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Three pion interactions from the lattice

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Much of the resonant spectrum of QCD consists of states which decay strongly into two- and three-body final states. Lattice QCD calculations have matured to the stage where these states can be reliably resolved in first principles numerical calculations. While connecting these finite-volume results to infinite-volume scattering is now commonplace in the two-body sector, three-body physics presents more difficulties.

On the back of the significant progress made in connecting three-body scattering in infinite-volume to finite-volume states, the first determinations of three-body interactions from lattice QCD have recently begun to appear. Building on success in the two-pion sector, I will present our recent lattice QCD calculations of three-pion systems in maximal isospin, with a focus on a recent extraction of the $3\pi^+$ three-body force, and a comparison to other determinations.

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