



Contribution ID: 240 Contribution code: POS-HF-13

Type: Poster

Heavy quark transport through viscous quark-gluon plasma

Tuesday 14 June 2022 17:11 (1 minute)

Early production of heavy quarks (charm and bottom) in the heavy-ion collisions and their associated large mass scale renders them as useful probes for studying the quark-gluon plasma (QGP) properties. We study the heavy quark transport coefficients, drag and momentum diffusion, as a function of their initial momentum and QGP temperature for elastic and inelastic processes. The thermal medium interactions are incorporated through the effective fugacity quasiparticle model. The viscous corrections are included up to first and second order in the thermal distribution function of in-medium particles by solving effective Boltzmann equation within relaxation time approximation. The effect of shear and bulk viscous corrections to the heavy-quark transport coefficients have been investigated.

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Session Classification: Poster

Track Classification: Heavy-flavor and Quarkonia