Contribution ID: **32** Type: **Parallel session talk**

The CMS High Granularity Calorimeter Silicon Sensors/Modules and Scintillator/SiPM Tileboards

Tuesday, 26 May 2020 09:00 (18 minutes)

We will present the evolving design, results on the performance of irradiated SiPMs, the optimisation of scintillator tiles, the status of active element prototypes with integrated electronics, and the preparations for automated production. In the higher radiation zone silicon has been chosen due to its intrinsic radiation hardness. The silicon sensors will be of hexagonal shape, with three nominal thicknesses of 120 um, 200 um and 300 um, optimized for regions of different radiation levels. They will be segmented into several hundred cells with hexagonal shape of 0.5 to 1.1 cmˆ2 in size, each of which is read out individually. A comprehensive campaign is in progress to converge on optimal sensor design choices and parameters, such as bulk doping, layouts and production methods. In this talk, results from full electrical sensor characterization are presented for different sensors, together with first results from an irradiation campaign of large-area silicon sensors.

Funding information

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Session Classification: Sensors: Photo-detectors

Track Classification: Sensors: Photo-detectors