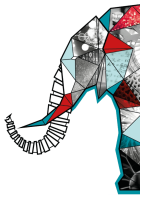
25e Congrès Général de la Société Française de Physique



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Exploring the partonic phase at finite chemical potential within heavy-ion collisions

Monday, 8 July 2019 17:18 (18 minutes)

We study within the Parton-Hadron-String Dynamics (PHSD) transport approach the partonic sector by explicitly calculating the differential partonic scattering cross sections (and transport coefficients) as a function of temperature T and baryon chemical potential μ_B based on the dynamical quasi-particle model (DQPM) that is matched to reproduce the equation of state of the partonic system above the deconfinement temperature T_c from lattice QCD. We also illustrate the values of temperature and chemical potential which are probed in heavy-ion collisions as a function of time and rapidity. We find that hadronic observables from central A+A collisions in the energy range 5 GeV $\leq \sqrt{s_{NN}} \leq$ 200 GeV, including (T, μ_B)-dependent cross sections and parton masses, do not differ very much from the ones obtained using a vanishing μ_B dynamics. The conditions to study the properties of the QGP phase are only fulfilled at high bombarding energies where μ_B is however rather low at midrapidity. On the other hand, with decreasing the bombarding energy and, thus, increasing μ_B, the hadronic phase becomes dominant and accordingly, it would be difficult to extract signals from the partonic dynamics only based on "bulk" observables.

Choix de session parallèle

1.3 Physique nucléaire: physique hadronique et QCD

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Session Classification: Séance Parallèle