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ATLAS Electron and Photon Trigger Performance in Run 1 and Developments towards Run 2

Electron and photon triggers are essential for signal selection in a wide variety of ATLAS physics analyses to study Standard Model processes and to search for new phenomena. Final states including leptons and photons had, for example, an important role in the discovery and measurement of the Higgs particle. Dedicated triggers are also used for the collection of J/ψ →e+ e− , W→ eν and QCD background samples for calibration, efficiency and fake rate measurements. The ATLAS trigger system is divided in a hardware-based (Level 1) and two software stages (Level 2 and Event-Filter). During the LHC Run1 proton-proton data-taking period, the increasing luminosity and the more challenging pile-up conditions demanded the optimization of the trigger selections at each level to control rates and keep efficiencies high. The evolution and performance of the ATLAS electron and photon triggers in Run1 will be discussed, updates and plans for the operation during Run 2 starting in 2015 will be presented.

Summary

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