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The three-particle K-matrix at NLO in ChPT

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The three-particle K-matrix, $\mathcal{K}_{\mathrm{df},3}$, is a scheme-dependent quantity that parametrizes short-range three-particle interactions in the relativistic-field-theory three-particle finite-volume formalism. In this talk, I briefly present our earlier calculation of the six-pion amplitude at next-to-leading order (NLO) in Chiral Perturbation Theory (ChPT) and our recent findings about how it relates to the K-matrix for systems of three pions at maximal isospin. The resulting values are then compared to existing lattice QCD results. The agreement between lattice QCD data and ChPT in the first two coefficients of the threshold expansion of $\mathcal{K}_{\mathrm{df},3}$ is significantly improved once NLO effects are incorporated.

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