



Contribution ID: 212

Type: Parallel talk

Muon identification and performance in the ATLAS experiment

Thursday, July 11, 2019 10:30 AM (15 minutes)

Muon reconstruction and identification play a fundamental role in many analyses of central importance in the LHC run-2 Physics programme. The algorithms and the criteria used in ATLAS for the reconstruction and identification of muons with transverse momenta ranging from a few GeV to the TeV scale will be presented. Their performance is measured in data based on the decays of Z, Y, and J/ψ to pairs of muons. Reconstruction and identification efficiencies are evaluated, as well as momentum scales and resolutions, and the results are used to derive Monte Carlo simulation corrections that in several cases reach the per-mille level precision. Isolation selection requirements and their performance in presence of high pileup will also be presented.

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Session Classification: Higgs Physics

Track Classification: Higgs Physics