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An overview of the CMS High Granularity Calorimeter and its current status

Saturday 20 July 2024 08:30 (15 minutes)

The CMS Collaboration is preparing to replace its current endcap calorimeters for the HL-LHC era with a high-granularity calorimeter (HGCAL), featuring a previously unrealized transverse and longitudinal segmentation, for both the electromagnetic and hadronic compartments, with 5D information (space-time-energy) read out. The proposed design uses silicon sensors for the electromagnetic section and high-irradiation regions of the hadronic section , while in the low-irradiation regions of the hadronic section plastic scintillator tiles equipped with on-tile silicon photomultipliers (SiPMs) are used. The full HGCAL will have approximately 6 million silicon sensor channels and about 240 thousand channels of scintillator tiles. In this talk we present the ideas behind the HGCAL, the current status of the project, the lessons that have been learnt, in particular from beam tests as well as the design and operation of vertical test systems and the challenges that lie ahead.

Alternate track

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Yes

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