

Abstract Submitted
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Free energy and potential energy of static quark anti-quark pair at $T > 0$ PETER PETRECKZY, BNL — I will discuss lattice QCD calculations of the free energy and the potential energy of static quark anti-quark pair at non-zero temperature using highly improved staggered quark (HISQ) action. The free energy of static quark anti-quark pair is calculated from the correlation functions of Polyakov loops, while the potential energy is extracted from the analysis of temporal Wilson loops with time extent $\tau < 1/T$. I will show that chromo-electric screening effects are not visible in the potential energy for distances $r < 1$ fm and temperatures $T < 200$ MeV, and the temperature dependence of the free energy can be understood in terms of hadronic degrees of freedom. I will also discuss the implication of these findings on quarkonium properties in quark-gluon plasma.

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