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Static potential at non-zero temperature from fine lattices

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We report on the preliminary studies of static quark anti-quark potential at non-zero temperature in 2+1 flavor QCD using $96^3 \times 32$ lattices with lattice spacing $a=0.03\text{fm}$, physical strange quark mass and light quark masses corresponding to pion mass of about 300 MeV. The static potential is obtained from Wilson line correlator in Coulomb gauge with additional HYP smearing to reduce the noise at large quark anti-quark separations. We apply 0, 5 and 10 steps of HYP smearing to ensure that there is no physical effect from oversmearing. We obtain the complex static potential at non-zero temperature by assuming a single peak plus continuum form of the spectral function. Furthermore, the continuum part of the spectral function is constrained by the $T=0$ calculations at the same lattice spacing. The peak position gives the real part of the potential, while the width of the peak gives the imaginary part.

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