

Abstract Submitted
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Scattering phaseshift formulas for moving frames in elongated boxes¹ FRANK LEE, ANDREI ALEXANDRU, George Washington Univ — We derive Lüscher phaseshift quantization conditions for two-particle moving states in boxes elongated in one of the dimensions. Boosted states in three different directions, $(0,0,1)$, $(1,1,0)$, and $(1,1,1)$, are considered. The formulas are compared with those in cubic boxes. They are numerically validated in a simple model by solving the Schrödinger equation on discretized lattices. The predictive power for the lowest partial wave in various irreducible representations is examined. Effects of higher partial waves are investigated by reverse-engineering the quantization conditions. The results can serve as a bridge between energy levels in finite volume and more sophisticated models for meson-meson and meson-baryon elastic scattering processes in infinite volume.

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