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Extraction of low energy QCD parameters from eta to 3pi and beyond

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The eta to 3pi decays are a valuable source of information on low energy QCD. Yet they were not used for an extraction of the three flavor chiral symmetry breaking order parameters until now. We use a bayesian approach in the framework of resummed chiral perturbation theory to extract information on the quark condensate and pseudoscalar decay constant in the chiral limit, as well as the mass difference of the light quarks. We compare our results with recent CHPT and lattice QCD fits and find some tension, as the eta to 3pi data seem to prefer a larger ratio of the chiral order parameters. The results also seem to exclude a large value of the chiral decay constant, which was found by some recent works. In addition, we present preliminary results of a combined analysis including eta to 3pi decays and pi-pi scattering.

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