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Performance of the reconstruction, calibration and identification of electrons and photons with the ATLAS detector, and their impact on the ATLAS physics results

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The performance of the reconstruction, calibration and identification of electrons and photons with the ATLAS detector at the LHC is a key component to realize the ATLAS full physics potential, both in the searches for new physics and in precision measurements. For instance, they all played a critical role in the discovery of a Higgs boson, announced by the ATLAS Collaboration in 2012, and in the measurement of its properties.

We present a description of the algorithms used for the reconstruction and identification of electron and photons with the ATLAS detector, as well as results from the measurements of their efficiencies in pp collisions. The electron and photon energy calibration procedure is discussed, as well as its impact on the precise measurement of the Higgs boson mass.

Summary

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