

RHIC and LHC heavy ion collisions with pQCD Boltzmann transport

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Over the years a microscopic transport description for modeling the parton dynamics of ultrarelativistic heavy ion collisions at RHIC and at LHC has been developed. The parton cascade BAMPS is based on the solution of the relativistic Boltzmann equation treating perturbative QCD (pQCD) elastic and inelastic bremsstrahlung interactions. Collective effects of the evolving fireball, the depletion of jets by the partonic medium as well as the production and propagation of heavy quarks and heavy quarkonia can be thoroughly investigated within this unified approach. Fast thermalization and a strong buildup of elliptic flow can be understood emerging from the pQCD interactions and has to be contrasted with the ideal liquid sQGP. Most recently, the employed Gunion-Bertsch inelastic collision cross sections are challenged in comparison to the full pQCD inelastic matrix elements and will be discussed. Finally the production, the suppression and the elliptic flow of heavy quarks in line of the new experimental data at LHC will be considered and presented.

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