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CMS electron and photon performance at 13 TeV

Monday, May 21, 2018 2:35 PM (20 minutes)

The Compact Muon Solenoid (CMS) detector is one of the two multi-purpose experiments at the Large Hadron Collider (LHC) and has a broad physics program. Many aspects of this program depend on our ability to trigger, reconstruction and identify events with final state electrons, positrons, and photons with the CMS detector with excellent efficiency and high resolution.

In this talk we present the full process of electron and photon reconstruction in CMS, starting from tracker hits and energy deposits in the electromagnetic calorimeter, the method to achieve the ultimate precision in Run II energy measurements, the trigger and identification strategies (based both on cut based approach and on multivariate analysis) to discriminate prompt electrons and photons from background, and the methods to estimate the associated systematic uncertainties. Finally the performance on benchmark channels (such as $H \rightarrow \gamma \gamma$ and $Z \rightarrow ee$) will be shown.

Secondary topics

Electron and Photon Trigger/Reconstruction/Identification/Energy Resolution

Applications

Primary topic

Simulation and algorithms

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