



Contribution ID: 762

Type: Poster

The Specific Shear Viscosity of a Hot Hadron Gas

Tuesday, 15 May 2018 19:10 (30 minutes)

We extract the specific shear viscosity η/s of nuclear matter in the hadronic phase for various temperatures and chemical potentials from data. We use a blastwave parameterization of the final state of high energy nuclear collisions, including non-equilibrium deformations of particle distributions due to shear stress in the Navier-Stokes approximation. We apply a Bayesian analysis to spectra and elliptic flow of identified hadrons for a variety of collision energies and centralities at the Relativistic Heavy Ion Collider (RHIC) and the Large Hadron Collider (LHC). The systems analyzed cover a temperature range from about 110 to 145 MeV and vary in their chemical potentials for hadrons. We find that η/s falls from about $6/(4\pi)$ at lower temperatures to close to the proposed quantum bound $1/(4\pi)$ at higher temperatures. We attempt to assign meaningful systematic uncertainties to our results. This work is complementary to efforts using viscous fluid dynamics to extract the specific shear viscosity of quark gluon plasma at higher temperatures.

Content type

Theory

Collaboration

Centralised submission by Collaboration

Presenter name already specified

Primary authors: FRIES, Rainer (Texas A&M University); YANG, zhidong (Texas A&M University)

Presenter: FRIES, Rainer (Texas A&M University)

Session Classification: Poster Session

Track Classification: Collective dynamics