



Contribution ID: 765

Type: Poster

Charm production in various scenarios of the QGP evolution

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

We study the production of charm quarks in hot QCD medium described by quasiparticle excitations of quarks and gluons. The effective masses are adjusted through the coupling to satisfy the entropy density obtained on the lattice [1]. The evolution of the QGP is described by hydrodynamic simulations in (2+1) dimensions with temperature-dependent shear viscosity taken into account [1,2]. The temperature and time evolution of the charm quark number obtained in the above-described scenario is further juxtaposed to the results acquired from ideal QGP obeying Bjorken flow. We observe a suppression of charm quark production in the absence of shear viscosity and transverse expansion [3]. Moreover, we compute the charm quark fugacity by solving the rate equation and find that it exhibits a global attracting solution, specific to the differential equations [4].

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[4] V. Mykhaylova, EPJ Web Conf. 274 (2022) 05006.

Category

Theory

Collaboration (if applicable)

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Session Classification: Poster Session

Track Classification: Collective Dynamics