

Data-driven corrections to ATLAS electron trigger simulation

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The High Level Trigger (HLT) system used in the ATLAS detector at the Large Hadron Collider provides high efficiency selection of a wide range of signals. Very important targeted signatures are those where we identify single or multiple electron candidate events in the data. This is because they have a very wide application in many type of physics searches, like Higgs searches, searches of physics Beyond the Standard Model (BSM), as well as Standard Model physics.

Understanding the differences in the efficiencies for the selection of such triggers in ATLAS data compared to Monte Carlo simulation is a key preliminary to any measurement (Standard Model as well as BSM). The full Run II ATLAS data collected between 2015 and 2018. The differences in efficiency between data and Monte Carlo are studied using pure electron samples obtained from $Z \rightarrow ee$ Monte Carlo and data. From these differences, correction factors have been calculated and will be applied in ATLAS by a large number of analyses.

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