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Electron reconstruction in CMS

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We describe the strategy developed for electron reconstruction in CMS. Emphasis is put on isolated electrons and on recovering the bremsstrahlung losses due to the presence of the material before the ECAL. Following the strategy used for the high level triggers, a first filtering is obtained building seeds from the clusters reconstructed in the ECAL. A dedicated trajectory building is then used to collect hits up to the ECAL front face. The fit of the electron trajectories involves a Gaussian sum filter, allowing to take into account the bremsstrahlung losses. The different topologies observed in the ECAL and the difference between the momentum at the innermost and outermost track positions are then used to classify electrons according to their patterns regarding radiative losses. These electron classes are finally used to correct the momentum estimate and to improve the electron identification.

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

CMS

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