

Eleventh International Workshop on Semiconductor Pixel Detectors for Particles and Imaging



ID de Contribution: 27

Type: **12mOral**

ALICE Inner Tracking System 3 Overview

jeudi 21 novembre 2024 09:04 (20 minutes)

The Inner Tracking System 3 (ITS3) is the next generation vertex detector for ALICE, the heavy-ion focused experiment at the CERN Large Hadron Collider foreseen to be installed during the Long Shut-down 3. The ITS3 will replace the innermost three layers of the current Inner Tracking System 2. ITS3 will consist of bent, wafer-scale monolithic pixel sensors manufactured in the TPSCo 65 nm process. The mechanical support structure based on carbon foam allows to reduce the average material budget to 0.9% X_0 . Moreover, the radius of the innermost layer will be reduced from 23 mm to 19 mm. Reduction of material budget and radius of the innermost layer are projected to improve the impact parameter resolution by a factor of two at a transverse momentum of 1 GeV/c. After a successful R&D phase in 2019–2023 leading to the ITS3 Technical Design Report, the final sensor and mechanics are being developed right now.

This contribution will review the ALICE ITS3 detector concept and will give an overview on recent R&D achievements, current activities, the road to completion and installation as well as a projection of the improved physics performance.

Auteur principal: REIDT, Felix (CERN)

Orateur: REIDT, Felix (CERN)

Classification de Session: HEP experiments

Classification de thématique: High energy and nuclear physics experiments