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The status of the CMS pixel upgrade detector

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The present CMS pixel detector was designed for a maximum luminosity of $1 \times 10^{34} \text{ cm}^{-2}\text{s}^{-1}$. Following the Phase 1 upgrade of the LHC, the peak luminosity is foreseen to reach $2 \times 10^{34} \text{ cm}^{-2}\text{s}^{-1}$. Due to the radiation damage and large data losses in the readout chip the present pixel system must be replaced by a new one in the long shutdown of 2016. The current status of the CMS pixel detector upgrade project will be presented. The new features of the proposed detector that will be discussed are ultra-light mechanical design with four barrel layers and 3 end-cap disks, digital readout chip with higher rate capability and new cooling system.

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