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Electron And Photon Performance Measurements With The ATLAS Detector

The electron and photon performance with the ATLAS detector at the LHC is a key component to realize the ATLAS full physics potential in both the Standard Model sector as well as in searches for new physics. As an example, the performance of electrons and photons plays a critical role in the search for a low mass Higgs boson in its more favorable discovery channels, H to $\gamma\gamma$ and H to ZZ to $4e$. In this presentation a description of the algorithms used for the reconstruction and identification of electrons and photons with the ATLAS detector as well as results from the measurements of their efficiency using Z to ee , W to $e\nu$ and J/ψ to ee events observed in the data collected in 2010 and 2011 at a centre-of-mass energy of $\sqrt{s} = 7$ TeV are presented. The use of such a statistically large sample of events for a refined in-situ electron and photon energy calibration procedure, developed and validated over years of test-beam data-taking and analysis, are also described as well as the corresponding estimate of the achieved global constant term for the ATLAS electromagnetic calorimeters.

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