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Three-meson scattering amplitudes with physical quark masses

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We study systems of two and three mesons composed of pions and kaons at maximal isospin using the E250 CLS ensemble with physical quark masses. Using the stochastic LapH method, we determine the energy spectrum of these systems including many levels in different momentum frames. Using the two- and three-body finite-volume formalism, we constrain the two and three-meson K matrix, including not only the leading s wave, but also p and d waves. By solving the three-body integral equation, we determine the physical-point scattering amplitudes of $3\pi^+$, $3K^+$, $\pi^+\pi^+K^+$ and $K^+K^+\pi^+$ systems.

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