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## CMS Pixel Detector design for HL-LHC

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  $3000 \text{ fb}^{-1}$  by the end of 2037.

This High Luminosity scenario, HL-LHC, will present new challenges in higher data rates and increased radiation.

In order to maintain its physics reach the CMS Collaboration has undertaken a preparation program of the detector known as Phase-2 upgrade.

The CMS Phase-2 Pixel upgrade will require a high bandwidth readout system and high radiation tolerance for sensors and on-detector ASICs. Several technologies for the upgrade sensors are being studied. Serial powering schemes are under consideration to accommodate significant constraints on the system. These prospective designs, as well as new layout geometries that include very forward pixel discs, will be presented together with performance estimations.

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