

From RHIC to LHC: heavy quarks and J/psi in a partonic transport model

Heavy quark and J/psi production as well as their space-time evolution are studied in transport simulations of heavy-ion collisions at RHIC and LHC. In the partonic transport model Boltzmann Approach of MultiParton Scatterings (BAMPS) heavy quarks can be produced in initial hard parton scatterings or during the evolution of the quark-gluon plasma. Subsequently, they interact with the medium via binary scatterings with a running coupling and a more precise Debye screening which is derived from hard thermal loop calculations. We present results on the elliptic flow and the nuclear modification factor of heavy quarks, compare them to available data and estimate the impact of radiative corrections quantitatively. Furthermore, results on J/psi suppression at forward and mid-rapidity are reported for central and non-central collisions. For this, we investigate cold nuclear matter effects and the dissociation as well as regeneration of J/psi in the quark-gluon plasma.

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Track Classification: Heavy flavor and quarkonia production