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Analyzing coupled-channel matrix elements in finite volume

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Radiative transitions between stable hadrons and hadronic resonances can provide valuable insights into the composition of hadronic resonances. In this talk, we present a toy-model investigation regarding the feasibility of realistic lattice QCD calculations of reactions where a stable hadron undergoes a transition to one of several two-hadron channels. We describe the coupled-channel transition formalism relating the finite-volume matrix elements with the infinite volume transition amplitudes and provide a roadmap for performing the calculation. We demonstrate the efficacy of the approach on a set of synthetic data generated for a non-trivial resonant toy model.

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