



LHC Seminar

SPEAKER: Constantinos Loizides (Lawrence Berkeley National Lab. (US))

TITLE: **Observation of the double ridge at forward and backward rapidity in p-Pb collisions**

DATE: Tue 04/08/2015 11:00

PLACE: Council Chamber

ABSTRACT

Analysis of data from p-Pb collisions at the LHC from the 2012 pilot run led to intriguing observations by ALICE, ATLAS and CMS of ridge structures in two-particle correlations. The early results were soon substantiated by measurements involving multi-particle correlations and particle identification. The observations are reminiscent of collective effects measured in Pb-Pb collisions, and hence triggered a lively discussion in the theoretical and experimental community. Various mechanisms ranging from models incorporating gluon entanglement in the initial state or hydrodynamical evolution in the final state have been proposed to explain the features seen in the data. After an introduction into the findings in p-Pb collisions and their theoretical implications, the talk will focus on the latest result of the ALICE collaboration exploiting two-particle angular correlations between trigger particles in the forward or backward region ($2.5 < |\eta| < 4.0$) and associated particles at midrapidity ($|\eta| < 1.0$) in p-Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV.

The trigger particles are detected by the ALICE muon spectrometer, and hence mainly originate from weak decay of primary pion and kaon at low p_T , and heavy-flavor particles at high p_T . The ridge is found to persist in high-multiplicity events, and the second-order Fourier coefficients for the measured trigger particles are extracted. The v_2 coefficients are found to have a similar p_T dependence in forward (p-going) and backward (Pb-going) rapidity, with the Pb-going coefficients larger by about $16 \pm 6\%$. The data are compared with calculations using the AMPT model, which predicts a different p_T and η dependence than observed in the data. Above 2 GeV/c the results are sensitive to v_2 of muons from heavy-flavour decays, and, as will be discussed, the results indicate the possibility of a finite v_2 from heavy-flavor decays, as recently measured in Pb-Pb collisions.

Organised by: M. Mangano, C. Lourenco, G. Unal.....

****Tea and Coffee will be served at 10h30****