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Pion-pion Scattering with Elongated Boxes CHRISTOPHER CULVER JR, ANDREI ALEXANDRU, MAXIM MAI, FRANK LEE, MICHAEL DORING, George Washington University — Pion-pion scattering offers an important benchmark for a lattice QCD study of hadron-hadron interactions. Scattering can happen in one of three isospin channels, each having distinct properties. The attractive I = 0 and I = 1 channels are dominated by the broad σ and narrow ρ resonances, respectively, while the I = 2 channel has no low energy resonance. Our group has calculated the σ and ρ resonance properties using elongated boxes to scan the relevant kinematic region at two pion masses. Here we present new results for the isospin-2 channel, thus completing the full study of $\pi\pi$ scattering. In addition, we establish a link to the physical point of all three channels simultaneously using the Inverse Amplitude Method.

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