SPEAKER: Adam Kisiel (CERN)

TITLE: **Bose-Einstein correlations in pp and PbPb collisions with ALICE at the LHC**

DATE: Tue 15/02/2011 11:00

PLACE: Council Chamber

ABSTRACT

We report on the results of identical pion femtoscopy at the LHC. The Bose-Einstein correlation analysis was performed on the large-statistics ALICE p+p at sqrt{s}= 0.9 TeV and 7 TeV datasets collected during 2010 LHC running and the first Pb+Pb dataset at sqrt{s_NN}= 2.76 TeV.

Detailed pion femtoscopy studies in heavy-ion collisions have shown that emission region sizes ("HBT radii") decrease with increasing pair momentum, which is understood as a manifestation of the collective behavior of matter. 3D radii were also found to universally scale with event multiplicity. In p+p collisions at 7 TeV one measures multiplicities which are comparable with those registered in peripheral AuAu and CuCu collisions at RHIC, so direct comparisons and tests of scaling laws are now possible.

We show the results of double-differential 3D pion HBT analysis, as a function of multiplicity and pair momentum. The results for two collision energies are compared to results obtained in the heavy-ion collisions at similar multiplicity and p+p collisions at lower energy. We identify the relevant scaling variables for the femtoscopic radii and discuss the similarities and differences to results from heavy-ions. The observed trends give insight into the soft particle production mechanism in p+p collisions and suggest that a self-interacting collective system may be created in sufficiently high multiplicity events.

First results for the central Pb+Pb collisions are also shown. A significant increase of the reaction zone volume and lifetime in comparison to RHIC is observed. Signatures of collective hydrodynamics-like behavior of the system are also apparent, and are compared to model predictions.

Organised by: M. Mangano, M. Spiropulu, G. Unal.....
Tea and Coffee will be served at 10h30