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[5]Strictly speaking we cannot prove that all particles in the high-angle region are pions. However, these particles have the correct angular distribution for pions, and their number grows with any relaxation of the pion rejection criteria.

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[8]This could be interpreted, for example, as a muon form factor. A muon "size" or electric form factor at the muon-photon vertex would multiply the Rosenbluth formula by f_1^2, and if we write as usual $f_1 = 1 - \frac{1}{6} \times \langle r^2\rangle q^2 + \cdots$, we see that $\langle r^2\rangle^{1/2} = \sqrt{6}\Lambda^{-1}$.

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ELEMENTARY PARTICLES OF CONVENTIONAL FIELD THEORY AS REGGE POLES. Murray Gell-Mann and Marvin L. Goldberger [Phys. Rev. Letters 9, 275 (1962)].

Our expression for the contribution of a Regge pole in the u channel to the scattering of pseudoscalar mesons by nucleons (with isotopic spin ignored) is not quite correct. In reference 9, the sign of B should be changed in Eqs. (4.17), (4.18), (4.20), and (4.21); the same is true of Eqs. (2) and (3) of our Letter.

Let us denote by P the initial nucleon four-momentum minus the final meson four-momentum and write $\not{P} = -i\gamma\cdot P$, with $\not{P}^2 = u$. The contribution to the scattering amplitude of a Regge pole of positive signature in the u channel can then be written, for large s and fixed u, as

$$\gamma_5 \frac{b(\sqrt{u})(u^{1/2}+\not{P})}{2\sin\pi\alpha(\sqrt{u})}\left(\frac{s}{s_0}\right)^{\alpha(\sqrt{u})}\{1+\exp[-i\pi\alpha(\sqrt{u})]\}\gamma_5$$
$$+\gamma_5 \frac{b(-\sqrt{u})(-u^{1/2}+\not{P})}{2\sin\pi\alpha(-\sqrt{u})}\left(\frac{s}{s_0}\right)^{\alpha(-\sqrt{u})}\{1+\exp[-i\pi\alpha(-\sqrt{u})]\}\gamma_5,$$

in place of Eq. (2). Since $(u^{1/2}+\not{P})(2\sqrt{u})^{-1}$ and $(u^{1/2}-\not{P})(2\sqrt{u})^{-1}$ are projection operators, we may simplify and obtain

$$\gamma_5\not{P}b(\not{P})\left(\frac{s}{s_0}\right)^{\alpha(\not{P})}\left\{\frac{1+\exp[-i\pi\alpha(\not{P})]}{\sin\pi\alpha(\not{P})}\right\}\gamma_5.$$

We now introduce a neutral vector meson of mass λ coupled to the nucleon current with coupling constant $\gamma^2/4\pi$; perturbation theory to orders g^2 and $\gamma^2 g^2$ then gives, for large s and fixed u, the result

$$\gamma_5\left\{\frac{g^2}{\not{P}-m}+\frac{\gamma^2}{8\pi^2}g^2\ln\left(\frac{s}{s_0}\right)\right.$$
$$\left.\times\int_0^1\frac{dx[\not{P}(1-x)+m]}{\lambda^2(1-x)+(m^2-\not{P}^2)x+\not{P}^2x^2-i\epsilon}\right\}\gamma_5.$$

[Thus, in our Eq. (4), in the formula for A, I_0 should be replaced by I_1.] If we identify the logarithmic term as part of a series transforming the Born approximation term into one representing a Regge pole, then we conjecture that higher orders of perturbation theory in γ^2, with the highest power of $\ln s$ retained in each order, will yield

$$\gamma_5 \frac{g^2}{\not{p}-m} \exp\left\{\frac{\gamma^2}{8\pi^2} \ln\left(\frac{s}{s_0}\right)(\not{p}-m) \times \int_0^1 \frac{dx[\not{p}(1-x)+m]}{\lambda^2(1-x)+(m^2-\not{p}^2)x+\not{p}^2x^2-i\epsilon}\right\}\gamma_5.$$

If the conjecture is right, then we have, correcting Eq. (6), the following lowest-order expressions for α and b:

$$\alpha(\not{p}) = \frac{\gamma^2}{8\pi^2}(\not{p}-m)\int_0^1 \frac{dx[\not{p}(1-x)+m]}{\lambda^2(1-x)+(m^2-\not{p}^2)x+\not{p}^2x^2-i\epsilon} + \cdots,$$

$$b(\not{p}) = \pi g^2 \alpha(\not{p})[2\not{p}(\not{p}-m)]^{-1} + \cdots.$$