

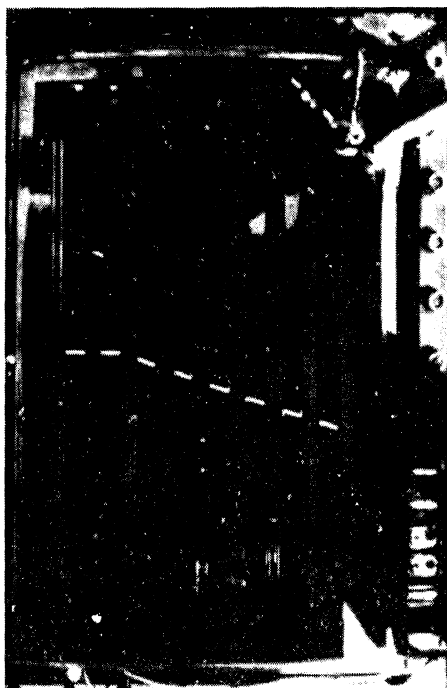
MEASUREMENT OF THE POLARIZATION OF RECOIL PROTONS IN ELASTIC πp -SCATTERING AT 300 MeV

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The present experiment was undertaken in order to correct the results obtained earlier by our group [1, 2]. Here use was made of a hodoscope of Geiger counters and a spark chamber. To separate out elastic scattering

of recoil protons was studied with the help of a spark chamber. The selected spark chamber design and the pulsed feeding conditions [4] resulted in the appearance of sparks along tracks inclined up to 45° . This enabled the accurate determination of the escape angle of the recoil protons from the hydrogen target and the reliable separation of protons which suffered scattering in carbon analyzers placed in the electrodes of the spark chamber. The spark chamber used in this experiment had 8 discharge gaps with an inter-electrode distance of 22 mm (see the figure). The first two electrodes of the spark



of π^- mesons on hydrogen Geiger counters under controlled pulsed feeding were employed [3]. The asymmetry in the scattering

θ_π (CM) deg.	P	θ_π (CM) deg.	P
146	0.03 ± 0.11	131.4	0.30 ± 0.11
141	0.16 ± 0.12	125	0.25 ± 0.17
136.6	0.20 ± 0.09	—	—

chamber did not contain any material other than stretched thin aluminum foil. Carbon analyzers were placed inside the remaining electrodes. The hodoscopic system and two projections of the track of recoil protons in the spark chamber were simultaneously photographed. During the measurement the spark chamber was placed at three angles

to the incident π^- meson beam. In each of these positions the spark chamber recorded a wide range of recoil proton angles. The table gives the obtained polarizations of the recoil protons.

The polarizations were determined from the experimentally found asymmetry values of the recoil protons by using the analyzing power of carbon [5].

REFERENCES

1. Vasilevskii I.M., Vishnyakov V.V. JETP, **38**, 1644 (1960).
2. Vasilevskii I.M., Vishnyakov V.V. Preprint JINR, D-1202, (1963).
3. Vasilevskii I.M. et al. Proc. of Inter-Conf. on High Energy Accelerators and Instrumentation, CERN (1959).
4. Tyapkin A.A., Tszou Chzhu-lyan. Pribory i tekhnika eksperimenta, **5**, 84, (1962).
5. Birge R.W., Fowler W.B. Phys. Rev. Lett. **5**, 254 (1960).