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Reconstruction and clustering for the CMS High Granularity Calorimeter

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The existing CMS endcap calorimeters - electromagnetic and hadronic - will be replaced by a sampling calorimeter - the High Granularity Calorimeter (HGCAL) - featuring unprecedented transverse and longitudinal readout and triggering granularity. This will facilitate particle-flow reconstruction in the harsh radiation and pileup environment of HL-LHC collisions. Exploiting the high granularity in this environment requires advances in reconstruction techniques beyond those that have been used in present experiments and particle-flow detectors being designed for future linear colliders. This work will continue throughout the design/construction phase, but many studies have already made excellent progress. We report on the reconstruction and clustering algorithms, and the simulated performance for particle identification and energy/position resolution.

Secondary topics

Simulation and algorithms

Applications

Primary topic

Particle Flow

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