UNIVERSITÉ
DE GENÈVE
FACULTÉ DES SCIENCES
Département de physique
nucléaire et corpusculaire

SÉMINAIRES CANDIDATS POST-DOCTORANTS ATLAS

DATE: **Jeudi 10 mai 2012, 09h00 – 14h00**

LIEU: **Ecole de physique, Salle 234**

9:00-9:30 Operational experience with the ATLAS Pixel Detector
By Tayfun Ince, University of Bonn
Abstract: The ATLAS Pixel Detector is the innermost element of the ATLAS experiment at the Large Hadron Collider at CERN, providing high-resolution measurements of charged particle tracks in the high radiation environment close to the collision region. This capability is vital for the identification and measurement of proper decay times of long-lived particles such as b-hadrons, and thus vital for the ATLAS physics program. The detector provides hermetic coverage with three cylindrical layers and three layers of forward and backward pixel detectors. It consists of approximately 80 million pixels that are individually read out via chips bump-bonded to 1744 n-in-n silicon substrates. In this talk, results from the successful operation of the Pixel Detector will be presented, including calibration procedures, timing optimization, detector performance, and monitoring of the effects of radiation damage.

10:30-11:00 Measurement of the inclusive ttgamma cross section at sqrt(s) = 7 TeV with the ATLAS detector,
By Johannes Erdmann, University of Goettingen
Abstract: Top quark pair events with additional photons in the final state (ttgamma) are directly sensitive to the top-photon vertex. A first measurement of the ttgamma cross section in pp collisions at sqrt(s) = 7 TeV is presented using 1.04 fb−1 of data taken with the ATLAS detector. The resulting cross section times branching ratio into the single lepton and dilepton channels for ttgamma production with a photon with transverse momentumof at least 8 GeV reads 2.0 +- 0.5 (stat.) +- 0.7 (syst.) +- 0.08 (lumi.) pb, consistent with Standard Model expectations.

12:00-12:30 Heavy quark searches at LHC,
By Clement Helsens, IFAE Barcelona
Abstract: Top-quark precision measurements are of central importance to the LHC physics program. The top-quark is the heaviest known fundamental particle with unique properties well defined by the Standard Model (SM). It has large couplings to the Higgs boson, and it is the only quark that decays before hadronisation. The production of top-quark pairs in pp collisions is a process at the boundary between the SM and what might lie beyond it. Thus new physics might affect its properties. Over the past decades, SM has been very successful in describing all the experimental measurements using “only” three generations of quarks and lepton families. New quarks can come in three varieties, a fourth family with Higgs: a “strong” fourth family without Higgs, vector-like quarks. The simplest extension of the SM is the adjunction a 4th family of heavy chiral fermions that could provide new sources of CP violation to explain the matter-antimatter asymmetry in the Universe, and allow for a heavier Higgs boson while remaining consistent with precision electroweak data.
This seminar will review various searches for 4th generation performed at LHC and give an overview of possible perspectives/implications.