$	6.17	0.14
1.78	3.94	0.4	1.91	$6.88 \cdot 10^{-2}$	6.23	0.14
1.8	4.24	0.43	2	$7.04 \cdot 10^{-2}$	5.87	0.13
1.83	4.57	0.46	2.26	$7.48 \cdot 10^{-2}$	6.18	0.14
1.85	5.03	0.51	2.57	$7.98 \cdot 10^{-2}$	5.69	0.13
1.88	5.29	0.53	3.12	$8.79 \cdot 10^{-2}$	5.71	0.13
1.9	5.86	0.59	3.58	$9.42 \cdot 10^{-2}$	5.36	0.13
1.93	6.4	0.64	4.13	0.1	5.24	0.13
1.95	7.19	0.72	4.43	0.1	4.67	0.12
1.98	7.74	0.78	5.11	0.11	4.38	0.12
2	7.94	0.8	5.62	0.12	3.6	0.11
2.03	7.77	0.78	5.89	0.12	2.74	$9.19 \cdot 10^{-2}$
2.05	7.67	0.77	5.95	0.12	1.55	$6.89 \cdot 10^{-2}$
2.08	7.18	0.72	6.03	0.12	0.77	$4.89 \cdot 10^{-2}$
2.1	6.76	0.68	6.57	0.13	0.36	$3.35 \cdot 10^{-2}$
2.13	6.67	0.67	6.72	0.13	0.23	$2.61 \cdot 10^{-2}$
2.15	6.4	0.64	6.71	0.13	0.21	$2.68 \cdot 10^{-2}$
2.18	6.19	0.63	6.9	0.13	0.14	$2.01 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 95. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 95 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$1.67 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	$3.34 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	0	0
1.83	$1.67 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.85	$3.34 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	0	0
1.88	$1.67 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.9	0	0	0	0	0	0
1.93	$3.34 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	$3.46 \cdot 10^{-3}$	$3.46 \cdot 10^{-3}$
1.95	$2.17 \cdot 10^{-2}$	$6.57 \cdot 10^{-3}$	0	0	$2.55 \cdot 10^{-2}$	$1.27 \cdot 10^{-2}$
1.98	0.14	$2.11 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	0.25	$3.28 \cdot 10^{-2}$
2	0.5	$5.79 \cdot 10^{-2}$	0.16	$2.38 \cdot 10^{-2}$	0.99	$6.54 \cdot 10^{-2}$
2.03	1.2	0.13	0.42	$3.84 \cdot 10^{-2}$	2.05	$9.41 \cdot 10^{-2}$
2.05	1.98	0.21	0.66	$4.78 \cdot 10^{-2}$	3.41	0.12
2.08	2.77	0.28	0.98	$5.82 \cdot 10^{-2}$	4.3	0.14
2.1	3.33	0.34	1.14	$6.28 \cdot 10^{-2}$	4.47	0.14
2.13	3.77	0.39	1.37	$6.9 \cdot 10^{-2}$	4.55	0.14
2.15	4.13	0.42	1.47	$7.15 \cdot 10^{-2}$	4.11	0.13
2.18	4.24	0.43	1.82	$7.95 \cdot 10^{-2}$	3.85	0.13
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 96. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$1.19 \cdot 10^{-3}$	$1.2 \cdot 10^{-3}$	0	0	0	0
1.18	$2.39 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.2	$5.96 \cdot 10^{-3}$	$2.73 \cdot 10^{-3}$	0	0	0	0
1.23	$2.5 \cdot 10^{-2}$	$6.01 \cdot 10^{-3}$	0	0	$7.43 \cdot 10^{-3}$	$5.26 \cdot 10^{-3}$
1.25	$4.41 \cdot 10^{-2}$	$8.78 \cdot 10^{-3}$	$7.45 \cdot 10^{-3}$	$4.3 \cdot 10^{-3}$	$8.3 \cdot 10^{-3}$	$5.87 \cdot 10^{-3}$
1.28	0.13	$1.78 \cdot 10^{-2}$	$2.48 \cdot 10^{-2}$	$7.85 \cdot 10^{-3}$	$3.03 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$
1.3	0.27	$3.27 \cdot 10^{-2}$	0.1	$1.61 \cdot 10^{-2}$	0.3	$3.09 \cdot 10^{-2}$
1.33	0.52	$5.78 \cdot 10^{-2}$	0.28	$2.63 \cdot 10^{-2}$	0.93	$5.38 \cdot 10^{-2}$
1.35	0.83	$8.98 \cdot 10^{-2}$	0.55	$3.68 \cdot 10^{-2}$	1.32	$6.39 \cdot 10^{-2}$
1.38	1.15	0.12	0.78	$4.4 \cdot 10^{-2}$	1.54	$6.89 \cdot 10^{-2}$
1.4	1.44	0.15	0.97	$4.91 \cdot 10^{-2}$	1.79	$7.53 \cdot 10^{-2}$
1.43	1.69	0.17	1.27	$5.61 \cdot 10^{-2}$	1.75	$7.33 \cdot 10^{-2}$
1.45	1.83	0.19	1.34	$5.77 \cdot 10^{-2}$	1.88	$7.59 \cdot 10^{-2}$
1.48	1.81	0.19	1.46	$6.01 \cdot 10^{-2}$	1.69	$7.22 \cdot 10^{-2}$
1.5	1.73	0.18	1.27	$5.62 \cdot 10^{-2}$	1.22	$6.12 \cdot 10^{-2}$
1.53	1.54	0.16	1.12	$5.28 \cdot 10^{-2}$	0.62	$4.41 \cdot 10^{-2}$
1.55	1.5	0.16	1.37	$5.83 \cdot 10^{-2}$	0.2	$2.45 \cdot 10^{-2}$
1.58	1.48	0.15	1.61	$6.31 \cdot 10^{-2}$	0.18	$2.47 \cdot 10^{-2}$
1.6	1.46	0.15	1.96	$6.97 \cdot 10^{-2}$	0.12	$1.84 \cdot 10^{-2}$
1.63	1.79	0.19	2.43	$7.77 \cdot 10^{-2}$	0.11	$1.83 \cdot 10^{-2}$
1.65	1.98	0.2	2.76	$8.28 \cdot 10^{-2}$	$6.93 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$
1.68	2.11	0.22	3.05	$8.71 \cdot 10^{-2}$	$9.36 \cdot 10^{-2}$	$1.77 \cdot 10^{-2}$

TABLE 96 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.41	0.25	3.03	$8.67 \cdot 10^{-2}$	$7.77 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
1.73	2.29	0.23	2.78	$8.3 \cdot 10^{-2}$	$6.69 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$
1.75	2.36	0.24	2.85	$8.41 \cdot 10^{-2}$	$8.59 \cdot 10^{-2}$	$1.72 \cdot 10^{-2}$
1.78	2.25	0.23	2.48	$7.85 \cdot 10^{-2}$	$6.94 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$
1.8	2.21	0.23	2.45	$7.8 \cdot 10^{-2}$	$2.9 \cdot 10^{-2}$	$9.66 \cdot 10^{-3}$
1.83	2.23	0.23	2.62	$8.06 \cdot 10^{-2}$	$3.73 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$
1.85	2.31	0.24	2.65	$8.11 \cdot 10^{-2}$	$2.31 \cdot 10^{-2}$	$8.16 \cdot 10^{-3}$
1.88	2.42	0.25	2.72	$8.22 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$	$5.86 \cdot 10^{-3}$
1.9	2.55	0.26	2.85	$8.41 \cdot 10^{-2}$	$3.03 \cdot 10^{-2}$	$9.58 \cdot 10^{-3}$
1.93	2.67	0.27	3	$8.63 \cdot 10^{-2}$	$1.82 \cdot 10^{-2}$	$7.42 \cdot 10^{-3}$
1.95	2.88	0.29	2.97	$8.59 \cdot 10^{-2}$	$1.85 \cdot 10^{-2}$	$7.55 \cdot 10^{-3}$
1.98	3.01	0.31	3.22	$8.95 \cdot 10^{-2}$	$4.14 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
2	3.11	0.32	3.26	$9 \cdot 10^{-2}$	$1.56 \cdot 10^{-2}$	$6.37 \cdot 10^{-3}$
2.03	3.41	0.35	3.35	$9.12 \cdot 10^{-2}$	$1.5 \cdot 10^{-2}$	$6.71 \cdot 10^{-3}$
2.05	3.61	0.37	3.37	$9.14 \cdot 10^{-2}$	$1.5 \cdot 10^{-2}$	$6.7 \cdot 10^{-3}$
2.08	3.7	0.38	3.66	$9.53 \cdot 10^{-2}$	$1.59 \cdot 10^{-2}$	$7.11 \cdot 10^{-3}$
2.1	4.04	0.41	3.74	$9.63 \cdot 10^{-2}$	$8.09 \cdot 10^{-3}$	$4.67 \cdot 10^{-3}$
2.13	4.17	0.42	3.93	$9.88 \cdot 10^{-2}$	$7.9 \cdot 10^{-3}$	$4.56 \cdot 10^{-3}$
2.15	4.27	0.44	3.99	$9.95 \cdot 10^{-2}$	0	0
2.18	4.47	0.45	4.28	0.1	$1.02 \cdot 10^{-2}$	$5.9 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 97. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$1.43 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$7.16 \cdot 10^{-4}$	$7.19 \cdot 10^{-4}$	0	0	0	0
1.25	$2.15 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	0	0	0	0
1.28	$2.86 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	0	0	0	0
1.3	$7.16 \cdot 10^{-4}$	$7.19 \cdot 10^{-4}$	0	0	0	0
1.33	$2.86 \cdot 10^{-3}$	$1.49 \cdot 10^{-3}$	0	0	0	0
1.35	$3.58 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$	0	0	$1.54 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
1.38	$1.86 \cdot 10^{-2}$	$4.09 \cdot 10^{-3}$	0	0	0	0
1.4	$3.94 \cdot 10^{-2}$	$6.6 \cdot 10^{-3}$	$8.94 \cdot 10^{-3}$	$3.65 \cdot 10^{-3}$	$8.13 \cdot 10^{-3}$	$4.07 \cdot 10^{-3}$
1.43	$8.51 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$1.94 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$	$2.65 \cdot 10^{-2}$	$6.43 \cdot 10^{-3}$
1.45	0.21	$2.45 \cdot 10^{-2}$	0.11	$1.31 \cdot 10^{-2}$	0.18	$1.84 \cdot 10^{-2}$
1.48	0.48	$5.16 \cdot 10^{-2}$	0.37	$2.34 \cdot 10^{-2}$	0.7	$3.6 \cdot 10^{-2}$
1.5	0.77	$8.03 \cdot 10^{-2}$	0.75	$3.34 \cdot 10^{-2}$	1.75	$5.75 \cdot 10^{-2}$
1.53	1.08	0.11	1.09	$4.02 \cdot 10^{-2}$	2.64	$7.07 \cdot 10^{-2}$
1.55	1.38	0.14	1.29	$4.39 \cdot 10^{-2}$	2.84	$7.26 \cdot 10^{-2}$
1.58	1.58	0.16	1.26	$4.33 \cdot 10^{-2}$	2.72	$7.08 \cdot 10^{-2}$
1.6	1.77	0.18	1.37	$4.51 \cdot 10^{-2}$	2.66	$7.05 \cdot 10^{-2}$
1.63	1.99	0.2	1.34	$4.47 \cdot 10^{-2}$	2.6	$6.94 \cdot 10^{-2}$
1.65	2.23	0.23	1.6	$4.87 \cdot 10^{-2}$	2.89	$7.36 \cdot 10^{-2}$
1.68	2.45	0.25	1.76	$5.12 \cdot 10^{-2}$	3.21	$7.67 \cdot 10^{-2}$

TABLE 97 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.54	0.26	2.05	$5.52 \cdot 10^{-2}$	3.31	$7.77 \cdot 10^{-2}$
1.73	2.66	0.27	2.23	$5.76 \cdot 10^{-2}$	2.71	$7.11 \cdot 10^{-2}$
1.75	2.63	0.27	2.09	$5.58 \cdot 10^{-2}$	1.76	$5.75 \cdot 10^{-2}$
1.78	2.6	0.26	1.96	$5.4 \cdot 10^{-2}$	1.1	$4.54 \cdot 10^{-2}$
1.8	2.58	0.26	2.04	$5.51 \cdot 10^{-2}$	0.62	$3.39 \cdot 10^{-2}$
1.83	2.63	0.27	2.08	$5.56 \cdot 10^{-2}$	0.33	$2.44 \cdot 10^{-2}$
1.85	2.66	0.27	2.07	$5.55 \cdot 10^{-2}$	0.22	$2.04 \cdot 10^{-2}$
1.88	2.87	0.29	2.27	$5.81 \cdot 10^{-2}$	0.16	$1.72 \cdot 10^{-2}$
1.9	2.95	0.3	2.4	$5.97 \cdot 10^{-2}$	0.12	$1.46 \cdot 10^{-2}$
1.93	3.08	0.31	2.49	$6.09 \cdot 10^{-2}$	$9 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$
1.95	3.17	0.32	2.57	$6.18 \cdot 10^{-2}$	$8.61 \cdot 10^{-2}$	$1.26 \cdot 10^{-2}$
1.98	3.21	0.32	2.5	$6.11 \cdot 10^{-2}$	$7.73 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$
2	3.26	0.33	2.56	$6.18 \cdot 10^{-2}$	$5.89 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
2.03	3.31	0.33	2.63	$6.26 \cdot 10^{-2}$	$5.49 \cdot 10^{-2}$	$9.28 \cdot 10^{-3}$
2.05	3.38	0.34	2.83	$6.49 \cdot 10^{-2}$	$5.75 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
2.08	3.51	0.35	2.83	$6.5 \cdot 10^{-2}$	$5.91 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
2.1	3.68	0.37	2.93	$6.6 \cdot 10^{-2}$	$4.87 \cdot 10^{-2}$	$9.37 \cdot 10^{-3}$
2.13	3.8	0.38	2.92	$6.6 \cdot 10^{-2}$	$6.55 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
2.15	3.9	0.39	2.96	$6.64 \cdot 10^{-2}$	$4.45 \cdot 10^{-2}$	$9.09 \cdot 10^{-3}$
2.18	3.97	0.4	2.81	$6.47 \cdot 10^{-2}$	$2.94 \cdot 10^{-2}$	$7.14 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 98. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e' \pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$1.02 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$5.11 \cdot 10^{-4}$	$5.14 \cdot 10^{-4}$	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	$1.02 \cdot 10^{-3}$	$7.64 \cdot 10^{-4}$	0	0	0	0
1.4	$1.53 \cdot 10^{-3}$	$9.12 \cdot 10^{-4}$	0	0	0	0
1.43	$1.02 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	0	0	0	0
1.45	$5.11 \cdot 10^{-4}$	$5.14 \cdot 10^{-4}$	$1.06 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	0	0
1.48	$1.02 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	0	0	0	0
1.5	$1.02 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	$1.06 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$
1.53	$1.02 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	0	0	0	0
1.55	$5.11 \cdot 10^{-4}$	$5.14 \cdot 10^{-4}$	0	0	$1.08 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$
1.58	$2.04 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$	0	0	0	0
1.6	$3.07 \cdot 10^{-3}$	$1.29 \cdot 10^{-3}$	0	0	$2.13 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$
1.63	$3.07 \cdot 10^{-3}$	$1.31 \cdot 10^{-3}$	0	0	0	0
1.65	$7.67 \cdot 10^{-3}$	$2.12 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$1.5 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$
1.68	$2.1 \cdot 10^{-2}$	$3.89 \cdot 10^{-3}$	$3.19 \cdot 10^{-3}$	$1.84 \cdot 10^{-3}$	$2.1 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$

TABLE 98 Continued.						
$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$6.44 \cdot 10^{-2}$	$8.6 \cdot 10^{-3}$	$3.09 \cdot 10^{-2}$	$5.73 \cdot 10^{-3}$	$8.18 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
1.73	0.17	$1.98 \cdot 10^{-2}$	$8.72 \cdot 10^{-2}$	$9.63 \cdot 10^{-3}$	0.34	$2.16 \cdot 10^{-2}$
1.75	0.29	$3.16 \cdot 10^{-2}$	0.26	$1.65 \cdot 10^{-2}$	0.67	$2.99 \cdot 10^{-2}$
1.78	0.44	$4.6 \cdot 10^{-2}$	0.41	$2.08 \cdot 10^{-2}$	0.91	$3.45 \cdot 10^{-2}$
1.8	0.58	$6.04 \cdot 10^{-2}$	0.57	$2.47 \cdot 10^{-2}$	1.02	$3.65 \cdot 10^{-2}$
1.83	0.71	$7.31 \cdot 10^{-2}$	0.64	$2.61 \cdot 10^{-2}$	1.1	$3.8 \cdot 10^{-2}$
1.85	0.78	$8.11 \cdot 10^{-2}$	0.79	$2.91 \cdot 10^{-2}$	1.14	$3.85 \cdot 10^{-2}$
1.88	0.91	$9.34 \cdot 10^{-2}$	0.74	$2.8 \cdot 10^{-2}$	1.17	$3.96 \cdot 10^{-2}$
1.9	0.99	0.1	0.81	$2.93 \cdot 10^{-2}$	1.18	$3.94 \cdot 10^{-2}$
1.93	1.11	0.11	0.98	$3.23 \cdot 10^{-2}$	1.11	$3.84 \cdot 10^{-2}$
1.95	1.26	0.13	1	$3.26 \cdot 10^{-2}$	1.05	$3.68 \cdot 10^{-2}$
1.98	1.43	0.14	1.1	$3.42 \cdot 10^{-2}$	1.09	$3.84 \cdot 10^{-2}$
2	1.57	0.16	1.12	$3.46 \cdot 10^{-2}$	0.98	$3.56 \cdot 10^{-2}$
2.03	1.77	0.18	1.21	$3.59 \cdot 10^{-2}$	1.02	$3.68 \cdot 10^{-2}$
2.05	1.93	0.19	1.32	$3.75 \cdot 10^{-2}$	1.06	$3.76 \cdot 10^{-2}$
2.08	2.09	0.21	1.46	$3.94 \cdot 10^{-2}$	1.03	$3.69 \cdot 10^{-2}$
2.1	2.14	0.22	1.48	$3.97 \cdot 10^{-2}$	0.93	$3.5 \cdot 10^{-2}$
2.13	2.23	0.23	1.44	$3.92 \cdot 10^{-2}$	0.83	$3.27 \cdot 10^{-2}$
2.15	2.24	0.23	1.53	$4.04 \cdot 10^{-2}$	0.78	$3.2 \cdot 10^{-2}$
2.18	2.35	0.24	1.5	$3.99 \cdot 10^{-2}$	0.65	$2.92 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 99. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$7.68 \cdot 10^{-4}$	$7.72 \cdot 10^{-4}$	0	0	0	0
1.18	$5.38 \cdot 10^{-3}$	$2.2 \cdot 10^{-3}$	0	0	0	0
1.2	$3.07 \cdot 10^{-3}$	$1.57 \cdot 10^{-3}$	0	0	0	0
1.23	$8.45 \cdot 10^{-3}$	$2.68 \cdot 10^{-3}$	0	0	0	0
1.25	$1.23 \cdot 10^{-2}$	$3.33 \cdot 10^{-3}$	0	0	0	0
1.28	$1.61 \cdot 10^{-2}$	$3.87 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0
1.3	$3.38 \cdot 10^{-2}$	$6.1 \cdot 10^{-3}$	$6.39 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	$1.8 \cdot 10^{-3}$	$1.8 \cdot 10^{-3}$
1.33	$6.68 \cdot 10^{-2}$	$9.77 \cdot 10^{-3}$	$6.39 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	$1.49 \cdot 10^{-2}$	$5.64 \cdot 10^{-3}$
1.35	0.11	$1.43 \cdot 10^{-2}$	$5.12 \cdot 10^{-2}$	$9.04 \cdot 10^{-3}$	$4.82 \cdot 10^{-2}$	$9.64 \cdot 10^{-3}$
1.38	0.18	$2.15 \cdot 10^{-2}$	0.15	$1.57 \cdot 10^{-2}$	0.18	$1.83 \cdot 10^{-2}$
1.4	0.3	$3.38 \cdot 10^{-2}$	0.31	$2.24 \cdot 10^{-2}$	0.34	$2.61 \cdot 10^{-2}$
1.43	0.45	$4.82 \cdot 10^{-2}$	0.54	$2.93 \cdot 10^{-2}$	0.46	$3.04 \cdot 10^{-2}$
1.45	0.59	$6.24 \cdot 10^{-2}$	0.67	$3.28 \cdot 10^{-2}$	0.62	$3.57 \cdot 10^{-2}$
1.48	0.68	$7.14 \cdot 10^{-2}$	0.9	$3.8 \cdot 10^{-2}$	0.87	$4.14 \cdot 10^{-2}$
1.5	0.76	$8.1 \cdot 10^{-2}$	1.02	$4.03 \cdot 10^{-2}$	1.27	$5.08 \cdot 10^{-2}$
1.53	0.8	$8.36 \cdot 10^{-2}$	1.1	$4.18 \cdot 10^{-2}$	1.53	$5.52 \cdot 10^{-2}$
1.55	0.8	$8.35 \cdot 10^{-2}$	0.99	$3.98 \cdot 10^{-2}$	1.26	$4.97 \cdot 10^{-2}$
1.58	0.71	$7.45 \cdot 10^{-2}$	0.9	$3.8 \cdot 10^{-2}$	0.83	$4.09 \cdot 10^{-2}$
1.6	0.7	$7.38 \cdot 10^{-2}$	0.77	$3.5 \cdot 10^{-2}$	0.44	$2.97 \cdot 10^{-2}$
1.63	0.64	$6.77 \cdot 10^{-2}$	0.66	$3.26 \cdot 10^{-2}$	0.31	$2.49 \cdot 10^{-2}$
1.65	0.67	$7 \cdot 10^{-2}$	0.68	$3.29 \cdot 10^{-2}$	0.17	$1.8 \cdot 10^{-2}$
1.68	0.76	$8 \cdot 10^{-2}$	0.71	$3.36 \cdot 10^{-2}$	$7.8 \cdot 10^{-2}$	$1.22 \cdot 10^{-2}$

TABLE 99 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.81	$8.45 \cdot 10^{-2}$	0.72	$3.39 \cdot 10^{-2}$	$8.94 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
1.73	0.93	$9.74 \cdot 10^{-2}$	0.77	$3.5 \cdot 10^{-2}$	$7.25 \cdot 10^{-2}$	$1.21 \cdot 10^{-2}$
1.75	1	0.1	0.76	$3.49 \cdot 10^{-2}$	$4.9 \cdot 10^{-2}$	$1 \cdot 10^{-2}$
1.78	1.04	0.11	0.73	$3.41 \cdot 10^{-2}$	$3.58 \cdot 10^{-2}$	$8.44 \cdot 10^{-3}$
1.8	1.15	0.12	0.72	$3.4 \cdot 10^{-2}$	$3.62 \cdot 10^{-2}$	$8.3 \cdot 10^{-3}$
1.83	1.12	0.12	0.76	$3.48 \cdot 10^{-2}$	$2.45 \cdot 10^{-2}$	$6.8 \cdot 10^{-3}$
1.85	1.15	0.12	0.78	$3.52 \cdot 10^{-2}$	$3.01 \cdot 10^{-2}$	$8.69 \cdot 10^{-3}$
1.88	1.11	0.11	0.77	$3.52 \cdot 10^{-2}$	$2.33 \cdot 10^{-2}$	$7.37 \cdot 10^{-3}$
1.9	1.15	0.12	0.79	$3.55 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$	$5.35 \cdot 10^{-3}$
1.93	1.17	0.12	0.79	$3.56 \cdot 10^{-2}$	$2.16 \cdot 10^{-2}$	$6.5 \cdot 10^{-3}$
1.95	1.21	0.13	0.82	$3.63 \cdot 10^{-2}$	$1.8 \cdot 10^{-2}$	$6 \cdot 10^{-3}$
1.98	1.27	0.13	0.87	$3.73 \cdot 10^{-2}$	$1.47 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$
2	1.31	0.13	0.88	$3.74 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	$4.42 \cdot 10^{-3}$
2.03	1.41	0.14	0.83	$3.64 \cdot 10^{-2}$	$1.77 \cdot 10^{-2}$	$6.26 \cdot 10^{-3}$
2.05	1.53	0.16	0.84	$3.67 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	$6.21 \cdot 10^{-3}$
2.08	1.53	0.16	0.9	$3.79 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
2.1	1.58	0.16	0.88	$3.76 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	$4.63 \cdot 10^{-3}$
2.13	1.72	0.18	0.84	$3.67 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$	$4.95 \cdot 10^{-3}$
2.15	1.71	0.18	0.9	$3.8 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$5.16 \cdot 10^{-3}$
2.18	1.73	0.18	0.86	$3.7 \cdot 10^{-2}$	$6.78 \cdot 10^{-3}$	$3.91 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 100. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$1.43 \cdot 10^{-3}$	$1.02 \cdot 10^{-3}$	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$7.16 \cdot 10^{-4}$	$7.19 \cdot 10^{-4}$	0	0	0	0
1.25	$2.15 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	0	0	0	0
1.28	$2.86 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	0	0	0	0
1.3	$7.16 \cdot 10^{-4}$	$7.19 \cdot 10^{-4}$	0	0	0	0
1.33	$2.86 \cdot 10^{-3}$	$1.49 \cdot 10^{-3}$	0	0	0	0
1.35	$3.58 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$	0	0	$1.54 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
1.38	$1.86 \cdot 10^{-2}$	$4.09 \cdot 10^{-3}$	0	0	0	0
1.4	$3.94 \cdot 10^{-2}$	$6.6 \cdot 10^{-3}$	$8.94 \cdot 10^{-3}$	$3.65 \cdot 10^{-3}$	$8.13 \cdot 10^{-3}$	$4.07 \cdot 10^{-3}$
1.43	$8.51 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$1.94 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$	$2.65 \cdot 10^{-2}$	$6.43 \cdot 10^{-3}$
1.45	0.21	$2.45 \cdot 10^{-2}$	0.11	$1.31 \cdot 10^{-2}$	0.18	$1.84 \cdot 10^{-2}$
1.48	0.48	$5.16 \cdot 10^{-2}$	0.37	$2.34 \cdot 10^{-2}$	0.7	$3.6 \cdot 10^{-2}$
1.5	0.77	$8.03 \cdot 10^{-2}$	0.75	$3.34 \cdot 10^{-2}$	1.75	$5.75 \cdot 10^{-2}$
1.53	1.08	0.11	1.09	$4.02 \cdot 10^{-2}$	2.64	$7.07 \cdot 10^{-2}$
1.55	1.38	0.14	1.29	$4.39 \cdot 10^{-2}$	2.84	$7.26 \cdot 10^{-2}$
1.58	1.58	0.16	1.26	$4.33 \cdot 10^{-2}$	2.72	$7.08 \cdot 10^{-2}$
1.6	1.77	0.18	1.37	$4.51 \cdot 10^{-2}$	2.66	$7.05 \cdot 10^{-2}$
1.63	1.99	0.2	1.34	$4.47 \cdot 10^{-2}$	2.6	$6.94 \cdot 10^{-2}$
1.65	2.23	0.23	1.6	$4.87 \cdot 10^{-2}$	2.89	$7.36 \cdot 10^{-2}$
1.68	2.45	0.25	1.76	$5.12 \cdot 10^{-2}$	3.21	$7.67 \cdot 10^{-2}$

TABLE 100 Continued.						
$d(e, e'\pi^+), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.54	0.26	2.05	$5.52 \cdot 10^{-2}$	3.31	$7.77 \cdot 10^{-2}$
1.73	2.66	0.27	2.23	$5.76 \cdot 10^{-2}$	2.71	$7.11 \cdot 10^{-2}$
1.75	2.63	0.27	2.09	$5.58 \cdot 10^{-2}$	1.76	$5.75 \cdot 10^{-2}$
1.78	2.6	0.26	1.96	$5.4 \cdot 10^{-2}$	1.1	$4.54 \cdot 10^{-2}$
1.8	2.58	0.26	2.04	$5.51 \cdot 10^{-2}$	0.62	$3.39 \cdot 10^{-2}$
1.83	2.63	0.27	2.08	$5.56 \cdot 10^{-2}$	0.33	$2.44 \cdot 10^{-2}$
1.85	2.66	0.27	2.07	$5.55 \cdot 10^{-2}$	0.22	$2.04 \cdot 10^{-2}$
1.88	2.87	0.29	2.27	$5.81 \cdot 10^{-2}$	0.16	$1.72 \cdot 10^{-2}$
1.9	2.95	0.3	2.4	$5.97 \cdot 10^{-2}$	0.12	$1.46 \cdot 10^{-2}$
1.93	3.08	0.31	2.49	$6.09 \cdot 10^{-2}$	$9 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$
1.95	3.17	0.32	2.57	$6.18 \cdot 10^{-2}$	$8.61 \cdot 10^{-2}$	$1.26 \cdot 10^{-2}$
1.98	3.21	0.32	2.5	$6.11 \cdot 10^{-2}$	$7.73 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$
2	3.26	0.33	2.56	$6.18 \cdot 10^{-2}$	$5.89 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
2.03	3.31	0.33	2.63	$6.26 \cdot 10^{-2}$	$5.49 \cdot 10^{-2}$	$9.28 \cdot 10^{-3}$
2.05	3.38	0.34	2.83	$6.49 \cdot 10^{-2}$	$5.75 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
2.08	3.51	0.35	2.83	$6.5 \cdot 10^{-2}$	$5.91 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
2.1	3.68	0.37	2.93	$6.6 \cdot 10^{-2}$	$4.87 \cdot 10^{-2}$	$9.37 \cdot 10^{-3}$
2.13	3.8	0.38	2.92	$6.6 \cdot 10^{-2}$	$6.55 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
2.15	3.9	0.39	2.96	$6.64 \cdot 10^{-2}$	$4.45 \cdot 10^{-2}$	$9.09 \cdot 10^{-3}$
2.18	3.97	0.4	2.81	$6.47 \cdot 10^{-2}$	$2.94 \cdot 10^{-2}$	$7.14 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 101. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.92 \cdot 10^{-4}$	$5.66 \cdot 10^{-4}$	0	0	0	0
1.15	$7.92 \cdot 10^{-4}$	$5.66 \cdot 10^{-4}$	0	0	0	0
1.18	$7.92 \cdot 10^{-4}$	$5.92 \cdot 10^{-4}$	0	0	0	0
1.2	$2.38 \cdot 10^{-3}$	$9.99 \cdot 10^{-4}$	0	0	0	0
1.23	$3.57 \cdot 10^{-3}$	$1.3 \cdot 10^{-3}$	0	0	0	0
1.25	$4.36 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	0	0	0	0
1.28	$5.15 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$	0	0	0	0
1.3	$1.58 \cdot 10^{-3}$	$8.27 \cdot 10^{-4}$	0	0	0	0
1.33	$5.94 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$	0	0	0	0
1.35	$5.94 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	$8.25 \cdot 10^{-4}$	$8.25 \cdot 10^{-4}$	0	0
1.38	$9.91 \cdot 10^{-3}$	$2.25 \cdot 10^{-3}$	$8.25 \cdot 10^{-4}$	$8.25 \cdot 10^{-4}$	$2.44 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$
1.4	$2.1 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	$1.17 \cdot 10^{-3}$	0	0
1.43	$2.89 \cdot 10^{-2}$	$4.48 \cdot 10^{-3}$	$7.42 \cdot 10^{-3}$	$2.47 \cdot 10^{-3}$	$1.73 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$
1.45	$4.48 \cdot 10^{-2}$	$6.39 \cdot 10^{-3}$	$3.96 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$	$1.36 \cdot 10^{-2}$	$3.51 \cdot 10^{-3}$
1.48	$6.3 \cdot 10^{-2}$	$8.09 \cdot 10^{-3}$	$7.01 \cdot 10^{-2}$	$7.6 \cdot 10^{-3}$	$5.03 \cdot 10^{-2}$	$7.11 \cdot 10^{-3}$
1.5	$9.27 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$	0.16	$1.14 \cdot 10^{-2}$	0.15	$1.22 \cdot 10^{-2}$
1.53	0.11	$1.27 \cdot 10^{-2}$	0.23	$1.37 \cdot 10^{-2}$	0.27	$1.67 \cdot 10^{-2}$
1.55	0.13	$1.49 \cdot 10^{-2}$	0.3	$1.57 \cdot 10^{-2}$	0.36	$1.9 \cdot 10^{-2}$
1.58	0.12	$1.4 \cdot 10^{-2}$	0.36	$1.71 \cdot 10^{-2}$	0.37	$1.96 \cdot 10^{-2}$
1.6	0.15	$1.72 \cdot 10^{-2}$	0.37	$1.76 \cdot 10^{-2}$	0.32	$1.85 \cdot 10^{-2}$
1.63	0.16	$1.8 \cdot 10^{-2}$	0.42	$1.87 \cdot 10^{-2}$	0.31	$1.81 \cdot 10^{-2}$
1.65	0.17	$1.93 \cdot 10^{-2}$	0.47	$1.97 \cdot 10^{-2}$	0.28	$1.72 \cdot 10^{-2}$
1.68	0.19	$2.05 \cdot 10^{-2}$	0.55	$2.13 \cdot 10^{-2}$	0.31	$1.79 \cdot 10^{-2}$

TABLE 101 Continued.						
$d(e, e'\pi^+)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.21	$2.28 \cdot 10^{-2}$	0.5	$2.03 \cdot 10^{-2}$	0.31	$1.77 \cdot 10^{-2}$
1.73	0.23	$2.55 \cdot 10^{-2}$	0.47	$1.96 \cdot 10^{-2}$	0.29	$1.77 \cdot 10^{-2}$
1.75	0.25	$2.64 \cdot 10^{-2}$	0.4	$1.82 \cdot 10^{-2}$	0.21	$1.47 \cdot 10^{-2}$
1.78	0.28	$3.02 \cdot 10^{-2}$	0.33	$1.65 \cdot 10^{-2}$	0.13	$1.13 \cdot 10^{-2}$
1.8	0.3	$3.16 \cdot 10^{-2}$	0.32	$1.64 \cdot 10^{-2}$	0.11	$1.08 \cdot 10^{-2}$
1.83	0.31	$3.31 \cdot 10^{-2}$	0.26	$1.47 \cdot 10^{-2}$	$6.85 \cdot 10^{-2}$	$8.24 \cdot 10^{-3}$
1.85	0.34	$3.53 \cdot 10^{-2}$	0.26	$1.45 \cdot 10^{-2}$	$6.02 \cdot 10^{-2}$	$7.71 \cdot 10^{-3}$
1.88	0.33	$3.46 \cdot 10^{-2}$	0.25	$1.44 \cdot 10^{-2}$	$4.52 \cdot 10^{-2}$	$6.82 \cdot 10^{-3}$
1.9	0.36	$3.74 \cdot 10^{-2}$	0.22	$1.34 \cdot 10^{-2}$	$2.43 \cdot 10^{-2}$	$5.18 \cdot 10^{-3}$
1.93	0.34	$3.6 \cdot 10^{-2}$	0.19	$1.25 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$	$4.01 \cdot 10^{-3}$
1.95	0.38	$3.97 \cdot 10^{-2}$	0.19	$1.25 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$	$3.65 \cdot 10^{-3}$
1.98	0.35	$3.66 \cdot 10^{-2}$	0.15	$1.12 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	$3.16 \cdot 10^{-3}$
2	0.35	$3.71 \cdot 10^{-2}$	0.19	$1.25 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$3.21 \cdot 10^{-3}$
2.03	0.33	$3.47 \cdot 10^{-2}$	0.16	$1.14 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$
2.05	0.32	$3.33 \cdot 10^{-2}$	0.14	$1.06 \cdot 10^{-2}$	$4.19 \cdot 10^{-3}$	$2.1 \cdot 10^{-3}$
2.08	0.32	$3.35 \cdot 10^{-2}$	0.15	$1.09 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$
2.1	0.31	$3.28 \cdot 10^{-2}$	0.15	$1.12 \cdot 10^{-2}$	$7.74 \cdot 10^{-3}$	$2.74 \cdot 10^{-3}$
2.13	0.31	$3.26 \cdot 10^{-2}$	0.14	$1.07 \cdot 10^{-2}$	$8.27 \cdot 10^{-4}$	$8.27 \cdot 10^{-4}$
2.15	0.28	$2.94 \cdot 10^{-2}$	0.12	$1.01 \cdot 10^{-2}$	$4.97 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$
2.18	0.27	$2.87 \cdot 10^{-2}$	0.11	$9.48 \cdot 10^{-3}$	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 102. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.45 \cdot 10^{-3}$	$3.18 \cdot 10^{-3}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$1.78 \cdot 10^{-2}$	$6.93 \cdot 10^{-3}$	0	0	0	0
1.2	$3.34 \cdot 10^{-2}$	$9.37 \cdot 10^{-3}$	0	0	0	0
1.23	$3.56 \cdot 10^{-2}$	$9.64 \cdot 10^{-3}$	$9.26 \cdot 10^{-3}$	$6.55 \cdot 10^{-3}$	$1.52 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
1.25	0.1	$1.85 \cdot 10^{-2}$	$4.63 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$	$8.83 \cdot 10^{-2}$	$2.28 \cdot 10^{-2}$
1.28	0.2	$2.97 \cdot 10^{-2}$	0.12	$2.32 \cdot 10^{-2}$	0.32	$4.19 \cdot 10^{-2}$
1.3	0.36	$4.77 \cdot 10^{-2}$	0.26	$3.5 \cdot 10^{-2}$	0.77	$6.8 \cdot 10^{-2}$
1.33	0.58	$6.76 \cdot 10^{-2}$	0.38	$4.17 \cdot 10^{-2}$	1.03	$7.63 \cdot 10^{-2}$
1.35	0.76	$8.62 \cdot 10^{-2}$	0.44	$4.54 \cdot 10^{-2}$	0.92	$7.19 \cdot 10^{-2}$
1.38	0.75	$8.61 \cdot 10^{-2}$	0.32	$3.87 \cdot 10^{-2}$	0.75	$6.56 \cdot 10^{-2}$
1.4	0.82	$9.27 \cdot 10^{-2}$	0.39	$4.27 \cdot 10^{-2}$	0.27	$3.91 \cdot 10^{-2}$
1.43	0.79	$8.87 \cdot 10^{-2}$	0.31	$3.76 \cdot 10^{-2}$	0.15	$3.09 \cdot 10^{-2}$
1.45	0.73	$8.35 \cdot 10^{-2}$	0.6	$5.28 \cdot 10^{-2}$	$5.92 \cdot 10^{-2}$	$1.78 \cdot 10^{-2}$
1.48	0.9	0.1	0.98	$6.73 \cdot 10^{-2}$	$5.82 \cdot 10^{-2}$	$1.76 \cdot 10^{-2}$
1.5	0.97	0.11	1.48	$8.27 \cdot 10^{-2}$	$9.11 \cdot 10^{-2}$	$2.28 \cdot 10^{-2}$
1.53	1.16	0.13	1.91	$9.4 \cdot 10^{-2}$	$9.21 \cdot 10^{-2}$	$2.3 \cdot 10^{-2}$
1.55	1.54	0.16	2.34	0.1	$8.68 \cdot 10^{-2}$	$2.24 \cdot 10^{-2}$
1.58	1.95	0.21	3.03	0.12	$4 \cdot 10^{-2}$	$1.51 \cdot 10^{-2}$
1.6	2.08	0.22	3.57	0.13	$3.4 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$
1.63	2.33	0.24	3.64	0.13	$3.76 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
1.65	2.38	0.25	4.09	0.14	$5.36 \cdot 10^{-2}$	$1.61 \cdot 10^{-2}$
1.68	2.3	0.24	4.23	0.14	$3.97 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$

