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Electron and photon identification with the ATLAS detector

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Excellent electron and photon identification capabilities are crucial for many aspects of the ATLAS physics program, from standard model measurements (including Higgs boson) to new physics searches. The identification of prompt photons and the rejection of backgrounds, mostly coming from photons from hadron decays, relies on the high granularity of the ATLAS calorimeter. Electron identification is based on a likelihood discrimination to separate isolated electron candidates from candidates originating from photon conversions, hadron misidentification and heavy flavor decays. Isolation variables are used as further handles to extract the signal. The measurement of the efficiencies of the identification and isolation cuts are performed using several high-statistics data samples, including Z->ee and J/psi->ee decays, radiative Z decays, and inclusive high energy photon samples. The results of these measurements, performed with pp collision data recorded at sqrt(s)=13 TeV during 2015-2017 and corresponding to an integrated luminosity of 80 fb-1, are presented. The impact of the pile-up, especially large in the second part of 2017 data taking, is discussed.

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