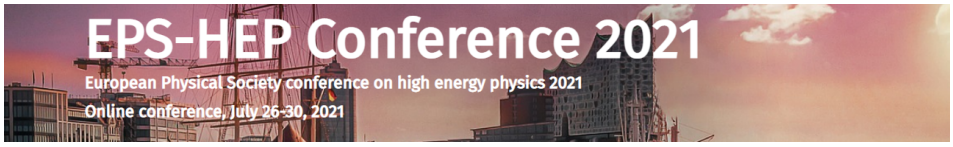

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Status and plans for the CMS High Granularity Calorimeter upgrade project

Friday, 30 July 2021 09:30 (15 minutes)

The CMS Collaboration is preparing to build replacement endcap calorimeters for the HL-LHC era. The new high-granularity calorimeter (HGCAL) is, as the name implies, a highly-granular sampling calorimeter with approximately six million silicon sensor channels (~1.1 cm^2 or 0.5 cm^2 cells) and about four hundred thousand channels of scintillator tiles readout with on-tile silicon photomultipliers. The calorimeter is designed to operate in the harsh radiation environment at the HL-LHC, where the average number of interactions per bunch crossing is expected to exceed 140. Besides measuring energy and position of the energy deposits the electronics is also designed to measure the time of their arrival with a precision on the order of 50 ps. In this talk, the reasoning and ideas behind the HGCAL, the current status of the project, the many lessons learnt so far, in particular from beam tests, and the challenges ahead will be presented.

First author

CMS

Email

arnd.meyer@cern.ch

Collaboration / Activity

CMS

Primary author: LANGE, Clemens (CERN)

Co-author: CMS

Presenter: LANGE, Clemens (CERN)

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