TABLE 102 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.47	0.26	4.26	0.14	$2.87 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$
1.73	2.45	0.26	4.39	0.14	$2 \cdot 10^{-2}$	$1 \cdot 10^{-2}$
1.75	2.36	0.25	4.45	0.14	$1.9 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$
1.78	2.35	0.25	4.28	0.14	$1.51 \cdot 10^{-2}$	$8.74 \cdot 10^{-3}$
1.8	2.4	0.25	4.71	0.15	$9.56 \cdot 10^{-3}$	$6.76 \cdot 10^{-3}$
1.83	2.43	0.25	4.73	0.15	$2.48 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$
1.85	2.52	0.26	5	0.15	$3.25 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
1.88	2.55	0.27	4.96	0.15	0	0
1.9	2.62	0.27	5.26	0.16	$1.54 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
1.93	2.55	0.26	5.11	0.15	$4.96 \cdot 10^{-3}$	$4.96 \cdot 10^{-3}$
1.95	2.76	0.29	5.27	0.16	$4.88 \cdot 10^{-3}$	$4.88 \cdot 10^{-3}$
1.98	2.7	0.28	5.21	0.16	$1.44 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
2	2.6	0.27	5.23	0.16	$1.4 \cdot 10^{-2}$	$9.9 \cdot 10^{-3}$
2.03	2.63	0.27	5.21	0.16	$9.73 \cdot 10^{-3}$	$6.88 \cdot 10^{-3}$
2.05	2.8	0.29	5.3	0.16	$4.45 \cdot 10^{-3}$	$4.45 \cdot 10^{-3}$
2.08	2.47	0.26	5.26	0.16	$1.06 \cdot 10^{-2}$	$7.47 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 103. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	0	0
1.2	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	0	0
1.23	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	0	0
1.25	$4.01 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	$5.95 \cdot 10^{-3}$	$5.95 \cdot 10^{-3}$
1.28	$9.35 \cdot 10^{-3}$	$3.65 \cdot 10^{-3}$	0	0	$5.66 \cdot 10^{-3}$	$5.66 \cdot 10^{-3}$
1.3	$3.47 \cdot 10^{-2}$	$8.02 \cdot 10^{-3}$	$5.56 \cdot 10^{-3}$	$3.93 \cdot 10^{-3}$	$2.83 \cdot 10^{-3}$	$2.83 \cdot 10^{-3}$
1.33	$8.14 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$	$1.95 \cdot 10^{-2}$	$7.35 \cdot 10^{-3}$	$3.41 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
1.35	0.15	$2.01 \cdot 10^{-2}$	$7.5 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	0.17	$2.45 \cdot 10^{-2}$
1.38	0.28	$3.34 \cdot 10^{-2}$	0.16	$2.1 \cdot 10^{-2}$	0.55	$4.34 \cdot 10^{-2}$
1.4	0.53	$5.92 \cdot 10^{-2}$	0.29	$2.85 \cdot 10^{-2}$	0.84	$5.39 \cdot 10^{-2}$
1.43	0.76	$8.19 \cdot 10^{-2}$	0.52	$3.79 \cdot 10^{-2}$	1.06	$6.09 \cdot 10^{-2}$
1.45	0.99	0.1	0.71	$4.45 \cdot 10^{-2}$	1.21	$6.49 \cdot 10^{-2}$
1.48	1.3	0.14	0.91	$5.03 \cdot 10^{-2}$	1.34	$6.77 \cdot 10^{-2}$
1.5	1.56	0.17	1.06	$5.44 \cdot 10^{-2}$	2.05	$8.51 \cdot 10^{-2}$
1.53	1.78	0.19	1.5	$6.45 \cdot 10^{-2}$	2.46	$9.19 \cdot 10^{-2}$
1.55	1.97	0.21	1.56	$6.59 \cdot 10^{-2}$	2.82	$9.86 \cdot 10^{-2}$
1.58	2.13	0.22	1.85	$7.17 \cdot 10^{-2}$	2.38	$9.06 \cdot 10^{-2}$
1.6	2.29	0.24	2.04	$7.52 \cdot 10^{-2}$	1.84	$8.07 \cdot 10^{-2}$
1.63	2.3	0.24	2.21	$7.84 \cdot 10^{-2}$	1.12	$6.26 \cdot 10^{-2}$
1.65	2.3	0.24	2.39	$8.15 \cdot 10^{-2}$	0.66	$4.81 \cdot 10^{-2}$
1.68	2.39	0.25	2.85	$8.91 \cdot 10^{-2}$	0.23	$2.74 \cdot 10^{-2}$

TABLE 103 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.53	0.26	3.36	$9.66 \cdot 10^{-2}$	0.24	$2.92 \cdot 10^{-2}$
1.73	2.67	0.27	3.75	0.1	0.15	$2.25 \cdot 10^{-2}$
1.75	2.9	0.3	3.97	0.11	0.16	$2.3 \cdot 10^{-2}$
1.78	3.06	0.31	4.26	0.11	0.15	$2.25 \cdot 10^{-2}$
1.8	2.96	0.3	4.35	0.11	0.16	$2.4 \cdot 10^{-2}$
1.83	3.07	0.31	4.26	0.11	$5.81 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
1.85	3.05	0.31	4.44	0.11	$8.88 \cdot 10^{-2}$	$1.74 \cdot 10^{-2}$
1.88	2.83	0.29	4.6	0.11	$8.52 \cdot 10^{-2}$	$1.7 \cdot 10^{-2}$
1.9	2.78	0.28	4.56	0.11	$6.65 \cdot 10^{-2}$	$1.53 \cdot 10^{-2}$
1.93	2.67	0.27	4.42	0.11	$7.5 \cdot 10^{-2}$	$1.64 \cdot 10^{-2}$
1.95	2.65	0.27	4.47	0.11	$6.14 \cdot 10^{-2}$	$1.53 \cdot 10^{-2}$
1.98	2.58	0.26	4.41	0.11	$6.79 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$
2	2.48	0.26	4.37	0.11	$2.06 \cdot 10^{-2}$	$8.4 \cdot 10^{-3}$
2.03	2.47	0.25	4.47	0.11	$2.59 \cdot 10^{-2}$	$9.78 \cdot 10^{-3}$
2.05	2.5	0.26	4.27	0.11	$1.36 \cdot 10^{-2}$	$6.1 \cdot 10^{-3}$
2.08	2.51	0.26	4.28	0.11	$5.03 \cdot 10^{-2}$	$1.3 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 104. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+), \leq Q^2 < \text{GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	0	0
1.33	0	0	0	0	0	0
1.35	0	0	$1.98 \cdot 10^{-3}$	$1.98 \cdot 10^{-3}$	0	0
1.38	0	0	0	0	0	0
1.4	$9.54 \cdot 10^{-4}$	$9.58 \cdot 10^{-4}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$2.86 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.48	$2.86 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.5	$5.72 \cdot 10^{-3}$	$2.54 \cdot 10^{-3}$	0	0	0	0
1.53	$3.15 \cdot 10^{-2}$	$6.31 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$1.01 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$
1.55	$6.87 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$	$2.38 \cdot 10^{-2}$	$6.88 \cdot 10^{-3}$	0.1	$1.59 \cdot 10^{-2}$
1.58	0.18	$2.27 \cdot 10^{-2}$	0.12	$1.55 \cdot 10^{-2}$	0.27	$2.61 \cdot 10^{-2}$
1.6	0.35	$4.01 \cdot 10^{-2}$	0.24	$2.19 \cdot 10^{-2}$	0.71	$4.19 \cdot 10^{-2}$
1.63	0.66	$7.03 \cdot 10^{-2}$	0.43	$2.92 \cdot 10^{-2}$	1.12	$5.19 \cdot 10^{-2}$
1.65	1.04	0.11	0.7	$3.72 \cdot 10^{-2}$	1.79	$6.62 \cdot 10^{-2}$
1.68	1.36	0.14	0.98	$4.42 \cdot 10^{-2}$	2.38	$7.62 \cdot 10^{-2}$

TABLE 104 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.67	0.17	1.02	$4.51 \cdot 10^{-2}$	2.65	$8.06 \cdot 10^{-2}$
1.73	1.89	0.19	1.14	$4.75 \cdot 10^{-2}$	2.72	$8.18 \cdot 10^{-2}$
1.75	2.03	0.21	1.24	$4.96 \cdot 10^{-2}$	2.25	$7.35 \cdot 10^{-2}$
1.78	2.3	0.23	1.34	$5.15 \cdot 10^{-2}$	2.16	$7.2 \cdot 10^{-2}$
1.8	2.34	0.24	1.55	$5.54 \cdot 10^{-2}$	2.23	$7.43 \cdot 10^{-2}$
1.83	2.49	0.25	1.54	$5.53 \cdot 10^{-2}$	2.14	$7.23 \cdot 10^{-2}$
1.85	2.64	0.27	1.99	$6.29 \cdot 10^{-2}$	2.13	$7.27 \cdot 10^{-2}$
1.88	2.75	0.28	2.08	$6.42 \cdot 10^{-2}$	1.99	$7.04 \cdot 10^{-2}$
1.9	2.84	0.29	2.31	$6.78 \cdot 10^{-2}$	1.79	$6.66 \cdot 10^{-2}$
1.93	2.93	0.3	2.56	$7.13 \cdot 10^{-2}$	1.37	$5.8 \cdot 10^{-2}$
1.95	2.94	0.3	2.63	$7.23 \cdot 10^{-2}$	1	$4.9 \cdot 10^{-2}$
1.98	2.89	0.29	2.73	$7.35 \cdot 10^{-2}$	0.56	$3.7 \cdot 10^{-2}$
2	2.75	0.28	2.91	$7.59 \cdot 10^{-2}$	0.35	$2.87 \cdot 10^{-2}$
2.03	2.78	0.28	2.94	$7.63 \cdot 10^{-2}$	0.18	$2.1 \cdot 10^{-2}$
2.05	2.56	0.26	3.13	$7.88 \cdot 10^{-2}$	0.15	$1.92 \cdot 10^{-2}$
2.08	2.65	0.27	3.05	$7.79 \cdot 10^{-2}$	0.1	$1.55 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 105. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	$2.78 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	0	0
1.65	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 105 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	0	0
1.78	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	0	0
1.8	0	0	0	0	0	0
1.83	$1.34 \cdot 10^{-3}$	$1.34 \cdot 10^{-3}$	0	0	$5.95 \cdot 10^{-3}$	$4.21 \cdot 10^{-3}$
1.85	$9.35 \cdot 10^{-3}$	$3.65 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$
1.88	$2.94 \cdot 10^{-2}$	$6.91 \cdot 10^{-3}$	$1.95 \cdot 10^{-2}$	$7.35 \cdot 10^{-3}$	$9.69 \cdot 10^{-2}$	$1.74 \cdot 10^{-2}$
1.9	0.12	$1.74 \cdot 10^{-2}$	$6.95 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$	0.26	$2.88 \cdot 10^{-2}$
1.93	0.3	$3.57 \cdot 10^{-2}$	0.13	$1.88 \cdot 10^{-2}$	0.66	$4.74 \cdot 10^{-2}$
1.95	0.48	$5.45 \cdot 10^{-2}$	0.26	$2.69 \cdot 10^{-2}$	1.1	$6.11 \cdot 10^{-2}$
1.98	0.94	0.1	0.39	$3.29 \cdot 10^{-2}$	1.57	$7.29 \cdot 10^{-2}$
2	1.21	0.13	0.51	$3.78 \cdot 10^{-2}$	1.61	$7.46 \cdot 10^{-2}$
2.03	1.37	0.14	0.67	$4.31 \cdot 10^{-2}$	1.98	$8.34 \cdot 10^{-2}$
2.05	1.58	0.17	0.76	$4.61 \cdot 10^{-2}$	1.78	$7.76 \cdot 10^{-2}$
2.08	1.66	0.17	0.82	$4.78 \cdot 10^{-2}$	1.78	$7.92 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 106. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.86 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.15	$5.72 \cdot 10^{-3}$	$2.45 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$
1.18	$9.54 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	0	0	0	0
1.2	$3.43 \cdot 10^{-2}$	$6.67 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$4.31 \cdot 10^{-3}$	$3.04 \cdot 10^{-3}$
1.23	$5.15 \cdot 10^{-2}$	$8.96 \cdot 10^{-3}$	$5.96 \cdot 10^{-3}$	$3.44 \cdot 10^{-3}$	$1.2 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$
1.25	$9.54 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$	$2.58 \cdot 10^{-2}$	$7.16 \cdot 10^{-3}$	$5.75 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
1.28	0.17	$2.13 \cdot 10^{-2}$	0.11	$1.5 \cdot 10^{-2}$	0.25	$2.52 \cdot 10^{-2}$
1.3	0.26	$3 \cdot 10^{-2}$	0.16	$1.8 \cdot 10^{-2}$	0.48	$3.43 \cdot 10^{-2}$
1.33	0.33	$3.87 \cdot 10^{-2}$	0.27	$2.31 \cdot 10^{-2}$	0.76	$4.33 \cdot 10^{-2}$
1.35	0.46	$4.99 \cdot 10^{-2}$	0.36	$2.66 \cdot 10^{-2}$	0.74	$4.22 \cdot 10^{-2}$
1.38	0.52	$5.63 \cdot 10^{-2}$	0.48	$3.08 \cdot 10^{-2}$	0.76	$4.32 \cdot 10^{-2}$
1.4	0.59	$6.36 \cdot 10^{-2}$	0.47	$3.06 \cdot 10^{-2}$	0.73	$4.24 \cdot 10^{-2}$
1.43	0.61	$6.52 \cdot 10^{-2}$	0.47	$3.05 \cdot 10^{-2}$	0.47	$3.43 \cdot 10^{-2}$
1.45	0.55	$6 \cdot 10^{-2}$	0.4	$2.82 \cdot 10^{-2}$	0.36	$2.95 \cdot 10^{-2}$
1.48	0.56	$6.07 \cdot 10^{-2}$	0.47	$3.04 \cdot 10^{-2}$	0.2	$2.24 \cdot 10^{-2}$
1.5	0.49	$5.36 \cdot 10^{-2}$	0.45	$2.98 \cdot 10^{-2}$	$9.69 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$
1.53	0.48	$5.2 \cdot 10^{-2}$	0.58	$3.38 \cdot 10^{-2}$	$7.48 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$
1.55	0.55	$5.93 \cdot 10^{-2}$	0.67	$3.65 \cdot 10^{-2}$	$4.67 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.58	0.65	$6.94 \cdot 10^{-2}$	0.86	$4.14 \cdot 10^{-2}$	$3.53 \cdot 10^{-2}$	$9.1 \cdot 10^{-3}$
1.6	0.68	$7.19 \cdot 10^{-2}$	0.99	$4.44 \cdot 10^{-2}$	$2.88 \cdot 10^{-2}$	$8.33 \cdot 10^{-3}$
1.63	0.75	$8.03 \cdot 10^{-2}$	1.11	$4.7 \cdot 10^{-2}$	$4.22 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.65	0.8	$8.4 \cdot 10^{-2}$	1.18	$4.84 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$5.45 \cdot 10^{-3}$
1.68	0.91	$9.56 \cdot 10^{-2}$	1.18	$4.84 \cdot 10^{-2}$	$2.28 \cdot 10^{-2}$	$7.59 \cdot 10^{-3}$

TABLE 106 Continued.						
$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.93	$9.82 \cdot 10^{-2}$	1.23	$4.94 \cdot 10^{-2}$	$1.85 \cdot 10^{-2}$	$6.55 \cdot 10^{-3}$
1.73	0.91	$9.48 \cdot 10^{-2}$	1.14	$4.76 \cdot 10^{-2}$	$1.63 \cdot 10^{-2}$	$6.15 \cdot 10^{-3}$
1.75	0.97	0.1	1.14	$4.76 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$5.87 \cdot 10^{-3}$
1.78	0.88	$9.38 \cdot 10^{-2}$	1.1	$4.68 \cdot 10^{-2}$	$1.4 \cdot 10^{-2}$	$5.73 \cdot 10^{-3}$
1.8	0.92	$9.65 \cdot 10^{-2}$	1.09	$4.66 \cdot 10^{-2}$	$4.07 \cdot 10^{-3}$	$2.88 \cdot 10^{-3}$
1.83	0.92	$9.61 \cdot 10^{-2}$	1.16	$4.81 \cdot 10^{-2}$	$5.84 \cdot 10^{-3}$	$4.13 \cdot 10^{-3}$
1.85	0.97	0.1	1.11	$4.69 \cdot 10^{-2}$	$4.15 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$
1.88	1.04	0.11	1.15	$4.79 \cdot 10^{-2}$	$8.13 \cdot 10^{-3}$	$4.69 \cdot 10^{-3}$
1.9	1.08	0.11	1.22	$4.92 \cdot 10^{-2}$	$1.85 \cdot 10^{-2}$	$7 \cdot 10^{-3}$
1.93	1.1	0.12	1.2	$4.88 \cdot 10^{-2}$	$4.28 \cdot 10^{-3}$	$3.03 \cdot 10^{-3}$
1.95	1.22	0.13	1.3	$5.09 \cdot 10^{-2}$	$4 \cdot 10^{-3}$	$2.83 \cdot 10^{-3}$
1.98	1.3	0.14	1.35	$5.17 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$	$4.16 \cdot 10^{-3}$
2	1.3	0.14	1.34	$5.15 \cdot 10^{-2}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$
2.03	1.36	0.14	1.45	$5.37 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$	$3.1 \cdot 10^{-3}$
2.05	1.47	0.15	1.57	$5.58 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$5.04 \cdot 10^{-3}$
2.08	1.55	0.16	1.56	$5.57 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$	$6.06 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 107. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$5.72 \cdot 10^{-4}$	$5.75 \cdot 10^{-4}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$5.72 \cdot 10^{-4}$	$5.75 \cdot 10^{-4}$	0	0	0	0
1.25	$4.58 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.28	$2.86 \cdot 10^{-3}$	$1.31 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	0	0
1.3	$8.01 \cdot 10^{-3}$	$2.35 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$	0	0
1.33	$1.49 \cdot 10^{-2}$	$3.3 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$2.6 \cdot 10^{-3}$	$2.6 \cdot 10^{-3}$
1.35	$3.26 \cdot 10^{-2}$	$5.41 \cdot 10^{-3}$	$5.96 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	$2.4 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$
1.38	$6.13 \cdot 10^{-2}$	$8.59 \cdot 10^{-3}$	$1.91 \cdot 10^{-2}$	$4.77 \cdot 10^{-3}$	$3.39 \cdot 10^{-2}$	$7.58 \cdot 10^{-3}$
1.4	0.12	$1.52 \cdot 10^{-2}$	$5.96 \cdot 10^{-2}$	$8.43 \cdot 10^{-3}$	0.1	$1.25 \cdot 10^{-2}$
1.43	0.18	$2.15 \cdot 10^{-2}$	0.13	$1.26 \cdot 10^{-2}$	0.22	$1.78 \cdot 10^{-2}$
1.45	0.3	$3.26 \cdot 10^{-2}$	0.24	$1.7 \cdot 10^{-2}$	0.45	$2.62 \cdot 10^{-2}$
1.48	0.42	$4.54 \cdot 10^{-2}$	0.39	$2.15 \cdot 10^{-2}$	0.67	$3.15 \cdot 10^{-2}$
1.5	0.53	$5.61 \cdot 10^{-2}$	0.51	$2.47 \cdot 10^{-2}$	1.06	$3.93 \cdot 10^{-2}$
1.53	0.63	$6.59 \cdot 10^{-2}$	0.6	$2.67 \cdot 10^{-2}$	1.32	$4.42 \cdot 10^{-2}$
1.55	0.71	$7.35 \cdot 10^{-2}$	0.69	$2.88 \cdot 10^{-2}$	1.45	$4.65 \cdot 10^{-2}$
1.58	0.82	$8.44 \cdot 10^{-2}$	0.69	$2.87 \cdot 10^{-2}$	1.28	$4.4 \cdot 10^{-2}$
1.6	0.84	$8.61 \cdot 10^{-2}$	0.7	$2.89 \cdot 10^{-2}$	0.97	$3.79 \cdot 10^{-2}$
1.63	0.88	$9.13 \cdot 10^{-2}$	0.72	$2.94 \cdot 10^{-2}$	1.05	$3.95 \cdot 10^{-2}$
1.65	0.97	$9.94 \cdot 10^{-2}$	0.8	$3.08 \cdot 10^{-2}$	1.07	$4.02 \cdot 10^{-2}$
1.68	1.01	0.1	0.85	$3.17 \cdot 10^{-2}$	0.94	$3.78 \cdot 10^{-2}$

TABLE 107 Continued.						
$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.02	0.11	0.84	$3.16 \cdot 10^{-2}$	0.78	$3.35 \cdot 10^{-2}$
1.73	1.05	0.11	0.84	$3.15 \cdot 10^{-2}$	0.49	$2.66 \cdot 10^{-2}$
1.75	1.02	0.1	0.82	$3.13 \cdot 10^{-2}$	0.31	$2.16 \cdot 10^{-2}$
1.78	1.03	0.11	0.83	$3.15 \cdot 10^{-2}$	0.16	$1.55 \cdot 10^{-2}$
1.8	1.09	0.11	0.83	$3.14 \cdot 10^{-2}$	$8.73 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$
1.83	1.11	0.11	0.86	$3.21 \cdot 10^{-2}$	$5.91 \cdot 10^{-2}$	$9.11 \cdot 10^{-3}$
1.85	1.16	0.12	0.94	$3.35 \cdot 10^{-2}$	$6.2 \cdot 10^{-2}$	$9.34 \cdot 10^{-3}$
1.88	1.2	0.12	1.01	$3.46 \cdot 10^{-2}$	$6.73 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.9	1.21	0.12	0.99	$3.44 \cdot 10^{-2}$	$3.75 \cdot 10^{-2}$	$7.65 \cdot 10^{-3}$
1.93	1.33	0.14	1.05	$3.54 \cdot 10^{-2}$	$4.86 \cdot 10^{-2}$	$8.45 \cdot 10^{-3}$
1.95	1.28	0.13	1.05	$3.53 \cdot 10^{-2}$	$3.39 \cdot 10^{-2}$	$6.79 \cdot 10^{-3}$
1.98	1.29	0.13	1.19	$3.76 \cdot 10^{-2}$	$2.77 \cdot 10^{-2}$	$6.2 \cdot 10^{-3}$
2	1.34	0.14	1.19	$3.76 \cdot 10^{-2}$	$3.29 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$
2.03	1.4	0.14	1.16	$3.72 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$	$4.87 \cdot 10^{-3}$
2.05	1.47	0.15	1.18	$3.75 \cdot 10^{-2}$	$3.13 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$
2.08	1.49	0.15	1.25	$3.86 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$	$4.86 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 108. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	$8.66 \cdot 10^{-4}$	$8.66 \cdot 10^{-4}$
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$4.09 \cdot 10^{-4}$	$4.11 \cdot 10^{-4}$	0	0	0	0
1.33	$4.09 \cdot 10^{-4}$	$4.11 \cdot 10^{-4}$	0	0	0	0
1.35	0	0	0	0	0	0
1.38	$4.09 \cdot 10^{-4}$	$4.11 \cdot 10^{-4}$	0	0	0	0
1.4	$8.18 \cdot 10^{-4}$	$5.84 \cdot 10^{-4}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$4.09 \cdot 10^{-4}$	$4.11 \cdot 10^{-4}$	0	0	0	0
1.48	$2.04 \cdot 10^{-3}$	$9.37 \cdot 10^{-4}$	0	0	0	0
1.5	0	0	$8.51 \cdot 10^{-4}$	$8.51 \cdot 10^{-4}$	0	0
1.53	$8.18 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.55	$1.23 \cdot 10^{-3}$	$7.3 \cdot 10^{-4}$	0	0	$1.8 \cdot 10^{-3}$	$1.27 \cdot 10^{-3}$
1.58	$6.13 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	$1.77 \cdot 10^{-3}$	$1.25 \cdot 10^{-3}$
1.6	$1.19 \cdot 10^{-2}$	$2.52 \cdot 10^{-3}$	$2.55 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	$5.38 \cdot 10^{-3}$	$2.41 \cdot 10^{-3}$
1.63	$3.07 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$	$1.28 \cdot 10^{-2}$	$3.3 \cdot 10^{-3}$	$3.01 \cdot 10^{-2}$	$5.91 \cdot 10^{-3}$
1.65	$7.48 \cdot 10^{-2}$	$9.28 \cdot 10^{-3}$	$4.09 \cdot 10^{-2}$	$5.9 \cdot 10^{-3}$	$9.98 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.68	0.14	$1.58 \cdot 10^{-2}$	$8.94 \cdot 10^{-2}$	$8.72 \cdot 10^{-3}$	0.27	$1.69 \cdot 10^{-2}$

TABLE 108 Continued.						
$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.22	$2.35 \cdot 10^{-2}$	0.17	$1.19 \cdot 10^{-2}$	0.46	$2.19 \cdot 10^{-2}$
1.73	0.28	$2.98 \cdot 10^{-2}$	0.22	$1.36 \cdot 10^{-2}$	0.62	$2.59 \cdot 10^{-2}$
1.75	0.34	$3.64 \cdot 10^{-2}$	0.3	$1.59 \cdot 10^{-2}$	0.6	$2.49 \cdot 10^{-2}$
1.78	0.37	$3.88 \cdot 10^{-2}$	0.32	$1.66 \cdot 10^{-2}$	0.52	$2.31 \cdot 10^{-2}$
1.8	0.4	$4.23 \cdot 10^{-2}$	0.36	$1.76 \cdot 10^{-2}$	0.54	$2.35 \cdot 10^{-2}$
1.83	0.44	$4.6 \cdot 10^{-2}$	0.4	$1.85 \cdot 10^{-2}$	0.47	$2.23 \cdot 10^{-2}$
1.85	0.48	$5.01 \cdot 10^{-2}$	0.42	$1.89 \cdot 10^{-2}$	0.49	$2.28 \cdot 10^{-2}$
1.88	0.51	$5.27 \cdot 10^{-2}$	0.47	$2 \cdot 10^{-2}$	0.45	$2.17 \cdot 10^{-2}$
1.9	0.56	$5.86 \cdot 10^{-2}$	0.5	$2.07 \cdot 10^{-2}$	0.43	$2.11 \cdot 10^{-2}$
1.93	0.62	$6.46 \cdot 10^{-2}$	0.52	$2.11 \cdot 10^{-2}$	0.45	$2.2 \cdot 10^{-2}$
1.95	0.68	$6.97 \cdot 10^{-2}$	0.57	$2.2 \cdot 10^{-2}$	0.47	$2.22 \cdot 10^{-2}$
1.98	0.72	$7.42 \cdot 10^{-2}$	0.59	$2.24 \cdot 10^{-2}$	0.47	$2.2 \cdot 10^{-2}$
2	0.83	$8.51 \cdot 10^{-2}$	0.66	$2.37 \cdot 10^{-2}$	0.48	$2.28 \cdot 10^{-2}$
2.03	0.83	$8.47 \cdot 10^{-2}$	0.62	$2.29 \cdot 10^{-2}$	0.45	$2.18 \cdot 10^{-2}$
2.05	0.86	$8.86 \cdot 10^{-2}$	0.62	$2.3 \cdot 10^{-2}$	0.38	$1.99 \cdot 10^{-2}$
2.08	0.91	$9.32 \cdot 10^{-2}$	0.67	$2.39 \cdot 10^{-2}$	0.44	$2.15 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 109. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.23 \cdot 10^{-3}$	$8.77 \cdot 10^{-4}$	0	0	0	0
1.15	$2.46 \cdot 10^{-3}$	$1.25 \cdot 10^{-3}$	0	0	0	0
1.18	$2.46 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	0	0	0	0
1.2	$6.76 \cdot 10^{-3}$	$2.21 \cdot 10^{-3}$	0	0	0	0
1.23	$6.76 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$	0	0	0	0
1.25	$1.11 \cdot 10^{-2}$	$2.83 \cdot 10^{-3}$	0	0	$1.46 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$
1.28	$2.21 \cdot 10^{-2}$	$4.29 \cdot 10^{-3}$	$5.12 \cdot 10^{-3}$	$2.56 \cdot 10^{-3}$	$3.75 \cdot 10^{-3}$	$2.65 \cdot 10^{-3}$
1.3	$2.15 \cdot 10^{-2}$	$4.22 \cdot 10^{-3}$	$1.02 \cdot 10^{-2}$	$3.62 \cdot 10^{-3}$	$2.76 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$
1.33	$5.28 \cdot 10^{-2}$	$7.75 \cdot 10^{-3}$	$2.43 \cdot 10^{-2}$	$5.57 \cdot 10^{-3}$	$3.35 \cdot 10^{-2}$	$7.49 \cdot 10^{-3}$
1.35	$5.71 \cdot 10^{-2}$	$8.21 \cdot 10^{-3}$	$7.42 \cdot 10^{-2}$	$9.74 \cdot 10^{-3}$	$7.64 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
1.38	0.11	$1.41 \cdot 10^{-2}$	$9.85 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	0.15	$1.56 \cdot 10^{-2}$
1.4	0.15	$1.72 \cdot 10^{-2}$	0.2	$1.58 \cdot 10^{-2}$	0.16	$1.54 \cdot 10^{-2}$
1.43	0.2	$2.28 \cdot 10^{-2}$	0.24	$1.77 \cdot 10^{-2}$	0.25	$2.04 \cdot 10^{-2}$
1.45	0.21	$2.41 \cdot 10^{-2}$	0.28	$1.91 \cdot 10^{-2}$	0.26	$2.03 \cdot 10^{-2}$
1.48	0.27	$3 \cdot 10^{-2}$	0.39	$2.23 \cdot 10^{-2}$	0.32	$2.24 \cdot 10^{-2}$
1.5	0.28	$3.17 \cdot 10^{-2}$	0.32	$2.03 \cdot 10^{-2}$	0.48	$2.78 \cdot 10^{-2}$
1.53	0.28	$3.09 \cdot 10^{-2}$	0.38	$2.19 \cdot 10^{-2}$	0.46	$2.69 \cdot 10^{-2}$
1.55	0.27	$2.95 \cdot 10^{-2}$	0.33	$2.05 \cdot 10^{-2}$	0.37	$2.43 \cdot 10^{-2}$
1.58	0.25	$2.73 \cdot 10^{-2}$	0.31	$2.01 \cdot 10^{-2}$	0.3	$2.21 \cdot 10^{-2}$
1.6	0.25	$2.82 \cdot 10^{-2}$	0.26	$1.82 \cdot 10^{-2}$	0.13	$1.42 \cdot 10^{-2}$
1.63	0.28	$3.16 \cdot 10^{-2}$	0.27	$1.86 \cdot 10^{-2}$	$8.89 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
1.65	0.27	$3.04 \cdot 10^{-2}$	0.28	$1.9 \cdot 10^{-2}$	$4.4 \cdot 10^{-2}$	$8.18 \cdot 10^{-3}$
1.68	0.29	$3.16 \cdot 10^{-2}$	0.31	$2.01 \cdot 10^{-2}$	$3.26 \cdot 10^{-2}$	$7.3 \cdot 10^{-3}$

TABLE 109 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.31	$3.43 \cdot 10^{-2}$	0.29	$1.91 \cdot 10^{-2}$	$2.28 \cdot 10^{-2}$	$5.88 \cdot 10^{-3}$
1.73	0.38	$4.07 \cdot 10^{-2}$	0.28	$1.88 \cdot 10^{-2}$	$2.57 \cdot 10^{-2}$	$6.64 \cdot 10^{-3}$
1.75	0.37	$4.02 \cdot 10^{-2}$	0.3	$1.97 \cdot 10^{-2}$	$3.96 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$
1.78	0.4	$4.29 \cdot 10^{-2}$	0.28	$1.89 \cdot 10^{-2}$	$1.47 \cdot 10^{-2}$	$4.64 \cdot 10^{-3}$
1.8	0.42	$4.53 \cdot 10^{-2}$	0.3	$1.96 \cdot 10^{-2}$	$1.96 \cdot 10^{-2}$	$5.25 \cdot 10^{-3}$
1.83	0.42	$4.51 \cdot 10^{-2}$	0.29	$1.92 \cdot 10^{-2}$	$9.54 \cdot 10^{-3}$	$3.89 \cdot 10^{-3}$
1.85	0.44	$4.65 \cdot 10^{-2}$	0.3	$1.95 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$	$4.23 \cdot 10^{-3}$
1.88	0.45	$4.89 \cdot 10^{-2}$	0.3	$1.96 \cdot 10^{-2}$	0	0
1.9	0.45	$4.83 \cdot 10^{-2}$	0.33	$2.07 \cdot 10^{-2}$	$6.83 \cdot 10^{-3}$	$3.94 \cdot 10^{-3}$
1.93	0.48	$5.12 \cdot 10^{-2}$	0.28	$1.9 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	$4.65 \cdot 10^{-3}$
1.95	0.49	$5.21 \cdot 10^{-2}$	0.35	$2.13 \cdot 10^{-2}$	$3.99 \cdot 10^{-3}$	$2.3 \cdot 10^{-3}$
1.98	0.49	$5.26 \cdot 10^{-2}$	0.31	$1.98 \cdot 10^{-2}$	$2.76 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$
2	0.51	$5.38 \cdot 10^{-2}$	0.36	$2.16 \cdot 10^{-2}$	$7.88 \cdot 10^{-3}$	$3.94 \cdot 10^{-3}$
2.03	0.57	$6.07 \cdot 10^{-2}$	0.32	$2.03 \cdot 10^{-2}$	$5.3 \cdot 10^{-3}$	$2.65 \cdot 10^{-3}$
2.05	0.57	$6.08 \cdot 10^{-2}$	0.36	$2.16 \cdot 10^{-2}$	$5.67 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$
2.08	0.56	$5.96 \cdot 10^{-2}$	0.38	$2.22 \cdot 10^{-2}$	$5.44 \cdot 10^{-3}$	$2.72 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 110. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$5.72 \cdot 10^{-4}$	$5.75 \cdot 10^{-4}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$5.72 \cdot 10^{-4}$	$5.75 \cdot 10^{-4}$	0	0	0	0
1.25	$4.58 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.28	$2.86 \cdot 10^{-3}$	$1.31 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	0	0
1.3	$8.01 \cdot 10^{-3}$	$2.35 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$	0	0
1.33	$1.49 \cdot 10^{-2}$	$3.3 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$	$2.6 \cdot 10^{-3}$	$2.6 \cdot 10^{-3}$
1.35	$3.26 \cdot 10^{-2}$	$5.41 \cdot 10^{-3}$	$5.96 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	$2.4 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$
1.38	$6.13 \cdot 10^{-2}$	$8.59 \cdot 10^{-3}$	$1.91 \cdot 10^{-2}$	$4.77 \cdot 10^{-3}$	$3.39 \cdot 10^{-2}$	$7.58 \cdot 10^{-3}$
1.4	0.12	$1.52 \cdot 10^{-2}$	$5.96 \cdot 10^{-2}$	$8.43 \cdot 10^{-3}$	0.1	$1.25 \cdot 10^{-2}$
1.43	0.18	$2.15 \cdot 10^{-2}$	0.13	$1.26 \cdot 10^{-2}$	0.22	$1.78 \cdot 10^{-2}$
1.45	0.3	$3.26 \cdot 10^{-2}$	0.24	$1.7 \cdot 10^{-2}$	0.45	$2.62 \cdot 10^{-2}$
1.48	0.42	$4.54 \cdot 10^{-2}$	0.39	$2.15 \cdot 10^{-2}$	0.67	$3.15 \cdot 10^{-2}$
1.5	0.53	$5.61 \cdot 10^{-2}$	0.51	$2.47 \cdot 10^{-2}$	1.06	$3.93 \cdot 10^{-2}$
1.53	0.63	$6.59 \cdot 10^{-2}$	0.6	$2.67 \cdot 10^{-2}$	1.32	$4.42 \cdot 10^{-2}$
1.55	0.71	$7.35 \cdot 10^{-2}$	0.69	$2.88 \cdot 10^{-2}$	1.45	$4.65 \cdot 10^{-2}$
1.58	0.82	$8.44 \cdot 10^{-2}$	0.69	$2.87 \cdot 10^{-2}$	1.28	$4.4 \cdot 10^{-2}$
1.6	0.84	$8.61 \cdot 10^{-2}$	0.7	$2.89 \cdot 10^{-2}$	0.97	$3.79 \cdot 10^{-2}$
1.63	0.88	$9.13 \cdot 10^{-2}$	0.72	$2.94 \cdot 10^{-2}$	1.05	$3.95 \cdot 10^{-2}$
1.65	0.97	$9.94 \cdot 10^{-2}$	0.8	$3.08 \cdot 10^{-2}$	1.07	$4.02 \cdot 10^{-2}$
1.68	1.01	0.1	0.85	$3.17 \cdot 10^{-2}$	0.94	$3.78 \cdot 10^{-2}$

TABLE 110 Continued.						
$d(e, e'\pi^+), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.02	0.11	0.84	$3.16 \cdot 10^{-2}$	0.78	$3.35 \cdot 10^{-2}$
1.73	1.05	0.11	0.84	$3.15 \cdot 10^{-2}$	0.49	$2.66 \cdot 10^{-2}$
1.75	1.02	0.1	0.82	$3.13 \cdot 10^{-2}$	0.31	$2.16 \cdot 10^{-2}$
1.78	1.03	0.11	0.83	$3.15 \cdot 10^{-2}$	0.16	$1.55 \cdot 10^{-2}$
1.8	1.09	0.11	0.83	$3.14 \cdot 10^{-2}$	$8.73 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$
1.83	1.11	0.11	0.86	$3.21 \cdot 10^{-2}$	$5.91 \cdot 10^{-2}$	$9.11 \cdot 10^{-3}$
1.85	1.16	0.12	0.94	$3.35 \cdot 10^{-2}$	$6.2 \cdot 10^{-2}$	$9.34 \cdot 10^{-3}$
1.88	1.2	0.12	1.01	$3.46 \cdot 10^{-2}$	$6.73 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.9	1.21	0.12	0.99	$3.44 \cdot 10^{-2}$	$3.75 \cdot 10^{-2}$	$7.65 \cdot 10^{-3}$
1.93	1.33	0.14	1.05	$3.54 \cdot 10^{-2}$	$4.86 \cdot 10^{-2}$	$8.45 \cdot 10^{-3}$
1.95	1.28	0.13	1.05	$3.53 \cdot 10^{-2}$	$3.39 \cdot 10^{-2}$	$6.79 \cdot 10^{-3}$
1.98	1.29	0.13	1.19	$3.76 \cdot 10^{-2}$	$2.77 \cdot 10^{-2}$	$6.2 \cdot 10^{-3}$
2	1.34	0.14	1.19	$3.76 \cdot 10^{-2}$	$3.29 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$
2.03	1.4	0.14	1.16	$3.72 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$	$4.87 \cdot 10^{-3}$
2.05	1.47	0.15	1.18	$3.75 \cdot 10^{-2}$	$3.13 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$
2.08	1.49	0.15	1.25	$3.86 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$	$4.86 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 111. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$1.27 \cdot 10^{-3}$	$6.61 \cdot 10^{-4}$	0	0	0	0
1.2	$1.9 \cdot 10^{-3}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.23	$1.27 \cdot 10^{-3}$	$6.46 \cdot 10^{-4}$	0	0	0	0
1.25	$1.9 \cdot 10^{-3}$	$7.99 \cdot 10^{-4}$	0	0	0	0
1.28	$9.51 \cdot 10^{-4}$	$5.57 \cdot 10^{-4}$	0	0	0	0
1.3	$3.49 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	0	0	0	0
1.33	$3.49 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	0	0
1.35	$4.75 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	0	0
1.38	$8.88 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	0	0
1.4	$9.51 \cdot 10^{-3}$	$2 \cdot 10^{-3}$	$3.3 \cdot 10^{-3}$	$1.48 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$	$1.39 \cdot 10^{-3}$
1.43	$1.55 \cdot 10^{-2}$	$2.7 \cdot 10^{-3}$	$1.06 \cdot 10^{-2}$	$2.64 \cdot 10^{-3}$	$4.21 \cdot 10^{-3}$	$2.1 \cdot 10^{-3}$
1.45	$1.81 \cdot 10^{-2}$	$2.99 \cdot 10^{-3}$	$2.31 \cdot 10^{-2}$	$3.9 \cdot 10^{-3}$	$1.09 \cdot 10^{-2}$	$3.02 \cdot 10^{-3}$
1.48	$2.28 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	$4.22 \cdot 10^{-2}$	$5.28 \cdot 10^{-3}$	$2.94 \cdot 10^{-2}$	$4.89 \cdot 10^{-3}$
1.5	$3.58 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$	$6.2 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$	$5.21 \cdot 10^{-2}$	$6.46 \cdot 10^{-3}$
1.53	$4.22 \cdot 10^{-2}$	$5.79 \cdot 10^{-3}$	$7.46 \cdot 10^{-2}$	$7.01 \cdot 10^{-3}$	0.13	$1.04 \cdot 10^{-2}$
1.55	$5.64 \cdot 10^{-2}$	$7.33 \cdot 10^{-3}$	0.12	$8.73 \cdot 10^{-3}$	0.18	$1.2 \cdot 10^{-2}$
1.58	$5.2 \cdot 10^{-2}$	$6.93 \cdot 10^{-3}$	0.14	$9.47 \cdot 10^{-3}$	0.18	$1.26 \cdot 10^{-2}$
1.6	$5.9 \cdot 10^{-2}$	$7.29 \cdot 10^{-3}$	0.14	$9.56 \cdot 10^{-3}$	0.16	$1.16 \cdot 10^{-2}$
1.63	$6.91 \cdot 10^{-2}$	$8.32 \cdot 10^{-3}$	0.17	$1.05 \cdot 10^{-2}$	0.12	$9.86 \cdot 10^{-3}$
1.65	$7.86 \cdot 10^{-2}$	$9.28 \cdot 10^{-3}$	0.17	$1.05 \cdot 10^{-2}$	0.14	$1.04 \cdot 10^{-2}$
1.68	$7.13 \cdot 10^{-2}$	$8.73 \cdot 10^{-3}$	0.19	$1.11 \cdot 10^{-2}$	0.11	$9.39 \cdot 10^{-3}$

