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Upgrade of ATLAS ITk Pixel Detector

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The high luminosity upgrade of the LHC (HL-LHC) in 2026 will provide new challenges to the ATLAS tracker. The current inner detector will be replaced with an entirely-silicon inner tracker (ITk) which will consist of a five barrel layer Pixel detector surrounded by a four barrel layer Strip detector. The expected high radiation levels are requiring the development of upgraded silicon sensors as well as new a front-end chip. The dense tracking environment will require finer granularity detectors and low mass global and local support structures. The data rates will require new technologies for high bandwidth data transmission and handling. The current status of the ITk ATLAS Pixel detector developments as well as different layout options will be reviewed.

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