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Spectroscopy of Nucleon-Pion Systems using Sparsened Interpolators

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Neutrino oscillation experiments require accurate reconstructions of neutrino energies, which depend in part on a theoretical understanding of the axial $N \rightarrow \Delta$ transition form factors. A lattice QCD study of this transition will require construction of all hadronic states with energies up to m_Δ, which at the physical point includes $N\pi$ and $N\pi\pi$. Building interpolating operators from sparse grids at the source and sink is a versatile method that allows construction of a wide range of diagram topologies and has successfully been used in other multi-hadron calculations. We will discuss application of this method to nucleon-pion systems and present preliminary results.

Topical area

Hadronic and Nuclear Spectrum and Interactions

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