Contribution ID: **18** Type: **not specified**

Beamtests of HPK/KEK n^+-in-p pixel sensors for ATLAS HL-LHC upgrade inner tracker

Wednesday 18 February 2015 14:40 (20 minutes)

ATLAS upgrade for foreseen High Luminosity LHC will require the high radiation tolerance on Pixel Detector.
The n^+-in-p silicon technology is a promising candidate for the pixel upgrade, due to its radiation hardness and cost effectiveness.
We have developed n^+-in-p planar pixel sensors produced by HPK (Japan) connected by bump bonding to the ATLAS read out chip FE-I4.
The new sensors were irradiated with 70 MeV protons at a fluence of $5 \times 10^{15}\ \mathrm{n_{eq}/cm^2}$.
The beam tests with 4.0 GeV positron at DESY were carried out in 2013 and 2014.
From the analyses on irradiated sensors the hit efficiency under the bias rail with large offset is found to be similar to the one without bias rail.
The reconstruction and analysis for long-staggered pixel in test beams at DESY is in progress.
In addition, reconstruction in dense particle environment is on-going for the test beam with 2.5 and 14.0 GeV electrons at SLAC in 2014.
This talk presents these analysis summary.

Primary author: YAMAGUCHI, Daiki (Tokyo Institute of Technology (JP))

Co-authors: ATLAS PPS, Collaboration (AS CR, Prague, LAL Orsay, LPNHE / Paris VI, Univ. Bonn, HU Berlin, DESY, TU Dortmund, Univ. Goettingen, MPP and HLL Munich, Univ. Unide-INFN, KEK, Tokyo Inst. Tech., IFAE-CNM, Univ. Geneve, Univ. Liverpool, UC Berkeley, UNM-Albuquerque, UC Santa Cruz); SEMICONDUCTOR, Division (Hamamatsu Photonics K.K); USUI, Junya (University of Tsukuba (JP)); HARA, Kazuhiko (University of Tsukuba (JP)); MOTOHASHI, Kazuki (Tokyo Institute of Technology (JP)); TODOME, Kazuki (Tokyo Institute of Technology (JP)); Mr YAJIMA, Kazuki (Oosaka University (JP)); HANAGAKI, Kazunori (Osaka University (JP)); YAMAMOTO, Ken (Kyoto University of Education (JP)); KIMURA, Kimihiko (Tokyo Institute of Technology (JP)); NAKAMURA, Koji (High Energy Accelerator Research Organization (JP)); HAGIHARA, Mutsuto (University of Tsukuba (JP)); ISHIJIMA, Naoki (Osaka University (JP)); JINNOUCHI, Osamu (Tokyo Institute of Technology (JP)); TAKASHIMA, Ryuichi (Kyoto University of Education (JP)); NISHIMURA, Ryutaro (Kyoto University of Education (JP)); ATLAS JAPAN, Silicon Group (KEK, Tokyo Inst. of Tech., Oosaka Univ., Kyoto Univ. Edu., Univ. Tsukuba, Waseda Univ.); Dr KONO, Takanori (High Energy Accelerator Research Organization (JP)); Mr SHINTANI, Tomoya (Oosaka University (JP)); ARAI, Yasutaka (Osaka University (JP)); IKEGAMI, Yoichi (High Energy Accelerator Research Organization (JP)); Ms YAMAUCHI, Yoko (Oosaka University(JP)); UNNO, Yoshinobu (High Energy Accelerator Research Organization (JP))

Presenter: YAMAGUCHI, Daiki (Tokyo Institute of Technology (JP))

Session Classification: Planar Sensors 2