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# Reconstructing QCD Spectral Functions with Gaussian Processes

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We reconstruct spectral functions from ghost and gluon propagators obtained through lattice QCD calculations with dynamical quarks. To this end, we employ Gaussian process regression (GPR) using kernel parametrizations that explicitly encode the analytically derived asymptotic scaling properties in the infrared and ultraviolet. The proposed ansatz allows us to consistently improve the conditioning of the inverse problem while keeping the additional bias minimal. We largely avoid common problems associated with standard methods, such as unwanted oscillations in the case of linear regression with Tikhonov regularization. Numerical results are promising and motivate the reconstruction of quark spectral functions within the same framework in order to obtain access to real-time properties of QCD.

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