

Beam test studies of silicon sensors for ALICE ITS3

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During the Long Shutdown 3 (2026-2028) at LHC, ALICE is planning to replace the innermost three layers of the existing inner tracking system (ITS2) with a new silicon detector (ITS3) which is under development. ITS3 is based on truly cylindrical half barrels using wafer-scale monolithic active pixel sensors reducing the material budget and significantly. Thus, ITS3 will improve the trajectory and vertex measurement precision of charged particles. Various prototype silicon sensors have been produced and tested with existing ALPIDE and DPTS chips to evaluate their performance in test beams at PS, SPS, and DESY. In this presentation, we will introduce the test beam of prototype silicon sensors for the ITS3 and present the initial results using bent ALPIDE sensors and DPTS (Digital Pixel Test Structure) sensors.

Theory / experiment

Experiment

Group or collaboration name

ALICE

Author: JANG, Hangil (Pusan National University (KR))

Presenter: JANG, Hangil (Pusan National University (KR))

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