

Upgrades of the CMS outer tracker detector for the HL-LHC

Wednesday, February 17, 2016 11:55 AM (20 minutes)

The LHC machine is planning an upgrade program which will smoothly bring the luminosity up to or above $5 \cdot 10^{34} \text{ cm}^2/\text{s}$ sometimes after 2024, to possibly reach an integrated luminosity of 3000/fb at the end of that decade. In this ultimate scenario, called Phase-2, when LHC will reach the High Luminosity (HL-LHC) phase, CMS will need a completely new Tracker detector, in order to fully exploit the high-demanding operating conditions and the delivered luminosity. The new Tracker should have also trigger capabilities. To achieve such goals, R&D activities are ongoing to explore options and develop solutions that would allow including tracking information at Level-1. The design choices for the CMS Outer Tracker upgrades are discussed along with some highlights of the R&D activities.

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Session Classification: Semiconductor Detectors

Track Classification: Semiconductor Detectors