

The CMS Tracker Upgrade for the High Luminosity LHC

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The LHC machine is planning an upgrade program which will smoothly bring the luminosity at about $5 \cdot 10^{34} \text{cm}^{-2}\text{s}^{-1}$ in 2028, to possibly reach an integrated luminosity of 3000fb^{-1} by the end of 2037. This High Luminosity LHC scenario, HL-LHC, will require a preparation program of the LHC detectors known as Phase-2 upgrade. The current CMS Outer Tracker, already running beyond design specifications, and CMS Phase1 Pixel Detector will not be able to survive HL-LHC radiation conditions and CMS will need completely new devices, in order to fully exploit the high-demanding operating conditions and the delivered luminosity. The new Outer Tracker should have also trigger capabilities. To achieve such goals, R&D activities are ongoing to explore options either for the Outer Tracker, either for the pixel Inner Tracker. Solutions are being developed that would allow including tracking information at Level-1. The design choices for the Tracker upgrades are discussed along with some highlights of the R&D activities.

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