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

*Thursday 16 August 2012 16:00 (2 hours)*

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  $T_{\text{eff}}$  and particle ratio fluctuations.

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