

Contribution submission to the conference SMuK 2021

Heavy-quark diffusion current in the Quark-Gluon Plasma —

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A hydrodynamic approach to the transport of heavy quarks in the Quark-Gluon Plasma is presented. We exploit the conservation of the number of heavy quark and anti-quark pairs within the evolution of the plasma to construct causal second-order hydrodynamic equations of motion. The hydrodynamic transport coefficients associated to the heavy-quark diffusion current are then compared with the momentum-diffusion coefficients obtained in the standard Fokker-Planck formalism. The purpose of the present work is to provide further insights on the level of thermalization of charm and bottom quarks inside the expanding Quark-Gluon Plasma by investigating the relation between the two approaches and determining if their merging is able to capture the complexity of the heavy-quark in-medium dynamics.

Part: HK

Type: Vortrag;Talk

Topic: Schwerionenkollisionen und QCD Phasen

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