TABLE 111 Continued.						
$d(e, e'\pi^+)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$8.21 \cdot 10^{-2}$	$9.72 \cdot 10^{-3}$	0.17	$1.06 \cdot 10^{-2}$	0.1	$9.1 \cdot 10^{-3}$
1.73	$9 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	0.17	$1.05 \cdot 10^{-2}$	$9.7 \cdot 10^{-2}$	$8.97 \cdot 10^{-3}$
1.75	$9.22 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$	0.13	$9.09 \cdot 10^{-3}$	$8.9 \cdot 10^{-2}$	$8.72 \cdot 10^{-3}$
1.78	$9.73 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	0.13	$9.09 \cdot 10^{-3}$	$8.29 \cdot 10^{-2}$	$8.25 \cdot 10^{-3}$
1.8	0.11	$1.24 \cdot 10^{-2}$	0.12	$9.07 \cdot 10^{-3}$	$6.17 \cdot 10^{-2}$	$7.22 \cdot 10^{-3}$
1.83	0.11	$1.27 \cdot 10^{-2}$	$9.63 \cdot 10^{-2}$	$7.97 \cdot 10^{-3}$	$3.31 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$
1.85	0.11	$1.26 \cdot 10^{-2}$	0.11	$8.42 \cdot 10^{-3}$	$1.79 \cdot 10^{-2}$	$3.74 \cdot 10^{-3}$
1.88	0.13	$1.48 \cdot 10^{-2}$	$9.17 \cdot 10^{-2}$	$7.78 \cdot 10^{-3}$	$2.12 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$
1.9	0.11	$1.28 \cdot 10^{-2}$	$8.78 \cdot 10^{-2}$	$7.61 \cdot 10^{-3}$	$1.56 \cdot 10^{-2}$	$3.41 \cdot 10^{-3}$
1.93	0.13	$1.51 \cdot 10^{-2}$	$7.72 \cdot 10^{-2}$	$7.14 \cdot 10^{-3}$	$1.08 \cdot 10^{-2}$	$3 \cdot 10^{-3}$
1.95	0.12	$1.32 \cdot 10^{-2}$	$7.65 \cdot 10^{-2}$	$7.11 \cdot 10^{-3}$	$8.91 \cdot 10^{-3}$	$2.69 \cdot 10^{-3}$
1.98	0.12	$1.38 \cdot 10^{-2}$	$7.13 \cdot 10^{-2}$	$6.86 \cdot 10^{-3}$	$7.55 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$
2	0.11	$1.25 \cdot 10^{-2}$	$6.86 \cdot 10^{-2}$	$6.73 \cdot 10^{-3}$	$7.03 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$
2.03	0.1	$1.18 \cdot 10^{-2}$	$4.95 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$
2.05	$9.7 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	$5.61 \cdot 10^{-2}$	$6.08 \cdot 10^{-3}$	$2.11 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$
2.08	0.1	$1.18 \cdot 10^{-2}$	$5.01 \cdot 10^{-2}$	$5.75 \cdot 10^{-3}$	$2.6 \cdot 10^{-3}$	$1.5 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 112. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.3 \cdot 10^{-2}$	$5.07 \cdot 10^{-3}$	0	0	0	0
1.15	$1.3 \cdot 10^{-2}$	$5.07 \cdot 10^{-3}$	$1.16 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$	0	0
1.18	$1.48 \cdot 10^{-2}$	$5.45 \cdot 10^{-3}$	$1.16 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$	$8.03 \cdot 10^{-3}$	$5.68 \cdot 10^{-3}$
1.2	$5.19 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	$2.7 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$5.03 \cdot 10^{-2}$	$1.59 \cdot 10^{-2}$
1.23	$7.97 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$	$5.02 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$	0.16	$2.67 \cdot 10^{-2}$
1.25	0.11	$1.79 \cdot 10^{-2}$	0.13	$2.22 \cdot 10^{-2}$	0.27	$3.64 \cdot 10^{-2}$
1.28	0.17	$2.49 \cdot 10^{-2}$	0.13	$2.25 \cdot 10^{-2}$	0.46	$4.68 \cdot 10^{-2}$
1.3	0.22	$2.94 \cdot 10^{-2}$	0.17	$2.56 \cdot 10^{-2}$	0.42	$4.45 \cdot 10^{-2}$
1.33	0.23	$3.09 \cdot 10^{-2}$	0.15	$2.41 \cdot 10^{-2}$	0.25	$3.52 \cdot 10^{-2}$
1.35	0.26	$3.37 \cdot 10^{-2}$	0.16	$2.5 \cdot 10^{-2}$	0.13	$2.62 \cdot 10^{-2}$
1.38	0.27	$3.5 \cdot 10^{-2}$	0.21	$2.84 \cdot 10^{-2}$	$9.96 \cdot 10^{-2}$	$2.17 \cdot 10^{-2}$
1.4	0.21	$2.88 \cdot 10^{-2}$	0.24	$3.04 \cdot 10^{-2}$	$4.44 \cdot 10^{-2}$	$1.4 \cdot 10^{-2}$
1.43	0.23	$3.1 \cdot 10^{-2}$	0.4	$3.92 \cdot 10^{-2}$	$5.54 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$
1.45	0.31	$3.88 \cdot 10^{-2}$	0.56	$4.65 \cdot 10^{-2}$	$2.86 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
1.48	0.32	$4.05 \cdot 10^{-2}$	0.81	$5.58 \cdot 10^{-2}$	$2.32 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
1.5	0.42	$5.12 \cdot 10^{-2}$	0.87	$5.79 \cdot 10^{-2}$	$1.61 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$
1.53	0.48	$5.67 \cdot 10^{-2}$	1.1	$6.52 \cdot 10^{-2}$	$1.99 \cdot 10^{-2}$	$8.91 \cdot 10^{-3}$
1.55	0.6	$7.06 \cdot 10^{-2}$	1.32	$7.13 \cdot 10^{-2}$	$3.17 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
1.58	0.71	$7.91 \cdot 10^{-2}$	1.41	$7.38 \cdot 10^{-2}$	$1.67 \cdot 10^{-2}$	$9.62 \cdot 10^{-3}$
1.6	0.72	$8.11 \cdot 10^{-2}$	1.59	$7.84 \cdot 10^{-2}$	$2.94 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$
1.63	0.71	$7.94 \cdot 10^{-2}$	1.5	$7.61 \cdot 10^{-2}$	$7.79 \cdot 10^{-3}$	$5.51 \cdot 10^{-3}$
1.65	0.75	$8.37 \cdot 10^{-2}$	1.51	$7.64 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$	$8.18 \cdot 10^{-3}$
1.68	0.81	$8.95 \cdot 10^{-2}$	1.66	$8 \cdot 10^{-2}$	$7.55 \cdot 10^{-3}$	$5.34 \cdot 10^{-3}$

TABLE 112 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.82	$9.09 \cdot 10^{-2}$	2.01	$8.8 \cdot 10^{-2}$	$8.48 \cdot 10^{-3}$	$5.99 \cdot 10^{-3}$
1.73	0.85	$9.3 \cdot 10^{-2}$	1.8	$8.33 \cdot 10^{-2}$	$3.96 \cdot 10^{-3}$	$3.96 \cdot 10^{-3}$
1.75	0.83	$9.19 \cdot 10^{-2}$	1.82	$8.38 \cdot 10^{-2}$	0	0
1.78	0.92	0.1	1.84	$8.42 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$	$3.85 \cdot 10^{-3}$
1.8	0.92	0.1	2.08	$8.95 \cdot 10^{-2}$	$3.62 \cdot 10^{-3}$	$3.62 \cdot 10^{-3}$
1.83	0.91	0.1	1.87	$8.5 \cdot 10^{-2}$	0	0
1.85	0.94	0.1	1.91	$8.6 \cdot 10^{-2}$	$7.24 \cdot 10^{-3}$	$7.24 \cdot 10^{-3}$
1.88	0.96	0.11	2.14	$9.09 \cdot 10^{-2}$	0	0
1.9	0.99	0.11	2	$8.79 \cdot 10^{-2}$	$4.05 \cdot 10^{-3}$	$4.05 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 113. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.11 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$	0	0	0	0
1.15	$2.23 \cdot 10^{-3}$	$1.59 \cdot 10^{-3}$	0	0	0	0
1.18	$4.45 \cdot 10^{-3}$	$2.39 \cdot 10^{-3}$	0	0	0	0
1.2	$7.79 \cdot 10^{-3}$	$3.08 \cdot 10^{-3}$	0	0	$4.72 \cdot 10^{-3}$	$4.72 \cdot 10^{-3}$
1.23	$1.45 \cdot 10^{-2}$	$4.28 \cdot 10^{-3}$	0	0	$2.47 \cdot 10^{-3}$	$2.47 \cdot 10^{-3}$
1.25	$2.89 \cdot 10^{-2}$	$6.46 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$3.27 \cdot 10^{-3}$	$1.38 \cdot 10^{-2}$	$6.16 \cdot 10^{-3}$
1.28	$3.45 \cdot 10^{-2}$	$7.08 \cdot 10^{-3}$	$2.78 \cdot 10^{-2}$	$8.02 \cdot 10^{-3}$	$5.77 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$
1.3	0.11	$1.51 \cdot 10^{-2}$	$3.71 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$	0.17	$2.25 \cdot 10^{-2}$
1.33	0.15	$1.99 \cdot 10^{-2}$	0.11	$1.6 \cdot 10^{-2}$	0.33	$3.09 \cdot 10^{-2}$
1.35	0.23	$2.78 \cdot 10^{-2}$	0.15	$1.85 \cdot 10^{-2}$	0.51	$3.89 \cdot 10^{-2}$
1.38	0.28	$3.5 \cdot 10^{-2}$	0.19	$2.12 \cdot 10^{-2}$	0.6	$4.15 \cdot 10^{-2}$
1.4	0.4	$4.58 \cdot 10^{-2}$	0.29	$2.59 \cdot 10^{-2}$	0.64	$4.25 \cdot 10^{-2}$
1.43	0.5	$5.48 \cdot 10^{-2}$	0.32	$2.74 \cdot 10^{-2}$	0.68	$4.46 \cdot 10^{-2}$
1.45	0.58	$6.31 \cdot 10^{-2}$	0.49	$3.36 \cdot 10^{-2}$	0.7	$4.48 \cdot 10^{-2}$
1.48	0.58	$6.32 \cdot 10^{-2}$	0.51	$3.43 \cdot 10^{-2}$	0.7	$4.45 \cdot 10^{-2}$
1.5	0.65	$6.96 \cdot 10^{-2}$	0.67	$3.94 \cdot 10^{-2}$	0.76	$4.61 \cdot 10^{-2}$
1.53	0.66	$7.1 \cdot 10^{-2}$	0.72	$4.08 \cdot 10^{-2}$	0.76	$4.58 \cdot 10^{-2}$
1.55	0.69	$7.45 \cdot 10^{-2}$	0.65	$3.87 \cdot 10^{-2}$	0.41	$3.51 \cdot 10^{-2}$
1.58	0.73	$7.79 \cdot 10^{-2}$	0.85	$4.45 \cdot 10^{-2}$	0.23	$2.55 \cdot 10^{-2}$
1.6	0.74	$7.91 \cdot 10^{-2}$	0.92	$4.61 \cdot 10^{-2}$	$8.5 \cdot 10^{-2}$	$1.5 \cdot 10^{-2}$
1.63	0.78	$8.39 \cdot 10^{-2}$	1.09	$5.03 \cdot 10^{-2}$	$7.76 \cdot 10^{-2}$	$1.49 \cdot 10^{-2}$
1.65	0.83	$8.8 \cdot 10^{-2}$	1.19	$5.25 \cdot 10^{-2}$	$8.13 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$
1.68	0.87	$9.21 \cdot 10^{-2}$	1.49	$5.87 \cdot 10^{-2}$	$4.83 \cdot 10^{-2}$	$1.21 \cdot 10^{-2}$

TABLE 113 Continued.						
$d(e, e' \pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.89	$9.47 \cdot 10^{-2}$	1.49	$5.87 \cdot 10^{-2}$	$5.76 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$
1.73	1.02	0.11	1.69	$6.26 \cdot 10^{-2}$	$5.96 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$
1.75	0.98	0.1	1.63	$6.14 \cdot 10^{-2}$	$2.66 \cdot 10^{-2}$	$8.85 \cdot 10^{-3}$
1.78	1	0.11	1.66	$6.21 \cdot 10^{-2}$	$1.96 \cdot 10^{-2}$	$6.93 \cdot 10^{-3}$
1.8	1.04	0.11	1.64	$6.16 \cdot 10^{-2}$	$3.16 \cdot 10^{-2}$	$9.11 \cdot 10^{-3}$
1.83	1.1	0.12	1.72	$6.32 \cdot 10^{-2}$	$9.31 \cdot 10^{-3}$	$5.38 \cdot 10^{-3}$
1.85	0.97	0.1	1.7	$6.27 \cdot 10^{-2}$	$2.27 \cdot 10^{-2}$	$8.01 \cdot 10^{-3}$
1.88	1	0.1	1.78	$6.43 \cdot 10^{-2}$	$9.49 \cdot 10^{-3}$	$4.75 \cdot 10^{-3}$
1.9	0.94	$9.98 \cdot 10^{-2}$	1.6	$6.1 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$6.43 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 114. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$7.95 \cdot 10^{-4}$	$7.99 \cdot 10^{-4}$	0	0	0	0
1.33	0	0	0	0	0	0
1.35	$7.95 \cdot 10^{-4}$	$7.99 \cdot 10^{-4}$	0	0	0	0
1.38	$1.59 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$	0	0	0	0
1.4	$3.18 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	0	0
1.43	$6.36 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$	$3.57 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$
1.45	$1.67 \cdot 10^{-2}$	$4 \cdot 10^{-3}$	$1.16 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$	$2.36 \cdot 10^{-2}$	$7.13 \cdot 10^{-3}$
1.48	$3.18 \cdot 10^{-2}$	$6.08 \cdot 10^{-3}$	$3.8 \cdot 10^{-2}$	$7.93 \cdot 10^{-3}$	$6.4 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$
1.5	$6.36 \cdot 10^{-2}$	$9.52 \cdot 10^{-3}$	$8.77 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$	0.14	$1.66 \cdot 10^{-2}$
1.53	0.14	$1.74 \cdot 10^{-2}$	0.15	$1.57 \cdot 10^{-2}$	0.4	$2.83 \cdot 10^{-2}$
1.55	0.19	$2.26 \cdot 10^{-2}$	0.24	$2.01 \cdot 10^{-2}$	0.53	$3.32 \cdot 10^{-2}$
1.58	0.29	$3.29 \cdot 10^{-2}$	0.28	$2.16 \cdot 10^{-2}$	0.56	$3.37 \cdot 10^{-2}$
1.6	0.4	$4.33 \cdot 10^{-2}$	0.33	$2.33 \cdot 10^{-2}$	0.74	$3.94 \cdot 10^{-2}$
1.63	0.5	$5.38 \cdot 10^{-2}$	0.42	$2.64 \cdot 10^{-2}$	0.75	$4.02 \cdot 10^{-2}$
1.65	0.59	$6.28 \cdot 10^{-2}$	0.52	$2.93 \cdot 10^{-2}$	0.71	$3.79 \cdot 10^{-2}$
1.68	0.7	$7.33 \cdot 10^{-2}$	0.53	$2.96 \cdot 10^{-2}$	0.84	$4.12 \cdot 10^{-2}$

TABLE 114 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.71	$7.47 \cdot 10^{-2}$	0.64	$3.25 \cdot 10^{-2}$	0.93	$4.46 \cdot 10^{-2}$
1.73	0.84	$8.75 \cdot 10^{-2}$	0.65	$3.28 \cdot 10^{-2}$	0.95	$4.42 \cdot 10^{-2}$
1.75	0.91	$9.5 \cdot 10^{-2}$	0.79	$3.61 \cdot 10^{-2}$	0.76	$3.95 \cdot 10^{-2}$
1.78	0.98	0.1	0.87	$3.8 \cdot 10^{-2}$	0.63	$3.63 \cdot 10^{-2}$
1.8	0.99	0.1	0.98	$4.02 \cdot 10^{-2}$	0.55	$3.33 \cdot 10^{-2}$
1.83	1.09	0.11	1.01	$4.09 \cdot 10^{-2}$	0.5	$3.23 \cdot 10^{-2}$
1.85	0.99	0.1	1.03	$4.13 \cdot 10^{-2}$	0.41	$2.92 \cdot 10^{-2}$
1.88	1	0.1	1.1	$4.27 \cdot 10^{-2}$	0.26	$2.29 \cdot 10^{-2}$
1.9	0.97	0.1	1.15	$4.35 \cdot 10^{-2}$	0.17	$1.92 \cdot 10^{-2}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 115. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	$2.23 \cdot 10^{-3}$	$1.59 \cdot 10^{-3}$	0	0	0	0
1.6	$2.23 \cdot 10^{-3}$	$1.59 \cdot 10^{-3}$	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	$1.11 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$	0	0	0	0

TABLE 115 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.11 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$	0	0	$2.31 \cdot 10^{-3}$	$2.31 \cdot 10^{-3}$
1.73	$1.11 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$	0	0	0	0
1.75	$1.11 \cdot 10^{-2}$	$3.96 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	$7.63 \cdot 10^{-3}$	$4.41 \cdot 10^{-3}$
1.78	$2.67 \cdot 10^{-2}$	$6.06 \cdot 10^{-3}$	$1.62 \cdot 10^{-2}$	$6.13 \cdot 10^{-3}$	$3.79 \cdot 10^{-2}$	$9.8 \cdot 10^{-3}$
1.8	$4.9 \cdot 10^{-2}$	$8.87 \cdot 10^{-3}$	$2.55 \cdot 10^{-2}$	$7.68 \cdot 10^{-3}$	$8 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$
1.83	0.11	$1.59 \cdot 10^{-2}$	$6.02 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$	0.17	$2.28 \cdot 10^{-2}$
1.85	0.19	$2.41 \cdot 10^{-2}$	0.16	$1.94 \cdot 10^{-2}$	0.31	$2.93 \cdot 10^{-2}$
1.88	0.27	$3.22 \cdot 10^{-2}$	0.17	$1.99 \cdot 10^{-2}$	0.39	$3.33 \cdot 10^{-2}$
1.9	0.4	$4.47 \cdot 10^{-2}$	0.2	$2.16 \cdot 10^{-2}$	0.49	$3.72 \cdot 10^{-2}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 116. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$7.16 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$	0	0	$1.81 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$
1.15	$1.27 \cdot 10^{-2}$	$3.49 \cdot 10^{-3}$	0	0	0	0
1.18	$1.35 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	$6.62 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$8.39 \cdot 10^{-3}$	$3.75 \cdot 10^{-3}$
1.2	$2.31 \cdot 10^{-2}$	$5 \cdot 10^{-3}$	$6.62 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$1.21 \cdot 10^{-2}$	$4.59 \cdot 10^{-3}$
1.23	$3.9 \cdot 10^{-2}$	$6.78 \cdot 10^{-3}$	$3.97 \cdot 10^{-2}$	$8.11 \cdot 10^{-3}$	$3.49 \cdot 10^{-2}$	$9.01 \cdot 10^{-3}$
1.25	$4.69 \cdot 10^{-2}$	$7.69 \cdot 10^{-3}$	$6.12 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$7.18 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
1.28	$6.92 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$7.78 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	0.19	$1.98 \cdot 10^{-2}$
1.3	$9.14 \cdot 10^{-2}$	$1.25 \cdot 10^{-2}$	0.11	$1.34 \cdot 10^{-2}$	0.29	$2.5 \cdot 10^{-2}$
1.33	0.13	$1.63 \cdot 10^{-2}$	0.1	$1.3 \cdot 10^{-2}$	0.29	$2.44 \cdot 10^{-2}$
1.35	0.14	$1.8 \cdot 10^{-2}$	0.16	$1.61 \cdot 10^{-2}$	0.34	$2.67 \cdot 10^{-2}$
1.38	0.14	$1.73 \cdot 10^{-2}$	0.17	$1.69 \cdot 10^{-2}$	0.22	$2.14 \cdot 10^{-2}$
1.4	0.15	$1.88 \cdot 10^{-2}$	0.18	$1.71 \cdot 10^{-2}$	0.16	$1.82 \cdot 10^{-2}$
1.43	0.15	$1.81 \cdot 10^{-2}$	0.18	$1.7 \cdot 10^{-2}$	$6.35 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$
1.45	0.15	$1.87 \cdot 10^{-2}$	0.19	$1.79 \cdot 10^{-2}$	$6.01 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
1.48	0.13	$1.62 \cdot 10^{-2}$	0.21	$1.86 \cdot 10^{-2}$	$2.08 \cdot 10^{-2}$	$6.28 \cdot 10^{-3}$
1.5	0.13	$1.73 \cdot 10^{-2}$	0.21	$1.84 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	$5.49 \cdot 10^{-3}$
1.53	0.16	$1.99 \cdot 10^{-2}$	0.23	$1.97 \cdot 10^{-2}$	$2.39 \cdot 10^{-2}$	$6.9 \cdot 10^{-3}$
1.55	0.19	$2.26 \cdot 10^{-2}$	0.29	$2.19 \cdot 10^{-2}$	$3.18 \cdot 10^{-2}$	$7.95 \cdot 10^{-3}$
1.58	0.19	$2.32 \cdot 10^{-2}$	0.35	$2.41 \cdot 10^{-2}$	$2.47 \cdot 10^{-2}$	$7.14 \cdot 10^{-3}$
1.6	0.23	$2.71 \cdot 10^{-2}$	0.42	$2.62 \cdot 10^{-2}$	$1.94 \cdot 10^{-2}$	$6.46 \cdot 10^{-3}$
1.63	0.25	$2.82 \cdot 10^{-2}$	0.42	$2.65 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$4.64 \cdot 10^{-3}$
1.65	0.25	$2.85 \cdot 10^{-2}$	0.46	$2.74 \cdot 10^{-2}$	$6.92 \cdot 10^{-3}$	$3.46 \cdot 10^{-3}$
1.68	0.26	$2.97 \cdot 10^{-2}$	0.5	$2.89 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$

TABLE 116 Continued.						
$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.26	$3.05 \cdot 10^{-2}$	0.45	$2.72 \cdot 10^{-2}$	$1.4 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$
1.73	0.29	$3.29 \cdot 10^{-2}$	0.46	$2.74 \cdot 10^{-2}$	$1.66 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$
1.75	0.3	$3.42 \cdot 10^{-2}$	0.45	$2.72 \cdot 10^{-2}$	$5.09 \cdot 10^{-3}$	$2.94 \cdot 10^{-3}$
1.78	0.32	$3.68 \cdot 10^{-2}$	0.37	$2.47 \cdot 10^{-2}$	0	0
1.8	0.36	$3.99 \cdot 10^{-2}$	0.44	$2.7 \cdot 10^{-2}$	$3.34 \cdot 10^{-3}$	$2.37 \cdot 10^{-3}$
1.83	0.34	$3.75 \cdot 10^{-2}$	0.4	$2.56 \cdot 10^{-2}$	$1.76 \cdot 10^{-3}$	$1.76 \cdot 10^{-3}$
1.85	0.37	$4.16 \cdot 10^{-2}$	0.43	$2.67 \cdot 10^{-2}$	0	0
1.88	0.39	$4.27 \cdot 10^{-2}$	0.48	$2.83 \cdot 10^{-2}$	$1.89 \cdot 10^{-3}$	$1.89 \cdot 10^{-3}$
1.9	0.4	$4.32 \cdot 10^{-2}$	0.47	$2.78 \cdot 10^{-2}$	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 117. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.77 \cdot 10^{-4}$	$4.79 \cdot 10^{-4}$	0	0	0	0
1.15	$9.54 \cdot 10^{-4}$	$6.81 \cdot 10^{-4}$	0	0	0	0
1.18	$4.77 \cdot 10^{-4}$	$4.79 \cdot 10^{-4}$	0	0	0	0
1.2	$9.54 \cdot 10^{-4}$	$6.81 \cdot 10^{-4}$	0	0	0	0
1.23	$5.72 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.25	$4.77 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.28	$1 \cdot 10^{-2}$	$2.53 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$
1.3	$1.05 \cdot 10^{-2}$	$2.47 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$6.17 \cdot 10^{-3}$	$2.76 \cdot 10^{-3}$
1.33	$2.24 \cdot 10^{-2}$	$4.08 \cdot 10^{-3}$	$8.94 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$1.55 \cdot 10^{-2}$	$4.66 \cdot 10^{-3}$
1.35	$3.67 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$	$2.58 \cdot 10^{-2}$	$5.06 \cdot 10^{-3}$	$5.21 \cdot 10^{-2}$	$8.45 \cdot 10^{-3}$
1.38	$5.15 \cdot 10^{-2}$	$7.13 \cdot 10^{-3}$	$4.67 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$	$9.09 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
1.4	$7.35 \cdot 10^{-2}$	$9.41 \cdot 10^{-3}$	$8.04 \cdot 10^{-2}$	$8.94 \cdot 10^{-3}$	0.17	$1.47 \cdot 10^{-2}$
1.43	0.12	$1.4 \cdot 10^{-2}$	0.13	$1.13 \cdot 10^{-2}$	0.16	$1.35 \cdot 10^{-2}$
1.45	0.15	$1.69 \cdot 10^{-2}$	0.17	$1.3 \cdot 10^{-2}$	0.21	$1.59 \cdot 10^{-2}$
1.48	0.18	$2 \cdot 10^{-2}$	0.17	$1.31 \cdot 10^{-2}$	0.31	$1.96 \cdot 10^{-2}$
1.5	0.21	$2.35 \cdot 10^{-2}$	0.27	$1.63 \cdot 10^{-2}$	0.47	$2.42 \cdot 10^{-2}$
1.53	0.24	$2.69 \cdot 10^{-2}$	0.29	$1.71 \cdot 10^{-2}$	0.54	$2.58 \cdot 10^{-2}$
1.55	0.28	$2.99 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	0.48	$2.44 \cdot 10^{-2}$
1.58	0.27	$2.91 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	0.42	$2.24 \cdot 10^{-2}$
1.6	0.27	$2.89 \cdot 10^{-2}$	0.31	$1.76 \cdot 10^{-2}$	0.27	$1.83 \cdot 10^{-2}$
1.63	0.26	$2.79 \cdot 10^{-2}$	0.27	$1.65 \cdot 10^{-2}$	0.25	$1.76 \cdot 10^{-2}$
1.65	0.3	$3.26 \cdot 10^{-2}$	0.28	$1.68 \cdot 10^{-2}$	0.21	$1.59 \cdot 10^{-2}$
1.68	0.28	$3.06 \cdot 10^{-2}$	0.28	$1.68 \cdot 10^{-2}$	0.15	$1.34 \cdot 10^{-2}$

TABLE 117 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.28	$3 \cdot 10^{-2}$	0.31	$1.75 \cdot 10^{-2}$	0.12	$1.25 \cdot 10^{-2}$
1.73	0.3	$3.27 \cdot 10^{-2}$	0.32	$1.78 \cdot 10^{-2}$	$8.57 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.75	0.35	$3.69 \cdot 10^{-2}$	0.36	$1.88 \cdot 10^{-2}$	$6.09 \cdot 10^{-2}$	$8.78 \cdot 10^{-3}$
1.78	0.4	$4.22 \cdot 10^{-2}$	0.31	$1.77 \cdot 10^{-2}$	$3.51 \cdot 10^{-2}$	$6.64 \cdot 10^{-3}$
1.8	0.41	$4.36 \cdot 10^{-2}$	0.34	$1.84 \cdot 10^{-2}$	$1.92 \cdot 10^{-2}$	$4.79 \cdot 10^{-3}$
1.83	0.38	$4.06 \cdot 10^{-2}$	0.34	$1.85 \cdot 10^{-2}$	$2.44 \cdot 10^{-2}$	$5.76 \cdot 10^{-3}$
1.85	0.45	$4.68 \cdot 10^{-2}$	0.41	$2.01 \cdot 10^{-2}$	$2.27 \cdot 10^{-2}$	$5.67 \cdot 10^{-3}$
1.88	0.47	$4.89 \cdot 10^{-2}$	0.4	$1.99 \cdot 10^{-2}$	$2.03 \cdot 10^{-2}$	$5.24 \cdot 10^{-3}$
1.9	0.48	$5.01 \cdot 10^{-2}$	0.43	$2.07 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$3.93 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 118. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$6.81 \cdot 10^{-4}$	$4.87 \cdot 10^{-4}$	0	0	0	0
1.43	$1.02 \cdot 10^{-3}$	$6.08 \cdot 10^{-4}$	0	0	0	0
1.45	$1.02 \cdot 10^{-3}$	$6.08 \cdot 10^{-4}$	0	0	0	0
1.48	$2.73 \cdot 10^{-3}$	$1 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1 \cdot 10^{-3}$	0	0
1.5	$1.7 \cdot 10^{-3}$	$7.81 \cdot 10^{-4}$	$1.42 \cdot 10^{-3}$	$1 \cdot 10^{-3}$	$8.08 \cdot 10^{-4}$	$8.08 \cdot 10^{-4}$
1.53	$4.43 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$4.26 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$
1.55	$8.18 \cdot 10^{-3}$	$1.86 \cdot 10^{-3}$	$6.38 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$6.66 \cdot 10^{-3}$	$2.35 \cdot 10^{-3}$
1.58	$1.87 \cdot 10^{-2}$	$3.48 \cdot 10^{-3}$	$1.42 \cdot 10^{-2}$	$3.17 \cdot 10^{-3}$	$2.88 \cdot 10^{-2}$	$5.18 \cdot 10^{-3}$
1.6	$3.27 \cdot 10^{-2}$	$4.66 \cdot 10^{-3}$	$3.19 \cdot 10^{-2}$	$4.76 \cdot 10^{-3}$	$7.66 \cdot 10^{-2}$	$8.35 \cdot 10^{-3}$
1.63	$4.8 \cdot 10^{-2}$	$6.31 \cdot 10^{-3}$	$5.04 \cdot 10^{-2}$	$5.98 \cdot 10^{-3}$	0.1	$9.4 \cdot 10^{-3}$
1.65	$7.56 \cdot 10^{-2}$	$9.52 \cdot 10^{-3}$	$6.81 \cdot 10^{-2}$	$6.95 \cdot 10^{-3}$	0.14	$1.1 \cdot 10^{-2}$
1.68	0.11	$1.22 \cdot 10^{-2}$	0.13	$9.44 \cdot 10^{-3}$	0.22	$1.4 \cdot 10^{-2}$

TABLE 118 Continued.						
$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.13	$1.45 \cdot 10^{-2}$	0.14	$9.98 \cdot 10^{-3}$	0.27	$1.56 \cdot 10^{-2}$
1.73	0.15	$1.67 \cdot 10^{-2}$	0.15	$1.03 \cdot 10^{-2}$	0.28	$1.58 \cdot 10^{-2}$
1.75	0.17	$1.84 \cdot 10^{-2}$	0.18	$1.12 \cdot 10^{-2}$	0.26	$1.53 \cdot 10^{-2}$
1.78	0.19	$2.05 \cdot 10^{-2}$	0.18	$1.12 \cdot 10^{-2}$	0.22	$1.36 \cdot 10^{-2}$
1.8	0.21	$2.25 \cdot 10^{-2}$	0.22	$1.24 \cdot 10^{-2}$	0.2	$1.36 \cdot 10^{-2}$
1.83	0.21	$2.23 \cdot 10^{-2}$	0.22	$1.24 \cdot 10^{-2}$	0.15	$1.16 \cdot 10^{-2}$
1.85	0.23	$2.41 \cdot 10^{-2}$	0.21	$1.22 \cdot 10^{-2}$	0.16	$1.19 \cdot 10^{-2}$
1.88	0.26	$2.74 \cdot 10^{-2}$	0.24	$1.31 \cdot 10^{-2}$	0.16	$1.2 \cdot 10^{-2}$
1.9	0.28	$2.98 \cdot 10^{-2}$	0.27	$1.38 \cdot 10^{-2}$	0.15	$1.13 \cdot 10^{-2}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 119. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.02 \cdot 10^{-3}$	$7.31 \cdot 10^{-4}$	0	0	0	0
1.15	$1.54 \cdot 10^{-3}$	$9 \cdot 10^{-4}$	0	0	0	0
1.18	$1.54 \cdot 10^{-3}$	$9 \cdot 10^{-4}$	0	0	0	0
1.2	$3.58 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$	0	0
1.23	$4.61 \cdot 10^{-3}$	$1.62 \cdot 10^{-3}$	0	0	0	0
1.25	$9.73 \cdot 10^{-3}$	$2.43 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$	0	0
1.28	$1.23 \cdot 10^{-2}$	$2.79 \cdot 10^{-3}$	$4.26 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$2.22 \cdot 10^{-3}$	$1.57 \cdot 10^{-3}$
1.3	$1.38 \cdot 10^{-2}$	$3 \cdot 10^{-3}$	$9.59 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	$4.36 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$
1.33	$1.59 \cdot 10^{-2}$	$3.26 \cdot 10^{-3}$	$2.34 \cdot 10^{-2}$	$5 \cdot 10^{-3}$	$1.22 \cdot 10^{-2}$	$4.06 \cdot 10^{-3}$
1.35	$2.51 \cdot 10^{-2}$	$4.4 \cdot 10^{-3}$	$2.77 \cdot 10^{-2}$	$5.43 \cdot 10^{-3}$	$3.77 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$
1.38	$3.23 \cdot 10^{-2}$	$5.18 \cdot 10^{-3}$	$5.22 \cdot 10^{-2}$	$7.46 \cdot 10^{-3}$	$5.71 \cdot 10^{-2}$	$8.82 \cdot 10^{-3}$
1.4	$4.51 \cdot 10^{-2}$	$6.57 \cdot 10^{-3}$	$7.35 \cdot 10^{-2}$	$8.85 \cdot 10^{-3}$	$4.86 \cdot 10^{-2}$	$7.78 \cdot 10^{-3}$
1.43	$5.07 \cdot 10^{-2}$	$7.31 \cdot 10^{-3}$	$9.59 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$6.15 \cdot 10^{-2}$	$9.17 \cdot 10^{-3}$
1.45	$6.14 \cdot 10^{-2}$	$8.41 \cdot 10^{-3}$	$9.17 \cdot 10^{-2}$	$9.88 \cdot 10^{-3}$	$9.4 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$
1.48	$5.94 \cdot 10^{-2}$	$8.1 \cdot 10^{-3}$	0.12	$1.14 \cdot 10^{-2}$	0.11	$1.23 \cdot 10^{-2}$
1.5	$7.12 \cdot 10^{-2}$	$9.31 \cdot 10^{-3}$	0.14	$1.24 \cdot 10^{-2}$	0.15	$1.43 \cdot 10^{-2}$
1.53	$8.09 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$	0.11	$1.09 \cdot 10^{-2}$	0.13	$1.31 \cdot 10^{-2}$
1.55	$7.94 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	0.11	$1.07 \cdot 10^{-2}$	0.12	$1.22 \cdot 10^{-2}$
1.58	$7.07 \cdot 10^{-2}$	$9.52 \cdot 10^{-3}$	0.11	$1.1 \cdot 10^{-2}$	$9.16 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
1.6	$6.66 \cdot 10^{-2}$	$8.83 \cdot 10^{-3}$	$8.31 \cdot 10^{-2}$	$9.41 \cdot 10^{-3}$	$5.33 \cdot 10^{-2}$	$8.65 \cdot 10^{-3}$
1.63	$7.42 \cdot 10^{-2}$	$9.62 \cdot 10^{-3}$	0.1	$1.05 \cdot 10^{-2}$	$2.29 \cdot 10^{-2}$	$5.54 \cdot 10^{-3}$
1.65	$9.11 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	0.11	$1.09 \cdot 10^{-2}$	$2.54 \cdot 10^{-2}$	$6.16 \cdot 10^{-3}$
1.68	$9.63 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$	0.12	$1.11 \cdot 10^{-2}$	$1.53 \cdot 10^{-2}$	$4.41 \cdot 10^{-3}$

TABLE 119 Continued.						
$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$9.47 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$	0.11	$1.1 \cdot 10^{-2}$	$9.98 \cdot 10^{-3}$	$3.77 \cdot 10^{-3}$
1.73	0.1	$1.23 \cdot 10^{-2}$	0.12	$1.14 \cdot 10^{-2}$	$3.24 \cdot 10^{-3}$	$1.87 \cdot 10^{-3}$
1.75	0.12	$1.46 \cdot 10^{-2}$	$9.81 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$6.27 \cdot 10^{-3}$	$2.8 \cdot 10^{-3}$
1.78	0.13	$1.48 \cdot 10^{-2}$	$9.7 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$9 \cdot 10^{-3}$	$3.18 \cdot 10^{-3}$
1.8	0.14	$1.68 \cdot 10^{-2}$	$9.81 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$5.41 \cdot 10^{-3}$	$2.7 \cdot 10^{-3}$
1.83	0.16	$1.83 \cdot 10^{-2}$	0.11	$1.07 \cdot 10^{-2}$	$7.57 \cdot 10^{-3}$	$3.39 \cdot 10^{-3}$
1.85	0.14	$1.67 \cdot 10^{-2}$	0.1	$1.06 \cdot 10^{-2}$	$6.33 \cdot 10^{-3}$	$3.17 \cdot 10^{-3}$
1.88	0.16	$1.84 \cdot 10^{-2}$	0.11	$1.09 \cdot 10^{-2}$	$3.36 \cdot 10^{-3}$	$1.94 \cdot 10^{-3}$
1.9	0.16	$1.86 \cdot 10^{-2}$	0.11	$1.09 \cdot 10^{-2}$	$2.36 \cdot 10^{-3}$	$1.67 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 120. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.77 \cdot 10^{-4}$	$4.79 \cdot 10^{-4}$	0	0	0	0
1.15	$9.54 \cdot 10^{-4}$	$6.81 \cdot 10^{-4}$	0	0	0	0
1.18	$4.77 \cdot 10^{-4}$	$4.79 \cdot 10^{-4}$	0	0	0	0
1.2	$9.54 \cdot 10^{-4}$	$6.81 \cdot 10^{-4}$	0	0	0	0
1.23	$5.72 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.25	$4.77 \cdot 10^{-3}$	$1.7 \cdot 10^{-3}$	0	0	0	0
1.28	$1 \cdot 10^{-2}$	$2.53 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$
1.3	$1.05 \cdot 10^{-2}$	$2.47 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$6.17 \cdot 10^{-3}$	$2.76 \cdot 10^{-3}$
1.33	$2.24 \cdot 10^{-2}$	$4.08 \cdot 10^{-3}$	$8.94 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$1.55 \cdot 10^{-2}$	$4.66 \cdot 10^{-3}$
1.35	$3.67 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$	$2.58 \cdot 10^{-2}$	$5.06 \cdot 10^{-3}$	$5.21 \cdot 10^{-2}$	$8.45 \cdot 10^{-3}$
1.38	$5.15 \cdot 10^{-2}$	$7.13 \cdot 10^{-3}$	$4.67 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$	$9.09 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
1.4	$7.35 \cdot 10^{-2}$	$9.41 \cdot 10^{-3}$	$8.04 \cdot 10^{-2}$	$8.94 \cdot 10^{-3}$	0.17	$1.47 \cdot 10^{-2}$
1.43	0.12	$1.4 \cdot 10^{-2}$	0.13	$1.13 \cdot 10^{-2}$	0.16	$1.35 \cdot 10^{-2}$
1.45	0.15	$1.69 \cdot 10^{-2}$	0.17	$1.3 \cdot 10^{-2}$	0.21	$1.59 \cdot 10^{-2}$
1.48	0.18	$2 \cdot 10^{-2}$	0.17	$1.31 \cdot 10^{-2}$	0.31	$1.96 \cdot 10^{-2}$
1.5	0.21	$2.35 \cdot 10^{-2}$	0.27	$1.63 \cdot 10^{-2}$	0.47	$2.42 \cdot 10^{-2}$
1.53	0.24	$2.69 \cdot 10^{-2}$	0.29	$1.71 \cdot 10^{-2}$	0.54	$2.58 \cdot 10^{-2}$
1.55	0.28	$2.99 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	0.48	$2.44 \cdot 10^{-2}$
1.58	0.27	$2.91 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	0.42	$2.24 \cdot 10^{-2}$
1.6	0.27	$2.89 \cdot 10^{-2}$	0.31	$1.76 \cdot 10^{-2}$	0.27	$1.83 \cdot 10^{-2}$
1.63	0.26	$2.79 \cdot 10^{-2}$	0.27	$1.65 \cdot 10^{-2}$	0.25	$1.76 \cdot 10^{-2}$
1.65	0.3	$3.26 \cdot 10^{-2}$	0.28	$1.68 \cdot 10^{-2}$	0.21	$1.59 \cdot 10^{-2}$
1.68	0.28	$3.06 \cdot 10^{-2}$	0.28	$1.68 \cdot 10^{-2}$	0.15	$1.34 \cdot 10^{-2}$

