

Phase-2 Endcap Calorimeter (HGICAL)

Thursday 13 June 2019 09:40 (40 minutes)

The CMS experiment at CERN will undergo significant improvements to cope with a 5-fold increase in instantaneous luminosity for the High Luminosity LHC (HL-LHC) era. In particular, the endcap calorimetry will suffer from very high radiation levels and unprecedented event pileup. The CMS HGICAL is being designed to replace the existing CMS endcap electromagnetic and hadronic calorimeters. It will be a sampling calorimeter, featuring unprecedented transverse and longitudinal readout and trigger segmentation for both electromagnetic (CE-E) and hadronic (CE-H) compartments. This will facilitate particle-flow calorimetry, where the fine structure of showers can be measured and used to enhance pileup rejection and particle identification, whilst still achieving good energy resolution. The CE-E and a large fraction of CE-H will use hexagonal silicon sensors as active detector material. The lower-radiation environment will be instrumented with scintillator tiles with on-tile SiPM readout. An overview of the HGICAL project will be presented, covering motivation, engineering design, readout and trigger concepts, and performance in beams and in simulation.

Presenter: AKGUN, Bora (CERN)