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The CMS Outer Tracker for HL-LHC

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The LHC is planning an upgrade program which will bring the luminosity to about $5 - 7 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ in 2028, with a goal of an integrated luminosity of 3000 fb^{-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 Tracker is already running beyond design specifications and will not be able to survive HL-LHC radiation conditions. CMS will need a completely new Tracker in order to fully exploit the highly demanding operating conditions and the delivered luminosity. The new Outer Tracker system is designed to provide robust tracking as well as Level-1 trigger capabilities using closely spaced modules composed of silicon macro-pixel and/or strip sensors. Research & Development activities are ongoing to explore options and develop module components and designs for the HL-LHC environment. The design choices for the CMS Outer Tracker Upgrade are discussed along with some highlights of the R&D activities.

Author: DIERLAMM, Alexander (KIT - Karlsruhe Institute of Technology (DE))

Presenter: DIERLAMM, Alexander (KIT - Karlsruhe Institute of Technology (DE))

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