

Abstract Submitted
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Towards the Gravity Dual of Quarkonium in the Strongly Coupled QCD Plasma PAUL HOHLER, University of Illinois Chicago, HOVHANNES GRIGORYAN, Argonne National Lab, MIKHAIL STEPANOV, University of Illinois Chicago — We build a “bottom-up” holographic model of charmonium by matching the essential spectral data. We argue that this data must include not only the masses but also the decay constants of the J/ψ and ψ' mesons. Relative to the “soft-wall” models for *light* mesons, such a matching requires two new features in the holographic potential: an overall upward shift as well as a narrow “dip” near the holographic boundary. We calculate the spectral function as well as the position of the complex singularities (quasinormal frequencies) of the retarded correlator of the charm current at finite temperatures. We further extend this analysis by showing that the residues associated with these singularities are given by the boundary derivative of the appropriately normalized quasinormal mode. We find that the “melting” of the J/ψ spectral peak occurs at a temperature $T \approx 540$ MeV, or $2.8 T_c$, in good agreement with lattice results.

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