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Reconstruction of Converted Photons in CMS

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A seed/track finding algorithm has been developed for reconstruction of $e+e-$ from converted photons. It combines the information of the electromagnetic calorimeter with the accurate information provided by the tracker.

An Ecal seeded track finding is used to locate the approximate vertex of the conversion. Tracks found with this method are then used as input to further inside-out tracking aiming at reconstructing fully and very efficiently the conversion track pairs. Converted photon objects are finally built from the seeding ECAL energy deposit, a pair of opposite tracks and a conversion vertex, determined by fitting the two tracks to a common vertex.

Results on reconstruction efficiency of converted photons, as well as on fake rate when the photon did not convert, will be shown for single isolated photons and for photons from $H \rightarrow \text{gammagamma}$ events with 2.10^{33} LHC luminosity.

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

CMS

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