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

Contribution ID: **212** Type: **Poster**

Thermalization, Isotropization, and Bose-Einstein Condensation in Overpopulated Massive Boson Systems

Tuesday 29 September 2015 16:30 (2 hours)

We study the kinetic evolution in dense systems of bosons with overpopulated initial conditions. Two important examples of such systems include (1) the dense gluon system at the early stage of heavy ion collisions and (2) the scalar field system shortly after inflation in the early universe. Common to both systems are the high overpopulation and possible dynamical formation of Bose-Einstein Condensation during the course of thermalization. We perform detailed investigation of both systems by numerically solving the pertinent Boltzmann equations, with elastic scatterings, both before and after the onset of condensation. We report our results and compare the two systems in a number of key aspects: the approach to BEC onset and the critical scaling behavior; the final course of thermalization and the corresponding time scales; the isotropization with anisotropic initial conditions; the isotropization in the longitudinally expanding case; as well as the comparison between classical limit and full quantum treatment of the Boltzmann equations. Finally we discuss the implications of our findings for the thermalization process in heavy ion collisions.

On behalf of collaboration:

NONE

Author: JIANG, Yin (Indiana University)

Co-authors: JEAN-PAUL, Blaizot (CNRS); LIAO, Jinfeng (Indiana University)

Presenter: JIANG, Yin (Indiana University)

Session Classification: Poster Session

Track Classification: Initial State Physics and Approach to Equilibrium