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On the two-pole nature of the $\Lambda(1405)$ from lattice QCD

Thursday, 18 January 2024 11:40 (30 minutes)

This talk presents results of the first coupled-channel meson-baryon $\Sigma \pi$ – N \bar{K} computation from lattice QCD in the $\Lambda(1405)$ region. Correlation functions were calculated using a single ensemble with a pion mass m π = 200

MeV and kaon mass mK = 487 MeV, including single- and multi-hadron operators and the finite-volume energy spectra were extracted. The Lüscher method was employed to study scattering amplitudes based on these finite-

volume energies. The final results showed agreement with the two-pole picture after parametrizing the twochannel

K-matrix. These poles correspond to a virtual bound state below $\Sigma\pi$ threshold and a resonance pole below the N \bar{K} threshold.

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