EP Seminar

SPEAKER: Alessandro Tricoli (CERN)

TITLE: **Constraining QCD and electroweak physics with vector boson plus jets events**

DATE: Tue 23/09/2014 11:00

PLACE: Main Auditorium

ABSTRACT

Events with vector bosons produced in association with jets have been extensively studied at hadron colliders and provide high-accuracy tests of the Standard Model. A good understanding of these processes is of paramount importance for precision Higgs physics, as well as for searches for new physics. In particular, associated production of W or Z bosons with light-flavour jets is a powerful tool for testing perturbative QCD calculations and Monte Carlo generators, while analogous events with heavy-flavour jets can constrain the quark flavour content of the proton. Furthermore, events with a Z boson produced with two well-separated jets can be used to distinguish electroweak and strong production mechanisms, and constrain signals of physics beyond the Standard Model.

After reviewing the present status of this thriving field of research, I will discuss how the precision and phase space reach of the measurements will improve thanks to the Run 2 of the LHC, given the increase of centre-of-mass energy and integrated luminosity. The trigger systems will become even more critical than in Run 1, to provide high selection efficiencies in high-pileup conditions, ensuring that the LHC will continue playing a central role in the study of vector boson plus jets processes.

Organised by: C. Lourenco, G. Unal..... **Tea and Coffee will be served at 10h30**