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Status and Plan of the ALICE Inner Tracking System Upgrade

Status and Plan of the ALICE Inner Tracking System Upgrade
Li-Ang Zhang (for the ALICE Collaboration)
Central China Normal University

The ALICE experiment is undergoing a major upgrade of its apparatus, planned for installation in the second long LHC shutdown (LS2) in the years 2018 –2021. The replacement of the existing Inner Tracking System (ITS) with a completely new ultra-light high-resolution detector based on Monolithic Active Pixel Sensors (MAPS) technique is one of the cornerstones within this upgrade program. The ITS2 will allow studying in high precision and detailed Quark-Gluon Plasma (QGP) properties exploiting the increased Pb-Pb luminosity expected during Run 3 and Run 4 with ALICE detector. The mass production of the ITS2 modules has been done in the middle of 2019 with yields of 73% and 77% for inner barrel and outer barrel module production, respectively. The integration and surface commissioning for the ITS2 have been carried out at CERN, and the ITS2 was installed in ALICE detector successfully this May. During the on-surface commissioning, the ITS2 meets the design performance. It can allow 50 kHz read-out rate at Pb-Pb interaction, and the average fake hit rate was less than 10^{-7} /pixel/event (which requests less 10^{-5} /pixel/event in design). A deeper verification of the full detector will start 2nd phase of commissioning shifts in Jun 2021. In this talk, the status and plan of the ALICE ITS2 will be reported.

Primary author: Mr ZHANG, Li'Ang (Central China Normal University)

Co-authors: Mr ZHANG, Biao (Central China Normal University); Dr GAO, Chaosong (Central China Normal University); Prof. ZHOU, Daicui (Central China Normal University); Mr LIU, Donghai (Central China Normal University); Dr YANG, Ping (Central China Normal University); Mrs DENG, Wenjing (Central China Normal University); Prof. SUN, Xiangming (Central China Normal University); Prof. WANG, Yaping (Central China Normal University); Dr YIN, Zhongbao (华中师范大学); LIU, jun (Central China Normal University)

Presenter: Mr ZHANG, Li'Ang (Central China Normal University)