

A Report on Korean activities for the ALICE-ITS upgrade

The ALICE (A Large Ion Collider Experiment), uniquely dedicated to heavy-ion collisions at the LHC, is currently preparing upgrades of its sub-detectors including the Inner Tracking System (ITS) to enhance vertexing and the tracking capabilities at low p_T under the high luminosity environment of LHC-Run3. The new ITS uses ALPIDE (ALice Pixel DEtector) chips based on MAPS (Monolithic Active Pixel Sensor) technology with 15 billion pixels, 400kHz readout speed in pp collisions, 100kHz in Pb–Pb collisions and $0.3\%X_0$ of the effective material budget for $<25\mu\text{m}$ precision of primary vertex in Pb–Pb collisions.

The Korean team (PNU-INHA and Yonsei Groups) is currently taking part in the mass-chip tests (MCT) and the assembly of the outer barrel (OB) HIC (Hybrid Integrated Circuit). Since June 2017, dimensional and electrical tests of 40k chips were performed at Yonsei and Pusan. Currently, these tests are ongoing mainly at Yonsei while Pusan is serving as a backup site. Furthermore, the PNU-Inha team is now producing the HIC modules with a Korean wire-bonding company, Sejung. All studies which were carried out to solve the problems occurring during the tests and procedures followed will be presented together with a status update.

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