13th International "Hiroshima" Symposium on the Development and Application of Semiconductor Tracking Detectors (HSTD13), Vancouver, Canada

Contribution ID: **32** Type: **Oral**

The ATLAS ITk Pixel Detector: status and roadmap.

Monday 4 December 2023 17:00 (20 minutes)

In the HL-LHC era, the radiation is expected to reach unprecedented values, with non-ionizing fluence of 1e16 neq/cm2 and ionizing dose of 5 MGy. To cope with the resulting increase in occupancy, bandwidth, and radiation damage, the current ATLAS Inner Detector is replaced by an all-silicon system. The Pixel Detector will consist of five-barrel layers and a number of rings, resulting in about 13 m2 of instrumented area. The ITk pixel system has been very carefully designed including three different flavours of silicon hybrid detectors equipped with novel ASICS and data transmission chains. A new serial powering scheme has also been developed to minimize the amount of material in the detector. Along the lifetime of this project from design, prototyping and pre-production (current) stages many challenges have been encountered and unforeseen problems have to be solved.
At the end of this contribution the audience will get a good understanding of the status of the ATLAS-ITk pixel project and what have been the biggest challenges faced up to the day of this presentation and what are the major ones that still has to overcome.

Submission declaration

Original and unplublished

Primary authors: MUNOZ SANCHEZ, Francisca (University of Manchester (GB)); TOGAWA, Manabu (High Energy Accelerator Research Organization (JP)); PASSAGGIO, Stefano (INFN e Universita Genova (IT))

Presenter: PASSAGGIO, Stefano (INFN e Universita Genova (IT))

Session Classification: Day 1 - Session 4

Track Classification: Pixel sensors for tracking