Polish-German WE-Heraeus Seminar & Max Born Symposium



Contribution ID: 1

Type: not specified

Production of charm quarks in hot QCD matter

We study the production of charm quarks in hot QCD using the effective quasiparticle framework. The evolution of the medium is described by hydrodynamic simulations in 2+1 dimensions, with temperature-dependent shear viscosity taken into account. We compute the number of charm-anticharm pairs with the above setup and juxtapose it to the results acquired for the quark-gluon plasma described as a perfect fluid propagating only longitudinally. We solve the rate equation for the charm quark fugacity and then analyse how number of charm quark depends on the set of different parameters (number of dimensions, viscosity, chemical equilibration of other particles in the system).

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Session Classification: Poster flash talks