Contribution ID: **63**   Type: **On-site planned, but remote also possible**

Continuous scale factor measurements for MVA-based electron identification

CMS is one of the two large multipurpose proton-proton collider experiments at the LHC at CERN. The focus of this project is on the measurement of identification efficiencies for electrons in the CMS detector. The identification algorithm is based on multivariate analysis (MVA) using machine-learning techniques. MC simulations of the data are used to model the detector response and to correct for inefficiencies. Corrections to the simulation, so-called data-to-MC scale factors, are derived to optimize the description of the data. Identification efficiency and purity and corresponding scale factors depend on the exact selection criteria. The determination of such "continuous" scale factors has already been developed for muons. The goal of this Summer Student project is to determine continuous scale factors for electrons.

DESY Place

Hamburg

DESY Division

FH

DESY Group

CMS

Special Qualifications:

The student should have attended at least one introductory course about Particle Physics. Some basic knowledge about C++ and/or Python programming is also required.

Field

B3: Development of experimental particle physics equipment (hardware-oriented)

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