Contribution ID: **114** Type: **Live Presentation**

The upgraded ALICE Inner Tracking System (ITS): installation, commissioning and performance results

Tuesday, February 22, 2022 11:00 AM (20 minutes)

During the second long shutdown of the LHC, the ALICE Inner Tracking System (ITS) has been replaced with a full-pixel detector constructed entirely with CMOS monolithic active pixel sensors (ITS2).
The ITS2 consists of three inner layers with 50um thick sensors and four outer layers with 100um thick sensors. The entire tracker covers 10 m^2 and comprises approximately 12.5 billion pixels with a single pixel size of 27umx29um.
Its increased granularity, the very low material budget (0.35%X0 for each of the three inner layers) as well as the small radius of the innermost layer combined with a thin beam pipe, will result in a significant improvement of impact-parameter resolution and tracking efficiency at low pT with respect to the previous tracker.
The assembly of the full detector and services, completed in December 2019, was followed by a comprehensive on-surface commissioning campaign. The detector has been installed in the experiment in the first half of 2021. After further in-situ commissioning, both standalone and integrated with the entire ALICE experiment, the detector is expected to see first collisions during LHC pilot beam tests in the second half of October 2021.
In this talk, first results from the ITS2 commissioning with and without beam will be presented. This includes results from calibration measurements, like threshold and noise performance, and from cosmic tracks and collisions, which will give a first measurement of the efficiency and spatial resolution.

Primary experiment

ALICE

Primary author: KEIL, Markus (CERN)

Presenter: KEIL, Markus (CERN)

Session Classification: Large Detector Systems

Track Classification: Semiconductor Detectors