



Contribution ID: 9

Type: **not specified**

Non perturbative effect in charm diffusion and flow from Gribov-Zwanziger approach

Due to the longer relaxation time of heavy quarks compared to light quarks in the quark-gluon plasma, the non-equilibrium information is expected to be retained in the final momentum distribution of heavy flavors, making them suitable probes of the strongly interacting system. Using the Gribov-Zwanziger prescription to model the infrared behavior of QCD, we study the momentum diffusion coefficient κ of the charm quark and its dependence on both the medium temperature and the heavy quark momentum. We will also discuss the role played by the modified IR behavior in computing the diffusion coefficient. The scaled momentum diffusion coefficient is found to increase with momentum and decrease with the temperature.

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