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Investigations of nucleon-pion states

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We present an analysis of the $N\pi$ contribution to the determination of the nucleon mass spectrum using constrained fits. Our study involves simultaneous fitting of $N \rightarrow N$ and $N \rightarrow N\pi$ correlation functions. The analysis is performed on a $24^3 \times 48 \times 24$ lattice with $2 + 1$ dynamical Domain-Wall fermions. We employ a lattice spacing of $a^{-1} = 1.74$ GeV and a pion mass of $m_\pi = 279$ MeV. Further, we will discuss our preliminary results for the computation of the nucleon axial charge.

Topical area

Structure of Hadrons and Nuclei

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