Mass Formulae from Regge-Trajectory Constraints in the Veneziano Model.

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(*Nuovo Cimento*, **58** A, 865 (1968))

Equation (3') should be replaced by

$$T = \varepsilon_{\mu\nu\sigma\tau}\eta^{\mu}_{\lambda}q_1^{\nu}q_2^{\sigma}q_3^{\tau}\{(q_1^{\lambda}-q_3^{\lambda})A(s_1, s_2, s_3) + (q_1^{\lambda}+q_3^{\lambda})C(s_1, s_2, s_3)\} \tag{3'}$$

where $s_1=(q_1+(q_2)^2$, $s_2=(q_1+q_3)^2$, $s_3=(q_2+q_3)^2$. Assuming degenerate ϱ and f trajectories, the crossing symmetries and asymptotic behaviours of the amplitudes are reproduced by

$$A^I(s_i)=\frac{\beta}{\pi}[r-\alpha(s_3)]F^I(s_i)\,,$$

$$C^I(s_i)=\frac{\beta}{\pi}[\alpha(s_1)-\alpha(s_2)]F^I(s_i)\,,$$

where I is the iso-spin in the s_1 channel and

$$F^0(s_i)=\tfrac{3}{2}[B_2(s_1, s_2)+B_2(s_1, s_2)]-\tfrac{1}{2}B_2(s_2, s_3)\,,$$

$$F^1(s_i)=B_2(s_1, s_3)-B_2(s_1, s_2)\,,$$

$$F^2(s_i)=B_2(s_2, s_3)\,.$$

The $s_1\leftrightarrow s_3$ crossing properties

$$A(s_3, s_1)=-\tfrac{1}{2}[A(s_1, s_3)+C(s_1, s_3)] \qquad \text{and} \qquad C(s_3, s_1)=\tfrac{1}{2}[C(s_1, s_3)-3A(s_1, s_3)]$$

require the relation $\sum_{i=1}^{3}\alpha(s_i)=3r$ for the parameter r. Owing to the presence of the function $B_2(x, y)$ defined in eq. (6), ancestors of the ρ-meson can in general occur; they are eliminated by the choice $r=1$. In this way one recovers the condition eq. (7) with $n=2$ which, at the same time, eliminates alternating daughter trajectories. This condition gives rise to the mass formula $A_2^2=3(\varrho^2-\pi^2)$, which is very well satisfied.

The condition eq. (7) with $n=0$ used for processes of kind (1) should be replaced by $\sum_{i=1}^{3}\alpha(s_i)=\tfrac{3}{2}$, according to the PCAC consistency condition (C. LOVELACE: *Phys. Lett.*, **28** B, 264 (1968)).

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