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Coupled-channel analysis of $D\pi$, $D\eta$ and $D_s\bar{K}$ scattering using lattice QCD

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We present an extensive study of isospin $1/2$ coupled-channel $D\pi$, $D\eta$ and $D_s\bar{K}$ scattering, as well as isospin $3/2$ elastic $D\pi$ scattering, from $N_f = 2 + 1$ lattice QCD. Our use of distillation in combination with variationally optimised interpolating operators allows us to extract statistically precise two-meson spectra, which we use to constrain scattering amplitudes as a function of energy. We interpret our results in terms of poles in the scattering matrix, finding a near-threshold bound state in S-wave, a deeply bound vector state in P-wave and a narrow resonance in D-wave.

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