TABLE 120 Continued.						
$d(e, e'\pi^+), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.28	$3 \cdot 10^{-2}$	0.31	$1.75 \cdot 10^{-2}$	0.12	$1.25 \cdot 10^{-2}$
1.73	0.3	$3.27 \cdot 10^{-2}$	0.32	$1.78 \cdot 10^{-2}$	$8.57 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.75	0.35	$3.69 \cdot 10^{-2}$	0.36	$1.88 \cdot 10^{-2}$	$6.09 \cdot 10^{-2}$	$8.78 \cdot 10^{-3}$
1.78	0.4	$4.22 \cdot 10^{-2}$	0.31	$1.77 \cdot 10^{-2}$	$3.51 \cdot 10^{-2}$	$6.64 \cdot 10^{-3}$
1.8	0.41	$4.36 \cdot 10^{-2}$	0.34	$1.84 \cdot 10^{-2}$	$1.92 \cdot 10^{-2}$	$4.79 \cdot 10^{-3}$
1.83	0.38	$4.06 \cdot 10^{-2}$	0.34	$1.85 \cdot 10^{-2}$	$2.44 \cdot 10^{-2}$	$5.76 \cdot 10^{-3}$
1.85	0.45	$4.68 \cdot 10^{-2}$	0.41	$2.01 \cdot 10^{-2}$	$2.27 \cdot 10^{-2}$	$5.67 \cdot 10^{-3}$
1.88	0.47	$4.89 \cdot 10^{-2}$	0.4	$1.99 \cdot 10^{-2}$	$2.03 \cdot 10^{-2}$	$5.24 \cdot 10^{-3}$
1.9	0.48	$5.01 \cdot 10^{-2}$	0.43	$2.07 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$3.93 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 121. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.64 \cdot 10^{-4}$	$2.65 \cdot 10^{-4}$	0	0	0	0
1.15	$2.64 \cdot 10^{-4}$	$2.65 \cdot 10^{-4}$	0	0	0	0
1.18	0	0	0	0	0	0
1.2	$7.92 \cdot 10^{-4}$	$4.72 \cdot 10^{-4}$	0	0	0	0
1.23	$2.64 \cdot 10^{-4}$	$2.65 \cdot 10^{-4}$	0	0	0	0
1.25	$1.32 \cdot 10^{-3}$	$6.05 \cdot 10^{-4}$	0	0	0	0
1.28	$1.06 \cdot 10^{-3}$	$5.39 \cdot 10^{-4}$	0	0	0	0
1.3	$1.06 \cdot 10^{-3}$	$5.39 \cdot 10^{-4}$	$5.5 \cdot 10^{-4}$	$5.5 \cdot 10^{-4}$	0	0
1.33	$1.85 \cdot 10^{-3}$	$7.23 \cdot 10^{-4}$	0	0	0	0
1.35	$2.11 \cdot 10^{-3}$	$7.76 \cdot 10^{-4}$	0	0	$5.59 \cdot 10^{-4}$	$5.59 \cdot 10^{-4}$
1.38	$4.23 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.4	$2.11 \cdot 10^{-3}$	$7.81 \cdot 10^{-4}$	$1.65 \cdot 10^{-3}$	$9.52 \cdot 10^{-4}$	$1.79 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$
1.43	$3.96 \cdot 10^{-3}$	$1.15 \cdot 10^{-3}$	$4.4 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$	0	0
1.45	$5.02 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$	$1.04 \cdot 10^{-2}$	$2.4 \cdot 10^{-3}$	$4.16 \cdot 10^{-3}$	$1.86 \cdot 10^{-3}$
1.48	$6.08 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	$1.65 \cdot 10^{-2}$	$3.01 \cdot 10^{-3}$	$9.08 \cdot 10^{-3}$	$2.43 \cdot 10^{-3}$
1.5	$7.66 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$	$1.81 \cdot 10^{-2}$	$3.16 \cdot 10^{-3}$	$2.23 \cdot 10^{-2}$	$3.88 \cdot 10^{-3}$
1.53	$9.25 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$	$3.35 \cdot 10^{-2}$	$4.29 \cdot 10^{-3}$	$4.68 \cdot 10^{-2}$	$5.48 \cdot 10^{-3}$
1.55	$1.16 \cdot 10^{-2}$	$2.12 \cdot 10^{-3}$	$3.41 \cdot 10^{-2}$	$4.33 \cdot 10^{-3}$	$4.79 \cdot 10^{-2}$	$5.61 \cdot 10^{-3}$
1.58	$1.56 \cdot 10^{-2}$	$2.55 \cdot 10^{-3}$	$3.68 \cdot 10^{-2}$	$4.5 \cdot 10^{-3}$	$5.91 \cdot 10^{-2}$	$6.45 \cdot 10^{-3}$
1.6	$1.37 \cdot 10^{-2}$	$2.54 \cdot 10^{-3}$	$3.85 \cdot 10^{-2}$	$4.6 \cdot 10^{-3}$	$4.29 \cdot 10^{-2}$	$5.36 \cdot 10^{-3}$
1.63	$1.9 \cdot 10^{-2}$	$2.93 \cdot 10^{-3}$	$4.78 \cdot 10^{-2}$	$5.13 \cdot 10^{-3}$	$3.37 \cdot 10^{-2}$	$4.76 \cdot 10^{-3}$
1.65	$1.61 \cdot 10^{-2}$	$2.61 \cdot 10^{-3}$	$4.95 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$	$4.81 \cdot 10^{-2}$	$5.79 \cdot 10^{-3}$
1.68	$1.98 \cdot 10^{-2}$	$3.02 \cdot 10^{-3}$	$6.38 \cdot 10^{-2}$	$5.92 \cdot 10^{-3}$	$2.97 \cdot 10^{-2}$	$4.58 \cdot 10^{-3}$

TABLE 121 Continued.						
$d(e, e'\pi^+)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$2.25 \cdot 10^{-2}$	$3.4 \cdot 10^{-3}$	$5.61 \cdot 10^{-2}$	$5.55 \cdot 10^{-3}$	$3.74 \cdot 10^{-2}$	$5.05 \cdot 10^{-3}$
1.73	$2.32 \cdot 10^{-2}$	$3.39 \cdot 10^{-3}$	$5.33 \cdot 10^{-2}$	$5.42 \cdot 10^{-3}$	$4.26 \cdot 10^{-2}$	$5.5 \cdot 10^{-3}$
1.75	$2.4 \cdot 10^{-2}$	$3.5 \cdot 10^{-3}$	$5.06 \cdot 10^{-2}$	$5.27 \cdot 10^{-3}$	$4.2 \cdot 10^{-2}$	$5.3 \cdot 10^{-3}$
1.78	$2.8 \cdot 10^{-2}$	$3.98 \cdot 10^{-3}$	$4.62 \cdot 10^{-2}$	$5.04 \cdot 10^{-3}$	$3.3 \cdot 10^{-2}$	$4.87 \cdot 10^{-3}$
1.8	$2.77 \cdot 10^{-2}$	$3.87 \cdot 10^{-3}$	$4.29 \cdot 10^{-2}$	$4.86 \cdot 10^{-3}$	$1.9 \cdot 10^{-2}$	$3.59 \cdot 10^{-3}$
1.83	$3.46 \cdot 10^{-2}$	$4.59 \cdot 10^{-3}$	$4.18 \cdot 10^{-2}$	$4.79 \cdot 10^{-3}$	$1.71 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$
1.85	$2.69 \cdot 10^{-2}$	$3.92 \cdot 10^{-3}$	$3.52 \cdot 10^{-2}$	$4.4 \cdot 10^{-3}$	$1.49 \cdot 10^{-2}$	$3.04 \cdot 10^{-3}$
1.88	$3.09 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$	$3.24 \cdot 10^{-2}$	$4.22 \cdot 10^{-3}$	$8.09 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$
1.9	$3.46 \cdot 10^{-2}$	$4.69 \cdot 10^{-3}$	$2.36 \cdot 10^{-2}$	$3.61 \cdot 10^{-3}$	$5.16 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

B.8 4D CROSS SECTION TABLES FOR $D(E, E'\Pi^-)$

TABLE 122. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.38 \cdot 10^{-3}$	$4.43 \cdot 10^{-3}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	$1.31 \cdot 10^{-2}$	$7.92 \cdot 10^{-3}$	0	0	0	0
1.23	$4.38 \cdot 10^{-3}$	$4.43 \cdot 10^{-3}$	0	0	0	0
1.25	$3.51 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	0	0	0	0
1.28	0.16	$3.51 \cdot 10^{-2}$	$3.09 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$	$3.21 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$
1.3	0.49	$8.57 \cdot 10^{-2}$	0.12	$2.99 \cdot 10^{-2}$	0.7	$8.32 \cdot 10^{-2}$
1.33	1.75	0.27	1.12	$9.29 \cdot 10^{-2}$	3.94	0.19
1.35	3.69	0.56	2.39	0.14	8.99	0.29
1.38	6.06	0.9	3.62	0.17	11.3	0.32
1.4	8.07	1.2	4.51	0.19	12.46	0.34
1.43	9.98	1.48	4.92	0.19	13.31	0.36
1.45	11.2	1.66	5.57	0.21	13.69	0.36
1.48	11.57	1.71	5.92	0.21	12.12	0.34
1.5	10.56	1.57	4.99	0.2	8.02	0.28
1.53	8.81	1.31	4.56	0.19	2.8	0.16
1.55	7.22	1.08	4.72	0.19	1.58	0.12
1.58	7.64	1.14	6.24	0.22	0.87	$8.8 \cdot 10^{-2}$
1.6	8.71	1.29	8.56	0.26	0.67	$7.8 \cdot 10^{-2}$
1.63	9.81	1.46	12.24	0.31	0.43	$6.22 \cdot 10^{-2}$
1.65	10.93	1.62	14.16	0.33	0.51	$6.87 \cdot 10^{-2}$
1.68	11.34	1.68	14.07	0.33	0.29	$5.35 \cdot 10^{-2}$

TABLE 122 Continued.						
$d(e, e' \pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	11.28	1.67	13.49	0.32	0.21	$4.23 \cdot 10^{-2}$
1.73	9.3	1.38	11.56	0.3	0.19	$4.21 \cdot 10^{-2}$
1.75	8.58	1.28	9.56	0.27	0.22	$4.86 \cdot 10^{-2}$
1.78	6.98	1.04	8.23	0.25	0.13	$3.64 \cdot 10^{-2}$
1.8	6.01	0.9	7.19	0.24	0.13	$3.29 \cdot 10^{-2}$
1.83	5.26	0.79	7.06	0.23	$9.98 \cdot 10^{-2}$	$3.01 \cdot 10^{-2}$
1.85	4.87	0.73	6.18	0.22	$6.18 \cdot 10^{-2}$	$2.33 \cdot 10^{-2}$
1.88	4.35	0.65	5.35	0.2	$7.26 \cdot 10^{-2}$	$2.74 \cdot 10^{-2}$
1.9	3.68	0.56	4.87	0.19	$2.48 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$
1.93	3.57	0.54	4.67	0.19	$1.7 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
1.95	3.16	0.48	3.82	0.17	$1.58 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$
1.98	2.83	0.43	3.38	0.16	$2.72 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$
2	2.32	0.36	3.21	0.16	$7.55 \cdot 10^{-3}$	$7.55 \cdot 10^{-3}$
2.03	2.08	0.32	3.05	0.15	0	0
2.05	1.87	0.29	2.22	0.13	$1.55 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.08	1.56	0.24	2.05	0.13	$1.57 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$
2.1	1.25	0.2	1.57	0.11	0	0
2.13	1.18	0.19	1.47	0.11	0	0
2.15	0.95	0.15	1.26	$9.86 \cdot 10^{-2}$	0	0
2.18	0.71	0.12	0.83	$8.02 \cdot 10^{-2}$	0	0
2.2	0.67	0.11	0.69	$7.32 \cdot 10^{-2}$	0	0
2.23	0.4	$7.31 \cdot 10^{-2}$	0.6	$6.82 \cdot 10^{-2}$	0	0
2.25	0.33	$6.14 \cdot 10^{-2}$	0.35	$5.18 \cdot 10^{-2}$	0	0
2.28	0.29	$5.61 \cdot 10^{-2}$	0.26	$4.5 \cdot 10^{-2}$	0	0

TABLE 123. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$2.63 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	$2.63 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	0	0	0	0
1.38	$2.63 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	0	0	0	0
1.4	$1.58 \cdot 10^{-2}$	$6.93 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	0	0
1.43	$5 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$	$6.55 \cdot 10^{-3}$	$1.89 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
1.45	0.28	$5.08 \cdot 10^{-2}$	0.12	$2.36 \cdot 10^{-2}$	0.27	$3.9 \cdot 10^{-2}$
1.48	1.07	0.17	0.67	$5.58 \cdot 10^{-2}$	2.08	0.11
1.5	2.77	0.42	2.08	$9.81 \cdot 10^{-2}$	6.94	0.2
1.53	5.1	0.76	3.6	0.13	12.06	0.26
1.55	6.98	1.04	4.57	0.15	14.97	0.29
1.58	8.03	1.19	4.62	0.15	14.55	0.29
1.6	9.08	1.34	4.97	0.15	13.7	0.28
1.63	9.83	1.45	5.34	0.16	12.59	0.27
1.65	10.45	1.54	6.09	0.17	11.03	0.25
1.68	11.04	1.63	7.78	0.19	9.95	0.24

TABLE 123 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	11.82	1.75	8.83	0.2	10.44	0.24
1.73	13.06	1.93	9.96	0.21	9.31	0.23
1.75	12.51	1.85	10.24	0.22	6.78	0.2
1.78	11.48	1.7	8.7	0.2	3.19	0.13
1.8	9.6	1.42	8.86	0.2	1.12	$7.94 \cdot 10^{-2}$
1.83	9.44	1.4	8.46	0.2	0.56	$5.6 \cdot 10^{-2}$
1.85	8.99	1.33	9.24	0.21	0.39	$4.68 \cdot 10^{-2}$
1.88	8.53	1.26	9.5	0.21	0.35	$4.46 \cdot 10^{-2}$
1.9	8.91	1.32	9.66	0.21	0.27	$3.91 \cdot 10^{-2}$
1.93	8.21	1.22	9.08	0.21	0.18	$2.96 \cdot 10^{-2}$
1.95	7.41	1.1	8.96	0.2	0.17	$3.07 \cdot 10^{-2}$
1.98	6.67	0.99	7.88	0.19	0.15	$2.87 \cdot 10^{-2}$
2	6.19	0.92	7.29	0.18	0.11	$2.56 \cdot 10^{-2}$
2.03	5.57	0.83	6.93	0.18	0.12	$2.53 \cdot 10^{-2}$
2.05	5	0.74	6.26	0.17	$7.52 \cdot 10^{-2}$	$2.01 \cdot 10^{-2}$
2.08	4.64	0.69	5.81	0.16	$6.94 \cdot 10^{-2}$	$1.93 \cdot 10^{-2}$
2.1	4.33	0.64	5.12	0.15	$3.18 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
2.13	3.95	0.59	4.73	0.15	$4.43 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$
2.15	3.56	0.53	4.33	0.14	$1.84 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$
2.18	3.33	0.5	3.83	0.13	$9.35 \cdot 10^{-3}$	$6.61 \cdot 10^{-3}$
2.2	3.07	0.46	3.27	0.12	$9.3 \cdot 10^{-3}$	$9.3 \cdot 10^{-3}$
2.23	2.67	0.4	2.96	0.12	$3.37 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$
2.25	2.3	0.35	2.58	0.11	0	0
2.28	2.16	0.33	2.31	0.1	$2.46 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$

TABLE 124. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$3.76 \cdot 10^{-3}$	$2.71 \cdot 10^{-3}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	$1.88 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	0	0	0	0
1.65	$1.88 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	0	0	0	0
1.68	$1.88 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	0	0	0	0

TABLE 124 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$5.45 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$	$7.4 \cdot 10^{-3}$	$6.07 \cdot 10^{-2}$	$1.47 \cdot 10^{-2}$
1.73	0.43	$6.89 \cdot 10^{-2}$	0.3	$3.16 \cdot 10^{-2}$	0.73	$5.42 \cdot 10^{-2}$
1.75	1.35	0.21	1.27	$6.48 \cdot 10^{-2}$	2.23	$9.44 \cdot 10^{-2}$
1.78	3.1	0.46	2.34	$8.79 \cdot 10^{-2}$	4.55	0.13
1.8	4.48	0.67	3.22	0.1	5.69	0.15
1.83	5.5	0.81	3.15	0.1	5.44	0.15
1.85	5.87	0.87	3.28	0.1	5.76	0.15
1.88	5.94	0.88	3.22	0.1	5.25	0.14
1.9	6.41	0.95	3.4	0.11	4.9	0.14
1.93	6.79	1	3.8	0.11	4.5	0.13
1.95	7.52	1.11	4.45	0.12	4.38	0.13
1.98	7.71	1.14	4.81	0.13	4.31	0.13
2	8.45	1.25	4.99	0.13	4.07	0.13
2.03	8.52	1.26	5.48	0.13	3.62	0.12
2.05	8.62	1.27	5.77	0.14	3.23	0.11
2.08	8.16	1.21	5.72	0.14	2.64	0.1
2.1	7.21	1.07	5.29	0.13	1.64	$8.06 \cdot 10^{-2}$
2.13	6.7	0.99	5.25	0.13	0.86	$5.77 \cdot 10^{-2}$
2.15	6	0.89	5.11	0.13	0.39	$3.9 \cdot 10^{-2}$
2.18	5.65	0.84	4.93	0.13	0.16	$2.59 \cdot 10^{-2}$
2.2	5.29	0.78	4.78	0.13	0.11	$2.14 \cdot 10^{-2}$
2.23	4.81	0.71	4.45	0.12	$6.12 \cdot 10^{-2}$	$1.7 \cdot 10^{-2}$
2.25	4.63	0.69	4.31	0.12	$6.61 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$
2.28	4.15	0.62	3.91	0.11	$3.73 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$

TABLE 125. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 125 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$2.63 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	0	0	0	0	0	0
1.83	0	0	0	0	0	0
1.85	$2.63 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	0	0	0	0
1.88	0	0	0	0	0	0
1.9	0	0	0	0	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	$2.63 \cdot 10^{-3}$	$2.66 \cdot 10^{-3}$	0	0	0	0
2	0	0	0	0	0	0
2.03	$7.89 \cdot 10^{-3}$	$4.75 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	0	0
2.05	0.12	$2.47 \cdot 10^{-2}$	$6.95 \cdot 10^{-2}$	$1.79 \cdot 10^{-2}$	0.18	$3.17 \cdot 10^{-2}$
2.08	0.65	0.1	0.22	$3.18 \cdot 10^{-2}$	0.88	$7.15 \cdot 10^{-2}$
2.1	1.51	0.23	0.75	$5.89 \cdot 10^{-2}$	1.8	0.1
2.13	2.21	0.33	1.17	$7.37 \cdot 10^{-2}$	2.74	0.12
2.15	2.66	0.4	1.42	$8.11 \cdot 10^{-2}$	3.18	0.13
2.18	2.7	0.41	1.53	$8.43 \cdot 10^{-2}$	3.5	0.14
2.2	2.83	0.42	1.73	$8.94 \cdot 10^{-2}$	3.03	0.13
2.23	3.02	0.45	1.73	$8.94 \cdot 10^{-2}$	3.04	0.13
2.25	3.11	0.47	2.12	$9.91 \cdot 10^{-2}$	2.76	0.12
2.28	3.18	0.48	2.45	0.11	2.49	0.12

TABLE 126. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.88 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	0	0	0	0
1.15	$5.64 \cdot 10^{-3}$	$3.57 \cdot 10^{-3}$	0	0	0	0
1.18	$3.76 \cdot 10^{-3}$	$2.8 \cdot 10^{-3}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$9.4 \cdot 10^{-3}$	$4.49 \cdot 10^{-3}$	0	0	0	0
1.25	$9.4 \cdot 10^{-3}$	$4.49 \cdot 10^{-3}$	0	0	0	0
1.28	$3.57 \cdot 10^{-2}$	$9.88 \cdot 10^{-3}$	$9.93 \cdot 10^{-3}$	$5.73 \cdot 10^{-3}$	$2.75 \cdot 10^{-3}$	$2.75 \cdot 10^{-3}$
1.3	0.13	$2.45 \cdot 10^{-2}$	$2.32 \cdot 10^{-2}$	$8.76 \cdot 10^{-3}$	$2.44 \cdot 10^{-2}$	$9.21 \cdot 10^{-3}$
1.33	0.38	$6.26 \cdot 10^{-2}$	0.14	$2.15 \cdot 10^{-2}$	0.33	$3.64 \cdot 10^{-2}$
1.35	0.86	0.13	0.58	$4.37 \cdot 10^{-2}$	1.76	$8.56 \cdot 10^{-2}$
1.38	1.87	0.28	1.15	$6.16 \cdot 10^{-2}$	3.67	0.12
1.4	2.85	0.43	1.99	$8.11 \cdot 10^{-2}$	4.91	0.14
1.43	3.81	0.57	2.6	$9.28 \cdot 10^{-2}$	5.78	0.15
1.45	4.64	0.69	3.13	0.1	6.29	0.16
1.48	5.27	0.78	3.39	0.11	7.14	0.17
1.5	5.45	0.81	3.82	0.11	7.51	0.17
1.53	5.22	0.77	3.38	0.11	6.15	0.16
1.55	4.61	0.68	2.93	$9.85 \cdot 10^{-2}$	3.52	0.12
1.58	3.9	0.58	2.57	$9.22 \cdot 10^{-2}$	1.59	$7.96 \cdot 10^{-2}$
1.6	3.79	0.56	2.82	$9.66 \cdot 10^{-2}$	0.86	$6.02 \cdot 10^{-2}$
1.63	4.37	0.65	3.69	0.11	0.5	$4.51 \cdot 10^{-2}$
1.65	5.16	0.77	5.65	0.14	0.39	$3.95 \cdot 10^{-2}$
1.68	5.62	0.83	7.15	0.15	0.26	$3.27 \cdot 10^{-2}$

TABLE 126 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	6.53	0.97	7.62	0.16	0.3	$3.41 \cdot 10^{-2}$
1.73	7.01	1.04	7.07	0.15	0.25	$3.14 \cdot 10^{-2}$
1.75	6.89	1.02	6.36	0.15	0.25	$3.19 \cdot 10^{-2}$
1.78	7	1.03	5.53	0.14	0.17	$2.69 \cdot 10^{-2}$
1.8	6.37	0.94	5.5	0.13	0.13	$2.26 \cdot 10^{-2}$
1.83	6.16	0.91	5.6	0.14	0.13	$2.35 \cdot 10^{-2}$
1.85	6.13	0.91	5.3	0.13	$7 \cdot 10^{-2}$	$1.61 \cdot 10^{-2}$
1.88	5.99	0.89	5.27	0.13	$8.56 \cdot 10^{-2}$	$1.87 \cdot 10^{-2}$
1.9	5.9	0.87	5.19	0.13	$9.36 \cdot 10^{-2}$	$2 \cdot 10^{-2}$
1.93	5.86	0.87	5.41	0.13	$4.32 \cdot 10^{-2}$	$1.3 \cdot 10^{-2}$
1.95	5.96	0.88	5.09	0.13	$9.31 \cdot 10^{-2}$	$2.14 \cdot 10^{-2}$
1.98	5.93	0.88	4.9	0.13	$5.76 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$
2	5.94	0.88	4.77	0.13	$3.92 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
2.03	5.85	0.87	4.69	0.12	$3.09 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
2.05	5.45	0.81	4.64	0.12	$2.3 \cdot 10^{-2}$	$8.71 \cdot 10^{-3}$
2.08	5.54	0.82	4.43	0.12	$1.73 \cdot 10^{-2}$	$8.67 \cdot 10^{-3}$
2.1	5.5	0.82	4.27	0.12	$2.33 \cdot 10^{-2}$	$9.51 \cdot 10^{-3}$
2.13	5.3	0.78	4.08	0.12	$2.2 \cdot 10^{-2}$	$8.96 \cdot 10^{-3}$
2.15	5.06	0.75	3.53	0.11	$3.01 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
2.18	4.88	0.72	3.62	0.11	$1.88 \cdot 10^{-2}$	$8.42 \cdot 10^{-3}$
2.2	4.69	0.7	3.71	0.11	$6.59 \cdot 10^{-3}$	$4.66 \cdot 10^{-3}$
2.23	4.78	0.71	3.32	0.1	$8.1 \cdot 10^{-3}$	$5.73 \cdot 10^{-3}$
2.25	4.47	0.66	3.24	0.1	$2.21 \cdot 10^{-2}$	$9.9 \cdot 10^{-3}$
2.28	4.07	0.61	3	$9.97 \cdot 10^{-2}$	$1.64 \cdot 10^{-2}$	$8.18 \cdot 10^{-3}$

TABLE 127. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$2.26 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.2	$4.51 \cdot 10^{-3}$	$2.43 \cdot 10^{-3}$	0	0	0	0
1.23	$2.26 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	0	0	0	0
1.25	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.28	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.3	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.33	$2.26 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	0	0	0	0
1.35	$2.26 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.38	$3.38 \cdot 10^{-3}$	$2.02 \cdot 10^{-3}$	0	0	0	0
1.4	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	$2.36 \cdot 10^{-3}$	$2.36 \cdot 10^{-3}$
1.43	$9.02 \cdot 10^{-3}$	$3.45 \cdot 10^{-3}$	0	0	$1.92 \cdot 10^{-3}$	$1.92 \cdot 10^{-3}$
1.45	$1.35 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$
1.48	$7.67 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$	$1.79 \cdot 10^{-2}$	$5.96 \cdot 10^{-3}$	$3.37 \cdot 10^{-2}$	$8.71 \cdot 10^{-3}$
1.5	0.25	$4.16 \cdot 10^{-2}$	0.18	$1.88 \cdot 10^{-2}$	0.37	$2.96 \cdot 10^{-2}$
1.53	0.62	$9.51 \cdot 10^{-2}$	0.55	$3.29 \cdot 10^{-2}$	1.52	$6.07 \cdot 10^{-2}$
1.55	1.09	0.16	1.17	$4.82 \cdot 10^{-2}$	2.69	$8.02 \cdot 10^{-2}$
1.58	1.56	0.23	1.68	$5.78 \cdot 10^{-2}$	3.2	$8.86 \cdot 10^{-2}$
1.6	1.99	0.3	1.8	$5.97 \cdot 10^{-2}$	3.18	$8.81 \cdot 10^{-2}$
1.63	2.2	0.33	2.17	$6.57 \cdot 10^{-2}$	2.98	$8.51 \cdot 10^{-2}$
1.65	2.53	0.38	2.52	$7.07 \cdot 10^{-2}$	3.22	$8.84 \cdot 10^{-2}$
1.68	2.72	0.4	2.91	$7.6 \cdot 10^{-2}$	3.33	$8.99 \cdot 10^{-2}$

TABLE 127 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	3.02	0.45	3.26	$8.05 \cdot 10^{-2}$	3.47	$9.12 \cdot 10^{-2}$
1.73	3.49	0.52	3.99	$8.9 \cdot 10^{-2}$	3.44	$9.17 \cdot 10^{-2}$
1.75	3.92	0.58	4.41	$9.36 \cdot 10^{-2}$	3.26	$8.91 \cdot 10^{-2}$
1.78	4.05	0.6	4.73	$9.69 \cdot 10^{-2}$	2.93	$8.39 \cdot 10^{-2}$
1.8	4.42	0.65	4.83	$9.79 \cdot 10^{-2}$	2.34	$7.44 \cdot 10^{-2}$
1.83	4.4	0.65	4.73	$9.69 \cdot 10^{-2}$	1.55	$6.16 \cdot 10^{-2}$
1.85	4.4	0.65	4.42	$9.37 \cdot 10^{-2}$	1.1	$5.2 \cdot 10^{-2}$
1.88	4.58	0.68	4.14	$9.07 \cdot 10^{-2}$	0.63	$3.95 \cdot 10^{-2}$
1.9	4.6	0.68	3.94	$8.85 \cdot 10^{-2}$	0.31	$2.72 \cdot 10^{-2}$
1.93	4.64	0.69	4.07	$8.99 \cdot 10^{-2}$	0.26	$2.56 \cdot 10^{-2}$
1.95	4.92	0.73	4.06	$8.97 \cdot 10^{-2}$	0.17	$1.96 \cdot 10^{-2}$
1.98	4.86	0.72	4.05	$8.96 \cdot 10^{-2}$	0.12	$1.64 \cdot 10^{-2}$
2	4.83	0.71	4.02	$8.93 \cdot 10^{-2}$	0.1	$1.54 \cdot 10^{-2}$
2.03	5.06	0.75	3.84	$8.74 \cdot 10^{-2}$	0.13	$1.79 \cdot 10^{-2}$
2.05	5.06	0.75	4.07	$8.99 \cdot 10^{-2}$	0.1	$1.65 \cdot 10^{-2}$
2.08	4.97	0.73	3.94	$8.85 \cdot 10^{-2}$	0.1	$1.49 \cdot 10^{-2}$
2.1	5.19	0.77	3.9	$8.8 \cdot 10^{-2}$	$8.9 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
2.13	4.99	0.74	3.7	$8.57 \cdot 10^{-2}$	$6.78 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$
2.15	4.96	0.73	3.6	$8.46 \cdot 10^{-2}$	$5.5 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$
2.18	5	0.74	3.43	$8.25 \cdot 10^{-2}$	$3.48 \cdot 10^{-2}$	$8.98 \cdot 10^{-3}$
2.2	4.91	0.72	3.31	$8.11 \cdot 10^{-2}$	$5.03 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$
2.23	4.93	0.73	3.35	$8.16 \cdot 10^{-2}$	$4.29 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$
2.25	4.92	0.73	3.16	$7.92 \cdot 10^{-2}$	$1.89 \cdot 10^{-2}$	$6.69 \cdot 10^{-3}$
2.28	4.83	0.71	3.17	$7.93 \cdot 10^{-2}$	$3.67 \cdot 10^{-2}$	$9.18 \cdot 10^{-3}$

TABLE 128. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$8.05 \cdot 10^{-4}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.48	0	0	0	0	0	0
1.5	$8.05 \cdot 10^{-4}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.53	$8.05 \cdot 10^{-4}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.55	$2.42 \cdot 10^{-3}$	$1.46 \cdot 10^{-3}$	0	0	0	0
1.58	$3.22 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.6	$8.05 \cdot 10^{-4}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.63	0	0	0	0	0	0
1.65	$8.05 \cdot 10^{-4}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.68	$1.61 \cdot 10^{-3}$	$1.16 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0

TABLE 128 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	$3.22 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.75	$8.86 \cdot 10^{-3}$	$2.97 \cdot 10^{-3}$	$5.67 \cdot 10^{-3}$	$2.84 \cdot 10^{-3}$	$5.76 \cdot 10^{-3}$	$3.32 \cdot 10^{-3}$
1.78	$4.59 \cdot 10^{-2}$	$9.08 \cdot 10^{-3}$	0.11	$1.25 \cdot 10^{-2}$	0.11	$1.39 \cdot 10^{-2}$
1.8	0.17	$2.8 \cdot 10^{-2}$	0.33	$2.17 \cdot 10^{-2}$	0.43	$2.76 \cdot 10^{-2}$
1.83	0.41	$6.29 \cdot 10^{-2}$	0.73	$3.22 \cdot 10^{-2}$	0.86	$3.89 \cdot 10^{-2}$
1.85	0.6	$9.17 \cdot 10^{-2}$	1.18	$4.1 \cdot 10^{-2}$	1.07	$4.28 \cdot 10^{-2}$
1.88	0.76	0.11	1.59	$4.74 \cdot 10^{-2}$	1.35	$4.84 \cdot 10^{-2}$
1.9	0.9	0.13	1.82	$5.07 \cdot 10^{-2}$	1.34	$4.77 \cdot 10^{-2}$
1.93	0.97	0.15	1.99	$5.31 \cdot 10^{-2}$	1.36	$4.89 \cdot 10^{-2}$
1.95	1.04	0.16	2.13	$5.5 \cdot 10^{-2}$	1.22	$4.6 \cdot 10^{-2}$
1.98	1.09	0.16	2.05	$5.4 \cdot 10^{-2}$	1.15	$4.5 \cdot 10^{-2}$
2	1.19	0.18	2.37	$5.8 \cdot 10^{-2}$	1.12	$4.37 \cdot 10^{-2}$
2.03	1.41	0.21	2.36	$5.79 \cdot 10^{-2}$	1.08	$4.33 \cdot 10^{-2}$
2.05	1.47	0.22	2.52	$5.98 \cdot 10^{-2}$	0.98	$4.09 \cdot 10^{-2}$
2.08	1.55	0.23	2.55	$6.02 \cdot 10^{-2}$	1.05	$4.27 \cdot 10^{-2}$
2.1	1.7	0.25	2.68	$6.16 \cdot 10^{-2}$	1.01	$4.22 \cdot 10^{-2}$
2.13	1.84	0.27	2.68	$6.17 \cdot 10^{-2}$	1.06	$4.25 \cdot 10^{-2}$
2.15	1.88	0.28	2.73	$6.23 \cdot 10^{-2}$	0.94	$4.06 \cdot 10^{-2}$
2.18	1.97	0.29	2.57	$6.03 \cdot 10^{-2}$	0.82	$3.75 \cdot 10^{-2}$
2.2	1.97	0.29	2.5	$5.96 \cdot 10^{-2}$	0.61	$3.28 \cdot 10^{-2}$
2.23	2.07	0.31	2.31	$5.72 \cdot 10^{-2}$	0.57	$3.14 \cdot 10^{-2}$
2.25	2.23	0.33	2.14	$5.51 \cdot 10^{-2}$	0.42	$2.69 \cdot 10^{-2}$
2.28	2.21	0.33	2.21	$5.59 \cdot 10^{-2}$	0.36	$2.55 \cdot 10^{-2}$

TABLE 129. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.63 \cdot 10^{-3}$	$2.16 \cdot 10^{-3}$	0	0	0	0
1.15	$1.21 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.18	$1.21 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.2	$4.84 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$	0	0	0	0
1.23	$4.84 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$	0	0	0	0
1.25	$2.42 \cdot 10^{-3}$	$1.75 \cdot 10^{-3}$	0	0	0	0
1.28	$3.63 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$	0	0	0	0
1.3	$1.21 \cdot 10^{-2}$	$4.22 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	0	0
1.33	$2.3 \cdot 10^{-2}$	$6.27 \cdot 10^{-3}$	0	0	$2.01 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$
1.35	$7.38 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$8.53 \cdot 10^{-3}$	$4.26 \cdot 10^{-3}$	$1.07 \cdot 10^{-2}$	$5.33 \cdot 10^{-3}$
1.38	0.12	$2.19 \cdot 10^{-2}$	$4.48 \cdot 10^{-2}$	$9.77 \cdot 10^{-3}$	$4.44 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.4	0.26	$4.29 \cdot 10^{-2}$	0.2	$2.06 \cdot 10^{-2}$	0.44	$3.47 \cdot 10^{-2}$
1.43	0.52	$8.16 \cdot 10^{-2}$	0.44	$3.07 \cdot 10^{-2}$	0.86	$4.69 \cdot 10^{-2}$
1.45	0.72	0.11	0.74	$3.98 \cdot 10^{-2}$	1.22	$5.63 \cdot 10^{-2}$
1.48	0.93	0.14	0.99	$4.6 \cdot 10^{-2}$	1.57	$6.4 \cdot 10^{-2}$
1.5	1.11	0.17	1.28	$5.22 \cdot 10^{-2}$	1.94	$7.14 \cdot 10^{-2}$
1.53	1.24	0.19	1.41	$5.49 \cdot 10^{-2}$	2.09	$7.33 \cdot 10^{-2}$
1.55	1.16	0.18	1.42	$5.5 \cdot 10^{-2}$	1.86	$6.92 \cdot 10^{-2}$
1.58	1.13	0.17	1.54	$5.73 \cdot 10^{-2}$	1.22	$5.62 \cdot 10^{-2}$
1.6	1.01	0.15	1.42	$5.49 \cdot 10^{-2}$	0.82	$4.64 \cdot 10^{-2}$
1.63	1.07	0.16	1.27	$5.2 \cdot 10^{-2}$	0.69	$4.34 \cdot 10^{-2}$
1.65	1.04	0.16	1.28	$5.22 \cdot 10^{-2}$	0.44	$3.48 \cdot 10^{-2}$
1.68	1.15	0.17	1.48	$5.61 \cdot 10^{-2}$	0.32	$2.88 \cdot 10^{-2}$

TABLE 129 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.3	0.2	1.6	$5.85 \cdot 10^{-2}$	0.18	$2.06 \cdot 10^{-2}$
1.73	1.53	0.23	1.55	$5.74 \cdot 10^{-2}$	0.15	$2.03 \cdot 10^{-2}$
1.75	1.81	0.27	1.35	$5.37 \cdot 10^{-2}$	0.1	$1.66 \cdot 10^{-2}$
1.78	1.97	0.29	1.3	$5.26 \cdot 10^{-2}$	$5.96 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$
1.8	2.1	0.31	1.3	$5.26 \cdot 10^{-2}$	$7.01 \cdot 10^{-2}$	$1.4 \cdot 10^{-2}$
1.83	2.13	0.32	1.4	$5.46 \cdot 10^{-2}$	$6.38 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
1.85	2.21	0.33	1.5	$5.66 \cdot 10^{-2}$	$5.37 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$
1.88	2.35	0.35	1.52	$5.7 \cdot 10^{-2}$	$4.96 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$
1.9	2.56	0.38	1.78	$6.15 \cdot 10^{-2}$	$3.88 \cdot 10^{-2}$	$9.71 \cdot 10^{-3}$
1.93	2.56	0.38	1.62	$5.88 \cdot 10^{-2}$	$2.35 \cdot 10^{-2}$	$7.08 \cdot 10^{-3}$
1.95	2.53	0.38	1.87	$6.32 \cdot 10^{-2}$	$3.88 \cdot 10^{-2}$	$9.42 \cdot 10^{-3}$
1.98	2.86	0.42	1.91	$6.38 \cdot 10^{-2}$	$6.05 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
2	2.79	0.41	1.86	$6.3 \cdot 10^{-2}$	$2.31 \cdot 10^{-2}$	$7.31 \cdot 10^{-3}$
2.03	3.06	0.45	1.99	$6.52 \cdot 10^{-2}$	$3.73 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
2.05	3.14	0.47	2.06	$6.63 \cdot 10^{-2}$	$2.34 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$
2.08	3.34	0.5	2.1	$6.69 \cdot 10^{-2}$	$2.18 \cdot 10^{-2}$	$8.22 \cdot 10^{-3}$
2.1	3.42	0.51	1.85	$6.28 \cdot 10^{-2}$	$2.87 \cdot 10^{-2}$	$8.64 \cdot 10^{-3}$
2.13	3.73	0.55	1.95	$6.45 \cdot 10^{-2}$	$2.1 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$
2.15	3.8	0.56	2.01	$6.54 \cdot 10^{-2}$	$1.95 \cdot 10^{-2}$	$6.9 \cdot 10^{-3}$
2.18	3.9	0.58	2.05	$6.62 \cdot 10^{-2}$	$3.61 \cdot 10^{-2}$	$9.66 \cdot 10^{-3}$
2.2	4.13	0.61	2.08	$6.66 \cdot 10^{-2}$	$2.89 \cdot 10^{-2}$	$9.62 \cdot 10^{-3}$
2.23	4.3	0.64	2.07	$6.65 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$	$3.69 \cdot 10^{-3}$
2.25	4.38	0.65	2.01	$6.55 \cdot 10^{-2}$	$1.72 \cdot 10^{-2}$	$7.71 \cdot 10^{-3}$
2.28	4.58	0.68	2.13	$6.74 \cdot 10^{-2}$	$8.97 \cdot 10^{-3}$	$5.18 \cdot 10^{-3}$

