



Contribution ID: 300

Type: Oral presentation

Nuclear Parity Violation from 4-quark Interactions

Thursday 29 July 2021 07:45 (15 minutes)

We investigate the parity odd $\Delta I = 1$ pion-nucleon coupling h_π^1 from lattice QCD. With the PCAC-based use of a parity-conserving effective Hamiltonian, we extract the coupling by determining the nucleon mass splitting arising from effective 4-quark interactions using the Feynman-Hellmann theorem. We present preliminary results of the mass shift for a $32^3 \times 64$ ensemble of $N_f = 2 + 1 + 1$ twisted mass fermions at pion mass 260 MeV and lattice spacing $a = 0.097 fm$.

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Session Classification: Hadron Spectroscopy and Interactions

Track Classification: Hadron Spectroscopy and Interactions