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Resonances in Coupled-Channel Scattering

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Excited states in hadron physics are seen as resonances in the scattering of lighter stable hadrons like π , K and η . Many decay into multiple final states necessitating coupled-channel analyses. Recently it has become possible to obtain coupled-channel scattering amplitudes from lattice QCD. Using large diverse bases of operators it is possible to obtain reliable finite volume spectra at energies where multiple channels are open. Utilising the finite volume formalism proposed by Lüscher and extended by several others, scattering amplitudes can be extracted from the finite volume spectra. Recent applications will be discussed where the energy dependence of scattering amplitudes is mapped out in several quantum numbers. These are then continued to complex energies to extract resonance poles and couplings.

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