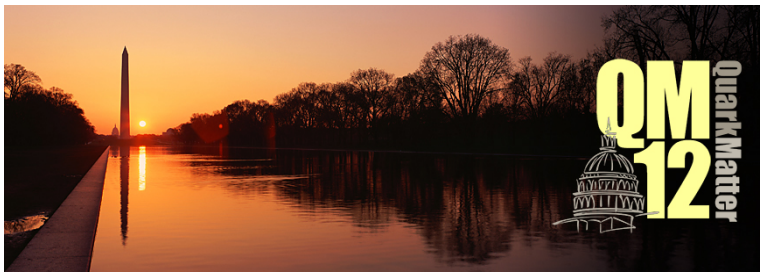

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Bulk viscosity, particle spectra and flow in heavy-ion collisions

Wednesday, 15 August 2012 08:30 (20 minutes)

We study the effects of bulk viscosity on p_T spectra and elliptic flow in heavy ion collisions. For this purpose we compute the dissipative correction δf to the single particle distribution functions in leading-log QCD, and in kinetic models of a hadronic resonance gas. We find that for a near conformal fluid the bulk viscosity is suppressed by two powers of the conformal breaking parameter, but the viscous correction to the spectra is only suppressed by the first power. This implies that bulk viscous corrections to flow profiles are typically small, but corrections to the spectra can be significant. From an analysis of the spectra at RHIC and LHC we find that the bulk viscosity at freezeout cannot be large, $\zeta/s < 0.05$. We also find, however, that a non-zero bulk viscosity improves the description of the hadrochemistry of flow, for example the splitting between the $v_2(p_T)$ of protons and pions.

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