

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Improving the Electron Energy Resolution at CMS RICHARD RUIZ, Fermi National Accelerator Laboratory, SAMUEL HARPER, Rutherford Appleton Laboratory, KAORI MAESHIMA, Fermi National Accelerator Laboratory, CMS COLLABORATION — In the CMS electromagnetic barrel calorimeter an electron deposits most of its energy in three adjacent crystals in η , with the fraction of the energy in the center crystal dependent on the η position of the electron within the central crystal. We report on a technique to estimate the fraction of the electron's energy in the central crystal using the position of the electron as measured by the CMS tracker. We then use the energy fraction estimate to improve the CMS detector's electron energy resolution for cases where not all the energy of the electron was reconstructed, such as electrons close to the intermodule η boundaries and highly energetic TeV scale electrons, which saturate the electromagnetic calorimeter readout electronics.

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Date submitted: 20 Oct 2009

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