

WEAK HADRONIC $\Delta S=0$ $BB\pi$ -AMPLITUDES AND MELOSH TRANSFORMATION

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Melosh transformation definitely distinguishes between constituent and current quarks. Using PCAC and soft-pion techniques, weak parity-violating and strangeness-conserving baryon-pion amplitudes are evaluated in the infinite-momentum frame. These amplitudes contribute to parity violation, which was observed in nuclear processes and is expected in high-energy deep inelastic scattering of protons.

The Melosh-transformed axial-vector current allows new hadronic intermediate states. This effect is studied in the case of the effective Hamiltonian derived from a unified gauge theory of weak and electromagnetic interactions. Melosh transformation connects current quarks from this Hamiltonian with constituent quarks of baryon states. $SU(6)_w$ reduction and assumption of 35-dominance of a weak Hamiltonian give only one unknown parameter, which is determined from the hyperon-decay fit.

The amplitude evaluated in this work is compared with earlier estimates based on "classical" current algebra, pole-model and unitary symmetries; it is two orders of magnitude smaller than the "classical" result. A new SUM RULE for hadronic amplitudes has also been derived:

$$\frac{A(p_+^+)}{m_1 - m_f} = -a \frac{2}{\sqrt{3}} \left[\frac{A(\Xi_-^-)}{m_\Xi - m_\Lambda} + 2 \frac{A(\Lambda_-^0)}{m_\Lambda - m_N} \right]$$

where the parameter a depends on a specific weak-Hamiltonian model.

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