



Contribution ID: 172

Type: ORAL

Radiation Experience with the ATLAS Pixel Detector

Monday, 1 September 2014 11:30 (25 minutes)

With the increasing radiation dose accumulated by the ATLAS Pixel Detector at the LHC, effects of radiation damage become more and more visible due to the creation of silicon crystal defects. The monitoring of the detector reveals an increase in the leakage current, which is proportional to the rising radiation dose. Measurements of the effective depletion voltage show a general trend of reduction due to the decrease of the effective n-doping concentration. The most recent measurement of the radiation damage is presented along with a comparison to the theoretical model.

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Session Classification: Hybrid Pixel Experience