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$\pi\pi\pi$ scattering

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The three-body problem, renowned for its unsolvable nature in celestial mechanics and homonymous science fiction, is not only solvable in the quantum realm regarding spectra but also offers profound insights into QCD. Many hadronic resonances, such as the Roper resonance, T_{cc} , and ω , can be thoroughly understood only by studying the underlying three-body dynamics. As a step toward analyzing more complex systems, we have performed lattice calculations of the $\pi\pi\pi\pi$ finite-volume spectra, implemented the corresponding quantization conditions, and solved the integral equations. The resulting infinite-volume scattering information will be presented.

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