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Sparse modeling study to extract spectral functions from lattice QCD data

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We present spectral functions extracted from Euclidean-time correlation functions by using sparse modeling. Sparse modeling is a method that solves inverse problems by considering only the sparseness of the solution we seek, without a default model. To check applicability of the method, we firstly test it with mock data which imitate charmonium correlation functions on a fine lattice. We show that the method can reconstruct the resonance peaks in the spectral functions. Then, we extract charmonium spectral functions from correlation functions obtained from lattice QCD at temperatures below and above the critical temperature. We show that this method yields results like those obtained with MEM and other methods.

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