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Constraints of QCD order parameters from eta to 3pi data

The most important order parameters of spontaneous chiral symmetry breaking in QCD are the quark condensate and the pseudoscalar decay constant in the chiral limit. Yet their values are still only weakly constrained by analyses using experimental data. We try to obtain such constraints by statistical methods in the framework of resummed chiral perturbation theory using data on the decay of eta to 3 pions. We rely on recent estimates of the isospin violating parameter R , which is proportional to the difference of the u and d quark masses. Alternatively, by the same methods we also try to extract information on the difference of masses of the light quarks.

Primary author: Dr KOLESÁR, Marián (IPNP, Charles University, Prague)

Co-author: Dr NOVOTNÝ, Jiří (IPNP, Charles University, Prague)

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