

## Characterization of CNM FE-I4 3D Double-Sided Sensors

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The ATLAS Pixel Detector is the innermost part of the ATLAS tracking system and is critical for track and vertex reconstruction. In order to preserve the tracking performance in the face of the increasing instantaneous luminosity delivered by the LHC, ATLAS plans to introduce a new pixel layer (IBL) mounted directly on a reduced diameter beam pipe. To cope with the high data rate at a radius of  $\sim 33$ mm a new readout chip (FE-I4) has been designed. Furthermore the IBL will have to sustain an estimated radiation dose, including safety factors, of  $5E15$  neq/cm<sup>2</sup>. Two sensor technologies are currently being considered for the IBL, the planar n-on-n slim edge and the 3D double sided designs. Results of the characterisation and irradiation of CNM 3D double sided FE-I4 pixel devices will be presented.

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