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A Three-Flavor Chiral Effective Model with Four Baryonic Multiplets within the Mirror Assignment

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In the framework of the extended Linear Sigma Model we study four baryonic multiplets introduced via the mirror assignment, which allows chirally invariant mass terms. We first investigate formal features of a three-flavor treatment of the problem and then study the reduction to the two flavor case. In the latter, four baryonic doublets are present: the nucleon N(939) and the Roper N(1440) with positive parity, as well as the resonances N(1535) and N(1650) with negative parity. We determine the parameters of the model via a fit to known masses and decay properties of the aforementioned states, showing a good agreement of theory with data.

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