TABLE 130. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$2.26 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.2	$4.51 \cdot 10^{-3}$	$2.43 \cdot 10^{-3}$	0	0	0	0
1.23	$2.26 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	0	0	0	0
1.25	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.28	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.3	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.33	$2.26 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	0	0	0	0
1.35	$2.26 \cdot 10^{-3}$	$1.68 \cdot 10^{-3}$	0	0	0	0
1.38	$3.38 \cdot 10^{-3}$	$2.02 \cdot 10^{-3}$	0	0	0	0
1.4	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	$2.36 \cdot 10^{-3}$	$2.36 \cdot 10^{-3}$
1.43	$9.02 \cdot 10^{-3}$	$3.45 \cdot 10^{-3}$	0	0	$1.92 \cdot 10^{-3}$	$1.92 \cdot 10^{-3}$
1.45	$1.35 \cdot 10^{-2}$	$4.38 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$
1.48	$7.67 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$	$1.79 \cdot 10^{-2}$	$5.96 \cdot 10^{-3}$	$3.37 \cdot 10^{-2}$	$8.71 \cdot 10^{-3}$
1.5	0.25	$4.16 \cdot 10^{-2}$	0.18	$1.88 \cdot 10^{-2}$	0.37	$2.96 \cdot 10^{-2}$
1.53	0.62	$9.51 \cdot 10^{-2}$	0.55	$3.29 \cdot 10^{-2}$	1.52	$6.07 \cdot 10^{-2}$
1.55	1.09	0.16	1.17	$4.82 \cdot 10^{-2}$	2.69	$8.02 \cdot 10^{-2}$
1.58	1.56	0.23	1.68	$5.78 \cdot 10^{-2}$	3.2	$8.86 \cdot 10^{-2}$
1.6	1.99	0.3	1.8	$5.97 \cdot 10^{-2}$	3.18	$8.81 \cdot 10^{-2}$
1.63	2.2	0.33	2.17	$6.57 \cdot 10^{-2}$	2.98	$8.51 \cdot 10^{-2}$
1.65	2.53	0.38	2.52	$7.07 \cdot 10^{-2}$	3.22	$8.84 \cdot 10^{-2}$
1.68	2.72	0.4	2.91	$7.6 \cdot 10^{-2}$	3.33	$8.99 \cdot 10^{-2}$

TABLE 130 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	3.02	0.45	3.26	$8.05 \cdot 10^{-2}$	3.47	$9.12 \cdot 10^{-2}$
1.73	3.49	0.52	3.99	$8.9 \cdot 10^{-2}$	3.44	$9.17 \cdot 10^{-2}$
1.75	3.92	0.58	4.41	$9.36 \cdot 10^{-2}$	3.26	$8.91 \cdot 10^{-2}$
1.78	4.05	0.6	4.73	$9.69 \cdot 10^{-2}$	2.93	$8.39 \cdot 10^{-2}$
1.8	4.42	0.65	4.83	$9.79 \cdot 10^{-2}$	2.34	$7.44 \cdot 10^{-2}$
1.83	4.4	0.65	4.73	$9.69 \cdot 10^{-2}$	1.55	$6.16 \cdot 10^{-2}$
1.85	4.4	0.65	4.42	$9.37 \cdot 10^{-2}$	1.1	$5.2 \cdot 10^{-2}$
1.88	4.58	0.68	4.14	$9.07 \cdot 10^{-2}$	0.63	$3.95 \cdot 10^{-2}$
1.9	4.6	0.68	3.94	$8.85 \cdot 10^{-2}$	0.31	$2.72 \cdot 10^{-2}$
1.93	4.64	0.69	4.07	$8.99 \cdot 10^{-2}$	0.26	$2.56 \cdot 10^{-2}$
1.95	4.92	0.73	4.06	$8.97 \cdot 10^{-2}$	0.17	$1.96 \cdot 10^{-2}$
1.98	4.86	0.72	4.05	$8.96 \cdot 10^{-2}$	0.12	$1.64 \cdot 10^{-2}$
2	4.83	0.71	4.02	$8.93 \cdot 10^{-2}$	0.1	$1.54 \cdot 10^{-2}$
2.03	5.06	0.75	3.84	$8.74 \cdot 10^{-2}$	0.13	$1.79 \cdot 10^{-2}$
2.05	5.06	0.75	4.07	$8.99 \cdot 10^{-2}$	0.1	$1.65 \cdot 10^{-2}$
2.08	4.97	0.73	3.94	$8.85 \cdot 10^{-2}$	0.1	$1.49 \cdot 10^{-2}$
2.1	5.19	0.77	3.9	$8.8 \cdot 10^{-2}$	$8.9 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
2.13	4.99	0.74	3.7	$8.57 \cdot 10^{-2}$	$6.78 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$
2.15	4.96	0.73	3.6	$8.46 \cdot 10^{-2}$	$5.5 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$
2.18	5	0.74	3.43	$8.25 \cdot 10^{-2}$	$3.48 \cdot 10^{-2}$	$8.98 \cdot 10^{-3}$
2.2	4.91	0.72	3.31	$8.11 \cdot 10^{-2}$	$5.03 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$
2.23	4.93	0.73	3.35	$8.16 \cdot 10^{-2}$	$4.29 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$
2.25	4.92	0.73	3.16	$7.92 \cdot 10^{-2}$	$1.89 \cdot 10^{-2}$	$6.69 \cdot 10^{-3}$
2.28	4.83	0.71	3.17	$7.93 \cdot 10^{-2}$	$3.67 \cdot 10^{-2}$	$9.18 \cdot 10^{-3}$

TABLE 131. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $0.7 \leq Q^2 < 1.0 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.87 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$	0	0	0	0
1.15	$6.24 \cdot 10^{-4}$	$6.31 \cdot 10^{-4}$	0	0	0	0
1.18	$1.25 \cdot 10^{-3}$	$9.02 \cdot 10^{-4}$	0	0	0	0
1.2	$1.25 \cdot 10^{-3}$	$9.02 \cdot 10^{-4}$	0	0	0	0
1.23	$1.25 \cdot 10^{-3}$	$9.02 \cdot 10^{-4}$	0	0	0	0
1.25	$6.24 \cdot 10^{-4}$	$6.31 \cdot 10^{-4}$	0	0	0	0
1.28	$2.5 \cdot 10^{-3}$	$1.3 \cdot 10^{-3}$	0	0	0	0
1.3	$3.12 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	0	0	0	0
1.33	$3.12 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	0	0	0	0
1.35	$4.37 \cdot 10^{-3}$	$1.77 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	0	0
1.38	$2.5 \cdot 10^{-3}$	$1.3 \cdot 10^{-3}$	0	0	0	0
1.4	$8.12 \cdot 10^{-3}$	$2.59 \cdot 10^{-3}$	0	0	$3.72 \cdot 10^{-3}$	$2.63 \cdot 10^{-3}$
1.43	$1.75 \cdot 10^{-2}$	$4.19 \cdot 10^{-3}$	$4.4 \cdot 10^{-3}$	$2.2 \cdot 10^{-3}$	0	0
1.45	$3.56 \cdot 10^{-2}$	$7.24 \cdot 10^{-3}$	$2.64 \cdot 10^{-2}$	$5.39 \cdot 10^{-3}$	$4.18 \cdot 10^{-3}$	$2.09 \cdot 10^{-3}$
1.48	$5.31 \cdot 10^{-2}$	$9.78 \cdot 10^{-3}$	$5.72 \cdot 10^{-2}$	$7.93 \cdot 10^{-3}$	$7.45 \cdot 10^{-2}$	$9.87 \cdot 10^{-3}$
1.5	0.1	$1.74 \cdot 10^{-2}$	0.18	$1.42 \cdot 10^{-2}$	0.17	$1.5 \cdot 10^{-2}$
1.53	0.15	$2.47 \cdot 10^{-2}$	0.28	$1.77 \cdot 10^{-2}$	0.32	$2.06 \cdot 10^{-2}$
1.55	0.17	$2.77 \cdot 10^{-2}$	0.42	$2.14 \cdot 10^{-2}$	0.4	$2.36 \cdot 10^{-2}$
1.58	0.17	$2.77 \cdot 10^{-2}$	0.58	$2.52 \cdot 10^{-2}$	0.37	$2.19 \cdot 10^{-2}$
1.6	0.17	$2.76 \cdot 10^{-2}$	0.68	$2.73 \cdot 10^{-2}$	0.35	$2.16 \cdot 10^{-2}$
1.63	0.21	$3.33 \cdot 10^{-2}$	0.78	$2.92 \cdot 10^{-2}$	0.41	$2.35 \cdot 10^{-2}$
1.65	0.22	$3.38 \cdot 10^{-2}$	0.89	$3.13 \cdot 10^{-2}$	0.41	$2.32 \cdot 10^{-2}$
1.68	0.28	$4.33 \cdot 10^{-2}$	1.03	$3.36 \cdot 10^{-2}$	0.41	$2.32 \cdot 10^{-2}$

TABLE 131 Continued.						
$d(e, e'\pi^-), 0.7 \leq Q^2 < 1.0 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.31	$4.78 \cdot 10^{-2}$	1.1	$3.48 \cdot 10^{-2}$	0.44	$2.41 \cdot 10^{-2}$
1.73	0.37	$5.62 \cdot 10^{-2}$	1.15	$3.55 \cdot 10^{-2}$	0.38	$2.27 \cdot 10^{-2}$
1.75	0.46	$6.94 \cdot 10^{-2}$	1.14	$3.54 \cdot 10^{-2}$	0.32	$2.04 \cdot 10^{-2}$
1.78	0.5	$7.52 \cdot 10^{-2}$	1.1	$3.48 \cdot 10^{-2}$	0.3	$1.99 \cdot 10^{-2}$
1.8	0.6	$9 \cdot 10^{-2}$	0.99	$3.3 \cdot 10^{-2}$	0.26	$1.86 \cdot 10^{-2}$
1.83	0.64	$9.67 \cdot 10^{-2}$	0.87	$3.1 \cdot 10^{-2}$	0.2	$1.61 \cdot 10^{-2}$
1.85	0.72	0.11	0.83	$3.01 \cdot 10^{-2}$	0.17	$1.51 \cdot 10^{-2}$
1.88	0.82	0.12	0.75	$2.86 \cdot 10^{-2}$	0.14	$1.36 \cdot 10^{-2}$
1.9	0.9	0.13	0.7	$2.77 \cdot 10^{-2}$	0.12	$1.25 \cdot 10^{-2}$
1.93	0.93	0.14	0.64	$2.64 \cdot 10^{-2}$	$6.31 \cdot 10^{-2}$	$8.93 \cdot 10^{-3}$
1.95	1.01	0.15	0.58	$2.52 \cdot 10^{-2}$	$6.4 \cdot 10^{-2}$	$9.55 \cdot 10^{-3}$
1.98	0.99	0.15	0.58	$2.53 \cdot 10^{-2}$	$4.16 \cdot 10^{-2}$	$7.6 \cdot 10^{-3}$
2	1.03	0.15	0.52	$2.38 \cdot 10^{-2}$	$3.13 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$
2.03	1.05	0.16	0.54	$2.43 \cdot 10^{-2}$	$4.37 \cdot 10^{-2}$	$8.12 \cdot 10^{-3}$
2.05	1.08	0.16	0.49	$2.33 \cdot 10^{-2}$	$2.78 \cdot 10^{-2}$	$5.92 \cdot 10^{-3}$
2.08	1.04	0.15	0.51	$2.36 \cdot 10^{-2}$	$1.66 \cdot 10^{-2}$	$4.29 \cdot 10^{-3}$
2.1	1.14	0.17	0.49	$2.33 \cdot 10^{-2}$	$2.73 \cdot 10^{-2}$	$6.1 \cdot 10^{-3}$
2.13	1.09	0.16	0.5	$2.34 \cdot 10^{-2}$	$2.02 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$
2.15	1.14	0.17	0.53	$2.41 \cdot 10^{-2}$	$1.48 \cdot 10^{-2}$	$4.68 \cdot 10^{-3}$
2.18	1.19	0.18	0.54	$2.44 \cdot 10^{-2}$	$8.36 \cdot 10^{-3}$	$3.16 \cdot 10^{-3}$
2.2	1.2	0.18	0.52	$2.39 \cdot 10^{-2}$	$2.1 \cdot 10^{-2}$	$5.61 \cdot 10^{-3}$
2.23	1.25	0.19	0.51	$2.38 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$
2.25	1.3	0.19	0.52	$2.38 \cdot 10^{-2}$	$8.93 \cdot 10^{-3}$	$3.37 \cdot 10^{-3}$
2.28	1.3	0.19	0.52	$2.4 \cdot 10^{-2}$	$5.32 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$

TABLE 132. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$6.57 \cdot 10^{-3}$	$4.75 \cdot 10^{-3}$	0	0	0	0
1.15	$6.57 \cdot 10^{-3}$	$4.75 \cdot 10^{-3}$	0	0	0	0
1.18	$1.31 \cdot 10^{-2}$	$7.1 \cdot 10^{-3}$	0	0	0	0
1.2	$2.96 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$	0	0	$5.59 \cdot 10^{-3}$	$5.59 \cdot 10^{-3}$
1.23	0.12	$2.58 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$	$8.19 \cdot 10^{-3}$	$1.71 \cdot 10^{-2}$	$9.87 \cdot 10^{-3}$
1.25	0.31	$5.6 \cdot 10^{-2}$	$7.53 \cdot 10^{-2}$	$2.09 \cdot 10^{-2}$	0.22	$4.05 \cdot 10^{-2}$
1.28	0.71	0.12	0.48	$5.27 \cdot 10^{-2}$	1.14	$8.78 \cdot 10^{-2}$
1.3	1.28	0.2	1.2	$8.33 \cdot 10^{-2}$	3.38	0.15
1.33	2.21	0.34	1.49	$9.28 \cdot 10^{-2}$	4.56	0.18
1.35	3.04	0.46	2.36	0.12	5.72	0.2
1.38	3.8	0.57	2.65	0.12	5.6	0.2
1.4	4.32	0.65	2.47	0.12	5.4	0.2
1.43	4.35	0.65	2.54	0.12	3.83	0.16
1.45	3.93	0.59	1.86	0.1	2.1	0.12
1.48	3.27	0.49	1.66	$9.79 \cdot 10^{-2}$	0.88	$7.99 \cdot 10^{-2}$
1.5	3.15	0.47	1.83	0.1	0.51	$6.04 \cdot 10^{-2}$
1.53	3.29	0.49	2.66	0.12	0.32	$4.53 \cdot 10^{-2}$
1.55	3.69	0.55	3.65	0.15	0.37	$5.23 \cdot 10^{-2}$
1.58	4.28	0.64	5.24	0.17	0.26	$4.33 \cdot 10^{-2}$
1.6	4.72	0.7	6.3	0.19	0.22	$3.89 \cdot 10^{-2}$
1.63	5.27	0.79	7.13	0.2	0.14	$3.12 \cdot 10^{-2}$
1.65	5.3	0.79	7.72	0.21	0.12	$2.97 \cdot 10^{-2}$
1.68	5.42	0.81	8.02	0.22	$8.69 \cdot 10^{-2}$	$2.9 \cdot 10^{-2}$

TABLE 132 Continued.						
$d(e, e' \pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	4.92	0.73	6.95	0.2	$8.45 \cdot 10^{-2}$	$2.34 \cdot 10^{-2}$
1.73	4.51	0.67	5.42	0.18	$5.96 \cdot 10^{-2}$	$2.11 \cdot 10^{-2}$
1.75	3.99	0.6	4.8	0.17	$8.76 \cdot 10^{-2}$	$2.77 \cdot 10^{-2}$
1.78	3.53	0.53	4.46	0.16	$7.68 \cdot 10^{-2}$	$2.56 \cdot 10^{-2}$
1.8	3.1	0.47	4.09	0.15	$5.59 \cdot 10^{-3}$	$5.59 \cdot 10^{-3}$
1.83	2.85	0.43	3.49	0.14	$5.66 \cdot 10^{-3}$	$5.66 \cdot 10^{-3}$
1.85	2.56	0.39	3.29	0.14	$1.59 \cdot 10^{-2}$	$9.19 \cdot 10^{-3}$
1.88	2.36	0.36	3.21	0.14	$7.28 \cdot 10^{-3}$	$7.28 \cdot 10^{-3}$
1.9	2.16	0.33	2.89	0.13	$6.01 \cdot 10^{-3}$	$6.01 \cdot 10^{-3}$
1.93	1.99	0.3	2.69	0.12	0	0
1.95	1.7	0.26	2.44	0.12	$1.14 \cdot 10^{-2}$	$8.07 \cdot 10^{-3}$
1.98	1.66	0.25	2.06	0.11	0	0
2	1.37	0.21	1.84	0.1	0	0
2.03	1.26	0.2	1.85	0.1	0	0
2.05	1.12	0.18	1.45	$9.15 \cdot 10^{-2}$	0	0
2.08	0.93	0.15	1.17	$8.23 \cdot 10^{-2}$	0	0
2.1	0.85	0.14	1.2	$8.35 \cdot 10^{-2}$	0	0
2.13	0.85	0.14	0.88	$7.14 \cdot 10^{-2}$	0	0
2.15	0.56	$9.24 \cdot 10^{-2}$	0.69	$6.34 \cdot 10^{-2}$	0	0
2.18	0.53	$8.93 \cdot 10^{-2}$	0.69	$6.34 \cdot 10^{-2}$	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 133. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	$3.94 \cdot 10^{-3}$	$2.85 \cdot 10^{-3}$	0	0	$3.28 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$
1.33	$9.86 \cdot 10^{-3}$	$4.72 \cdot 10^{-3}$	0	0	0	0
1.35	$2.76 \cdot 10^{-2}$	$8.61 \cdot 10^{-3}$	0	0	0	0
1.38	0.1	$2.07 \cdot 10^{-2}$	$2.78 \cdot 10^{-2}$	$9.82 \cdot 10^{-3}$	$4.03 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$
1.4	0.28	$4.68 \cdot 10^{-2}$	0.19	$2.6 \cdot 10^{-2}$	0.36	$3.94 \cdot 10^{-2}$
1.43	0.65	0.1	0.55	$4.37 \cdot 10^{-2}$	1.17	$7.04 \cdot 10^{-2}$
1.45	1.35	0.21	1.25	$6.58 \cdot 10^{-2}$	2.52	0.1
1.48	2.23	0.33	1.75	$7.81 \cdot 10^{-2}$	3.78	0.13
1.5	2.78	0.42	2.33	$9 \cdot 10^{-2}$	4.64	0.14
1.53	3.41	0.51	2.51	$9.35 \cdot 10^{-2}$	5.85	0.16
1.55	3.94	0.59	2.95	0.1	6.67	0.17
1.58	4.29	0.64	2.94	0.1	6.78	0.17
1.6	4.56	0.68	3.29	0.11	6.17	0.16
1.63	4.82	0.72	3.9	0.12	5.66	0.15
1.65	5.39	0.8	4.44	0.12	4.71	0.14
1.68	5.29	0.78	5.06	0.13	3.51	0.12

TABLE 133 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	5.18	0.77	5.15	0.13	2.16	$9.62 \cdot 10^{-2}$
1.73	5.01	0.74	5.35	0.14	0.88	$6.06 \cdot 10^{-2}$
1.75	4.8	0.71	5.28	0.14	0.43	$4.18 \cdot 10^{-2}$
1.78	4.44	0.66	5.08	0.13	0.3	$3.49 \cdot 10^{-2}$
1.8	4.25	0.63	5.38	0.14	0.19	$2.91 \cdot 10^{-2}$
1.83	4.28	0.64	5.53	0.14	0.16	$2.62 \cdot 10^{-2}$
1.85	4.07	0.61	5.55	0.14	0.12	$2.15 \cdot 10^{-2}$
1.88	3.81	0.57	5.41	0.14	0.11	$2.29 \cdot 10^{-2}$
1.9	3.71	0.55	5.06	0.13	$9.14 \cdot 10^{-2}$	$1.99 \cdot 10^{-2}$
1.93	3.55	0.53	5.04	0.13	0.12	$2.31 \cdot 10^{-2}$
1.95	3.27	0.49	4.6	0.13	$3.08 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.98	3	0.45	4.51	0.13	$5.77 \cdot 10^{-3}$	$4.08 \cdot 10^{-3}$
2	2.86	0.43	4.13	0.12	$2.05 \cdot 10^{-2}$	$9.17 \cdot 10^{-3}$
2.03	2.57	0.38	3.75	0.11	$3.97 \cdot 10^{-2}$	$1.26 \cdot 10^{-2}$
2.05	2.42	0.36	3.49	0.11	$3.55 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
2.08	2.35	0.35	3.05	0.1	$1.03 \cdot 10^{-2}$	$7.29 \cdot 10^{-3}$
2.1	2.23	0.33	2.67	$9.64 \cdot 10^{-2}$	$1.81 \cdot 10^{-2}$	$8.09 \cdot 10^{-3}$
2.13	2.13	0.32	2.66	$9.61 \cdot 10^{-2}$	$3.28 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$
2.15	1.81	0.27	2.47	$9.26 \cdot 10^{-2}$	$7.12 \cdot 10^{-3}$	$5.04 \cdot 10^{-3}$
2.18	1.77	0.27	2.28	$8.9 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$7.12 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 134. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	$2.52 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$
1.55	$1.41 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0	0	0
1.58	$2.82 \cdot 10^{-3}$	$2.04 \cdot 10^{-3}$	0	0	0	0
1.6	$1.41 \cdot 10^{-2}$	$4.95 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	$2.59 \cdot 10^{-3}$	$2.59 \cdot 10^{-3}$
1.63	$5.21 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$	$5.46 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$	$3.7 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$
1.65	0.18	$3.14 \cdot 10^{-2}$	0.2	$2.25 \cdot 10^{-2}$	0.31	$3.01 \cdot 10^{-2}$
1.68	0.53	$8.21 \cdot 10^{-2}$	0.54	$3.67 \cdot 10^{-2}$	0.91	$5.3 \cdot 10^{-2}$

TABLE 134 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.05	0.16	1.1	$5.23 \cdot 10^{-2}$	1.76	$7.29 \cdot 10^{-2}$
1.73	1.77	0.27	1.69	$6.47 \cdot 10^{-2}$	2.61	$8.87 \cdot 10^{-2}$
1.75	2.21	0.33	2.13	$7.27 \cdot 10^{-2}$	2.85	$9.28 \cdot 10^{-2}$
1.78	2.61	0.39	2.06	$7.15 \cdot 10^{-2}$	2.86	$9.27 \cdot 10^{-2}$
1.8	2.78	0.41	2.07	$7.17 \cdot 10^{-2}$	2.86	$9.31 \cdot 10^{-2}$
1.83	2.86	0.42	2.23	$7.44 \cdot 10^{-2}$	2.66	$8.98 \cdot 10^{-2}$
1.85	3.14	0.47	2.47	$7.83 \cdot 10^{-2}$	2.64	$8.99 \cdot 10^{-2}$
1.88	3.37	0.5	2.56	$7.97 \cdot 10^{-2}$	2.55	$8.82 \cdot 10^{-2}$
1.9	3.77	0.56	2.98	$8.6 \cdot 10^{-2}$	2.22	$8.22 \cdot 10^{-2}$
1.93	3.98	0.59	3.37	$9.14 \cdot 10^{-2}$	2.29	$8.31 \cdot 10^{-2}$
1.95	4.11	0.61	3.5	$9.32 \cdot 10^{-2}$	2.03	$7.76 \cdot 10^{-2}$
1.98	4.33	0.64	3.53	$9.35 \cdot 10^{-2}$	1.91	$7.6 \cdot 10^{-2}$
2	4.22	0.63	3.75	$9.64 \cdot 10^{-2}$	1.52	$6.84 \cdot 10^{-2}$
2.03	4	0.59	3.56	$9.4 \cdot 10^{-2}$	1.08	$5.68 \cdot 10^{-2}$
2.05	3.51	0.52	3.52	$9.35 \cdot 10^{-2}$	0.59	$4.2 \cdot 10^{-2}$
2.08	3.48	0.52	3.32	$9.07 \cdot 10^{-2}$	0.31	$3.09 \cdot 10^{-2}$
2.1	3.1	0.46	3.37	$9.14 \cdot 10^{-2}$	0.17	$2.32 \cdot 10^{-2}$
2.13	3.08	0.46	3.28	$9.02 \cdot 10^{-2}$	$7.59 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
2.15	2.87	0.43	3.08	$8.74 \cdot 10^{-2}$	$6.54 \cdot 10^{-2}$	$1.46 \cdot 10^{-2}$
2.18	2.54	0.38	3.05	$8.69 \cdot 10^{-2}$	$4.6 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 135. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 135 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	$1.97 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	0	0	0	0
1.75	$1.97 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	0	0	0	0
1.78	0	0	0	0	0	0
1.8	0	0	0	0	0	0
1.83	0	0	0	0	0	0
1.85	$1.97 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	0	0	0	0
1.88	0	0	0	0	0	0
1.9	0	0	0	0	$3.52 \cdot 10^{-3}$	$3.52 \cdot 10^{-3}$
1.93	$1.97 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	0	0	0	0
1.95	$1.38 \cdot 10^{-2}$	$5.6 \cdot 10^{-3}$	0	0	$2.42 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
1.98	0.11	$2.16 \cdot 10^{-2}$	$5.56 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$	0.17	$2.75 \cdot 10^{-2}$
2	0.38	$6.27 \cdot 10^{-2}$	0.19	$2.6 \cdot 10^{-2}$	0.49	$4.51 \cdot 10^{-2}$
2.03	0.78	0.12	0.38	$3.61 \cdot 10^{-2}$	0.99	$6.39 \cdot 10^{-2}$
2.05	1.17	0.18	0.72	$5.01 \cdot 10^{-2}$	1.55	$8.12 \cdot 10^{-2}$
2.08	1.49	0.23	0.92	$5.64 \cdot 10^{-2}$	1.9	$8.95 \cdot 10^{-2}$
2.1	1.69	0.26	1.02	$5.95 \cdot 10^{-2}$	1.9	$8.96 \cdot 10^{-2}$
2.13	1.71	0.26	1.04	$6.01 \cdot 10^{-2}$	1.94	$9.03 \cdot 10^{-2}$
2.15	1.88	0.28	1.34	$6.82 \cdot 10^{-2}$	1.73	$8.52 \cdot 10^{-2}$
2.18	1.8	0.27	1.32	$6.77 \cdot 10^{-2}$	1.43	$7.66 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 136. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$4.23 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$	0	0	0	0
1.18	$5.64 \cdot 10^{-3}$	$2.94 \cdot 10^{-3}$	0	0	0	0
1.2	$2.26 \cdot 10^{-2}$	$6.54 \cdot 10^{-3}$	0	0	0	0
1.23	$2.54 \cdot 10^{-2}$	$7.37 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	0	0
1.25	$6.63 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	$1.49 \cdot 10^{-2}$	$6.08 \cdot 10^{-3}$	$1.05 \cdot 10^{-2}$	$5.26 \cdot 10^{-3}$
1.28	0.14	$2.61 \cdot 10^{-2}$	$3.48 \cdot 10^{-2}$	$9.29 \cdot 10^{-3}$	$6.57 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$
1.3	0.32	$5.26 \cdot 10^{-2}$	0.19	$2.19 \cdot 10^{-2}$	0.42	$3.64 \cdot 10^{-2}$
1.33	0.63	$9.82 \cdot 10^{-2}$	0.45	$3.33 \cdot 10^{-2}$	1.14	$5.8 \cdot 10^{-2}$
1.35	0.88	0.13	0.78	$4.41 \cdot 10^{-2}$	1.72	$7.08 \cdot 10^{-2}$
1.38	1.23	0.19	1.08	$5.18 \cdot 10^{-2}$	2.14	$8.06 \cdot 10^{-2}$
1.4	1.48	0.22	1.3	$5.68 \cdot 10^{-2}$	2.23	$8.28 \cdot 10^{-2}$
1.43	1.72	0.26	1.44	$5.97 \cdot 10^{-2}$	2.14	$7.95 \cdot 10^{-2}$
1.45	1.86	0.28	1.51	$6.12 \cdot 10^{-2}$	2.17	$8.12 \cdot 10^{-2}$
1.48	1.86	0.28	1.36	$5.81 \cdot 10^{-2}$	1.92	$7.57 \cdot 10^{-2}$
1.5	1.71	0.26	1.14	$5.32 \cdot 10^{-2}$	1.35	$6.47 \cdot 10^{-2}$
1.53	1.56	0.23	1.11	$5.25 \cdot 10^{-2}$	0.67	$4.47 \cdot 10^{-2}$
1.55	1.53	0.23	1.06	$5.12 \cdot 10^{-2}$	0.37	$3.31 \cdot 10^{-2}$
1.58	1.6	0.24	1.44	$5.98 \cdot 10^{-2}$	0.27	$2.81 \cdot 10^{-2}$
1.6	1.78	0.27	1.88	$6.83 \cdot 10^{-2}$	0.17	$2.35 \cdot 10^{-2}$
1.63	1.99	0.3	2.79	$8.31 \cdot 10^{-2}$	$9.22 \cdot 10^{-2}$	$1.68 \cdot 10^{-2}$
1.65	2.42	0.36	3.36	$9.13 \cdot 10^{-2}$	0.11	$1.78 \cdot 10^{-2}$
1.68	2.71	0.4	3.75	$9.65 \cdot 10^{-2}$	0.11	$1.89 \cdot 10^{-2}$

TABLE 136 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	2.9	0.43	3.78	$9.68 \cdot 10^{-2}$	$5.36 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
1.73	3.06	0.46	3.76	$9.66 \cdot 10^{-2}$	$6.75 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$
1.75	3.04	0.45	3.17	$8.88 \cdot 10^{-2}$	$6.51 \cdot 10^{-2}$	$1.42 \cdot 10^{-2}$
1.78	2.87	0.43	2.71	$8.2 \cdot 10^{-2}$	$4.96 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
1.8	2.95	0.44	2.54	$7.94 \cdot 10^{-2}$	$5.48 \cdot 10^{-2}$	$1.26 \cdot 10^{-2}$
1.83	2.95	0.44	2.56	$7.97 \cdot 10^{-2}$	$4.17 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
1.85	2.79	0.42	2.64	$8.09 \cdot 10^{-2}$	$2.98 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$
1.88	2.88	0.43	2.71	$8.2 \cdot 10^{-2}$	$2.78 \cdot 10^{-2}$	$8.8 \cdot 10^{-3}$
1.9	3.01	0.45	2.59	$8.01 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	$5.84 \cdot 10^{-3}$
1.93	2.89	0.43	2.56	$7.97 \cdot 10^{-2}$	$9.92 \cdot 10^{-3}$	$4.96 \cdot 10^{-3}$
1.95	3.02	0.45	2.54	$7.94 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$5.91 \cdot 10^{-3}$
1.98	3	0.45	2.4	$7.72 \cdot 10^{-2}$	$8.14 \cdot 10^{-3}$	$4.7 \cdot 10^{-3}$
2	3.05	0.45	2.4	$7.72 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	$6.31 \cdot 10^{-3}$
2.03	3.01	0.45	2.44	$7.78 \cdot 10^{-2}$	$9.7 \cdot 10^{-3}$	$4.85 \cdot 10^{-3}$
2.05	3.1	0.46	2.33	$7.6 \cdot 10^{-2}$	$2.23 \cdot 10^{-2}$	$8.43 \cdot 10^{-3}$
2.08	2.86	0.43	2.19	$7.38 \cdot 10^{-2}$	$1.72 \cdot 10^{-2}$	$7.71 \cdot 10^{-3}$
2.1	2.89	0.43	2.1	$7.21 \cdot 10^{-2}$	0	0
2.13	2.77	0.41	2	$7.04 \cdot 10^{-2}$	$9.86 \cdot 10^{-3}$	$5.69 \cdot 10^{-3}$
2.15	2.75	0.41	2.14	$7.28 \cdot 10^{-2}$	0	0
2.18	2.65	0.39	1.99	$7.02 \cdot 10^{-2}$	$8.59 \cdot 10^{-3}$	$6.07 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 137. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$8.46 \cdot 10^{-4}$	$8.55 \cdot 10^{-4}$	0	0	0	0
1.18	0	0	0	0	0	0
1.2	$8.46 \cdot 10^{-4}$	$8.55 \cdot 10^{-4}$	0	0	$1.45 \cdot 10^{-3}$	$1.45 \cdot 10^{-3}$
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$1.69 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.3	$1.69 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.33	$2.54 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$	0	0	0	0
1.35	$1.69 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.38	$1.01 \cdot 10^{-2}$	$3.29 \cdot 10^{-3}$	0	0	$1.24 \cdot 10^{-3}$	$1.24 \cdot 10^{-3}$
1.4	$2.37 \cdot 10^{-2}$	$5.73 \cdot 10^{-3}$	$5.96 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$4.41 \cdot 10^{-3}$	$3.12 \cdot 10^{-3}$
1.43	$6.34 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$2.23 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$	$2.07 \cdot 10^{-2}$	$6.53 \cdot 10^{-3}$
1.45	0.16	$2.58 \cdot 10^{-2}$	0.11	$1.28 \cdot 10^{-2}$	0.13	$1.54 \cdot 10^{-2}$
1.48	0.33	$5.18 \cdot 10^{-2}$	0.29	$2.09 \cdot 10^{-2}$	0.54	$3.08 \cdot 10^{-2}$
1.5	0.52	$7.92 \cdot 10^{-2}$	0.52	$2.77 \cdot 10^{-2}$	1.05	$4.33 \cdot 10^{-2}$
1.53	0.7	0.11	0.79	$3.43 \cdot 10^{-2}$	1.46	$5.18 \cdot 10^{-2}$
1.55	0.84	0.13	0.95	$3.77 \cdot 10^{-2}$	1.56	$5.36 \cdot 10^{-2}$
1.58	0.86	0.13	1.08	$4.01 \cdot 10^{-2}$	1.34	$4.9 \cdot 10^{-2}$
1.6	0.93	0.14	1.17	$4.17 \cdot 10^{-2}$	1.2	$4.68 \cdot 10^{-2}$
1.63	1.09	0.16	1.26	$4.33 \cdot 10^{-2}$	1.08	$4.39 \cdot 10^{-2}$
1.65	1.25	0.19	1.39	$4.54 \cdot 10^{-2}$	1.12	$4.53 \cdot 10^{-2}$
1.68	1.37	0.2	1.71	$5.04 \cdot 10^{-2}$	1.21	$4.7 \cdot 10^{-2}$

TABLE 137 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.52	0.23	2.03	$5.5 \cdot 10^{-2}$	1.32	$4.95 \cdot 10^{-2}$
1.73	1.68	0.25	2.24	$5.77 \cdot 10^{-2}$	1.07	$4.38 \cdot 10^{-2}$
1.75	1.84	0.27	2.31	$5.87 \cdot 10^{-2}$	0.84	$3.91 \cdot 10^{-2}$
1.78	1.9	0.28	2.1	$5.6 \cdot 10^{-2}$	0.57	$3.23 \cdot 10^{-2}$
1.8	1.96	0.29	2.02	$5.49 \cdot 10^{-2}$	0.38	$2.58 \cdot 10^{-2}$
1.83	2.02	0.3	2.08	$5.57 \cdot 10^{-2}$	0.22	$1.94 \cdot 10^{-2}$
1.85	2.08	0.31	1.89	$5.31 \cdot 10^{-2}$	0.16	$1.7 \cdot 10^{-2}$
1.88	2.23	0.33	1.97	$5.41 \cdot 10^{-2}$	$9.19 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
1.9	2.29	0.34	2.03	$5.5 \cdot 10^{-2}$	$6.56 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
1.93	2.35	0.35	2.06	$5.53 \cdot 10^{-2}$	$4.7 \cdot 10^{-2}$	$9.6 \cdot 10^{-3}$
1.95	2.47	0.37	2.19	$5.72 \cdot 10^{-2}$	$4.6 \cdot 10^{-2}$	$9.6 \cdot 10^{-3}$
1.98	2.5	0.37	1.96	$5.4 \cdot 10^{-2}$	$4.76 \cdot 10^{-2}$	$9.72 \cdot 10^{-3}$
2	2.41	0.36	2.09	$5.58 \cdot 10^{-2}$	$3.89 \cdot 10^{-2}$	$8.11 \cdot 10^{-3}$
2.03	2.47	0.37	2.08	$5.56 \cdot 10^{-2}$	$2.42 \cdot 10^{-2}$	$6.48 \cdot 10^{-3}$
2.05	2.54	0.38	1.96	$5.41 \cdot 10^{-2}$	$2.55 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$
2.08	2.46	0.37	2.03	$5.5 \cdot 10^{-2}$	$2.07 \cdot 10^{-2}$	$5.52 \cdot 10^{-3}$
2.1	2.59	0.38	1.94	$5.37 \cdot 10^{-2}$	$1.87 \cdot 10^{-2}$	$6.61 \cdot 10^{-3}$
2.13	2.52	0.37	1.86	$5.27 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$	$5.07 \cdot 10^{-3}$
2.15	2.49	0.37	1.9	$5.33 \cdot 10^{-2}$	$1.96 \cdot 10^{-2}$	$6.54 \cdot 10^{-3}$
2.18	2.48	0.37	1.77	$5.14 \cdot 10^{-2}$	$8.25 \cdot 10^{-3}$	$3.69 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 138. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$6.04 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.3	0	0	0	0	0	0
1.33	$6.04 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.35	$6.04 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$6.04 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	$6.04 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.55	$1.21 \cdot 10^{-3}$	$8.73 \cdot 10^{-4}$	0	0	0	0
1.58	$6.04 \cdot 10^{-4}$	$6.11 \cdot 10^{-4}$	0	0	0	0
1.6	$1.81 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$	0	0	0	0
1.63	0	0	0	0	0	0
1.65	$3.02 \cdot 10^{-3}$	$1.44 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	$1.06 \cdot 10^{-3}$	$2.16 \cdot 10^{-3}$	$2.16 \cdot 10^{-3}$
1.68	$4.23 \cdot 10^{-3}$	$1.71 \cdot 10^{-3}$	$6.38 \cdot 10^{-3}$	$2.61 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$

