Contribution ID: **28** Type: **Oral presentation**

Initial state and thermalization in the glasma

Thursday, 31 May 2012 14:00 (20 minutes)

In the color glass condensate framework, the initial state of the system formed immediately after the collision of two heavy ions at high energy can be represented as a superposition of a classical color field and gaussian quantum fluctuations. This approximation is substanciated by results that show that all the leading logarithms of the collision energy are universal and can be factorized in distributions that represent each incoming nucleus. The fluctuating part of the initial color field results from a resummation of the modes that grow in the subsequent time evolution due to the Weibel instability.

We have carried out this resummation program fully for a simpler toy model that also exhibits similar instabilities, and we show that the instabilities drive the system towards local isotropy and thermal equilibrium.

References:

[1] Role of quantum fluctuations in a system with strong fields: Onset of hydrodynamical flow,
K. Dusling, T. Epelbaum, F. Gelis, R. Venugopalan,
1009.4363 [hep-ph], Nucl. Phys. A 850, 69 (2011).

[2] Role of quantum fluctuations in a system with strong fields: Spectral properties and Thermalization,
T. Epelbaum, F. Gelis,
1107.0668 [hep-ph], Nucl. Phys. A 872, 210 (2011).

Primary author: GELIS, Francois (Institut de Physique Theorique)

Co-authors: Dr DUSLING, Kevin (North Carolina State University); Dr VENUGOPALAN, Raju (Brookhaven National Laboratory); Mr EPELBAUM, Thomas (Institut de Physique Theorique)

Presenter: GELIS, Francois (Institut de Physique Theorique)

Session Classification: Parallel IVC: Initial state and pA