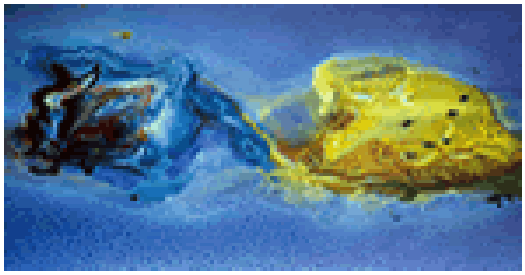

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Temperature dependence of η/s: uncertainties from the equation of state

Friday 3 August 2018 15:00 (20 minutes)

Recent advancements in multi-parameter model-to-data comparison have provided notable constraints on the temperature dependence of the shear viscosity over entropy density ratio η/s in the matter produced in the Pb+Pb collisions at the LHC. The results of the Bayesian analysis with a flexible initial state parametrization [1,2] support a linear temperature dependence of η/s found in the earlier study using the EKRT pQCD + saturation + hydrodynamics model [3]. However, it remains unexplored how much the choice of the equation of state affects the final outcome of the global analysis.

We perform a global model-to-data comparison on Au+Au and Pb+Pb collisions at $\sqrt{s_{NN}} = 200$ GeV, 2.76 TeV and 5.02 TeV, using a hydrodynamics model with the EKRT initial state, and the same parametric form for $\eta/s(T)$ as in Ref. [3]. To quantify the amount of uncertainty incorporated in the choice of EoS, we compare analysis results based on three different equations of state: the well known s95p parametrisation [4], an updated parametrisation based on the same list of particles, but recent lattice results [5] for the partonic EoS, and an updated parametrisation based on the Particle Data Group 2016 particle list and the recent lattice results.

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