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Tracking challenges at HL-LHC

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The high luminosity upgrade of the LHC (HL-LHC) in 2026 will provide new challenges to the tracking detectors. In ATLAS the current inner detector will be replaced with a whole silicon tracker consisting of a five barrel layer Pixel detector surrounded by a four barrel layer Strip detector. To cope with the expected high radiation levels, the development of upgraded silicon sensors, as well as a new front-end chip, is needed. The dense tracking environment will require finer granularity detectors. Finally, the data rates will require new technologies for high bandwidth data transmission and handling. The current status of the HL-LHC ATLAS Pixel detector developments as well as the expected performance of the new tracking system with respect to the current one will be reviewed.

Summary

Lo scopo di questo talk e' mostrare come i tracker su cui si sta lavorando sono in grado di mantenere e migliorare le stesse performance di RUn2, pur avendo a che fare con condizioni molto peggiori in termini di luminosit  di picco ed integrata.

Vista l'interdisciplinarit  il talk puo' stare sia nella sessione energia che in quella di nuove tecnologie.

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