

Heavily irradiated thin n-in-p planar pixel sensors and status of the new common RD50 productions

Wednesday 11 June 2014 15:20 (20 minutes)

N-in-p planar pixel sensors with an active thickness of 200 μm produced at CiS, and 100-200 μm thin active/slim edge sensor devices, produced at VTT in Finland have been interconnected to ATLAS FE-I3 and FE-I4 read-out chips and irradiated in Ljubljana, Los Alamos and KIT up to a fluence of $1.4 \times 10^{16} \text{ n}_{\text{eq}}/\text{cm}^2$.

Thin sensors are designed to ensure radiation hardness at high fluences, while the active edge technology of the VTT production maximizes the sensitive area of the assembly.

Hit efficiency and charge collection results after irradiation obtained with radioactive sources in the laboratory and with high precision measurements at beam tests are presented and compared for different thicknesses and active edge designs.

We also introduce the new productions of p-type FZ silicon sensors on 6 inch wafers co-funded by RD50 including 50, 100 and 150 μm thin active edge structures produced at ADVACAM and 270 μm thick wafers produced at CiS.

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Session Classification: Session 2 - Detector Characterization