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Transport and spectral properties of heavy quarks from lattice QCD

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In this talk I will review our recent lattice results on the charmonia & bottomonia spectral functions and heavy-quark transport properties in hot medium. The spectral analyses are performed on the quarkonium correlators measured on the lattice extrapolated to the continuum limit and interpolated to physical J/ψ and Υ masses. Good agreement is observed between our lattice data and the perturbation spectral functions. We also study the transport properties of heavy quarks via color-electric correlators measured under gradient flow. With this newly developed method we achieved good signal in the data and a non-perturbative renormalization for the correlators. Our studies give consistent results with those from other lattice studies. In the end I will give an outlook for the future work that can be done and the possible difficulties that we could meet.

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