

QPT 2019

Enshi, China

Contribution ID: 80

Type: not specified

Modelling the non-perturbative contributions to the complex heavy-quark potential

Summary

We construct a simple model for the complex heavy quark potential which is defined through the Fourier transform of the static gluon propagator. Besides the hard thermal loop resummed contribution, the gluon propagator also includes a non-perturbative term induced by the dimension two gluon condensate. Within the framework of thermal field theory, the real and imaginary parts of the heavy quark potential are determined in a consistent way without resorting to any extra assumption as long as the exact form of the retarded/advanced gluon propagator is specified. The resulting potential model has the desired asymptotic behaviors and reproduces the data from lattice simulation reasonably well. By presenting a direct comparison with other complex potential models on the market, we find the one proposed in this work shows a significant improvement on the description of the lattice results, especially for the imaginary part of the potential, in a temperature region relevant to quarkonium studies.

Primary author: Dr GUO, Yun (Guangxi Normal University)

Presenter: Dr GUO, Yun (Guangxi Normal University)