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Preliminary results for elastic nucleon-pion scattering amplitudes from lattice QCD

The prospects and difficulties of computing nucleon-pion scattering amplitudes from lattice QCD simulations are illustrated with high-statistics results on a single ensemble of gauge field configurations with dynamical up, down, and strange quarks and a pion mass $m_\pi = 200\mathrm{MeV}$. The stochastic-LapH approach to quark propagation enables an efficient computation of all required correlation functions, and a good statistical precision is achieved for the $I = 3/2$ amplitudes. The $I = 1/2$ channel is considerably more difficult, complicating direct lattice determination of both scattering lengths.

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