

Sensitive layer and charge collection optimization of MAPS for the ALICE ITS upgrade

Monday 21 May 2018 18:30 (15 minutes)

For the long shutdown of the LHC in 2019, Monolithic Active Pixel Sensors (MAPS) are being studied to use for the Inner Tracking System of ALICE detector. The pixel chips, manufactured by the TowerJazz with 180 nm CMOS imaging sensor process, have been characterized to produce the new sensor with lower material budget and higher granularity. The optimization of the pixel is determined from different pixel pitches, the collection electrode size, the distance between the electrode and the surrounding electronics and the reverse bias voltage on the collection diode for the performance of pixel chip by using of ^{55}Fe X-ray source. In this work the optimization of the pixel sensor for the sensitive layer and the charge collection electrode will be presented.

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Session Classification: A08: Instrument (Poster)

Track Classification: Instrumentation, Metrology and Standards