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Hydrodynamics with baryon diffusion —recent developments for the RHIC Beam Energy Scan program

Monday, 27 July 2015 14:00 (30 minutes)

In this talk, I will summarize recent theoretical efforts to understand the flow measurements in the BNL Beam Energy Scan (BES) program. The measured bulk flow observables at these collision energies and their collision energy dependence has not been understood on a quantitative level yet. This motivates us to improve our current theoretical modeling for the heavy-ion collisions at these low collision energies. I will then discuss our recent theoretical development of including baryon diffusion to model the relativistic heavy-ion collisions from 7.7 A GeV to 200 A GeV for the RHIC BES program. The consequences from the existences of conserved net baryon current, its diffusion, and non-boost invariant initial conditions to the final flow observables will be discussed.

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