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Type: **Talk**

Electron and Photon ID

Saturday 19 August 2017 15:00 (30 minutes)

Photon and electron identifications are a crucial input to many ATLAS physics analysis.

The identification of prompt photons and the rejection of background coming mostly from photons from hadron decays relies on the high granularity of the ATLAS calorimeter.

The electron identification used in ATLAS for run 2 is based on a likelihood discrimination to separate isolated electron candidates from candidates originating from photon conversions, hadron misidentification and heavy flavor decays. In addition, isolation variables are used as further handles to separate signal and background. Several methods are used to measure with data the efficiency of the photon identification requirements, to cover a broad energy spectrum. At low energy, photons from radiative Z decays are used. In the medium energy range, similarities between electrons and photon showers are exploited using $Z \rightarrow ee$ decays. At high energy, inclusive photon samples are used. The measurement of the efficiencies of the electron identification and isolation

cuts are performed with the data using tag and probe techniques with large statistics sample of $Z \rightarrow ee$ and $J/\psi \rightarrow ee$ decays. These measurements performed with pp collisions data at $\sqrt{s}=13$ TeV in 2016 (2015) corresponding to an integrated luminosity of 33.9 (3.1)fb⁻¹ of $\sqrt{s}=13$ TeV pp are presented.

Topic:

Topic: High Energy Particle Physics

Summary

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Session Classification: Parallel session

Track Classification: A High Energy Particle Physics: