LHC Seminar

SPEAKER: Martin Rybar

TITLE: **A closer look at quark-gluon plasma: recent results on hard processes in heavy-ion collisions with ATLAS**

DATE: 6 Nov 2018, 11:00

PLACE: 503-1-001 - Council Chamber

ABSTRACT

The ATLAS experiment at the LHC has undertaken an extensive program to probe and characterize the hot and dense deconfined QCD matter created in relativistic heavy-ion collisions, the quark-gluon plasma. Studying hard processes in heavy-ion collisions provides information about the short distance scale properties of quark-gluon plasma and the energy loss of strongly interacting particles traversing this matter. In particular we present recent results on jet suppression and modification of jet properties in heavy-ion collisions, a phenomenon called jet quenching. These new measurements show that jet quenching persists to the highest observable momentum. The direct comparison of both jet energy loss and modification to the jet structure in inclusive jets and jets opposite a direct photon is possible for the first time. Information about b-quark energy loss is provided through measurements of charmonia from B-hadron decays. A new and complementary measurement of the broadening of back-to-back muons produced from photons through the interaction of the large electromagnetic fields of the nuclei is also presented. These results together provide complex and detailed quantification of the interaction of highly energetic particles with quark-gluon plasma and will constrain theoretical models.

Organised by: M. Mangano, M. Pepe-Altarelli, G. Unal.....
Refreshments will be served at 10h30