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Theoretical aspects on the prediction of spectral densities from Lattice QCD

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Hadronic spectral densities play a pivotal role in particle physics, a primer example being the R-ratio defined from electron-positron scattering into hadrons. To predict them from first principles using Lattice QCD, we face a numerically ill-posed inverse problem, due to the Euclidean signature adopted in practical simulations. Here we review the status of recent numerical approaches to the inverse Laplace transform and present a new analysis of the typical systematic errors associated to a Lattice prediction (e.g. finite-volume effects).

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