

Title: Bulk Viscosity Effects in Event-by-Event Hydrodynamics

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Abstract:

Bulk viscosity effects on the collective flow harmonics in heavy ion collisions are investigated, on an event by event basis, using a newly developed 2+1 hydrodynamic code named v-USPhydro. A new formula for the bulk viscous corrections present in the distribution function at freeze-out is derived starting from the Boltzmann equation for multi-particle hadron species. Collective flow Fourier coefficients from v_2 to v_5 are shown to be significantly sensitive to bulk viscosity even for relatively small values of the bulk viscosity to entropy density ratio $\zeta/s < 0.08$.