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Design layout and expected performance of Inner Tracker for ATLAS Phase 2 Upgrade

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The large data samples at the High-Luminosity LHC will enable precise measurements of the Higgs boson and other Standard Model particles, as well as searches for new phenomena such as supersymmetry and extra dimensions. To cope with the experimental challenges presented by the HL-LHC such as large radiation doses and high pileup, the current Inner Detector will be replaced with a new all-silicon Inner Tracker for the Phase II upgrade of the ATLAS detector. Optimization of design layouts and expected performance are presented that extend the pseudorapidity coverage of the tracking geometry to $|\eta| < 4$.

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