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$\pi\pi$ scattering at large N_c

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In this work we study the large N_c scaling of pion-pion scattering lengths for $N_f = 4$ degenerate quark flavours. We focus on the standard isospin-2 channel and the adjoint-antisymmetric representation, which is unique for $N_f \geq 4$. We compare the results obtained for two regularisations (Wilson and Twisted-Mass) and three values of the lattice spacing, and observe significant discretisation effects in the AA channel. Finally, we compare our results to NLO SU(4) and NNLO U(4) Chiral Perturbation Theory and study the N_c scaling of the relevant low-energy couplings.

Primary author: BAEZA-BALLESTEROS, Jorge (Universitat de València)

Co-authors: Prof. HERNANDEZ, Pilar (University of Valencia); Mr ROMERO-LÓPEZ, Fernando

Presenter: BAEZA-BALLESTEROS, Jorge (Universitat de València)

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