detector seminar

SPEAKER: Susanne Kuehn

TITLE: **The Upgrade of the Inner Tracker of the ATLAS experiment for the High-Luminosity LHC**

DATE: 29 Nov 2019, 11:00

PLACE: 40/S2-A01 - Salle Anderson

ABSTRACT

The high-luminosity era of the Large Hadron Collider (HL-LHC) is aiming of delivering a total integrated luminosity of 4000 fb-1to the ATLAS experiment. To cope with the resultant significant increase in occupancy, bandwidth and radiation damage, the current ATLAS Inner Detector will be replaced by an all-silicon system, the Inner Tracker (ITk), aiming to provide increased tracking coverage up to $|\eta|=4$. The ITk consists of an inner pixel and an outer strip detector. The total surface area of silicon in the new pixel system measures about 13 m2, the strip detector will compromise to 190 m2 of silicon. An overview of the concept and technology choices for the upgrade tracker will be presented. Furthermore, developments for the low mass, mechanically stable tracker with sufficient number of high granularity sensors for high-quality tracking will be discussed. In the collaboration, a large effort is ongoing to evaluate the design both with simulation and experimental results. Mechanical and electrical results will be highlighted from various prototyping efforts with an emphasis on the Pixel detector.

Organised by: Burkhard Schmidt (EP-DT)