LHC Seminar

SPEAKER: Francesco Prino (Universita e INFN Torino (IT))

TITLE: **Heavy-flavour production as a function of multiplicity in pp collisions at the LHC**

DATE: Tue 05/05/2015 11:00

PLACE: Council Chamber

ABSTRACT

The measurement of inclusive heavy-flavour production cross sections in proton-proton (pp) collisions at LHC energies constituted an important test of perturbative QCD calculations. The measured cross sections can be described within uncertainties by next-to-leading order (NLO) and fixed-order with next-to-leading-log re-summation (FONLL) calculations with collinear factorization, as well as by leading-order (LO) calculations in the kt-factorization approach.

More differential measurements of charm and beauty production in pp collisions can provide further information about the particle production mechanisms. The production of prompt D mesons and non-prompt J/psi mesons in proton-proton collisions at a centre-of-mass energy of 7 TeV was measured by the ALICE Collaboration as a function of the multiplicity of charged particles produced in the collision. D^0, D^+ and D^{*+} mesons were reconstructed from their hadronic decay channels in the central rapidity region and their yields were measured in different multiplicity and transverse-momentum intervals. Open beauty production was studied via non-prompt J/psi mesons, which were reconstructed at central rapidity from their di-electron decays and separated from the promptly produced J/psi's by exploiting their displacement from the interaction point. These studies can provide insight into the interplay between hard and soft mechanisms for particle production in pp collisions and into the role of multi-parton interactions (MPI) at LHC energies.

The per-event yields of open heavy-flavour hadrons are found to increase with event multiplicity. The results are compared to those obtained for inclusive J/psi, for which a similar behaviour was observed in pp collisions, and to preliminary results of D-meson and inclusive J/psi production in p-Pb collisions at the LHC.

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

Tea and Coffee will be served at 10h30