TABLE 138 Continued.						
$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.87 \cdot 10^{-2}$	$4.36 \cdot 10^{-3}$	$3.19 \cdot 10^{-2}$	$5.83 \cdot 10^{-3}$	$2.48 \cdot 10^{-2}$	$5.7 \cdot 10^{-3}$
1.73	$7.07 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	0.12	$1.11 \cdot 10^{-2}$	$9.17 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$
1.75	0.12	$1.99 \cdot 10^{-2}$	0.25	$1.62 \cdot 10^{-2}$	0.24	$1.77 \cdot 10^{-2}$
1.78	0.21	$3.27 \cdot 10^{-2}$	0.46	$2.21 \cdot 10^{-2}$	0.41	$2.28 \cdot 10^{-2}$
1.8	0.29	$4.54 \cdot 10^{-2}$	0.67	$2.67 \cdot 10^{-2}$	0.49	$2.55 \cdot 10^{-2}$
1.83	0.37	$5.62 \cdot 10^{-2}$	0.8	$2.91 \cdot 10^{-2}$	0.49	$2.51 \cdot 10^{-2}$
1.85	0.43	$6.5 \cdot 10^{-2}$	0.95	$3.18 \cdot 10^{-2}$	0.52	$2.57 \cdot 10^{-2}$
1.88	0.49	$7.46 \cdot 10^{-2}$	1.13	$3.46 \cdot 10^{-2}$	0.56	$2.68 \cdot 10^{-2}$
1.9	0.52	$7.83 \cdot 10^{-2}$	1.18	$3.55 \cdot 10^{-2}$	0.55	$2.66 \cdot 10^{-2}$
1.93	0.58	$8.8 \cdot 10^{-2}$	1.23	$3.62 \cdot 10^{-2}$	0.48	$2.49 \cdot 10^{-2}$
1.95	0.66	$9.87 \cdot 10^{-2}$	1.3	$3.72 \cdot 10^{-2}$	0.49	$2.52 \cdot 10^{-2}$
1.98	0.69	0.1	1.33	$3.76 \cdot 10^{-2}$	0.47	$2.45 \cdot 10^{-2}$
2	0.75	0.11	1.35	$3.8 \cdot 10^{-2}$	0.44	$2.42 \cdot 10^{-2}$
2.03	0.86	0.13	1.43	$3.89 \cdot 10^{-2}$	0.46	$2.42 \cdot 10^{-2}$
2.05	0.9	0.13	1.46	$3.95 \cdot 10^{-2}$	0.41	$2.29 \cdot 10^{-2}$
2.08	0.94	0.14	1.46	$3.94 \cdot 10^{-2}$	0.45	$2.45 \cdot 10^{-2}$
2.1	0.98	0.15	1.45	$3.93 \cdot 10^{-2}$	0.33	$2.06 \cdot 10^{-2}$
2.13	1.04	0.16	1.39	$3.84 \cdot 10^{-2}$	0.3	$1.98 \cdot 10^{-2}$
2.15	1.02	0.15	1.37	$3.82 \cdot 10^{-2}$	0.27	$1.87 \cdot 10^{-2}$
2.18	1.05	0.16	1.3	$3.72 \cdot 10^{-2}$	0.23	$1.77 \cdot 10^{-2}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 139. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$9.08 \cdot 10^{-4}$	$9.18 \cdot 10^{-4}$	0	0	0	0
1.15	$3.63 \cdot 10^{-3}$	$1.89 \cdot 10^{-3}$	0	0	0	0
1.18	$1.82 \cdot 10^{-3}$	$1.35 \cdot 10^{-3}$	0	0	0	0
1.2	$4.54 \cdot 10^{-3}$	$2.14 \cdot 10^{-3}$	0	0	0	0
1.23	$5.45 \cdot 10^{-3}$	$2.36 \cdot 10^{-3}$	0	0	0	0
1.25	$7.26 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	0	0	0	0
1.28	$1.09 \cdot 10^{-2}$	$3.53 \cdot 10^{-3}$	0	0	0	0
1.3	$1.63 \cdot 10^{-2}$	$4.54 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0
1.33	$3.99 \cdot 10^{-2}$	$8.62 \cdot 10^{-3}$	$1.28 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$	$2.22 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$
1.35	$7.26 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$	$3.68 \cdot 10^{-2}$	$7.67 \cdot 10^{-3}$	$5.62 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$
1.38	0.13	$2.25 \cdot 10^{-2}$	0.12	$1.36 \cdot 10^{-2}$	0.19	$1.95 \cdot 10^{-2}$
1.4	0.17	$2.74 \cdot 10^{-2}$	0.19	$1.74 \cdot 10^{-2}$	0.3	$2.37 \cdot 10^{-2}$
1.43	0.28	$4.39 \cdot 10^{-2}$	0.33	$2.3 \cdot 10^{-2}$	0.42	$2.87 \cdot 10^{-2}$
1.45	0.37	$5.73 \cdot 10^{-2}$	0.43	$2.62 \cdot 10^{-2}$	0.5	$3.2 \cdot 10^{-2}$
1.48	0.42	$6.54 \cdot 10^{-2}$	0.56	$2.98 \cdot 10^{-2}$	0.6	$3.44 \cdot 10^{-2}$
1.5	0.48	$7.35 \cdot 10^{-2}$	0.59	$3.08 \cdot 10^{-2}$	0.72	$3.73 \cdot 10^{-2}$
1.53	0.51	$7.87 \cdot 10^{-2}$	0.65	$3.23 \cdot 10^{-2}$	0.72	$3.7 \cdot 10^{-2}$
1.55	0.53	$8.07 \cdot 10^{-2}$	0.66	$3.25 \cdot 10^{-2}$	0.59	$3.42 \cdot 10^{-2}$
1.58	0.46	$7.09 \cdot 10^{-2}$	0.59	$3.07 \cdot 10^{-2}$	0.33	$2.55 \cdot 10^{-2}$
1.6	0.42	$6.45 \cdot 10^{-2}$	0.57	$3.01 \cdot 10^{-2}$	0.18	$1.85 \cdot 10^{-2}$
1.63	0.47	$7.23 \cdot 10^{-2}$	0.52	$2.9 \cdot 10^{-2}$	0.13	$1.67 \cdot 10^{-2}$
1.65	0.52	$7.94 \cdot 10^{-2}$	0.63	$3.19 \cdot 10^{-2}$	$8.15 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$
1.68	0.57	$8.71 \cdot 10^{-2}$	0.74	$3.45 \cdot 10^{-2}$	$5.55 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$

TABLE 139 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.68	0.1	0.76	$3.5 \cdot 10^{-2}$	$4.68 \cdot 10^{-2}$	$9.35 \cdot 10^{-3}$
1.73	0.73	0.11	0.81	$3.59 \cdot 10^{-2}$	$2.58 \cdot 10^{-2}$	$7.45 \cdot 10^{-3}$
1.75	0.89	0.13	0.74	$3.45 \cdot 10^{-2}$	$3.5 \cdot 10^{-2}$	$8.49 \cdot 10^{-3}$
1.78	0.96	0.14	0.67	$3.26 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$	$4.62 \cdot 10^{-3}$
1.8	1.01	0.15	0.64	$3.19 \cdot 10^{-2}$	$2.39 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$
1.83	1.06	0.16	0.66	$3.24 \cdot 10^{-2}$	$2.4 \cdot 10^{-2}$	$6.4 \cdot 10^{-3}$
1.85	1.07	0.16	0.74	$3.43 \cdot 10^{-2}$	$9.12 \cdot 10^{-3}$	$4.08 \cdot 10^{-3}$
1.88	1.14	0.17	0.75	$3.45 \cdot 10^{-2}$	$1.22 \cdot 10^{-2}$	$4.63 \cdot 10^{-3}$
1.9	1.18	0.18	0.77	$3.51 \cdot 10^{-2}$	$1.88 \cdot 10^{-2}$	$6.26 \cdot 10^{-3}$
1.93	1.2	0.18	0.79	$3.55 \cdot 10^{-2}$	$9.48 \cdot 10^{-3}$	$3.87 \cdot 10^{-3}$
1.95	1.29	0.19	0.85	$3.69 \cdot 10^{-2}$	$1.27 \cdot 10^{-2}$	$5.18 \cdot 10^{-3}$
1.98	1.37	0.2	0.9	$3.8 \cdot 10^{-2}$	$5.13 \cdot 10^{-3}$	$2.96 \cdot 10^{-3}$
2	1.51	0.23	0.84	$3.67 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$
2.03	1.45	0.22	0.97	$3.94 \cdot 10^{-2}$	$5.87 \cdot 10^{-3}$	$4.15 \cdot 10^{-3}$
2.05	1.53	0.23	0.9	$3.8 \cdot 10^{-2}$	$9.62 \cdot 10^{-3}$	$4.3 \cdot 10^{-3}$
2.08	1.64	0.24	0.98	$3.97 \cdot 10^{-2}$	$4.78 \cdot 10^{-3}$	$3.38 \cdot 10^{-3}$
2.1	1.73	0.26	0.9	$3.8 \cdot 10^{-2}$	$1.54 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$
2.13	1.83	0.27	0.95	$3.9 \cdot 10^{-2}$	$1.56 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$
2.15	1.93	0.29	0.99	$3.99 \cdot 10^{-2}$	$5.86 \cdot 10^{-3}$	$3.38 \cdot 10^{-3}$
2.18	1.95	0.29	0.99	$3.97 \cdot 10^{-2}$	$8.48 \cdot 10^{-3}$	$3.79 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 140. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	$8.46 \cdot 10^{-4}$	$8.55 \cdot 10^{-4}$	0	0	0	0
1.18	0	0	0	0	0	0
1.2	$8.46 \cdot 10^{-4}$	$8.55 \cdot 10^{-4}$	0	0	$1.45 \cdot 10^{-3}$	$1.45 \cdot 10^{-3}$
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$1.69 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.3	$1.69 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.33	$2.54 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$	0	0	0	0
1.35	$1.69 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	0	0	0	0
1.38	$1.01 \cdot 10^{-2}$	$3.29 \cdot 10^{-3}$	0	0	$1.24 \cdot 10^{-3}$	$1.24 \cdot 10^{-3}$
1.4	$2.37 \cdot 10^{-2}$	$5.73 \cdot 10^{-3}$	$5.96 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$4.41 \cdot 10^{-3}$	$3.12 \cdot 10^{-3}$
1.43	$6.34 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$2.23 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$	$2.07 \cdot 10^{-2}$	$6.53 \cdot 10^{-3}$
1.45	0.16	$2.58 \cdot 10^{-2}$	0.11	$1.28 \cdot 10^{-2}$	0.13	$1.54 \cdot 10^{-2}$
1.48	0.33	$5.18 \cdot 10^{-2}$	0.29	$2.09 \cdot 10^{-2}$	0.54	$3.08 \cdot 10^{-2}$
1.5	0.52	$7.92 \cdot 10^{-2}$	0.52	$2.77 \cdot 10^{-2}$	1.05	$4.33 \cdot 10^{-2}$
1.53	0.7	0.11	0.79	$3.43 \cdot 10^{-2}$	1.46	$5.18 \cdot 10^{-2}$
1.55	0.84	0.13	0.95	$3.77 \cdot 10^{-2}$	1.56	$5.36 \cdot 10^{-2}$
1.58	0.86	0.13	1.08	$4.01 \cdot 10^{-2}$	1.34	$4.9 \cdot 10^{-2}$
1.6	0.93	0.14	1.17	$4.17 \cdot 10^{-2}$	1.2	$4.68 \cdot 10^{-2}$
1.63	1.09	0.16	1.26	$4.33 \cdot 10^{-2}$	1.08	$4.39 \cdot 10^{-2}$
1.65	1.25	0.19	1.39	$4.54 \cdot 10^{-2}$	1.12	$4.53 \cdot 10^{-2}$
1.68	1.37	0.2	1.71	$5.04 \cdot 10^{-2}$	1.21	$4.7 \cdot 10^{-2}$

TABLE 140 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.52	0.23	2.03	$5.5 \cdot 10^{-2}$	1.32	$4.95 \cdot 10^{-2}$
1.73	1.68	0.25	2.24	$5.77 \cdot 10^{-2}$	1.07	$4.38 \cdot 10^{-2}$
1.75	1.84	0.27	2.31	$5.87 \cdot 10^{-2}$	0.84	$3.91 \cdot 10^{-2}$
1.78	1.9	0.28	2.1	$5.6 \cdot 10^{-2}$	0.57	$3.23 \cdot 10^{-2}$
1.8	1.96	0.29	2.02	$5.49 \cdot 10^{-2}$	0.38	$2.58 \cdot 10^{-2}$
1.83	2.02	0.3	2.08	$5.57 \cdot 10^{-2}$	0.22	$1.94 \cdot 10^{-2}$
1.85	2.08	0.31	1.89	$5.31 \cdot 10^{-2}$	0.16	$1.7 \cdot 10^{-2}$
1.88	2.23	0.33	1.97	$5.41 \cdot 10^{-2}$	$9.19 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$
1.9	2.29	0.34	2.03	$5.5 \cdot 10^{-2}$	$6.56 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$
1.93	2.35	0.35	2.06	$5.53 \cdot 10^{-2}$	$4.7 \cdot 10^{-2}$	$9.6 \cdot 10^{-3}$
1.95	2.47	0.37	2.19	$5.72 \cdot 10^{-2}$	$4.6 \cdot 10^{-2}$	$9.6 \cdot 10^{-3}$
1.98	2.5	0.37	1.96	$5.4 \cdot 10^{-2}$	$4.76 \cdot 10^{-2}$	$9.72 \cdot 10^{-3}$
2	2.41	0.36	2.09	$5.58 \cdot 10^{-2}$	$3.89 \cdot 10^{-2}$	$8.11 \cdot 10^{-3}$
2.03	2.47	0.37	2.08	$5.56 \cdot 10^{-2}$	$2.42 \cdot 10^{-2}$	$6.48 \cdot 10^{-3}$
2.05	2.54	0.38	1.96	$5.41 \cdot 10^{-2}$	$2.55 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$
2.08	2.46	0.37	2.03	$5.5 \cdot 10^{-2}$	$2.07 \cdot 10^{-2}$	$5.52 \cdot 10^{-3}$
2.1	2.59	0.38	1.94	$5.37 \cdot 10^{-2}$	$1.87 \cdot 10^{-2}$	$6.61 \cdot 10^{-3}$
2.13	2.52	0.37	1.86	$5.27 \cdot 10^{-2}$	$1.34 \cdot 10^{-2}$	$5.07 \cdot 10^{-3}$
2.15	2.49	0.37	1.9	$5.33 \cdot 10^{-2}$	$1.96 \cdot 10^{-2}$	$6.54 \cdot 10^{-3}$
2.18	2.48	0.37	1.77	$5.14 \cdot 10^{-2}$	$8.25 \cdot 10^{-3}$	$3.69 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 141. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $1.0 \leq Q^2 < 1.4 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$4.68 \cdot 10^{-4}$	$4.73 \cdot 10^{-4}$	0	0	0	0
1.15	$1.41 \cdot 10^{-3}$	$8.37 \cdot 10^{-4}$	0	0	0	0
1.18	$9.37 \cdot 10^{-4}$	$6.76 \cdot 10^{-4}$	0	0	0	0
1.2	$4.68 \cdot 10^{-4}$	$4.73 \cdot 10^{-4}$	0	0	0	0
1.23	$1.87 \cdot 10^{-3}$	$9.76 \cdot 10^{-4}$	0	0	0	0
1.25	$9.37 \cdot 10^{-4}$	$6.76 \cdot 10^{-4}$	0	0	0	0
1.28	$1.87 \cdot 10^{-3}$	$9.92 \cdot 10^{-4}$	$8.25 \cdot 10^{-4}$	$8.25 \cdot 10^{-4}$	0	0
1.3	$2.34 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$8.25 \cdot 10^{-4}$	$8.25 \cdot 10^{-4}$	0	0
1.33	$4.22 \cdot 10^{-3}$	$1.54 \cdot 10^{-3}$	0	0	0	0
1.35	$3.28 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	0	0	0	0
1.38	$7.96 \cdot 10^{-3}$	$2.26 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	$1.17 \cdot 10^{-3}$	0	0
1.4	$6.09 \cdot 10^{-3}$	$1.91 \cdot 10^{-3}$	$4.95 \cdot 10^{-3}$	$2.02 \cdot 10^{-3}$	0	0
1.43	$1.22 \cdot 10^{-2}$	$2.98 \cdot 10^{-3}$	$2.47 \cdot 10^{-3}$	$1.43 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$	$1.19 \cdot 10^{-3}$
1.45	$1.97 \cdot 10^{-2}$	$4.21 \cdot 10^{-3}$	$2.47 \cdot 10^{-2}$	$4.52 \cdot 10^{-3}$	$1.45 \cdot 10^{-2}$	$4.03 \cdot 10^{-3}$
1.48	$4.5 \cdot 10^{-2}$	$8.06 \cdot 10^{-3}$	$5.94 \cdot 10^{-2}$	$7 \cdot 10^{-3}$	$4.79 \cdot 10^{-2}$	$7.14 \cdot 10^{-3}$
1.5	$4.87 \cdot 10^{-2}$	$8.6 \cdot 10^{-3}$	$8.5 \cdot 10^{-2}$	$8.37 \cdot 10^{-3}$	$7.44 \cdot 10^{-2}$	$8.54 \cdot 10^{-3}$
1.53	$6.98 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	0.18	$1.21 \cdot 10^{-2}$	0.13	$1.14 \cdot 10^{-2}$
1.55	$8.1 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	0.21	$1.31 \cdot 10^{-2}$	0.16	$1.26 \cdot 10^{-2}$
1.58	$8.52 \cdot 10^{-2}$	$1.43 \cdot 10^{-2}$	0.24	$1.41 \cdot 10^{-2}$	0.14	$1.21 \cdot 10^{-2}$
1.6	$9.79 \cdot 10^{-2}$	$1.59 \cdot 10^{-2}$	0.3	$1.57 \cdot 10^{-2}$	0.13	$1.14 \cdot 10^{-2}$
1.63	0.1	$1.65 \cdot 10^{-2}$	0.37	$1.74 \cdot 10^{-2}$	0.15	$1.24 \cdot 10^{-2}$
1.65	0.12	$1.93 \cdot 10^{-2}$	0.41	$1.85 \cdot 10^{-2}$	0.17	$1.28 \cdot 10^{-2}$
1.68	0.13	$2.05 \cdot 10^{-2}$	0.47	$1.96 \cdot 10^{-2}$	0.14	$1.18 \cdot 10^{-2}$

TABLE 141 Continued.						
$d(e, e'\pi^-), 1.0 \leq Q^2 < 1.4 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.15	$2.42 \cdot 10^{-2}$	0.49	$2 \cdot 10^{-2}$	0.12	$1.08 \cdot 10^{-2}$
1.73	0.19	$2.98 \cdot 10^{-2}$	0.5	$2.04 \cdot 10^{-2}$	0.12	$1.12 \cdot 10^{-2}$
1.75	0.2	$3.16 \cdot 10^{-2}$	0.52	$2.07 \cdot 10^{-2}$	0.1	$1.01 \cdot 10^{-2}$
1.78	0.24	$3.72 \cdot 10^{-2}$	0.47	$1.97 \cdot 10^{-2}$	$9.07 \cdot 10^{-2}$	$9.66 \cdot 10^{-3}$
1.8	0.3	$4.54 \cdot 10^{-2}$	0.47	$1.97 \cdot 10^{-2}$	$6.49 \cdot 10^{-2}$	$8.11 \cdot 10^{-3}$
1.83	0.33	$5.08 \cdot 10^{-2}$	0.39	$1.8 \cdot 10^{-2}$	$7.19 \cdot 10^{-2}$	$8.66 \cdot 10^{-3}$
1.85	0.33	$5.05 \cdot 10^{-2}$	0.35	$1.71 \cdot 10^{-2}$	$4.05 \cdot 10^{-2}$	$6.18 \cdot 10^{-3}$
1.88	0.38	$5.76 \cdot 10^{-2}$	0.34	$1.67 \cdot 10^{-2}$	$4.61 \cdot 10^{-2}$	$6.72 \cdot 10^{-3}$
1.9	0.38	$5.79 \cdot 10^{-2}$	0.31	$1.6 \cdot 10^{-2}$	$2.3 \cdot 10^{-2}$	$4.44 \cdot 10^{-3}$
1.93	0.42	$6.33 \cdot 10^{-2}$	0.28	$1.51 \cdot 10^{-2}$	$2.28 \cdot 10^{-2}$	$4.65 \cdot 10^{-3}$
1.95	0.46	$6.94 \cdot 10^{-2}$	0.25	$1.45 \cdot 10^{-2}$	$2.31 \cdot 10^{-2}$	$4.93 \cdot 10^{-3}$
1.98	0.46	$6.92 \cdot 10^{-2}$	0.24	$1.42 \cdot 10^{-2}$	$1.9 \cdot 10^{-2}$	$4.24 \cdot 10^{-3}$
2	0.5	$7.48 \cdot 10^{-2}$	0.21	$1.32 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$
2.03	0.53	$7.98 \cdot 10^{-2}$	0.24	$1.39 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	$3.57 \cdot 10^{-3}$
2.05	0.51	$7.64 \cdot 10^{-2}$	0.24	$1.41 \cdot 10^{-2}$	$5.8 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$
2.08	0.49	$7.29 \cdot 10^{-2}$	0.23	$1.38 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	$3.72 \cdot 10^{-3}$
2.1	0.51	$7.66 \cdot 10^{-2}$	0.23	$1.39 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$
2.13	0.52	$7.84 \cdot 10^{-2}$	0.22	$1.34 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$
2.15	0.53	$8.02 \cdot 10^{-2}$	0.25	$1.42 \cdot 10^{-2}$	$8.94 \cdot 10^{-3}$	$2.83 \cdot 10^{-3}$
2.18	0.53	$7.98 \cdot 10^{-2}$	0.22	$1.36 \cdot 10^{-2}$	$9.62 \cdot 10^{-3}$	$3.4 \cdot 10^{-3}$
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 142. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.37 \cdot 10^{-2}$	$8.62 \cdot 10^{-3}$	0	0	0	0
1.15	$4.47 \cdot 10^{-2}$	$1.27 \cdot 10^{-2}$	0	0	0	0
1.18	$6.57 \cdot 10^{-2}$	$1.63 \cdot 10^{-2}$	$1.85 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$	$1.49 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$
1.2	0.13	$2.6 \cdot 10^{-2}$	$9.73 \cdot 10^{-2}$	$2.12 \cdot 10^{-2}$	$3.61 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
1.23	0.26	$4.67 \cdot 10^{-2}$	0.18	$2.86 \cdot 10^{-2}$	0.41	$5.08 \cdot 10^{-2}$
1.25	0.5	$8.15 \cdot 10^{-2}$	0.49	$4.77 \cdot 10^{-2}$	1.06	$7.72 \cdot 10^{-2}$
1.28	0.74	0.12	0.79	$6.06 \cdot 10^{-2}$	1.51	$9.14 \cdot 10^{-2}$
1.3	0.9	0.14	0.92	$6.53 \cdot 10^{-2}$	1.75	$9.76 \cdot 10^{-2}$
1.33	1.28	0.2	1.12	$7.19 \cdot 10^{-2}$	1.84	0.1
1.35	1.36	0.21	1.08	$7.08 \cdot 10^{-2}$	1.68	$9.6 \cdot 10^{-2}$
1.38	1.22	0.19	0.87	$6.33 \cdot 10^{-2}$	1.04	$7.56 \cdot 10^{-2}$
1.4	1.19	0.18	0.64	$5.46 \cdot 10^{-2}$	0.56	$5.8 \cdot 10^{-2}$
1.43	1.14	0.18	0.57	$5.16 \cdot 10^{-2}$	0.22	$3.49 \cdot 10^{-2}$
1.45	1.09	0.17	0.63	$5.38 \cdot 10^{-2}$	0.14	$2.99 \cdot 10^{-2}$
1.48	1.17	0.18	0.94	$6.6 \cdot 10^{-2}$	$6.33 \cdot 10^{-2}$	$1.76 \cdot 10^{-2}$
1.5	1.26	0.19	1.2	$7.47 \cdot 10^{-2}$	$8.16 \cdot 10^{-2}$	$2.26 \cdot 10^{-2}$
1.53	1.42	0.22	1.7	$8.86 \cdot 10^{-2}$	$7.99 \cdot 10^{-2}$	$2 \cdot 10^{-2}$
1.55	1.64	0.25	2.26	0.1	$5.65 \cdot 10^{-2}$	$1.63 \cdot 10^{-2}$
1.58	1.99	0.3	2.62	0.11	$4.12 \cdot 10^{-2}$	$1.68 \cdot 10^{-2}$
1.6	2.08	0.31	2.94	0.12	$3.62 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
1.63	2.08	0.32	2.8	0.11	$3.64 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$
1.65	1.94	0.29	2.75	0.11	$2.66 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
1.68	1.95	0.3	2.34	0.1	$3.32 \cdot 10^{-2}$	$1.35 \cdot 10^{-2}$

TABLE 142 Continued.						
$d(e, e' \pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.8	0.27	2.12	$9.91 \cdot 10^{-2}$	$4.84 \cdot 10^{-3}$	$4.84 \cdot 10^{-3}$
1.73	1.59	0.24	2.09	$9.85 \cdot 10^{-2}$	$4.81 \cdot 10^{-3}$	$4.81 \cdot 10^{-3}$
1.75	1.39	0.21	1.73	$8.96 \cdot 10^{-2}$	$1.79 \cdot 10^{-2}$	$8.93 \cdot 10^{-3}$
1.78	1.28	0.2	1.63	$8.7 \cdot 10^{-2}$	$1.78 \cdot 10^{-2}$	$1.26 \cdot 10^{-2}$
1.8	1.09	0.17	1.66	$8.78 \cdot 10^{-2}$	$9.33 \cdot 10^{-3}$	$6.6 \cdot 10^{-3}$
1.83	1.08	0.17	1.38	$7.98 \cdot 10^{-2}$	0	0
1.85	1	0.16	1.2	$7.45 \cdot 10^{-2}$	0	0
1.88	0.93	0.15	1.28	$7.69 \cdot 10^{-2}$	0	0
1.9	0.8	0.13	1.21	$7.5 \cdot 10^{-2}$	$8.94 \cdot 10^{-3}$	$8.94 \cdot 10^{-3}$
1.93	0.85	0.13	0.96	$6.66 \cdot 10^{-2}$	$4.64 \cdot 10^{-3}$	$4.64 \cdot 10^{-3}$
1.95	0.69	0.11	0.87	$6.33 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$
1.98	0.65	0.1	0.83	$6.2 \cdot 10^{-2}$	0	0
2	0.6	$9.69 \cdot 10^{-2}$	0.66	$5.54 \cdot 10^{-2}$	0	0
2.03	0.51	$8.34 \cdot 10^{-2}$	0.72	$5.78 \cdot 10^{-2}$	0	0
2.05	0.42	$6.95 \cdot 10^{-2}$	0.63	$5.38 \cdot 10^{-2}$	0	0
2.08	0.37	$6.36 \cdot 10^{-2}$	0.37	$4.12 \cdot 10^{-2}$	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 143. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.58 \cdot 10^{-3}$	$1.59 \cdot 10^{-3}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$3.16 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$	0	0	0	0
1.2	$3.16 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$	0	0	0	0
1.23	$1.58 \cdot 10^{-3}$	$1.59 \cdot 10^{-3}$	0	0	0	0
1.25	$4.73 \cdot 10^{-3}$	$2.85 \cdot 10^{-3}$	0	0	$3.5 \cdot 10^{-3}$	$3.5 \cdot 10^{-3}$
1.28	$1.1 \cdot 10^{-2}$	$4.48 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$	0	0
1.3	$5.21 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$	$5.56 \cdot 10^{-3}$	0	0
1.33	0.1	$1.98 \cdot 10^{-2}$	$6.11 \cdot 10^{-2}$	$1.3 \cdot 10^{-2}$	$4.41 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
1.35	0.24	$4.03 \cdot 10^{-2}$	0.13	$1.88 \cdot 10^{-2}$	0.2	$2.51 \cdot 10^{-2}$
1.38	0.45	$7.1 \cdot 10^{-2}$	0.35	$3.12 \cdot 10^{-2}$	0.54	$4.22 \cdot 10^{-2}$
1.4	0.62	$9.65 \cdot 10^{-2}$	0.54	$3.88 \cdot 10^{-2}$	1.03	$5.96 \cdot 10^{-2}$
1.43	0.84	0.13	0.78	$4.67 \cdot 10^{-2}$	1.21	$6.34 \cdot 10^{-2}$
1.45	1.14	0.17	0.88	$4.94 \cdot 10^{-2}$	1.23	$6.4 \cdot 10^{-2}$
1.48	1.38	0.21	1.13	$5.61 \cdot 10^{-2}$	1.33	$6.75 \cdot 10^{-2}$
1.5	1.48	0.22	1.11	$5.56 \cdot 10^{-2}$	1.56	$7.21 \cdot 10^{-2}$
1.53	1.64	0.25	1.19	$5.76 \cdot 10^{-2}$	1.94	$8.13 \cdot 10^{-2}$
1.55	1.85	0.28	1.41	$6.26 \cdot 10^{-2}$	2.01	$8.17 \cdot 10^{-2}$
1.58	1.85	0.28	1.53	$6.52 \cdot 10^{-2}$	1.84	$7.86 \cdot 10^{-2}$
1.6	1.75	0.26	1.73	$6.93 \cdot 10^{-2}$	1.32	$6.72 \cdot 10^{-2}$
1.63	1.66	0.25	1.68	$6.84 \cdot 10^{-2}$	0.79	$5.12 \cdot 10^{-2}$
1.65	1.77	0.27	1.85	$7.17 \cdot 10^{-2}$	0.37	$3.61 \cdot 10^{-2}$
1.68	1.76	0.26	2.33	$8.05 \cdot 10^{-2}$	0.15	$2.21 \cdot 10^{-2}$

TABLE 143 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.75	0.26	2.47	$8.29 \cdot 10^{-2}$	$6.97 \cdot 10^{-2}$	$1.45 \cdot 10^{-2}$
1.73	1.8	0.27	2.58	$8.47 \cdot 10^{-2}$	$6.96 \cdot 10^{-2}$	$1.56 \cdot 10^{-2}$
1.75	1.82	0.27	2.37	$8.12 \cdot 10^{-2}$	$6.91 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$
1.78	1.75	0.26	2.37	$8.12 \cdot 10^{-2}$	$5.77 \cdot 10^{-2}$	$1.49 \cdot 10^{-2}$
1.8	1.78	0.27	2.31	$8.01 \cdot 10^{-2}$	$3.98 \cdot 10^{-2}$	$1.2 \cdot 10^{-2}$
1.83	1.63	0.24	2.3	$8 \cdot 10^{-2}$	$2.85 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$
1.85	1.52	0.23	2.34	$8.07 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$	$4.65 \cdot 10^{-3}$
1.88	1.4	0.21	2.26	$7.93 \cdot 10^{-2}$	$2.59 \cdot 10^{-2}$	$9.79 \cdot 10^{-3}$
1.9	1.36	0.21	2.05	$7.54 \cdot 10^{-2}$	0	0
1.93	1.19	0.18	1.91	$7.28 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	$5.58 \cdot 10^{-3}$
1.95	1.12	0.17	1.8	$7.07 \cdot 10^{-2}$	$1.26 \cdot 10^{-2}$	$6.31 \cdot 10^{-3}$
1.98	1.11	0.17	1.68	$6.84 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	$5.86 \cdot 10^{-3}$
2	1.1	0.17	1.5	$6.45 \cdot 10^{-2}$	$2.31 \cdot 10^{-3}$	$2.31 \cdot 10^{-3}$
2.03	0.95	0.14	1.43	$6.31 \cdot 10^{-2}$	0	0
2.05	0.89	0.14	1.37	$6.18 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$	$7.68 \cdot 10^{-3}$
2.08	0.88	0.14	1.36	$6.15 \cdot 10^{-2}$	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 144. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-), \leq Q^2 < \text{GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	$1.13 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.48	0	0	0	0	0	0
1.5	$3.38 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	0	0	$2.36 \cdot 10^{-3}$	$2.36 \cdot 10^{-3}$
1.53	$1.35 \cdot 10^{-2}$	$4.43 \cdot 10^{-3}$	$3.97 \cdot 10^{-3}$	$2.81 \cdot 10^{-3}$	$1.94 \cdot 10^{-3}$	$1.94 \cdot 10^{-3}$
1.55	$3.49 \cdot 10^{-2}$	$8.42 \cdot 10^{-3}$	$2.38 \cdot 10^{-2}$	$6.88 \cdot 10^{-3}$	$5.79 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$
1.58	$8.79 \cdot 10^{-2}$	$1.64 \cdot 10^{-2}$	$9.33 \cdot 10^{-2}$	$1.36 \cdot 10^{-2}$	0.21	$2.3 \cdot 10^{-2}$
1.6	0.22	$3.61 \cdot 10^{-2}$	0.25	$2.23 \cdot 10^{-2}$	0.48	$3.4 \cdot 10^{-2}$
1.63	0.39	$6.14 \cdot 10^{-2}$	0.48	$3.1 \cdot 10^{-2}$	0.78	$4.32 \cdot 10^{-2}$
1.65	0.57	$8.74 \cdot 10^{-2}$	0.75	$3.86 \cdot 10^{-2}$	0.96	$4.8 \cdot 10^{-2}$
1.68	0.82	0.12	0.92	$4.26 \cdot 10^{-2}$	0.91	$4.7 \cdot 10^{-2}$

TABLE 144 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.91	0.14	1	$4.45 \cdot 10^{-2}$	0.92	$4.65 \cdot 10^{-2}$
1.73	0.94	0.14	1.04	$4.54 \cdot 10^{-2}$	0.88	$4.61 \cdot 10^{-2}$
1.75	1.11	0.17	1.06	$4.6 \cdot 10^{-2}$	0.85	$4.5 \cdot 10^{-2}$
1.78	1.11	0.17	1.1	$4.68 \cdot 10^{-2}$	0.87	$4.61 \cdot 10^{-2}$
1.8	1.18	0.18	1.18	$4.84 \cdot 10^{-2}$	0.91	$4.69 \cdot 10^{-2}$
1.83	1.24	0.19	1.37	$5.21 \cdot 10^{-2}$	0.9	$4.63 \cdot 10^{-2}$
1.85	1.28	0.19	1.53	$5.52 \cdot 10^{-2}$	0.84	$4.5 \cdot 10^{-2}$
1.88	1.41	0.21	1.63	$5.68 \cdot 10^{-2}$	0.89	$4.63 \cdot 10^{-2}$
1.9	1.38	0.21	1.6	$5.64 \cdot 10^{-2}$	0.63	$3.89 \cdot 10^{-2}$
1.93	1.36	0.2	1.71	$5.83 \cdot 10^{-2}$	0.52	$3.52 \cdot 10^{-2}$
1.95	1.38	0.21	1.61	$5.66 \cdot 10^{-2}$	0.41	$3.11 \cdot 10^{-2}$
1.98	1.26	0.19	1.56	$5.56 \cdot 10^{-2}$	0.2	$2.27 \cdot 10^{-2}$
2	1.17	0.18	1.59	$5.62 \cdot 10^{-2}$	0.11	$1.54 \cdot 10^{-2}$
2.03	1.13	0.17	1.64	$5.7 \cdot 10^{-2}$	$5.14 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
2.05	1.15	0.17	1.53	$5.5 \cdot 10^{-2}$	$5.22 \cdot 10^{-2}$	$1.11 \cdot 10^{-2}$
2.08	1.03	0.16	1.54	$5.53 \cdot 10^{-2}$	$2.14 \cdot 10^{-2}$	$7.55 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 145. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 145 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	0	0	0	0	0	0
1.78	0	0	0	0	0	0
1.8	$1.58 \cdot 10^{-3}$	$1.59 \cdot 10^{-3}$	0	0	0	0
1.83	0	0	0	0	0	0
1.85	$1.1 \cdot 10^{-2}$	$4.48 \cdot 10^{-3}$	$5.56 \cdot 10^{-3}$	$3.93 \cdot 10^{-3}$	$3.3 \cdot 10^{-3}$	$3.3 \cdot 10^{-3}$
1.88	$1.1 \cdot 10^{-2}$	$4.48 \cdot 10^{-3}$	$1.95 \cdot 10^{-2}$	$7.35 \cdot 10^{-3}$	$3.94 \cdot 10^{-2}$	$1.05 \cdot 10^{-2}$
1.9	$5.84 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	$7.5 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	0.13	$2.03 \cdot 10^{-2}$
1.93	0.14	$2.54 \cdot 10^{-2}$	0.19	$2.31 \cdot 10^{-2}$	0.23	$2.75 \cdot 10^{-2}$
1.95	0.3	$5 \cdot 10^{-2}$	0.27	$2.72 \cdot 10^{-2}$	0.4	$3.66 \cdot 10^{-2}$
1.98	0.46	$7.31 \cdot 10^{-2}$	0.43	$3.47 \cdot 10^{-2}$	0.62	$4.6 \cdot 10^{-2}$
2	0.62	$9.57 \cdot 10^{-2}$	0.43	$3.47 \cdot 10^{-2}$	0.66	$4.68 \cdot 10^{-2}$
2.03	0.62	$9.66 \cdot 10^{-2}$	0.52	$3.81 \cdot 10^{-2}$	0.75	$5.09 \cdot 10^{-2}$
2.05	0.65	0.1	0.59	$4.06 \cdot 10^{-2}$	0.59	$4.46 \cdot 10^{-2}$
2.08	0.71	0.11	0.57	$3.98 \cdot 10^{-2}$	0.67	$4.73 \cdot 10^{-2}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 146. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.01 \cdot 10^{-2}$	$3.7 \cdot 10^{-3}$	0	0	0	0
1.15	$7.89 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	0	0
1.18	$1.47 \cdot 10^{-2}$	$4.6 \cdot 10^{-3}$	0	0	$4.09 \cdot 10^{-3}$	$2.89 \cdot 10^{-3}$
1.2	$3.72 \cdot 10^{-2}$	$8.55 \cdot 10^{-3}$	$1.19 \cdot 10^{-2}$	$4.86 \cdot 10^{-3}$	0	0
1.23	$4.74 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$	$1.99 \cdot 10^{-2}$	$6.28 \cdot 10^{-3}$	$9.82 \cdot 10^{-3}$	$4.39 \cdot 10^{-3}$
1.25	0.11	$1.91 \cdot 10^{-2}$	$6.75 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$	$8.59 \cdot 10^{-2}$	$1.47 \cdot 10^{-2}$
1.28	0.16	$2.78 \cdot 10^{-2}$	0.13	$1.63 \cdot 10^{-2}$	0.26	$2.53 \cdot 10^{-2}$
1.3	0.26	$4.14 \cdot 10^{-2}$	0.25	$2.22 \cdot 10^{-2}$	0.47	$3.35 \cdot 10^{-2}$
1.33	0.31	$4.95 \cdot 10^{-2}$	0.36	$2.69 \cdot 10^{-2}$	0.6	$3.86 \cdot 10^{-2}$
1.35	0.46	$7.08 \cdot 10^{-2}$	0.55	$3.31 \cdot 10^{-2}$	0.7	$4.15 \cdot 10^{-2}$
1.38	0.52	$8.11 \cdot 10^{-2}$	0.56	$3.35 \cdot 10^{-2}$	0.73	$4.19 \cdot 10^{-2}$
1.4	0.52	$8.08 \cdot 10^{-2}$	0.51	$3.17 \cdot 10^{-2}$	0.57	$3.72 \cdot 10^{-2}$
1.43	0.55	$8.46 \cdot 10^{-2}$	0.43	$2.94 \cdot 10^{-2}$	0.47	$3.33 \cdot 10^{-2}$
1.45	0.54	$8.28 \cdot 10^{-2}$	0.47	$3.05 \cdot 10^{-2}$	0.32	$2.78 \cdot 10^{-2}$
1.48	0.51	$7.83 \cdot 10^{-2}$	0.38	$2.75 \cdot 10^{-2}$	0.21	$2.26 \cdot 10^{-2}$
1.5	0.49	$7.59 \cdot 10^{-2}$	0.36	$2.67 \cdot 10^{-2}$	$8.07 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$
1.53	0.5	$7.77 \cdot 10^{-2}$	0.37	$2.72 \cdot 10^{-2}$	$5.56 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$
1.55	0.6	$9.13 \cdot 10^{-2}$	0.55	$3.31 \cdot 10^{-2}$	$6.04 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$
1.58	0.65	$9.86 \cdot 10^{-2}$	0.73	$3.82 \cdot 10^{-2}$	$2.83 \cdot 10^{-2}$	$8.16 \cdot 10^{-3}$
1.6	0.75	0.11	1.03	$4.52 \cdot 10^{-2}$	$4.04 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$
1.63	0.86	0.13	1.27	$5.03 \cdot 10^{-2}$	$2.32 \cdot 10^{-2}$	$7.35 \cdot 10^{-3}$
1.65	0.94	0.14	1.4	$5.27 \cdot 10^{-2}$	$8.02 \cdot 10^{-3}$	$5.67 \cdot 10^{-3}$
1.68	1.11	0.17	1.48	$5.42 \cdot 10^{-2}$	$2.45 \cdot 10^{-2}$	$7.73 \cdot 10^{-3}$

