



Contribution ID: 35

Type: not specified

## Role of the CMS electromagnetic calorimeter in the hunt for the Higgs boson through the two-gamma decay mode

The Electromagnetic Calorimeter (ECAL) of the Compact Muon Solenoid (CMS) experiment at the LHC is a hermetic, fine grained, homogeneous calorimeter, comprising 75,848 lead tungstate scintillating crystals, located inside the CMS superconducting solenoidal magnet. The scintillation light is detected by avalanche photodiodes in the barrel section and by vacuum phototriodes in the two endcap sections. A silicon/lead pre-shower detector is installed in front of the endcaps in order to improve  $\gamma/\pi^0$  discrimination. Precise calibration of the ECAL detector is required. This includes inter-calibration, to account for the differing response of channels, and calibration of the energy scale. The performance obtained during the first LHC physics runs in 2010 and 2011 is presented and the role of the ECAL in the hunt for the Higgs boson, through the two-gamma decay mode, is discussed.

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