QUARK MATTER 2015
Sep. 27 – Oct. 3, 2015 Kobe, Japan

Contribution ID: **629** Type: **Poster**

Hydrodynamics, all orders gradient expansion and beyond

Tuesday, 29 September 2015 16:30 (2 hours)

Hydrodynamic gradient expansions are in general divergent series. As a typical property of nonlinear systems, the late terms of the series grow factorially and in order to have a well defined answer, the usual hydrodynamic gradient expansion is required to be supplemented by an infinite tower of exponentially damped terms which are non-hyrodynamic modes. In this work we analyze in a concrete way such an enhanced gradient expansion for a plasma that undergoes a boost invariant expansion. We show that, remarkably, the usual hydrodynamic gradient expansion carries information about the non-hydrodynamic modes. Moreover different non-hydrodynamic modes are also interrelated in a similar fashion. We explain precisely how to extract that information and also discuss various resummation techniques that can be useful to improve the accuracy numerical computations.

On behalf of collaboration:

NONE

Primary author: Dr BASAR, Gokce (University of Maryland, College Park)

Co-author: Prof. DUNNE, Gerald (University of Connecticut)

Presenter: Dr BASAR, Gokce (University of Maryland, College Park)

Session Classification: Poster Session

Track Classification: New Theoretical Developments