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Towards the P-wave nucleon-pion scattering amplitude in the $\triangle$ (1232) channel: Phase shift analysis

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The study of strong scattering in Lattice QCD is enabled by the use of the Luescher method, which defines a mapping between the two body spectrum in the finite volume and the infinite volume scattering amplitude.This talk focuses on the study of πN scattering in P-wave and $I = \frac{3}{2}$, where the Δ resonance resides. We use $N_f = 2 + 1$ flavors of tree-level improved Wilson-clover quarks corresponding to a pion mass of ~ 250 MeV with lattice size 3.7 fm, where Δ is unstable. We aim to discuss the mapping of energy levels to scattering phase shifts.

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