



Contribution ID: 135

Type: **Talk**

## Coarse Graining in Hydrodynamics and Effects of Fluctuations

*Wednesday 24 July 2013 12:00 (30 minutes)*

The success of hydrodynamic description of the collective flow dynamics in relativistic heavy ion collisions is often understood as the realization of local thermal equilibrium during the phase of QGP. However, the scale of locality is not clear. Some of such basic questions about the hydrodynamic approach to relativistic heavy-ion collisions are discussed aiming to clarify how far we can go with such an approach to extract useful information on the properties and dynamics of the QCD matter created. We emphasize the importance of the coarse graining scale required for the hydrodynamic modeling which determines the space-time resolution and the associated limitations of collective flow observables. We show that certain kinds of observables can indicate the degree of non homogeneity of the initial condition under less stringent condition than the local thermal equilibrium subjected to the coarse-graining scale compatible to the scenario. The origin of viscosity associated with the coarse-graining procedure is also discussed.

### Summary

Importance of coarse-graining scale related with the type of observables is discussed.

**Primary authors:** KODAMA, Takeshi (Universidade Federal do Rio de Janeiro); KODAMA, Takeshi (F)

**Presenter:** KODAMA, Takeshi (Universidade Federal do Rio de Janeiro)

**Session Classification:** Plenary 7