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【311】 ITk performance and pixel detector layout at the High-Luminosity LHC

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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 as predicted by supersymmetry and extra dimension theories. To cope with the large radiation doses and high pileup expected at the High-Luminosity LHC, the current ATLAS Inner Detector will be replaced with a new all-silicon Inner Tracker.

The tracking performance of a candidate ATLAS Inner Tracker layout with a wide acceptance of $|\eta| < 4.0$, employing a five-layers inclined pixel barrel surrounded by a four barrel layer strip detector, is evaluated. System aspects for the pixel system will also be described.

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