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Resonances in coupled-channel scattering from lattice QCD

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Recently it has become possible to obtain coupled-channel scattering amplitudes using lattice QCD. Using a large basis of operators we are able to obtain a reliable finite volume spectrum describing the coupled π -K, η -K system. Utilizing the finite volume formalism proposed by Luescher and extended by several others, we are able to describe the spectra from each lattice symmetry group and this enables constraints to be derived for S, P and D-wave scattering. We find resonant scattering amplitudes and investigate their structure in the complex plane, finding poles that display a pattern similar to the physical $K^*(892)$, $K_0^*(1430)$ and $K_2^{*}(1435)$ resonances.

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