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Pseudoscalar meson dominance and pion-nucleon coupling constant

Following simple large Nc arguments and perturbative QCD constraints complemented with uncertainty estimates based on the idea of meson dominance and the half-width rule, we describe the pseudoscalar form factors of the nucleon. We analyze their implications in the space-like region at intermediate and low energies and compare to recent lattice QCD determinations. Our analysis allows for a simple determination of the pion-nucleon coupling constant at a precision level that matches the most accurate determination to date based on the analysis of the Granada nucleon-nucleon database (8000 experimental ⊠ scattering data). Based on this we provide a suitable extension to the less accessible SU(3) couplings corresponding to hyperon scattering.

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