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Quarkonium spectral functions at finite temperature on large quenched lattices and towards the continuum limit

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We present our recent studies about quarkonium spectral functions in lattice QCD at finite temperature. We performed lattice QCD simulations with the quenched approximation on very large and fine lattices. We calculated quarkonium correlation functions in a quark mass range between charm and bottom quarks at temperatures between $0.75T_c$ and $2.2T_c$. Using the correlation functions for our finest lattice with lattice spacing $a^{-1} = 22$ GeV, we reconstructed spectral functions, where we employed the conventional maximum entropy method as well as the stochastic methods to check systematic uncertainties. In this talk we discuss dissociation temperatures for charmonia and bottomonia and also show some estimates of the heavy quark diffusion coefficient. In addition, we show some results on a continuum extrapolation of the quarkonium correlation functions, which has been done for the first time, towards the continuum limit of the spectral functions.

Summary

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