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Precision Calorimetry at HL-LHC: Upgrade of the CMS Electromagnetic Calorimeter

Tuesday 16 March 2021 22:00 (20 minutes)

The Electromagnetic Calorimeter (ECAL) of the CMS detector has played an important role in the physics program of the experiment, delivering outstanding performance throughout data taking. The High-Luminosity LHC will pose new challenges. The four to five-fold increase of the number of interactions per bunch crossing will require superior time resolution and noise rejection capabilities. For these reasons the electronics readout has been completely redesigned. A dual gain trans-impedance amplifier and an ASIC providing two 160 MHz ADC channels, gain selection, and data compression will be used in the new readout electronics. The trigger decision will be moved off-detector and will be 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 throughout HL-LHC and will greatly improve the time resolution for photons and electrons above 10 GeV.

Time Zone

Europe/Africa/Middle East

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