

Characterization of Silicon n-in-p Pixel Sensors for future ATLAS Upgrades

Wednesday, 29 February 2012 15:45 (25 minutes)

The n-in-p silicon technology is a promising candidate for the foreseen upgrade steps of the ATLAS Pixel Detector towards HL-LHC. Due to the radiation hardness and cost effectiveness of this technology, it permits to increase the area covered by pixel detectors.

Characterization and performance results of n-in-p planar pixel sensors produced by CiS (Germany) connected via bump bonding to the ATLAS readout chip FE-I3 will be presented.

The analysis of these devices has been performed before and after irradiation up to a fluence of $1E16 \text{ n}_{\text{eq}}/\text{cm}^2$. Charge collection and tracking efficiency studies indicate the functioning of this technology up to this particle fluence. An overview of the on-going pixel production at CiS for sensors compatible with the new ATLAS readout chip FE-I4 will be included.

Primary authors: LA ROSA, Alessandro (Universite de Geneve (CH)); MACCHIOLO, Anna (Max-Planck-Institut fuer Physik (Werner-Heisenberg-Institut) (D)); GALLRAPP, Christian (CERN); PERNEGGER, Heinz (CERN); WEIGELL, Philipp (Max-Planck-Institut fuer Physik (Werner-Heisenberg-Institut) (D)); RICHTER, Rainer (M); Dr NISIUS, Richard (Max-Planck-Institut fuer Physik (Werner-Heisenberg-Institut) (D))

Presenter: GALLRAPP, Christian (CERN)

Session Classification: Planar Detectors