

Abstract Submitted
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Pion-Pion Scattering in the Rho Meson Region¹ REGINA AZEVEDO, UBIRAJARA VAN KOLCK, Department of Physics, University of Arizona — The pion-pion elastic scattering cross-section has a bump around the center-of-mass energy $E = (770 \pm 3)$ MeV, the rho meson region. Chiral Perturbation Theory (ChPT) describes pion-pion scattering well at lower energies but fails to explain this bump. We generalize ChPT by including the rho meson in an Effective Field Theory with a systematic power counting. We have used a realization of chiral $SU(2)_L \times SU(2)_R$ symmetry (“vector realization”) that includes not only massless pseudoscalar mesons (pions) but also scalars that become the longitudinal components of the vector mesons (rhos). We apply the power counting to pion-pion scattering around the bump. In leading order only the P wave with isospin $I = 1$ contributes. We have calculated the corresponding phase shifts, which depend on a single parameter. I will present the results of a fitting to data and discuss the extension to higher orders.

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