

CMS detector upgrade

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The CMS Upgrade projects, both Phase-1 and Phase-2, are aimed for the improvement of detector systems to provide the necessary physics performance under the challenging conditions of high luminosity at the HL-LHC. In this second phase of the LHC physics program, it's being planned to increase the instantaneous luminosity by $5.0^{+3.4}_{-2.5} \text{ cm}^{-2} \text{ s}^{-1}$ with the goal of integrating some 3000 fb^{-1} by the end of 2037. The corresponding mean number of collisions (pileup) per bunch crossing will be 140, with the possibility to increase it up to 200. Installation of the upgraded detector systems started in LS2 and is planned to be completed in LS3, presently scheduled for 2025 to mid-2027. CMS detectors need to be modernised in order to improve the ability to isolate and precisely measure the products of the most interesting collisions.

Primary author: BUNIN, Pavel (Joint Institute for Nuclear Research (RU))

Presenter: BUNIN, Pavel (Joint Institute for Nuclear Research (RU))

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