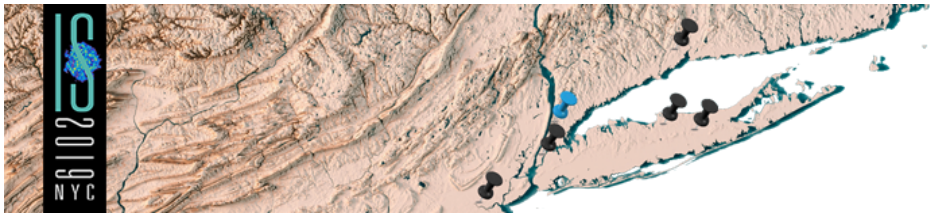

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Viscous Hydrodynamics with Finite Baryon Number, Strangeness, and Electric Charge

Tuesday, 25 June 2019 16:03 (1 minute)

Relativistic viscous hydrodynamics has been an essential tool in studying the evolution of the Quark Gluon Plasma (QGP) produced in heavy-ion collisions as well as in searching for the critical point expected to be present for more baryon dense systems. With the coming runs of the Beam Energy Scan II at the Relativistic Heavy Ion Collider (RHIC), it will be necessary to implement conserved Baryon number, B, electric charge, Q, and strangeness, S, into the hydrodynamic description in order to have relevant theoretical predictions. This requires knowledge of an equation of state that contains thermodynamic information on the associated chemical potentials for B, Q, and S. In this work, we use the most up-to-date equation of state which includes all of the necessary thermodynamic information to make relevant predictions about the effect of transport coefficients on system dynamics. In particular, we will explore how a large bulk viscosity near the critical point could lead to effects such as the possibility of a cavitating system, as well as the slowing down of dynamics leading to a longer lifetime of the fluid.

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