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The impact of memory on heavy quarks dynamics in hot QCD medium.

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Heavy quarks (HQs) are considered as effective probes to study the evolution of the quark-gluon plasma (QGP). We study the dynamics of HQs in a hot QCD medium with a time-correlated noise, η. We have introduced the effect of memory through η and the dissipative force in the Generalized Langevin equation (GLV). We assume that the time correlations of the colored noise decay exponentially with time, called the memory time, \tau. We have explored the effect of non-zero values of \tau on the nuclear modification factor, R AA, and transverse momentum broadening, \sigma_p of the HQs within the QGP medium. We find that overall memory slows down the momentum evolution of heavy quarks; In fact, transverse momentum broadening and the formation of RAA are slowed down by memory and the thermalization time of the heavy quarks becomes larger. We will discuss the potential impact on other observables.

Session

Heavy Ions and QCD

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