

10th Anniversary "Trento" Workshop on Advanced Silicon Radiation Detectors

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Test beam data analysis of ATLAS planar pixel sensor with alternative bias rail geometries.

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It is known that for the current design of planar pixel sensors, there is a drop of efficiency at the punch-through structure of the biasing system at the edge of pixels. Various geometries, as part of the ATLAS Inner Tracker (ITK) upgrade, are being investigated to reduce this inefficiency.

A planar pixel sensor with multiple alternative bias rail geometries has been tested at the SPS beam test facility at CERN in late 2014. Measurements were taken with the FE-I4 beam telescope and results from the beam test are presented, focusing on the efficiency within the pixel. Future plans for further investigations are also discussed.

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