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Hydrodynamics at large baryon densities: Understanding proton vs. anti-proton v_2 from baryon number conservation

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Using hydrodynamics we explore the effects of the initial state, baryon stopping and baryon number transport on various observables such as spectra, elliptic flow and particle yields for heavy ion collisions at beam energies from $\sqrt{s_{NN}}=7.7$ to 200 GeV. We find that observed phenomena such as the centrality dependent freeze out parameters as well as the apparent difference in particle and anti-particle v_2 can be explained by a collective hydrodynamic expansion, once baryon stopping and baryon number conservation are properly taken into account. We will further discuss how the various stages of the collision contribute to the $p_{\{t\}}$ spectra, the mass dependence of T_{eff} and particle ratio fluctuations.

Author: Dr STEINHEIMER-FROSCHAUER, Jan (Lawrence Berkeley National Laboratory)

Co-authors: BLEICHER, Marcus (Uni Frankfurt); KOCH, Volker (LBNL)

Presenter: Dr STEINHEIMER-FROSCHAUER, Jan (Lawrence Berkeley National Laboratory)

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