TABLE 146 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	1.1	0.17	1.43	$5.32 \cdot 10^{-2}$	$1.41 \cdot 10^{-2}$	$5.75 \cdot 10^{-3}$
1.73	1.1	0.17	1.43	$5.34 \cdot 10^{-2}$	$9.68 \cdot 10^{-3}$	$4.84 \cdot 10^{-3}$
1.75	1.17	0.18	1.22	$4.92 \cdot 10^{-2}$	$5.99 \cdot 10^{-3}$	$4.23 \cdot 10^{-3}$
1.78	1.24	0.19	1.06	$4.59 \cdot 10^{-2}$	$4.01 \cdot 10^{-3}$	$2.84 \cdot 10^{-3}$
1.8	1.17	0.18	1.1	$4.67 \cdot 10^{-2}$	$1.58 \cdot 10^{-2}$	$5.97 \cdot 10^{-3}$
1.83	1.19	0.18	1.08	$4.63 \cdot 10^{-2}$	$8.02 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$
1.85	1.13	0.17	1.06	$4.58 \cdot 10^{-2}$	$2.01 \cdot 10^{-2}$	$7.12 \cdot 10^{-3}$
1.88	1.19	0.18	0.97	$4.39 \cdot 10^{-2}$	$2.01 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$
1.9	1.13	0.17	0.97	$4.38 \cdot 10^{-2}$	$4.15 \cdot 10^{-3}$	$2.93 \cdot 10^{-3}$
1.93	1.17	0.18	1.06	$4.6 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$
1.95	1.23	0.18	1.02	$4.51 \cdot 10^{-2}$	$2.07 \cdot 10^{-3}$	$2.07 \cdot 10^{-3}$
1.98	1.17	0.18	1.06	$4.59 \cdot 10^{-2}$	$3.83 \cdot 10^{-3}$	$3.83 \cdot 10^{-3}$
2	1.22	0.18	0.97	$4.4 \cdot 10^{-2}$	$1.94 \cdot 10^{-3}$	$1.94 \cdot 10^{-3}$
2.03	1.18	0.18	0.95	$4.34 \cdot 10^{-2}$	$2.5 \cdot 10^{-3}$	$2.5 \cdot 10^{-3}$
2.05	1.13	0.17	0.93	$4.31 \cdot 10^{-2}$	$2.5 \cdot 10^{-3}$	$2.5 \cdot 10^{-3}$
2.08	1.13	0.17	0.88	$4.19 \cdot 10^{-2}$	$1.94 \cdot 10^{-3}$	$1.94 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 147. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$6.77 \cdot 10^{-4}$	$6.84 \cdot 10^{-4}$	0	0	0	0
1.25	$6.77 \cdot 10^{-4}$	$6.84 \cdot 10^{-4}$	0	0	0	0
1.28	$4.06 \cdot 10^{-3}$	$1.78 \cdot 10^{-3}$	0	0	0	0
1.3	$9.47 \cdot 10^{-3}$	$2.91 \cdot 10^{-3}$	0	0	0	0
1.33	$8.8 \cdot 10^{-3}$	$2.76 \cdot 10^{-3}$	0	0	0	0
1.35	$1.35 \cdot 10^{-2}$	$3.62 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$	$6.11 \cdot 10^{-3}$	$3.06 \cdot 10^{-3}$
1.38	$2.91 \cdot 10^{-2}$	$6.16 \cdot 10^{-3}$	$2.14 \cdot 10^{-2}$	$5.06 \cdot 10^{-3}$	$1.4 \cdot 10^{-2}$	$4.43 \cdot 10^{-3}$
1.4	$7.78 \cdot 10^{-2}$	$1.35 \cdot 10^{-2}$	$5.36 \cdot 10^{-2}$	$7.99 \cdot 10^{-3}$	$4.9 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$
1.43	0.11	$1.85 \cdot 10^{-2}$	0.11	$1.16 \cdot 10^{-2}$	0.15	$1.47 \cdot 10^{-2}$
1.45	0.17	$2.77 \cdot 10^{-2}$	0.21	$1.57 \cdot 10^{-2}$	0.25	$1.86 \cdot 10^{-2}$
1.48	0.26	$4 \cdot 10^{-2}$	0.28	$1.81 \cdot 10^{-2}$	0.28	$2.01 \cdot 10^{-2}$
1.5	0.32	$5.03 \cdot 10^{-2}$	0.36	$2.07 \cdot 10^{-2}$	0.4	$2.36 \cdot 10^{-2}$
1.53	0.35	$5.41 \cdot 10^{-2}$	0.43	$2.27 \cdot 10^{-2}$	0.44	$2.54 \cdot 10^{-2}$
1.55	0.37	$5.6 \cdot 10^{-2}$	0.44	$2.3 \cdot 10^{-2}$	0.43	$2.48 \cdot 10^{-2}$
1.58	0.42	$6.41 \cdot 10^{-2}$	0.48	$2.38 \cdot 10^{-2}$	0.34	$2.19 \cdot 10^{-2}$
1.6	0.43	$6.6 \cdot 10^{-2}$	0.56	$2.57 \cdot 10^{-2}$	0.3	$2.05 \cdot 10^{-2}$
1.63	0.5	$7.55 \cdot 10^{-2}$	0.59	$2.64 \cdot 10^{-2}$	0.31	$2.1 \cdot 10^{-2}$
1.65	0.52	$7.88 \cdot 10^{-2}$	0.73	$2.94 \cdot 10^{-2}$	0.24	$1.87 \cdot 10^{-2}$
1.68	0.59	$8.89 \cdot 10^{-2}$	0.8	$3.08 \cdot 10^{-2}$	0.24	$1.86 \cdot 10^{-2}$

TABLE 147 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.66	$9.91 \cdot 10^{-2}$	0.81	$3.11 \cdot 10^{-2}$	0.16	$1.48 \cdot 10^{-2}$
1.73	0.73	0.11	0.87	$3.21 \cdot 10^{-2}$	0.12	$1.34 \cdot 10^{-2}$
1.75	0.76	0.11	0.83	$3.14 \cdot 10^{-2}$	$9.93 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$
1.78	0.83	0.12	0.85	$3.19 \cdot 10^{-2}$	$5.21 \cdot 10^{-2}$	$8.8 \cdot 10^{-3}$
1.8	0.81	0.12	0.76	$3.01 \cdot 10^{-2}$	$3.17 \cdot 10^{-2}$	$6.91 \cdot 10^{-3}$
1.83	0.88	0.13	0.76	$3.02 \cdot 10^{-2}$	$3.36 \cdot 10^{-2}$	$7.52 \cdot 10^{-3}$
1.85	0.86	0.13	0.75	$2.98 \cdot 10^{-2}$	$7.16 \cdot 10^{-3}$	$2.92 \cdot 10^{-3}$
1.88	0.9	0.14	0.77	$3.04 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$	$4.75 \cdot 10^{-3}$
1.9	0.97	0.15	0.81	$3.11 \cdot 10^{-2}$	$8.84 \cdot 10^{-3}$	$3.34 \cdot 10^{-3}$
1.93	0.97	0.14	0.84	$3.17 \cdot 10^{-2}$	$5.23 \cdot 10^{-3}$	$3.02 \cdot 10^{-3}$
1.95	0.99	0.15	0.86	$3.21 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$	$3.53 \cdot 10^{-3}$
1.98	0.98	0.15	0.87	$3.22 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$	$2.96 \cdot 10^{-3}$
2	1.05	0.16	0.85	$3.19 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$	$4.01 \cdot 10^{-3}$
2.03	0.99	0.15	0.88	$3.25 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$
2.05	0.97	0.14	0.83	$3.15 \cdot 10^{-2}$	$3.31 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$
2.08	1	0.15	0.83	$3.14 \cdot 10^{-2}$	$2.57 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 148. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	$4.83 \cdot 10^{-4}$	$4.88 \cdot 10^{-4}$	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	0	0	0	0
1.53	$4.83 \cdot 10^{-4}$	$4.88 \cdot 10^{-4}$	0	0	0	0
1.55	$2.42 \cdot 10^{-3}$	$1.14 \cdot 10^{-3}$	0	0	0	0
1.58	$1.45 \cdot 10^{-3}$	$8.64 \cdot 10^{-4}$	0	0	0	0
1.6	$9.67 \cdot 10^{-4}$	$6.98 \cdot 10^{-4}$	$1.7 \cdot 10^{-3}$	$1.2 \cdot 10^{-3}$	$8.33 \cdot 10^{-4}$	$8.33 \cdot 10^{-4}$
1.63	$9.18 \cdot 10^{-3}$	$2.51 \cdot 10^{-3}$	$1.96 \cdot 10^{-2}$	$4.08 \cdot 10^{-3}$	$1.02 \cdot 10^{-2}$	$3.22 \cdot 10^{-3}$
1.65	$2.22 \cdot 10^{-2}$	$4.63 \cdot 10^{-3}$	$4 \cdot 10^{-2}$	$5.83 \cdot 10^{-3}$	$1.94 \cdot 10^{-2}$	$4.71 \cdot 10^{-3}$
1.68	$4.06 \cdot 10^{-2}$	$7.43 \cdot 10^{-3}$	$9.11 \cdot 10^{-2}$	$8.8 \cdot 10^{-3}$	$5.11 \cdot 10^{-2}$	$7.09 \cdot 10^{-3}$

TABLE 148 Continued.						
$d(e, e' \pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$6.91 \cdot 10^{-2}$	$1.17 \cdot 10^{-2}$	0.15	$1.15 \cdot 10^{-2}$	$8.87 \cdot 10^{-2}$	$9.62 \cdot 10^{-3}$
1.73	0.1	$1.66 \cdot 10^{-2}$	0.26	$1.47 \cdot 10^{-2}$	0.12	$1.14 \cdot 10^{-2}$
1.75	0.14	$2.15 \cdot 10^{-2}$	0.32	$1.65 \cdot 10^{-2}$	0.15	$1.23 \cdot 10^{-2}$
1.78	0.15	$2.39 \cdot 10^{-2}$	0.38	$1.79 \cdot 10^{-2}$	0.17	$1.33 \cdot 10^{-2}$
1.8	0.17	$2.75 \cdot 10^{-2}$	0.46	$1.99 \cdot 10^{-2}$	0.16	$1.3 \cdot 10^{-2}$
1.83	0.21	$3.24 \cdot 10^{-2}$	0.48	$2.03 \cdot 10^{-2}$	0.14	$1.19 \cdot 10^{-2}$
1.85	0.22	$3.45 \cdot 10^{-2}$	0.52	$2.1 \cdot 10^{-2}$	0.16	$1.32 \cdot 10^{-2}$
1.88	0.23	$3.47 \cdot 10^{-2}$	0.55	$2.17 \cdot 10^{-2}$	0.15	$1.24 \cdot 10^{-2}$
1.9	0.27	$4.14 \cdot 10^{-2}$	0.59	$2.25 \cdot 10^{-2}$	0.14	$1.2 \cdot 10^{-2}$
1.93	0.28	$4.27 \cdot 10^{-2}$	0.61	$2.27 \cdot 10^{-2}$	0.13	$1.18 \cdot 10^{-2}$
1.95	0.33	$4.95 \cdot 10^{-2}$	0.65	$2.36 \cdot 10^{-2}$	0.12	$1.17 \cdot 10^{-2}$
1.98	0.32	$4.9 \cdot 10^{-2}$	0.66	$2.37 \cdot 10^{-2}$	$9.69 \cdot 10^{-2}$	$9.74 \cdot 10^{-3}$
2	0.37	$5.6 \cdot 10^{-2}$	0.62	$2.3 \cdot 10^{-2}$	$9.32 \cdot 10^{-2}$	$9.56 \cdot 10^{-3}$
2.03	0.4	$6.07 \cdot 10^{-2}$	0.63	$2.31 \cdot 10^{-2}$	0.12	$1.11 \cdot 10^{-2}$
2.05	0.4	$6.12 \cdot 10^{-2}$	0.62	$2.29 \cdot 10^{-2}$	$9.09 \cdot 10^{-2}$	$9.47 \cdot 10^{-3}$
2.08	0.43	$6.5 \cdot 10^{-2}$	0.62	$2.3 \cdot 10^{-2}$	$6.4 \cdot 10^{-2}$	$8.4 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 149. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.45 \cdot 10^{-3}$	$1.05 \cdot 10^{-3}$	0	0	0	0
1.15	$2.18 \cdot 10^{-3}$	$1.3 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	0	0
1.18	$1.45 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$	0	0	0	0
1.2	$2.9 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$	0	0	0	0
1.23	$7.26 \cdot 10^{-3}$	$2.62 \cdot 10^{-3}$	0	0	$1.21 \cdot 10^{-3}$	$1.21 \cdot 10^{-3}$
1.25	$1.02 \cdot 10^{-2}$	$3.1 \cdot 10^{-3}$	0	0	0	0
1.28	$8.71 \cdot 10^{-3}$	$2.82 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	$1.28 \cdot 10^{-3}$	0	0
1.3	$1.82 \cdot 10^{-2}$	$4.58 \cdot 10^{-3}$	$2.56 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$	0	0
1.33	$2.32 \cdot 10^{-2}$	$5.34 \cdot 10^{-3}$	$1.66 \cdot 10^{-2}$	$4.61 \cdot 10^{-3}$	$2.4 \cdot 10^{-2}$	$6.01 \cdot 10^{-3}$
1.35	$5.23 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$	$5.37 \cdot 10^{-2}$	$8.29 \cdot 10^{-3}$	$5.16 \cdot 10^{-2}$	$9.12 \cdot 10^{-3}$
1.38	$6.25 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	$7.55 \cdot 10^{-2}$	$9.82 \cdot 10^{-3}$	$6.44 \cdot 10^{-2}$	$9.83 \cdot 10^{-3}$
1.4	$7.55 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$	0.1	$1.14 \cdot 10^{-2}$	$9.69 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
1.43	0.11	$1.81 \cdot 10^{-2}$	0.18	$1.52 \cdot 10^{-2}$	0.15	$1.59 \cdot 10^{-2}$
1.45	0.13	$2.16 \cdot 10^{-2}$	0.21	$1.64 \cdot 10^{-2}$	0.13	$1.47 \cdot 10^{-2}$
1.48	0.16	$2.6 \cdot 10^{-2}$	0.19	$1.56 \cdot 10^{-2}$	0.15	$1.52 \cdot 10^{-2}$
1.5	0.18	$2.94 \cdot 10^{-2}$	0.25	$1.8 \cdot 10^{-2}$	0.13	$1.41 \cdot 10^{-2}$
1.53	0.19	$3.06 \cdot 10^{-2}$	0.23	$1.71 \cdot 10^{-2}$	0.13	$1.36 \cdot 10^{-2}$
1.55	0.16	$2.59 \cdot 10^{-2}$	0.21	$1.66 \cdot 10^{-2}$	$9.6 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$
1.58	0.16	$2.56 \cdot 10^{-2}$	0.2	$1.62 \cdot 10^{-2}$	$6.12 \cdot 10^{-2}$	$9.33 \cdot 10^{-3}$
1.6	0.16	$2.61 \cdot 10^{-2}$	0.21	$1.64 \cdot 10^{-2}$	$2.98 \cdot 10^{-2}$	$6.84 \cdot 10^{-3}$
1.63	0.21	$3.26 \cdot 10^{-2}$	0.25	$1.8 \cdot 10^{-2}$	$3.07 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$
1.65	0.23	$3.57 \cdot 10^{-2}$	0.28	$1.91 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$
1.68	0.25	$3.93 \cdot 10^{-2}$	0.35	$2.11 \cdot 10^{-2}$	$7.74 \cdot 10^{-3}$	$3.16 \cdot 10^{-3}$

TABLE 149 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.28	$4.39 \cdot 10^{-2}$	0.36	$2.16 \cdot 10^{-2}$	$6.25 \cdot 10^{-3}$	$3.12 \cdot 10^{-3}$
1.73	0.31	$4.77 \cdot 10^{-2}$	0.34	$2.09 \cdot 10^{-2}$	$6.61 \cdot 10^{-3}$	$2.96 \cdot 10^{-3}$
1.75	0.34	$5.24 \cdot 10^{-2}$	0.3	$1.95 \cdot 10^{-2}$	0	0
1.78	0.39	$6 \cdot 10^{-2}$	0.28	$1.89 \cdot 10^{-2}$	$1.33 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$
1.8	0.41	$6.31 \cdot 10^{-2}$	0.25	$1.78 \cdot 10^{-2}$	$3.88 \cdot 10^{-3}$	$2.24 \cdot 10^{-3}$
1.83	0.44	$6.69 \cdot 10^{-2}$	0.27	$1.84 \cdot 10^{-2}$	$2.8 \cdot 10^{-3}$	$1.98 \cdot 10^{-3}$
1.85	0.42	$6.39 \cdot 10^{-2}$	0.3	$1.95 \cdot 10^{-2}$	$3.56 \cdot 10^{-3}$	$2.52 \cdot 10^{-3}$
1.88	0.52	$7.86 \cdot 10^{-2}$	0.31	$1.98 \cdot 10^{-2}$	$2.49 \cdot 10^{-3}$	$1.76 \cdot 10^{-3}$
1.9	0.49	$7.41 \cdot 10^{-2}$	0.31	$2 \cdot 10^{-2}$	$3.96 \cdot 10^{-3}$	$2.29 \cdot 10^{-3}$
1.93	0.5	$7.62 \cdot 10^{-2}$	0.29	$1.92 \cdot 10^{-2}$	$6.38 \cdot 10^{-3}$	$3.19 \cdot 10^{-3}$
1.95	0.51	$7.69 \cdot 10^{-2}$	0.33	$2.04 \cdot 10^{-2}$	$4.1 \cdot 10^{-3}$	$2.37 \cdot 10^{-3}$
1.98	0.52	$7.98 \cdot 10^{-2}$	0.36	$2.16 \cdot 10^{-2}$	$3.78 \cdot 10^{-3}$	$2.67 \cdot 10^{-3}$
2	0.56	$8.51 \cdot 10^{-2}$	0.37	$2.18 \cdot 10^{-2}$	$5.46 \cdot 10^{-3}$	$3.15 \cdot 10^{-3}$
2.03	0.59	$8.89 \cdot 10^{-2}$	0.35	$2.12 \cdot 10^{-2}$	$3.8 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$
2.05	0.67	0.1	0.39	$2.22 \cdot 10^{-2}$	0	0
2.08	0.6	$9.09 \cdot 10^{-2}$	0.37	$2.18 \cdot 10^{-2}$	$5.69 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 150. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$6.77 \cdot 10^{-4}$	$6.84 \cdot 10^{-4}$	0	0	0	0
1.25	$6.77 \cdot 10^{-4}$	$6.84 \cdot 10^{-4}$	0	0	0	0
1.28	$4.06 \cdot 10^{-3}$	$1.78 \cdot 10^{-3}$	0	0	0	0
1.3	$9.47 \cdot 10^{-3}$	$2.91 \cdot 10^{-3}$	0	0	0	0
1.33	$8.8 \cdot 10^{-3}$	$2.76 \cdot 10^{-3}$	0	0	0	0
1.35	$1.35 \cdot 10^{-2}$	$3.62 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$	$6.11 \cdot 10^{-3}$	$3.06 \cdot 10^{-3}$
1.38	$2.91 \cdot 10^{-2}$	$6.16 \cdot 10^{-3}$	$2.14 \cdot 10^{-2}$	$5.06 \cdot 10^{-3}$	$1.4 \cdot 10^{-2}$	$4.43 \cdot 10^{-3}$
1.4	$7.78 \cdot 10^{-2}$	$1.35 \cdot 10^{-2}$	$5.36 \cdot 10^{-2}$	$7.99 \cdot 10^{-3}$	$4.9 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$
1.43	0.11	$1.85 \cdot 10^{-2}$	0.11	$1.16 \cdot 10^{-2}$	0.15	$1.47 \cdot 10^{-2}$
1.45	0.17	$2.77 \cdot 10^{-2}$	0.21	$1.57 \cdot 10^{-2}$	0.25	$1.86 \cdot 10^{-2}$
1.48	0.26	$4 \cdot 10^{-2}$	0.28	$1.81 \cdot 10^{-2}$	0.28	$2.01 \cdot 10^{-2}$
1.5	0.32	$5.03 \cdot 10^{-2}$	0.36	$2.07 \cdot 10^{-2}$	0.4	$2.36 \cdot 10^{-2}$
1.53	0.35	$5.41 \cdot 10^{-2}$	0.43	$2.27 \cdot 10^{-2}$	0.44	$2.54 \cdot 10^{-2}$
1.55	0.37	$5.6 \cdot 10^{-2}$	0.44	$2.3 \cdot 10^{-2}$	0.43	$2.48 \cdot 10^{-2}$
1.58	0.42	$6.41 \cdot 10^{-2}$	0.48	$2.38 \cdot 10^{-2}$	0.34	$2.19 \cdot 10^{-2}$
1.6	0.43	$6.6 \cdot 10^{-2}$	0.56	$2.57 \cdot 10^{-2}$	0.3	$2.05 \cdot 10^{-2}$
1.63	0.5	$7.55 \cdot 10^{-2}$	0.59	$2.64 \cdot 10^{-2}$	0.31	$2.1 \cdot 10^{-2}$
1.65	0.52	$7.88 \cdot 10^{-2}$	0.73	$2.94 \cdot 10^{-2}$	0.24	$1.87 \cdot 10^{-2}$
1.68	0.59	$8.89 \cdot 10^{-2}$	0.8	$3.08 \cdot 10^{-2}$	0.24	$1.86 \cdot 10^{-2}$

TABLE 150 Continued.						
$d(e, e'\pi^-), 1.4 \leq Q^2 < 1.9 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.66	$9.91 \cdot 10^{-2}$	0.81	$3.11 \cdot 10^{-2}$	0.16	$1.48 \cdot 10^{-2}$
1.73	0.73	0.11	0.87	$3.21 \cdot 10^{-2}$	0.12	$1.34 \cdot 10^{-2}$
1.75	0.76	0.11	0.83	$3.14 \cdot 10^{-2}$	$9.93 \cdot 10^{-2}$	$1.19 \cdot 10^{-2}$
1.78	0.83	0.12	0.85	$3.19 \cdot 10^{-2}$	$5.21 \cdot 10^{-2}$	$8.8 \cdot 10^{-3}$
1.8	0.81	0.12	0.76	$3.01 \cdot 10^{-2}$	$3.17 \cdot 10^{-2}$	$6.91 \cdot 10^{-3}$
1.83	0.88	0.13	0.76	$3.02 \cdot 10^{-2}$	$3.36 \cdot 10^{-2}$	$7.52 \cdot 10^{-3}$
1.85	0.86	0.13	0.75	$2.98 \cdot 10^{-2}$	$7.16 \cdot 10^{-3}$	$2.92 \cdot 10^{-3}$
1.88	0.9	0.14	0.77	$3.04 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$	$4.75 \cdot 10^{-3}$
1.9	0.97	0.15	0.81	$3.11 \cdot 10^{-2}$	$8.84 \cdot 10^{-3}$	$3.34 \cdot 10^{-3}$
1.93	0.97	0.14	0.84	$3.17 \cdot 10^{-2}$	$5.23 \cdot 10^{-3}$	$3.02 \cdot 10^{-3}$
1.95	0.99	0.15	0.86	$3.21 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$	$3.53 \cdot 10^{-3}$
1.98	0.98	0.15	0.87	$3.22 \cdot 10^{-2}$	$7.25 \cdot 10^{-3}$	$2.96 \cdot 10^{-3}$
2	1.05	0.16	0.85	$3.19 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$	$4.01 \cdot 10^{-3}$
2.03	0.99	0.15	0.88	$3.25 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$
2.05	0.97	0.14	0.83	$3.15 \cdot 10^{-2}$	$3.31 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$
2.08	1	0.15	0.83	$3.14 \cdot 10^{-2}$	$2.57 \cdot 10^{-3}$	$1.81 \cdot 10^{-3}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 151. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
1.15	$7.49 \cdot 10^{-4}$	$5.41 \cdot 10^{-4}$	0	0	0	0
1.18	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$3.75 \cdot 10^{-4}$	$3.79 \cdot 10^{-4}$	0	0	0	0
1.25	0	0	0	0	0	0
1.28	$7.49 \cdot 10^{-4}$	$5.41 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	$6.6 \cdot 10^{-4}$	0	0
1.3	$2.25 \cdot 10^{-3}$	$9.88 \cdot 10^{-4}$	0	0	0	0
1.33	$1.12 \cdot 10^{-3}$	$6.7 \cdot 10^{-4}$	0	0	0	0
1.35	$3.37 \cdot 10^{-3}$	$1.23 \cdot 10^{-3}$	0	0	0	0
1.38	$5.62 \cdot 10^{-3}$	$1.69 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	0	0
1.4	$5.25 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$	$9.33 \cdot 10^{-4}$	0	0
1.43	$4.12 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$	$7.92 \cdot 10^{-3}$	$2.29 \cdot 10^{-3}$	$3.67 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$
1.45	$1.05 \cdot 10^{-2}$	$2.51 \cdot 10^{-3}$	$1.32 \cdot 10^{-2}$	$2.95 \cdot 10^{-3}$	$4.74 \cdot 10^{-3}$	$1.79 \cdot 10^{-3}$
1.48	$1.42 \cdot 10^{-2}$	$3.15 \cdot 10^{-3}$	$2.24 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$	$1.13 \cdot 10^{-2}$	$3.03 \cdot 10^{-3}$
1.5	$1.8 \cdot 10^{-2}$	$3.81 \cdot 10^{-3}$	$2.64 \cdot 10^{-2}$	$4.17 \cdot 10^{-3}$	$2.01 \cdot 10^{-2}$	$4.11 \cdot 10^{-3}$
1.53	$2.4 \cdot 10^{-2}$	$4.7 \cdot 10^{-3}$	$4.49 \cdot 10^{-2}$	$5.44 \cdot 10^{-3}$	$3.19 \cdot 10^{-2}$	$4.87 \cdot 10^{-3}$
1.55	$2.96 \cdot 10^{-2}$	$5.59 \cdot 10^{-3}$	$6.73 \cdot 10^{-2}$	$6.66 \cdot 10^{-3}$	$3.83 \cdot 10^{-2}$	$5.59 \cdot 10^{-3}$
1.58	$3.75 \cdot 10^{-2}$	$6.7 \cdot 10^{-3}$	$8.51 \cdot 10^{-2}$	$7.49 \cdot 10^{-3}$	$3.45 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
1.6	$3.67 \cdot 10^{-2}$	$6.55 \cdot 10^{-3}$	0.11	$8.63 \cdot 10^{-3}$	$4.53 \cdot 10^{-2}$	$5.94 \cdot 10^{-3}$
1.63	$4.31 \cdot 10^{-2}$	$7.5 \cdot 10^{-3}$	0.14	$9.65 \cdot 10^{-3}$	$4.92 \cdot 10^{-2}$	$6.46 \cdot 10^{-3}$
1.65	$5.4 \cdot 10^{-2}$	$9.11 \cdot 10^{-3}$	0.15	$9.83 \cdot 10^{-3}$	$4.61 \cdot 10^{-2}$	$6.05 \cdot 10^{-3}$
1.68	$5.73 \cdot 10^{-2}$	$9.76 \cdot 10^{-3}$	0.17	$1.07 \cdot 10^{-2}$	$3.53 \cdot 10^{-2}$	$5.2 \cdot 10^{-3}$

TABLE 151 Continued.						
$d(e, e' \pi^-)$, $1.4 \leq Q^2 < 1.9 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$6.89 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	0.18	$1.08 \cdot 10^{-2}$	$2.98 \cdot 10^{-2}$	$4.97 \cdot 10^{-3}$
1.73	$7.64 \cdot 10^{-2}$	$1.25 \cdot 10^{-2}$	0.2	$1.16 \cdot 10^{-2}$	$2.16 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$
1.75	$9.14 \cdot 10^{-2}$	$1.49 \cdot 10^{-2}$	0.17	$1.06 \cdot 10^{-2}$	$1.54 \cdot 10^{-2}$	$3.53 \cdot 10^{-3}$
1.78	$9.97 \cdot 10^{-2}$	$1.6 \cdot 10^{-2}$	0.17	$1.05 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$2.73 \cdot 10^{-3}$
1.8	0.11	$1.8 \cdot 10^{-2}$	0.14	$9.63 \cdot 10^{-3}$	$1.53 \cdot 10^{-2}$	$3.43 \cdot 10^{-3}$
1.83	0.11	$1.72 \cdot 10^{-2}$	0.15	$9.92 \cdot 10^{-3}$	$1.05 \cdot 10^{-2}$	$2.7 \cdot 10^{-3}$
1.85	0.13	$2.05 \cdot 10^{-2}$	0.15	$9.9 \cdot 10^{-3}$	$1.43 \cdot 10^{-2}$	$3.46 \cdot 10^{-3}$
1.88	0.13	$2.09 \cdot 10^{-2}$	0.13	$9.24 \cdot 10^{-3}$	$9.83 \cdot 10^{-3}$	$2.73 \cdot 10^{-3}$
1.9	0.15	$2.3 \cdot 10^{-2}$	0.13	$9.24 \cdot 10^{-3}$	$1.18 \cdot 10^{-2}$	$3.15 \cdot 10^{-3}$
1.93	0.15	$2.29 \cdot 10^{-2}$	0.12	$8.73 \cdot 10^{-3}$	$7.18 \cdot 10^{-3}$	$2.39 \cdot 10^{-3}$
1.95	0.17	$2.6 \cdot 10^{-2}$	0.11	$8.35 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$	$1.13 \cdot 10^{-3}$
1.98	0.17	$2.71 \cdot 10^{-2}$	0.11	$8.5 \cdot 10^{-3}$	$3.25 \cdot 10^{-3}$	$1.62 \cdot 10^{-3}$
2	0.18	$2.77 \cdot 10^{-2}$	$8.64 \cdot 10^{-2}$	$7.55 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$9.38 \cdot 10^{-4}$
2.03	0.18	$2.78 \cdot 10^{-2}$	$8.31 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$	$1.17 \cdot 10^{-3}$	$8.29 \cdot 10^{-4}$
2.05	0.17	$2.64 \cdot 10^{-2}$	$8.38 \cdot 10^{-2}$	$7.44 \cdot 10^{-3}$	$2.18 \cdot 10^{-3}$	$1.26 \cdot 10^{-3}$
2.08	0.18	$2.81 \cdot 10^{-2}$	$9.11 \cdot 10^{-2}$	$7.75 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$9.41 \cdot 10^{-4}$
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 152. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$2.41 \cdot 10^{-2}$	$8.39 \cdot 10^{-3}$	$7.72 \cdot 10^{-3}$	$5.46 \cdot 10^{-3}$	$4.85 \cdot 10^{-3}$	$4.85 \cdot 10^{-3}$
1.15	$3.73 \cdot 10^{-2}$	$1.06 \cdot 10^{-2}$	$3.47 \cdot 10^{-2}$	$1.16 \cdot 10^{-2}$	$3.85 \cdot 10^{-2}$	$1.45 \cdot 10^{-2}$
1.18	$7.89 \cdot 10^{-2}$	$1.75 \cdot 10^{-2}$	$5.02 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$	$9.83 \cdot 10^{-2}$	$2.1 \cdot 10^{-2}$
1.2	$9.42 \cdot 10^{-2}$	$2.04 \cdot 10^{-2}$	0.2	$2.78 \cdot 10^{-2}$	0.19	$2.88 \cdot 10^{-2}$
1.23	0.19	$3.45 \cdot 10^{-2}$	0.24	$3.04 \cdot 10^{-2}$	0.49	$4.81 \cdot 10^{-2}$
1.25	0.18	$3.3 \cdot 10^{-2}$	0.28	$3.27 \cdot 10^{-2}$	0.69	$5.73 \cdot 10^{-2}$
1.28	0.27	$4.62 \cdot 10^{-2}$	0.32	$3.54 \cdot 10^{-2}$	0.6	$5.22 \cdot 10^{-2}$
1.3	0.28	$4.81 \cdot 10^{-2}$	0.37	$3.78 \cdot 10^{-2}$	0.57	$5.34 \cdot 10^{-2}$
1.33	0.33	$5.56 \cdot 10^{-2}$	0.34	$3.6 \cdot 10^{-2}$	0.28	$3.69 \cdot 10^{-2}$
1.35	0.31	$5.35 \cdot 10^{-2}$	0.28	$3.27 \cdot 10^{-2}$	0.13	$2.43 \cdot 10^{-2}$
1.38	0.27	$4.62 \cdot 10^{-2}$	0.24	$3.06 \cdot 10^{-2}$	$6.35 \cdot 10^{-2}$	$1.64 \cdot 10^{-2}$
1.4	0.25	$4.42 \cdot 10^{-2}$	0.23	$2.96 \cdot 10^{-2}$	$4.83 \cdot 10^{-2}$	$1.61 \cdot 10^{-2}$
1.43	0.27	$4.67 \cdot 10^{-2}$	0.26	$3.18 \cdot 10^{-2}$	$4.37 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$
1.45	0.31	$5.3 \cdot 10^{-2}$	0.31	$3.45 \cdot 10^{-2}$	$1.39 \cdot 10^{-2}$	$6.97 \cdot 10^{-3}$
1.48	0.3	$5.14 \cdot 10^{-2}$	0.44	$4.14 \cdot 10^{-2}$	$3.38 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$
1.5	0.37	$6.18 \cdot 10^{-2}$	0.61	$4.85 \cdot 10^{-2}$	$8.86 \cdot 10^{-3}$	$6.27 \cdot 10^{-3}$
1.53	0.47	$7.63 \cdot 10^{-2}$	0.81	$5.59 \cdot 10^{-2}$	$1.24 \cdot 10^{-2}$	$7.15 \cdot 10^{-3}$
1.55	0.55	$8.88 \cdot 10^{-2}$	0.86	$5.78 \cdot 10^{-2}$	$2.88 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$
1.58	0.44	$7.25 \cdot 10^{-2}$	1.02	$6.26 \cdot 10^{-2}$	$2.26 \cdot 10^{-2}$	$1.01 \cdot 10^{-2}$
1.6	0.49	$7.87 \cdot 10^{-2}$	0.87	$5.8 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$	$6.5 \cdot 10^{-3}$
1.63	0.51	$8.25 \cdot 10^{-2}$	0.9	$5.9 \cdot 10^{-2}$	0	0
1.65	0.48	$7.87 \cdot 10^{-2}$	0.76	$5.43 \cdot 10^{-2}$	0	0
1.68	0.52	$8.34 \cdot 10^{-2}$	0.63	$4.93 \cdot 10^{-2}$	0	0

TABLE 152 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.47	$7.6 \cdot 10^{-2}$	0.71	$5.22 \cdot 10^{-2}$	$3.73 \cdot 10^{-3}$	$3.73 \cdot 10^{-3}$
1.73	0.39	$6.47 \cdot 10^{-2}$	0.56	$4.65 \cdot 10^{-2}$	0	0
1.75	0.4	$6.6 \cdot 10^{-2}$	0.59	$4.79 \cdot 10^{-2}$	0	0
1.78	0.34	$5.68 \cdot 10^{-2}$	0.46	$4.19 \cdot 10^{-2}$	0	0
1.8	0.33	$5.6 \cdot 10^{-2}$	0.49	$4.35 \cdot 10^{-2}$	0	0
1.83	0.32	$5.43 \cdot 10^{-2}$	0.46	$4.21 \cdot 10^{-2}$	$3.88 \cdot 10^{-3}$	$3.88 \cdot 10^{-3}$
1.85	0.34	$5.62 \cdot 10^{-2}$	0.37	$3.76 \cdot 10^{-2}$	0	0
1.88	0.28	$4.83 \cdot 10^{-2}$	0.44	$4.14 \cdot 10^{-2}$	0	0
1.9	0.27	$4.75 \cdot 10^{-2}$	0.3	$3.43 \cdot 10^{-2}$	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 153. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.94 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	0	0	0	0
1.15	$2.63 \cdot 10^{-3}$	$1.9 \cdot 10^{-3}$	0	0	0	0
1.18	$6.57 \cdot 10^{-3}$	$3.19 \cdot 10^{-3}$	0	0	0	0
1.2	$9.2 \cdot 10^{-3}$	$3.73 \cdot 10^{-3}$	0	0	0	0
1.23	$2.37 \cdot 10^{-2}$	$6.57 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$3.27 \cdot 10^{-3}$	$2.26 \cdot 10^{-3}$	$2.26 \cdot 10^{-3}$
1.25	$3.16 \cdot 10^{-2}$	$8.08 \cdot 10^{-3}$	$9.26 \cdot 10^{-3}$	$4.63 \cdot 10^{-3}$	$1.47 \cdot 10^{-2}$	$6.57 \cdot 10^{-3}$
1.28	$5 \cdot 10^{-2}$	$1.09 \cdot 10^{-2}$	$4.17 \cdot 10^{-2}$	$9.82 \cdot 10^{-3}$	$3.55 \cdot 10^{-2}$	$1.07 \cdot 10^{-2}$
1.3	$9.2 \cdot 10^{-2}$	$1.74 \cdot 10^{-2}$	$9.73 \cdot 10^{-2}$	$1.5 \cdot 10^{-2}$	0.11	$1.7 \cdot 10^{-2}$
1.33	0.15	$2.59 \cdot 10^{-2}$	0.14	$1.79 \cdot 10^{-2}$	0.22	$2.48 \cdot 10^{-2}$
1.35	0.22	$3.65 \cdot 10^{-2}$	0.23	$2.32 \cdot 10^{-2}$	0.35	$3.19 \cdot 10^{-2}$
1.38	0.26	$4.21 \cdot 10^{-2}$	0.28	$2.57 \cdot 10^{-2}$	0.37	$3.19 \cdot 10^{-2}$
1.4	0.37	$5.83 \cdot 10^{-2}$	0.38	$2.97 \cdot 10^{-2}$	0.33	$3.02 \cdot 10^{-2}$
1.43	0.43	$6.81 \cdot 10^{-2}$	0.43	$3.16 \cdot 10^{-2}$	0.39	$3.32 \cdot 10^{-2}$
1.45	0.47	$7.31 \cdot 10^{-2}$	0.5	$3.4 \cdot 10^{-2}$	0.41	$3.41 \cdot 10^{-2}$
1.48	0.48	$7.49 \cdot 10^{-2}$	0.49	$3.36 \cdot 10^{-2}$	0.31	$2.95 \cdot 10^{-2}$
1.5	0.53	$8.2 \cdot 10^{-2}$	0.47	$3.31 \cdot 10^{-2}$	0.28	$2.78 \cdot 10^{-2}$
1.53	0.53	$8.2 \cdot 10^{-2}$	0.42	$3.12 \cdot 10^{-2}$	0.27	$2.71 \cdot 10^{-2}$
1.55	0.46	$7.24 \cdot 10^{-2}$	0.44	$3.18 \cdot 10^{-2}$	0.14	$1.98 \cdot 10^{-2}$
1.58	0.46	$7.25 \cdot 10^{-2}$	0.47	$3.31 \cdot 10^{-2}$	$8.95 \cdot 10^{-2}$	$1.58 \cdot 10^{-2}$
1.6	0.45	$7.11 \cdot 10^{-2}$	0.55	$3.57 \cdot 10^{-2}$	$4.54 \cdot 10^{-2}$	$1.13 \cdot 10^{-2}$
1.63	0.49	$7.56 \cdot 10^{-2}$	0.71	$4.04 \cdot 10^{-2}$	$2.29 \cdot 10^{-2}$	$8.1 \cdot 10^{-3}$
1.65	0.47	$7.36 \cdot 10^{-2}$	0.91	$4.58 \cdot 10^{-2}$	$2.98 \cdot 10^{-2}$	$9.44 \cdot 10^{-3}$
1.68	0.56	$8.63 \cdot 10^{-2}$	0.99	$4.78 \cdot 10^{-2}$	$2.38 \cdot 10^{-2}$	$8.99 \cdot 10^{-3}$

TABLE 153 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.56	$8.63 \cdot 10^{-2}$	0.9	$4.57 \cdot 10^{-2}$	$2.03 \cdot 10^{-2}$	$8.27 \cdot 10^{-3}$
1.73	0.6	$9.32 \cdot 10^{-2}$	0.94	$4.65 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$	$6.61 \cdot 10^{-3}$
1.75	0.61	$9.4 \cdot 10^{-2}$	0.86	$4.46 \cdot 10^{-2}$	0	0
1.78	0.61	$9.42 \cdot 10^{-2}$	0.88	$4.52 \cdot 10^{-2}$	0	0
1.8	0.57	$8.85 \cdot 10^{-2}$	0.84	$4.42 \cdot 10^{-2}$	$7.7 \cdot 10^{-3}$	$5.44 \cdot 10^{-3}$
1.83	0.49	$7.58 \cdot 10^{-2}$	0.74	$4.15 \cdot 10^{-2}$	$1.03 \cdot 10^{-2}$	$5.92 \cdot 10^{-3}$
1.85	0.46	$7.24 \cdot 10^{-2}$	0.73	$4.1 \cdot 10^{-2}$	0	0
1.88	0.42	$6.58 \cdot 10^{-2}$	0.71	$4.04 \cdot 10^{-2}$	$5.51 \cdot 10^{-3}$	$5.51 \cdot 10^{-3}$
1.9	0.36	$5.74 \cdot 10^{-2}$	0.72	$4.1 \cdot 10^{-2}$	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 154. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	$1.88 \cdot 10^{-3}$	$1.36 \cdot 10^{-3}$	0	0	0	0
1.4	$9.39 \cdot 10^{-4}$	$9.49 \cdot 10^{-4}$	$1.65 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	0	0
1.43	$5.64 \cdot 10^{-3}$	$2.48 \cdot 10^{-3}$	$4.96 \cdot 10^{-3}$	$2.86 \cdot 10^{-3}$	$3.12 \cdot 10^{-3}$	$3.12 \cdot 10^{-3}$
1.45	$1.03 \cdot 10^{-2}$	$3.47 \cdot 10^{-3}$	$4.96 \cdot 10^{-3}$	$2.86 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$
1.48	$1.22 \cdot 10^{-2}$	$3.83 \cdot 10^{-3}$	$3.14 \cdot 10^{-2}$	$7.21 \cdot 10^{-3}$	$2.4 \cdot 10^{-2}$	$6.67 \cdot 10^{-3}$
1.5	$2.72 \cdot 10^{-2}$	$6.45 \cdot 10^{-3}$	$4.8 \cdot 10^{-2}$	$8.91 \cdot 10^{-3}$	$7.3 \cdot 10^{-2}$	$1.27 \cdot 10^{-2}$
1.53	$6.39 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	0.12	$1.42 \cdot 10^{-2}$	0.14	$1.62 \cdot 10^{-2}$
1.55	0.12	$2.1 \cdot 10^{-2}$	0.17	$1.65 \cdot 10^{-2}$	0.27	$2.3 \cdot 10^{-2}$
1.58	0.15	$2.47 \cdot 10^{-2}$	0.22	$1.92 \cdot 10^{-2}$	0.33	$2.6 \cdot 10^{-2}$
1.6	0.22	$3.47 \cdot 10^{-2}$	0.29	$2.19 \cdot 10^{-2}$	0.35	$2.65 \cdot 10^{-2}$
1.63	0.26	$4.17 \cdot 10^{-2}$	0.33	$2.35 \cdot 10^{-2}$	0.3	$2.5 \cdot 10^{-2}$
1.65	0.26	$4.17 \cdot 10^{-2}$	0.4	$2.57 \cdot 10^{-2}$	0.31	$2.5 \cdot 10^{-2}$
1.68	0.29	$4.56 \cdot 10^{-2}$	0.43	$2.65 \cdot 10^{-2}$	0.2	$2.03 \cdot 10^{-2}$

