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Lattice study of pion-pion scattering using $N_f=2+1$ Wilson improved quarks with masses down to their physical values.

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for the BMW Collaboration.

We use 2HEX smeared gauge configurations generated with the $N_f=2+1$ clover improved Wilson action to investigate pion-pion scattering in the rho channel. The range of lattice spacings (0.054 fm to 0.12 fm) and space-like extents (32 and 48) allows us to extract the scattering parameters through the volume dependence of the effective mass according to Luscher's formalism. In particular, we consider bases of up to 5 operators to extract these levels. Our pion masses, down to 134 MeV, allow us to begin studying the light-quark-mass dependence of the resonance parameters.

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