Contribution ID: **85** Type: **Talk**

CMS ECAL upgrade for precision timing and energy measurements at the High-Luminosity LHC

Friday 2 September 2022 11:20 (20 minutes)

The High Luminosity upgrade of the LHC (HL-LHC) at CERN will provide unprecedented instantaneous luminosity of ˜5 x 10ˆ34cm −2s−1, leading to an average of 150-200 simultaneous collisions. This extreme instantaneous luminosity scenario represents a real challenge for the detectors. The barrel region of the CMS electromagnetic calorimeter (ECAL) will be preserved but operated at a lower temperature and with a completely new readout and trigger electronics. A dual gain trans-impedance amplifier and an ASIC providing two 160 MHz ADC channels, gain selection, and data compression will be installed. The trigger decision will be moved off-detector and performed by powerful and flexible FPGA processors, allowing for more sophisticated trigger algorithms to be applied. The upgraded ECAL will be capable of high-precision energy measurements and will greatly improve the time resolution for photons and electrons above 10 GeV. The design of the full ECAL barrel readout chain and the status of the component R&D will be presented, along with the latest test beam and laboratory test results for CATIA coupled with an ADC.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

CMS, CERN

Is the speaker for that presentation defined?

Yes

Details

Luigi Marchese, Dr, ETH Zürich, Switzerland

Internet talk

No

Author: MARCHESE, Luigi (ETH Zurich (CH))

Presenter: MARCHESE, Luigi (ETH Zurich (CH))

Session Classification: High Energy Particle Physics