TABLE 154 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.31	$4.9 \cdot 10^{-2}$	0.39	$2.54 \cdot 10^{-2}$	0.27	$2.35 \cdot 10^{-2}$
1.73	0.33	$5.22 \cdot 10^{-2}$	0.48	$2.81 \cdot 10^{-2}$	0.23	$2.24 \cdot 10^{-2}$
1.75	0.37	$5.7 \cdot 10^{-2}$	0.55	$3.02 \cdot 10^{-2}$	0.21	$2.02 \cdot 10^{-2}$
1.78	0.37	$5.75 \cdot 10^{-2}$	0.58	$3.09 \cdot 10^{-2}$	0.19	$1.92 \cdot 10^{-2}$
1.8	0.42	$6.57 \cdot 10^{-2}$	0.66	$3.32 \cdot 10^{-2}$	0.18	$1.88 \cdot 10^{-2}$
1.83	0.41	$6.37 \cdot 10^{-2}$	0.66	$3.3 \cdot 10^{-2}$	0.19	$1.92 \cdot 10^{-2}$
1.85	0.39	$6.1 \cdot 10^{-2}$	0.61	$3.17 \cdot 10^{-2}$	0.14	$1.76 \cdot 10^{-2}$
1.88	0.4	$6.22 \cdot 10^{-2}$	0.59	$3.13 \cdot 10^{-2}$	$7 \cdot 10^{-2}$	$1.18 \cdot 10^{-2}$
1.9	0.36	$5.61 \cdot 10^{-2}$	0.57	$3.07 \cdot 10^{-2}$	$4.02 \cdot 10^{-2}$	$8.2 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 155. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $2.2 \leq P_\pi < 2.7 \text{ GeV}/c$, $0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	0	0	0	0	0	0
1.43	0	0	0	0	0	0
1.45	0	0	0	0	0	0
1.48	0	0	0	0	0	0
1.5	0	0	$2.32 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	0	0
1.53	0	0	0	0	0	0
1.55	0	0	0	0	0	0
1.58	0	0	0	0	0	0
1.6	0	0	0	0	0	0
1.63	0	0	0	0	0	0
1.65	0	0	0	0	0	0
1.68	0	0	0	0	0	0

TABLE 155 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 2.2 \leq P_\pi < 2.7 \text{ GeV}/c, 0^\circ \leq \theta_{\pi q} < 12^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0	0	0	0	0	0
1.73	0	0	0	0	0	0
1.75	$1.31 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	$2.32 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$	$2.19 \cdot 10^{-3}$
1.78	$1.71 \cdot 10^{-2}$	$5.37 \cdot 10^{-3}$	$1.39 \cdot 10^{-2}$	$5.67 \cdot 10^{-3}$	$2.09 \cdot 10^{-2}$	$7.89 \cdot 10^{-3}$
1.8	$3.02 \cdot 10^{-2}$	$7.72 \cdot 10^{-3}$	$3.71 \cdot 10^{-2}$	$9.26 \cdot 10^{-3}$	$5.27 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$
1.83	$4.87 \cdot 10^{-2}$	$1.1 \cdot 10^{-2}$	$6.48 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	$6.46 \cdot 10^{-2}$	$1.45 \cdot 10^{-2}$
1.85	$7.76 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	0.14	$1.78 \cdot 10^{-2}$	$8.42 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$
1.88	0.14	$2.49 \cdot 10^{-2}$	0.2	$2.17 \cdot 10^{-2}$	0.18	$2.34 \cdot 10^{-2}$
1.9	0.17	$2.85 \cdot 10^{-2}$	0.24	$2.36 \cdot 10^{-2}$	0.21	$2.36 \cdot 10^{-2}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 156. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.88 \cdot 10^{-3}$	$1.4 \cdot 10^{-3}$	0	0	0	0
1.15	$1.13 \cdot 10^{-2}$	$3.65 \cdot 10^{-3}$	$6.62 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$
1.18	$1.6 \cdot 10^{-2}$	$4.59 \cdot 10^{-3}$	$3.31 \cdot 10^{-3}$	$2.34 \cdot 10^{-3}$	$8.24 \cdot 10^{-3}$	$4.12 \cdot 10^{-3}$
1.2	$2.26 \cdot 10^{-2}$	$5.67 \cdot 10^{-3}$	$1.32 \cdot 10^{-2}$	$4.68 \cdot 10^{-3}$	$8.25 \cdot 10^{-3}$	$3.69 \cdot 10^{-3}$
1.23	$2.82 \cdot 10^{-2}$	$6.7 \cdot 10^{-3}$	$5.96 \cdot 10^{-2}$	$9.93 \cdot 10^{-3}$	$3.66 \cdot 10^{-2}$	$8.18 \cdot 10^{-3}$
1.25	$5.83 \cdot 10^{-2}$	$1.14 \cdot 10^{-2}$	$5.96 \cdot 10^{-2}$	$9.93 \cdot 10^{-3}$	0.13	$1.62 \cdot 10^{-2}$
1.28	$7.14 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$	$9.93 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$	0.16	$1.72 \cdot 10^{-2}$
1.3	$9.59 \cdot 10^{-2}$	$1.72 \cdot 10^{-2}$	0.12	$1.38 \cdot 10^{-2}$	0.18	$1.95 \cdot 10^{-2}$
1.33	0.13	$2.16 \cdot 10^{-2}$	0.15	$1.55 \cdot 10^{-2}$	0.2	$2.03 \cdot 10^{-2}$
1.35	0.13	$2.16 \cdot 10^{-2}$	0.14	$1.51 \cdot 10^{-2}$	0.21	$2.09 \cdot 10^{-2}$
1.38	0.13	$2.18 \cdot 10^{-2}$	0.13	$1.49 \cdot 10^{-2}$	0.1	$1.45 \cdot 10^{-2}$
1.4	0.12	$2.09 \cdot 10^{-2}$	0.13	$1.49 \cdot 10^{-2}$	$8.84 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$
1.43	0.15	$2.44 \cdot 10^{-2}$	0.12	$1.39 \cdot 10^{-2}$	$4.08 \cdot 10^{-2}$	$9.12 \cdot 10^{-3}$
1.45	0.13	$2.17 \cdot 10^{-2}$	0.14	$1.51 \cdot 10^{-2}$	$2.63 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$
1.48	0.14	$2.36 \cdot 10^{-2}$	0.15	$1.56 \cdot 10^{-2}$	$2.48 \cdot 10^{-2}$	$6.63 \cdot 10^{-3}$
1.5	0.16	$2.61 \cdot 10^{-2}$	0.13	$1.46 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
1.53	0.17	$2.78 \cdot 10^{-2}$	0.18	$1.74 \cdot 10^{-2}$	$2.61 \cdot 10^{-2}$	$7.87 \cdot 10^{-3}$
1.55	0.18	$3.02 \cdot 10^{-2}$	0.24	$1.99 \cdot 10^{-2}$	$1.33 \cdot 10^{-2}$	$5.02 \cdot 10^{-3}$
1.58	0.22	$3.54 \cdot 10^{-2}$	0.36	$2.43 \cdot 10^{-2}$	$1.73 \cdot 10^{-3}$	$1.73 \cdot 10^{-3}$
1.6	0.25	$3.98 \cdot 10^{-2}$	0.43	$2.65 \cdot 10^{-2}$	$1.27 \cdot 10^{-2}$	$6.36 \cdot 10^{-3}$
1.63	0.25	$3.95 \cdot 10^{-2}$	0.52	$2.95 \cdot 10^{-2}$	$1.29 \cdot 10^{-2}$	$5.27 \cdot 10^{-3}$
1.65	0.29	$4.64 \cdot 10^{-2}$	0.52	$2.95 \cdot 10^{-2}$	$1.66 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$
1.68	0.33	$5.16 \cdot 10^{-2}$	0.54	$2.99 \cdot 10^{-2}$	$1.66 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$

TABLE 156 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.36	$5.63 \cdot 10^{-2}$	0.48	$2.83 \cdot 10^{-2}$	0	0
1.73	0.35	$5.5 \cdot 10^{-2}$	0.43	$2.66 \cdot 10^{-2}$	$3.29 \cdot 10^{-3}$	$2.33 \cdot 10^{-3}$
1.75	0.39	$6.1 \cdot 10^{-2}$	0.43	$2.65 \cdot 10^{-2}$	0	0
1.78	0.38	$5.83 \cdot 10^{-2}$	0.39	$2.54 \cdot 10^{-2}$	$1.56 \cdot 10^{-3}$	$1.56 \cdot 10^{-3}$
1.8	0.38	$5.92 \cdot 10^{-2}$	0.41	$2.6 \cdot 10^{-2}$	0	0
1.83	0.39	$6.08 \cdot 10^{-2}$	0.33	$2.33 \cdot 10^{-2}$	0	0
1.85	0.47	$7.25 \cdot 10^{-2}$	0.37	$2.47 \cdot 10^{-2}$	0	0
1.88	0.44	$6.77 \cdot 10^{-2}$	0.35	$2.4 \cdot 10^{-2}$	0	0
1.9	0.39	$6.08 \cdot 10^{-2}$	0.36	$2.43 \cdot 10^{-2}$	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 157. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.13 \cdot 10^{-3}$	$8.41 \cdot 10^{-4}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$1.13 \cdot 10^{-3}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.2	$3.95 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.23	$2.26 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	$9.93 \cdot 10^{-4}$	$9.93 \cdot 10^{-4}$	0	0
1.25	$2.26 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	0	0	0	0
1.28	$2.82 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$	0	0
1.3	$6.2 \cdot 10^{-3}$	$2.08 \cdot 10^{-3}$	$6.95 \cdot 10^{-3}$	$2.63 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$
1.33	$1.07 \cdot 10^{-2}$	$2.92 \cdot 10^{-3}$	$1.19 \cdot 10^{-2}$	$3.44 \cdot 10^{-3}$	$7.52 \cdot 10^{-3}$	$3.36 \cdot 10^{-3}$
1.35	$1.92 \cdot 10^{-2}$	$4.42 \cdot 10^{-3}$	$2.18 \cdot 10^{-2}$	$4.66 \cdot 10^{-3}$	$1.35 \cdot 10^{-2}$	$4.06 \cdot 10^{-3}$
1.38	$2.88 \cdot 10^{-2}$	$5.87 \cdot 10^{-3}$	$3.77 \cdot 10^{-2}$	$6.12 \cdot 10^{-3}$	$4.15 \cdot 10^{-2}$	$7.7 \cdot 10^{-3}$
1.4	$4.17 \cdot 10^{-2}$	$7.82 \cdot 10^{-3}$	$6.55 \cdot 10^{-2}$	$8.07 \cdot 10^{-3}$	$4.69 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$
1.43	$5.86 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$8.34 \cdot 10^{-2}$	$9.1 \cdot 10^{-3}$	$6.03 \cdot 10^{-2}$	$8.36 \cdot 10^{-3}$
1.45	$6.6 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$	0.13	$1.14 \cdot 10^{-2}$	$6.9 \cdot 10^{-2}$	$8.9 \cdot 10^{-3}$
1.48	$8.12 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$	0.13	$1.12 \cdot 10^{-2}$	0.11	$1.15 \cdot 10^{-2}$
1.5	$9.98 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$	0.15	$1.22 \cdot 10^{-2}$	$8.99 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.53	0.13	$2.06 \cdot 10^{-2}$	0.19	$1.36 \cdot 10^{-2}$	$8.49 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.55	0.13	$2.07 \cdot 10^{-2}$	0.2	$1.41 \cdot 10^{-2}$	$7.83 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.58	0.13	$2.11 \cdot 10^{-2}$	0.21	$1.44 \cdot 10^{-2}$	$7.97 \cdot 10^{-2}$	$9.88 \cdot 10^{-3}$
1.6	0.14	$2.21 \cdot 10^{-2}$	0.21	$1.46 \cdot 10^{-2}$	$5.43 \cdot 10^{-2}$	$7.84 \cdot 10^{-3}$
1.63	0.16	$2.54 \cdot 10^{-2}$	0.23	$1.5 \cdot 10^{-2}$	$3.72 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$
1.65	0.17	$2.65 \cdot 10^{-2}$	0.27	$1.62 \cdot 10^{-2}$	$2.16 \cdot 10^{-2}$	$5.23 \cdot 10^{-3}$
1.68	0.16	$2.47 \cdot 10^{-2}$	0.33	$1.81 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$

TABLE 157 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.21	$3.31 \cdot 10^{-2}$	0.35	$1.86 \cdot 10^{-2}$	$2.05 \cdot 10^{-2}$	$5.13 \cdot 10^{-3}$
1.73	0.24	$3.77 \cdot 10^{-2}$	0.33	$1.82 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$
1.75	0.27	$4.13 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$
1.78	0.28	$4.37 \cdot 10^{-2}$	0.32	$1.78 \cdot 10^{-2}$	$2 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.8	0.33	$5.04 \cdot 10^{-2}$	0.29	$1.7 \cdot 10^{-2}$	$2.5 \cdot 10^{-3}$	$2.5 \cdot 10^{-3}$
1.83	0.32	$4.9 \cdot 10^{-2}$	0.28	$1.68 \cdot 10^{-2}$	$1.03 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$
1.85	0.32	$4.9 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	$1.91 \cdot 10^{-3}$	$1.35 \cdot 10^{-3}$
1.88	0.37	$5.57 \cdot 10^{-2}$	0.29	$1.7 \cdot 10^{-2}$	$3.17 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$
1.9	0.36	$5.47 \cdot 10^{-2}$	0.31	$1.76 \cdot 10^{-2}$	$9.71 \cdot 10^{-4}$	$9.71 \cdot 10^{-4}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 158. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.5 \leq P_\pi < 2.2 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	0	0	0	0	0	0
1.15	0	0	0	0	0	0
1.18	0	0	0	0	0	0
1.2	0	0	0	0	0	0
1.23	0	0	0	0	0	0
1.25	0	0	0	0	0	0
1.28	0	0	0	0	0	0
1.3	0	0	0	0	0	0
1.33	0	0	0	0	0	0
1.35	0	0	0	0	0	0
1.38	0	0	0	0	0	0
1.4	$4.03 \cdot 10^{-4}$	$4.07 \cdot 10^{-4}$	0	0	0	0
1.43	$4.03 \cdot 10^{-4}$	$4.07 \cdot 10^{-4}$	0	0	0	0
1.45	0	0	$7.09 \cdot 10^{-4}$	$7.09 \cdot 10^{-4}$	0	0
1.48	$8.05 \cdot 10^{-4}$	$5.82 \cdot 10^{-4}$	0	0	0	0
1.5	$4.03 \cdot 10^{-4}$	$4.07 \cdot 10^{-4}$	0	0	0	0
1.53	$1.21 \cdot 10^{-3}$	$7.2 \cdot 10^{-4}$	$7.09 \cdot 10^{-4}$	$7.09 \cdot 10^{-4}$	$7.11 \cdot 10^{-4}$	$7.11 \cdot 10^{-4}$
1.55	$2.01 \cdot 10^{-3}$	$9.48 \cdot 10^{-4}$	$5.67 \cdot 10^{-3}$	$2.01 \cdot 10^{-3}$	$7.37 \cdot 10^{-4}$	$7.37 \cdot 10^{-4}$
1.58	$6.85 \cdot 10^{-3}$	$1.97 \cdot 10^{-3}$	$1.13 \cdot 10^{-2}$	$2.84 \cdot 10^{-3}$	$3.7 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$
1.6	$1.45 \cdot 10^{-2}$	$3.22 \cdot 10^{-3}$	$2.34 \cdot 10^{-2}$	$4.07 \cdot 10^{-3}$	$7.1 \cdot 10^{-3}$	$2.37 \cdot 10^{-3}$
1.63	$1.53 \cdot 10^{-2}$	$3.5 \cdot 10^{-3}$	$5.11 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	$1.61 \cdot 10^{-2}$	$3.89 \cdot 10^{-3}$
1.65	$3.06 \cdot 10^{-2}$	$5.71 \cdot 10^{-3}$	$6.95 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$	$1.97 \cdot 10^{-2}$	$4.2 \cdot 10^{-3}$
1.68	$3.5 \cdot 10^{-2}$	$6.39 \cdot 10^{-3}$	0.1	$8.54 \cdot 10^{-3}$	$2.32 \cdot 10^{-2}$	$4.64 \cdot 10^{-3}$

TABLE 158 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.5 \leq P_\pi < 2.2 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/ c^2	nb/sr/GeV ⁴					
1.7	$4.95 \cdot 10^{-2}$	$8.54 \cdot 10^{-3}$	0.12	$9.36 \cdot 10^{-3}$	$3.33 \cdot 10^{-2}$	$5.55 \cdot 10^{-3}$
1.73	$5.56 \cdot 10^{-2}$	$9.44 \cdot 10^{-3}$	0.18	$1.13 \cdot 10^{-2}$	$2.49 \cdot 10^{-2}$	$4.48 \cdot 10^{-3}$
1.75	$6.73 \cdot 10^{-2}$	$1.12 \cdot 10^{-2}$	0.2	$1.2 \cdot 10^{-2}$	$2.17 \cdot 10^{-2}$	$4.25 \cdot 10^{-3}$
1.78	$7.81 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$	0.21	$1.23 \cdot 10^{-2}$	$3.08 \cdot 10^{-2}$	$5.21 \cdot 10^{-3}$
1.8	$8.86 \cdot 10^{-2}$	$1.43 \cdot 10^{-2}$	0.22	$1.26 \cdot 10^{-2}$	$3.62 \cdot 10^{-2}$	$5.39 \cdot 10^{-3}$
1.83	$8.01 \cdot 10^{-2}$	$1.31 \cdot 10^{-2}$	0.22	$1.26 \cdot 10^{-2}$	$2.92 \cdot 10^{-2}$	$4.94 \cdot 10^{-3}$
1.85	$9.67 \cdot 10^{-2}$	$1.55 \cdot 10^{-2}$	0.22	$1.25 \cdot 10^{-2}$	$3.06 \cdot 10^{-2}$	$4.9 \cdot 10^{-3}$
1.88	0.11	$1.77 \cdot 10^{-2}$	0.23	$1.29 \cdot 10^{-2}$	$3.32 \cdot 10^{-2}$	$5.31 \cdot 10^{-3}$
1.9	0.12	$1.88 \cdot 10^{-2}$	0.24	$1.31 \cdot 10^{-2}$	$3.3 \cdot 10^{-2}$	$5.51 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 159. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.21 \cdot 10^{-3}$	$8.74 \cdot 10^{-4}$	0	0	0	0
1.15	$1.21 \cdot 10^{-3}$	$8.74 \cdot 10^{-4}$	0	0	0	0
1.18	$3.03 \cdot 10^{-3}$	$1.47 \cdot 10^{-3}$	0	0	0	0
1.2	$1.82 \cdot 10^{-3}$	$1.09 \cdot 10^{-3}$	0	0	0	0
1.23	$1.82 \cdot 10^{-3}$	$1.08 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$	0	0
1.25	$3.03 \cdot 10^{-3}$	$1.42 \cdot 10^{-3}$	0	0	$1.01 \cdot 10^{-3}$	$1.01 \cdot 10^{-3}$
1.28	$4.84 \cdot 10^{-3}$	$1.85 \cdot 10^{-3}$	$5.33 \cdot 10^{-3}$	$2.38 \cdot 10^{-3}$	$2.27 \cdot 10^{-3}$	$1.61 \cdot 10^{-3}$
1.3	$9.68 \cdot 10^{-3}$	$2.84 \cdot 10^{-3}$	$6.39 \cdot 10^{-3}$	$2.61 \cdot 10^{-3}$	$4.15 \cdot 10^{-3}$	$2.08 \cdot 10^{-3}$
1.33	$1.15 \cdot 10^{-2}$	$3.21 \cdot 10^{-3}$	$9.59 \cdot 10^{-3}$	$3.2 \cdot 10^{-3}$	$8.34 \cdot 10^{-3}$	$3.15 \cdot 10^{-3}$
1.35	$1.57 \cdot 10^{-2}$	$3.87 \cdot 10^{-3}$	$1.81 \cdot 10^{-2}$	$4.39 \cdot 10^{-3}$	$1.6 \cdot 10^{-2}$	$4.63 \cdot 10^{-3}$
1.38	$2.3 \cdot 10^{-2}$	$5.03 \cdot 10^{-3}$	$4.05 \cdot 10^{-2}$	$6.57 \cdot 10^{-3}$	$2.31 \cdot 10^{-2}$	$5.45 \cdot 10^{-3}$
1.4	$2.12 \cdot 10^{-2}$	$4.74 \cdot 10^{-3}$	$4.69 \cdot 10^{-2}$	$7.07 \cdot 10^{-3}$	$2.16 \cdot 10^{-2}$	$5.23 \cdot 10^{-3}$
1.43	$3.39 \cdot 10^{-2}$	$6.86 \cdot 10^{-3}$	$6.07 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$	$1.98 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$
1.45	$2.6 \cdot 10^{-2}$	$5.51 \cdot 10^{-3}$	$5.97 \cdot 10^{-2}$	$7.98 \cdot 10^{-3}$	$2.35 \cdot 10^{-2}$	$5.4 \cdot 10^{-3}$
1.48	$3.87 \cdot 10^{-2}$	$7.59 \cdot 10^{-3}$	$7.46 \cdot 10^{-2}$	$8.92 \cdot 10^{-3}$	$3.45 \cdot 10^{-2}$	$7.19 \cdot 10^{-3}$
1.5	$4.36 \cdot 10^{-2}$	$8.21 \cdot 10^{-3}$	$6.07 \cdot 10^{-2}$	$8.05 \cdot 10^{-3}$	$2.15 \cdot 10^{-2}$	$5.06 \cdot 10^{-3}$
1.53	$4.36 \cdot 10^{-2}$	$8.23 \cdot 10^{-3}$	$9.81 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$	$1.57 \cdot 10^{-2}$	$4.54 \cdot 10^{-3}$
1.55	$4.42 \cdot 10^{-2}$	$8.33 \cdot 10^{-3}$	$7.03 \cdot 10^{-2}$	$8.66 \cdot 10^{-3}$	$2.48 \cdot 10^{-2}$	$6 \cdot 10^{-3}$
1.58	$3.99 \cdot 10^{-2}$	$7.66 \cdot 10^{-3}$	$4.9 \cdot 10^{-2}$	$7.23 \cdot 10^{-3}$	$1.11 \cdot 10^{-2}$	$3.94 \cdot 10^{-3}$
1.6	$5.33 \cdot 10^{-2}$	$9.68 \cdot 10^{-3}$	$7.89 \cdot 10^{-2}$	$9.17 \cdot 10^{-3}$	$4.56 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$
1.63	$6.05 \cdot 10^{-2}$	$1.08 \cdot 10^{-2}$	$8.53 \cdot 10^{-2}$	$9.53 \cdot 10^{-3}$	$1.01 \cdot 10^{-2}$	$3.82 \cdot 10^{-3}$
1.65	$7.08 \cdot 10^{-2}$	$1.23 \cdot 10^{-2}$	0.1	$1.05 \cdot 10^{-2}$	$1.95 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$
1.68	$8.11 \cdot 10^{-2}$	$1.38 \cdot 10^{-2}$	0.14	$1.24 \cdot 10^{-2}$	0	0

TABLE 159 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 22^\circ \leq \theta_{\pi q} < 32^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$8.59 \cdot 10^{-2}$	$1.45 \cdot 10^{-2}$	0.14	$1.24 \cdot 10^{-2}$	$2.35 \cdot 10^{-3}$	$1.66 \cdot 10^{-3}$
1.73	0.1	$1.68 \cdot 10^{-2}$	0.14	$1.21 \cdot 10^{-2}$	0	0
1.75	0.11	$1.78 \cdot 10^{-2}$	0.11	$1.08 \cdot 10^{-2}$	0	0
1.78	0.12	$1.96 \cdot 10^{-2}$	0.11	$1.08 \cdot 10^{-2}$	$1.04 \cdot 10^{-3}$	$1.04 \cdot 10^{-3}$
1.8	0.14	$2.21 \cdot 10^{-2}$	0.12	$1.15 \cdot 10^{-2}$	0	0
1.83	0.15	$2.4 \cdot 10^{-2}$	0.12	$1.11 \cdot 10^{-2}$	$1.07 \cdot 10^{-3}$	$1.07 \cdot 10^{-3}$
1.85	0.17	$2.66 \cdot 10^{-2}$	$9.17 \cdot 10^{-2}$	$9.88 \cdot 10^{-3}$	0	0
1.88	0.17	$2.69 \cdot 10^{-2}$	0.11	$1.08 \cdot 10^{-2}$	0	0
1.9	0.18	$2.89 \cdot 10^{-2}$	0.12	$1.12 \cdot 10^{-2}$	0	0
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 160. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $22^\circ \leq \theta_{\pi q} < 32^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $1.0 \leq P_\pi < 1.5 \text{ GeV}/c$, $12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$1.13 \cdot 10^{-3}$	$8.41 \cdot 10^{-4}$	0	0	0	0
1.15	0	0	0	0	0	0
1.18	$1.13 \cdot 10^{-3}$	$8.14 \cdot 10^{-4}$	0	0	0	0
1.2	$3.95 \cdot 10^{-3}$	$1.6 \cdot 10^{-3}$	0	0	0	0
1.23	$2.26 \cdot 10^{-3}$	$1.22 \cdot 10^{-3}$	$9.93 \cdot 10^{-4}$	$9.93 \cdot 10^{-4}$	0	0
1.25	$2.26 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	0	0	0	0
1.28	$2.82 \cdot 10^{-3}$	$1.33 \cdot 10^{-3}$	$2.98 \cdot 10^{-3}$	$1.72 \cdot 10^{-3}$	0	0
1.3	$6.2 \cdot 10^{-3}$	$2.08 \cdot 10^{-3}$	$6.95 \cdot 10^{-3}$	$2.63 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$	$1.18 \cdot 10^{-3}$
1.33	$1.07 \cdot 10^{-2}$	$2.92 \cdot 10^{-3}$	$1.19 \cdot 10^{-2}$	$3.44 \cdot 10^{-3}$	$7.52 \cdot 10^{-3}$	$3.36 \cdot 10^{-3}$
1.35	$1.92 \cdot 10^{-2}$	$4.42 \cdot 10^{-3}$	$2.18 \cdot 10^{-2}$	$4.66 \cdot 10^{-3}$	$1.35 \cdot 10^{-2}$	$4.06 \cdot 10^{-3}$
1.38	$2.88 \cdot 10^{-2}$	$5.87 \cdot 10^{-3}$	$3.77 \cdot 10^{-2}$	$6.12 \cdot 10^{-3}$	$4.15 \cdot 10^{-2}$	$7.7 \cdot 10^{-3}$
1.4	$4.17 \cdot 10^{-2}$	$7.82 \cdot 10^{-3}$	$6.55 \cdot 10^{-2}$	$8.07 \cdot 10^{-3}$	$4.69 \cdot 10^{-2}$	$7.41 \cdot 10^{-3}$
1.43	$5.86 \cdot 10^{-2}$	$1.04 \cdot 10^{-2}$	$8.34 \cdot 10^{-2}$	$9.1 \cdot 10^{-3}$	$6.03 \cdot 10^{-2}$	$8.36 \cdot 10^{-3}$
1.45	$6.6 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$	0.13	$1.14 \cdot 10^{-2}$	$6.9 \cdot 10^{-2}$	$8.9 \cdot 10^{-3}$
1.48	$8.12 \cdot 10^{-2}$	$1.37 \cdot 10^{-2}$	0.13	$1.12 \cdot 10^{-2}$	0.11	$1.15 \cdot 10^{-2}$
1.5	$9.98 \cdot 10^{-2}$	$1.65 \cdot 10^{-2}$	0.15	$1.22 \cdot 10^{-2}$	$8.99 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.53	0.13	$2.06 \cdot 10^{-2}$	0.19	$1.36 \cdot 10^{-2}$	$8.49 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.55	0.13	$2.07 \cdot 10^{-2}$	0.2	$1.41 \cdot 10^{-2}$	$7.83 \cdot 10^{-2}$	$1.02 \cdot 10^{-2}$
1.58	0.13	$2.11 \cdot 10^{-2}$	0.21	$1.44 \cdot 10^{-2}$	$7.97 \cdot 10^{-2}$	$9.88 \cdot 10^{-3}$
1.6	0.14	$2.21 \cdot 10^{-2}$	0.21	$1.46 \cdot 10^{-2}$	$5.43 \cdot 10^{-2}$	$7.84 \cdot 10^{-3}$
1.63	0.16	$2.54 \cdot 10^{-2}$	0.23	$1.5 \cdot 10^{-2}$	$3.72 \cdot 10^{-2}$	$6.68 \cdot 10^{-3}$
1.65	0.17	$2.65 \cdot 10^{-2}$	0.27	$1.62 \cdot 10^{-2}$	$2.16 \cdot 10^{-2}$	$5.23 \cdot 10^{-3}$
1.68	0.16	$2.47 \cdot 10^{-2}$	0.33	$1.81 \cdot 10^{-2}$	$1.44 \cdot 10^{-2}$	$4.16 \cdot 10^{-3}$

TABLE 160 Continued.						
$d(e, e'\pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 1.0 \leq P_\pi < 1.5 \text{ GeV}/c, 12^\circ \leq \theta_{\pi q} < 22^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	0.21	$3.31 \cdot 10^{-2}$	0.35	$1.86 \cdot 10^{-2}$	$2.05 \cdot 10^{-2}$	$5.13 \cdot 10^{-3}$
1.73	0.24	$3.77 \cdot 10^{-2}$	0.33	$1.82 \cdot 10^{-2}$	$6.81 \cdot 10^{-3}$	$2.78 \cdot 10^{-3}$
1.75	0.27	$4.13 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	$1.15 \cdot 10^{-2}$	$3.85 \cdot 10^{-3}$
1.78	0.28	$4.37 \cdot 10^{-2}$	0.32	$1.78 \cdot 10^{-2}$	$2 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.8	0.33	$5.04 \cdot 10^{-2}$	0.29	$1.7 \cdot 10^{-2}$	$2.5 \cdot 10^{-3}$	$2.5 \cdot 10^{-3}$
1.83	0.32	$4.9 \cdot 10^{-2}$	0.28	$1.68 \cdot 10^{-2}$	$1.03 \cdot 10^{-3}$	$1.03 \cdot 10^{-3}$
1.85	0.32	$4.9 \cdot 10^{-2}$	0.3	$1.72 \cdot 10^{-2}$	$1.91 \cdot 10^{-3}$	$1.35 \cdot 10^{-3}$
1.88	0.37	$5.57 \cdot 10^{-2}$	0.29	$1.7 \cdot 10^{-2}$	$3.17 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$
1.9	0.36	$5.47 \cdot 10^{-2}$	0.31	$1.76 \cdot 10^{-2}$	$9.71 \cdot 10^{-4}$	$9.71 \cdot 10^{-4}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

TABLE 161. 4D non-AC cross sections (σ) and uncertainties (δ) for data, GENIE and onepigen ($d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$).

$d(e, e'\pi^-)$, $1.9 \leq Q^2 < 2.5 \text{ GeV}^2$, $0.7 \leq P_\pi < 1.0 \text{ GeV}/c$, $32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.1	0	0	0	0	0	0
1.13	$3.12 \cdot 10^{-4}$	$3.16 \cdot 10^{-4}$	0	0	0	0
1.15	$3.12 \cdot 10^{-4}$	$3.16 \cdot 10^{-4}$	0	0	0	0
1.18	$3.12 \cdot 10^{-4}$	$3.16 \cdot 10^{-4}$	0	0	0	0
1.2	0	0	0	0	0	0
1.23	$3.12 \cdot 10^{-4}$	$3.16 \cdot 10^{-4}$	0	0	0	0
1.25	$3.12 \cdot 10^{-4}$	$3.16 \cdot 10^{-4}$	0	0	0	0
1.28	$9.37 \cdot 10^{-4}$	$5.64 \cdot 10^{-4}$	0	0	0	0
1.3	$6.24 \cdot 10^{-4}$	$4.66 \cdot 10^{-4}$	0	0	0	0
1.33	$1.56 \cdot 10^{-3}$	$7.35 \cdot 10^{-4}$	0	0	0	0
1.35	$1.87 \cdot 10^{-3}$	$8.44 \cdot 10^{-4}$	$5.5 \cdot 10^{-4}$	$5.5 \cdot 10^{-4}$	0	0
1.38	$1.56 \cdot 10^{-3}$	$7.58 \cdot 10^{-4}$	$5.5 \cdot 10^{-4}$	$5.5 \cdot 10^{-4}$	0	0
1.4	$1.56 \cdot 10^{-3}$	$7.35 \cdot 10^{-4}$	0	0	0	0
1.43	$1.56 \cdot 10^{-3}$	$7.8 \cdot 10^{-4}$	$2.2 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$1.11 \cdot 10^{-3}$	$7.85 \cdot 10^{-4}$
1.45	$2.19 \cdot 10^{-3}$	$8.86 \cdot 10^{-4}$	$5.5 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$5.58 \cdot 10^{-4}$	$5.58 \cdot 10^{-4}$
1.48	$3.12 \cdot 10^{-3}$	$1.09 \cdot 10^{-3}$	$8.25 \cdot 10^{-3}$	$2.13 \cdot 10^{-3}$	$1.63 \cdot 10^{-3}$	$1.15 \cdot 10^{-3}$
1.5	$5.93 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	$1.1 \cdot 10^{-2}$	$2.46 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$	$1.32 \cdot 10^{-3}$
1.53	$7.18 \cdot 10^{-3}$	$1.84 \cdot 10^{-3}$	$2.2 \cdot 10^{-2}$	$3.48 \cdot 10^{-3}$	$6.05 \cdot 10^{-3}$	$2.14 \cdot 10^{-3}$
1.55	$8.12 \cdot 10^{-3}$	$1.99 \cdot 10^{-3}$	$1.87 \cdot 10^{-2}$	$3.21 \cdot 10^{-3}$	$8.12 \cdot 10^{-3}$	$2.17 \cdot 10^{-3}$
1.58	$9.68 \cdot 10^{-3}$	$2.25 \cdot 10^{-3}$	$2.25 \cdot 10^{-2}$	$3.52 \cdot 10^{-3}$	$7.96 \cdot 10^{-3}$	$2.3 \cdot 10^{-3}$
1.6	$8.43 \cdot 10^{-3}$	$2.07 \cdot 10^{-3}$	$3.41 \cdot 10^{-2}$	$4.33 \cdot 10^{-3}$	$4.75 \cdot 10^{-3}$	$1.8 \cdot 10^{-3}$
1.63	$1.06 \cdot 10^{-2}$	$2.6 \cdot 10^{-3}$	$3.96 \cdot 10^{-2}$	$4.67 \cdot 10^{-3}$	$6.17 \cdot 10^{-3}$	$2.18 \cdot 10^{-3}$
1.65	$1.44 \cdot 10^{-2}$	$3.03 \cdot 10^{-3}$	$5 \cdot 10^{-2}$	$5.25 \cdot 10^{-3}$	$9.13 \cdot 10^{-3}$	$2.75 \cdot 10^{-3}$
1.68	$1.62 \cdot 10^{-2}$	$3.28 \cdot 10^{-3}$	$4.95 \cdot 10^{-2}$	$5.22 \cdot 10^{-3}$	$7.11 \cdot 10^{-3}$	$2.25 \cdot 10^{-3}$

TABLE 161 Continued.						
$d(e, e' \pi^-), 1.9 \leq Q^2 < 2.5 \text{ GeV}^2, 0.7 \leq P_\pi < 1.0 \text{ GeV}/c, 32^\circ \leq \theta_{\pi q} < 46^\circ$						
	Data		GENIE		onepigen	
W	σ_d	δ_d	σ_G	δ_G	σ_o	δ_o
GeV/c^2	$\text{nb}/\text{sr}/\text{GeV}^4$					
1.7	$1.9 \cdot 10^{-2}$	$3.75 \cdot 10^{-3}$	$6.43 \cdot 10^{-2}$	$5.95 \cdot 10^{-3}$	$6.17 \cdot 10^{-3}$	$1.95 \cdot 10^{-3}$
1.73	$1.97 \cdot 10^{-2}$	$3.81 \cdot 10^{-3}$	$6.49 \cdot 10^{-2}$	$5.97 \cdot 10^{-3}$	$4.93 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$
1.75	$2.37 \cdot 10^{-2}$	$4.42 \cdot 10^{-3}$	$6.6 \cdot 10^{-2}$	$6.02 \cdot 10^{-3}$	$4.83 \cdot 10^{-3}$	$1.83 \cdot 10^{-3}$
1.78	$3.31 \cdot 10^{-2}$	$5.85 \cdot 10^{-3}$	$5.77 \cdot 10^{-2}$	$5.63 \cdot 10^{-3}$	$2.25 \cdot 10^{-3}$	$1.12 \cdot 10^{-3}$
1.8	$3.25 \cdot 10^{-2}$	$5.77 \cdot 10^{-3}$	$7.09 \cdot 10^{-2}$	$6.25 \cdot 10^{-3}$	$4.48 \cdot 10^{-3}$	$2 \cdot 10^{-3}$
1.83	$3.15 \cdot 10^{-2}$	$5.6 \cdot 10^{-3}$	$5.55 \cdot 10^{-2}$	$5.53 \cdot 10^{-3}$	$2.82 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.85	$4.09 \cdot 10^{-2}$	$7.02 \cdot 10^{-3}$	$4.73 \cdot 10^{-2}$	$5.1 \cdot 10^{-3}$	$3.16 \cdot 10^{-3}$	$1.41 \cdot 10^{-3}$
1.88	$4.68 \cdot 10^{-2}$	$7.95 \cdot 10^{-3}$	$5.55 \cdot 10^{-2}$	$5.53 \cdot 10^{-3}$	$1.1 \cdot 10^{-3}$	$7.8 \cdot 10^{-4}$
1.9	$4.59 \cdot 10^{-2}$	$7.73 \cdot 10^{-3}$	$5 \cdot 10^{-2}$	$5.25 \cdot 10^{-3}$	$4.52 \cdot 10^{-3}$	$1.84 \cdot 10^{-3}$
1.93	0	0	0	0	0	0
1.95	0	0	0	0	0	0
1.98	0	0	0	0	0	0
2	0	0	0	0	0	0
2.03	0	0	0	0	0	0
2.05	0	0	0	0	0	0
2.08	0	0	0	0	0	0
2.1	0	0	0	0	0	0
2.13	0	0	0	0	0	0
2.15	0	0	0	0	0	0
2.18	0	0	0	0	0	0
2.2	0	0	0	0	0	0
2.23	0	0	0	0	0	0
2.25	0	0	0	0	0	0
2.28	0	0	0	0	0	0

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EDUCATION

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2. DNP Fall Meeting - Vancouver, Calibrating a New Polarimetry, Pulse NMR, with NMR for the Polarized ^3He Target, 10/2016

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