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Construction and beam-tests of silicon-tungsten and scintillator-SiPM modules for the CMS High Granularity Calorimeter for HL-LHC

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A High Granularity Calorimeter (HGCAL) is being designed to replace the existing endcap calorimeters in CMS for the HL-LHC era. It features unprecedented transverse and longitudinal segmentation for both electromagnetic (ECAL) and hadronic (HCAL) compartments, with silicon sensors being chosen for the high-pseudorapidity regions due to their radiation tolerance. The remainder of the HGCAL, in the lower radiation environment, will use plastic scintillator with on-tile SiPM readout. Prototype hexagonal silicon modules, featuring a new Skiroc2-CMS front-end chip, together with a modified version of the scintillator-SiPM CALICE AHCAL, have been built and tested in beams at CERN in 2017. In this poster, we present measurements of noise, calibration, shower shapes and performance with electrons, pions and muons.

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