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Two- and Three-Body Resonances in the Finite Volume

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Unitarity dictates the on-shell condition of multi-particle systems. It is therefore the tool to determine the leading finite-volume effects needed for the extrapolation of lattice QCD results. Together with unitary extensions of Chiral Perturbation Theory, one may attempt to extrapolate to the physical point. After a short summary on recent extrapolations in the two-body resonance sector (σ , ρ), a new, relativistic method for the extrapolation of three-particle systems is presented, based on a three-body unitary isobar expansion. Existing data from the NPLQCD collaboration on a system of three interacting pions is analyzed and, for the first time, excited levels for a physical three-body system are predicted.

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