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The 3-pion K-matrix at NLO in ChPT

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The finite-volume spectrum of 3-hadron systems on the lattice can be captured by the so-called K-matrix. This scheme-dependent object can be related to the corresponding 3-to-3 scattering amplitude in infinite volume, which can in turn be calculated using a low-energy effective field theory such as chiral perturbation theory (ChPT). We present the next-to-leading-order calculation of the K-matrix for three pions in all isospin channels, generalizing the maximum-isospin case presented at Lattice 2023. Our results are qualitatively similar to those at maximum isospin, but the technical aspects serve as a stepping stone toward further generalization to cases including kaons and other hadrons.

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