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Non-perturbative Quarkonium Dissociation Rates in the QGP

Tuesday 5 September 2023 17:30 (2h 10m)

We perform a non-perturbative calculation of quarkonium dissociation rates in the quark-gluon plasma (QGP) within a thermodynamic T-matrix approach. The latter resums an infinite series of ladder diagrams for heavy-light interactions appropriate for a strongly coupled QGP which are implemented via half-off-shell amplitudes accounting for recoil corrections and interference effects (related to the imaginary part of the Q-Qbar potential). In particular, the T-matrix approach accounts for non-trivial thermal-parton spectral functions in the QGP with an equation of state that agrees with lattice-QCD results, thus ensuring consistency between the heavy- and light-parton sectors. We compare these rates to perturbative ones as previously employed in semi-classical transport calculations and to those utilized in currently employed quantum transport approaches.

[1] S. Y. F. Liu and R. Rapp, Phys. Rev. C 97, 034918 (2018)

Category

Theory

Collaboration (if applicable)

HEFTY

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