DUALITY IN $\bar{K}N \to \pi\Lambda$ (#259)

Presented by B. C. Shen
University of California
Riverside, California

Duality graphs[1] suggest that the imaginary parts of amplitudes for $\bar{K}N \to \pi\Lambda$ should average to zero over a suitably chosen energy range. Results from this group were presented at Kiev[2] indicating that in the energy range $1.54 \leq E_{CM} \leq 1.94$ GeV this averaging was at best imperfect. As this analysis did not include the very important contribution of $\Sigma(2030)$, a new analysis was undertaken[3] in the range $1.54 \leq E_{CM} \leq 2.15$ GeV using the partial wave amplitudes of CERN-Heidelberg-Saclay[4] and College de France Rutherford-Saclay.[5] Both t-channel nonflip and flip amplitudes $\tilde{f}^t_{++}$ and $\tilde{f}^t_{+-}$ indeed oscillate around zero in agreement with the predictions of quark graph duality.[3]

The pattern of cancellations is reproduced to some extent by the states along the leading trajectory alone. The suggestion has been made that daughter trajectories also exhibit this cancellation pattern.[3] This is an interesting speculation which deserves further investigation.

References

[1] M. Imachi et al., Prog. Theor. Phys. (Kyoto) 40, 353 (1968); H. Harari, Phys. Rev. Letters 22, 562 (1969); J. Rosner, Phys. Rev. Letters 22, 689 (1969).

[2] A. Kernan et al., presented to XV International Conference on High Energy Physics, Kiev, 1970, Moscow, Atomizdat, 1971; Phys. Letters 34B, 524 (1971).

[3] A. Kernan et al., #259; Phys. Letters 41B, 163 (1972).

[4] R. Armenteros et al., Hyperon Resonances - 70, edited by E. C. Fowler (Moore Publishing Co., Durham, North Carolina, 1970), p. 123.

[5] P. J. Litchfield, Nucl. Phys. B22, 269 (1970); A. Berthon et al., Nucl. Phys. B20, 476 (1970).

GENERAL ZERO-WIDTH DUAL FOUR-POINT FUNCTIONS (#516)

Presented by S. Gasiorowicz
University of Minnesota
Minneapolis, Minnesota

From the assumptions that a scattering amplitude has (a) poles in the s and t channels, (b) power boundedness as $s \to \infty$, t fixed (away from poles), and (c) residues of poles in s which are polynomial in t, with coefficients of powers of t positive, Coon has shown[1] that (a) the residues