

## Pixel sensor development for the ATLAS ITk upgrade

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An upgrade of the ATLAS detector system is foreseen for the High Luminosity phase of the LHC accelerator (HL-LHC) which will start operations in 2027. The present inner detector will be replaced by a new full-silicon Inner Tracker (ITk) designed to face the challenges posed by the large particle multiplicity and the extreme radiation environment at HL-LHC. The innermost part of the ITk, the pixel detector, will consist of five barrel layers and novel ring-shaped structure optimised to cover a pseudo-rapidity of  $|\eta| < 4$ . A great effort is presently ongoing within the ATLAS Collaboration for the qualification of the final sensor technologies and the pixel modules which will instrument the ITk.

In this contribution, designs and recent results of 3D and planar silicon pixel sensors will be presented, together with the module concepts developed for the future ATLAS pixel system.

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