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## Study of the pion-mass dependence of $\rho$ -meson properties in lattice QCD

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We collect spectra extracted in the  $I = \ell = 1 \pi\pi$  sector provided by various lattice QCD collaborations and study the  $m_\pi$  dependence of  $\rho$ -meson properties using Hamiltonian Effective Field Theory (HEFT). In this unified analysis, the coupling constant and cutoff mass, characterizing the  $\rho - \pi\pi$  vertex, are both found to be weakly dependent on  $m_\pi$ , while the mass of the bare  $\rho$ , associated with a simple quark-model state, shows a linear dependence on  $m_\pi^2$ . Both the lattice results and experimental data can be described well.

Drawing on HEFT's ability to describe the pion mass dependence of resonances in a single formalism, we map the dependence of the phase shift as a function of  $m_\pi$ , and expose interesting discrepancies in contemporary lattice QCD results.

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