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Performances of the ATLAS Level-1 Muon barrel trigger during the Run-II data taking

The Level-1 Muon Barrel Trigger is one of the main elements of the event selection of the ATLAS experiment at the Large Hadron Collider. It exploits the Resistive Plate Chambers (RPC) detectors to generate the trigger signal. The RPCs are placed in the barrel region of the ATLAS experiment: they are arranged in three concentric double layers and operate in a strong magnetic toroidal field. RPC detectors cover the pseudo-rapidity range |η|<1.05 for a total surface of more than 4000 m2 and about 3600 gas volumes.

The Level-1 Muon Trigger in the barrel region allows to select muon candidates with respect to their transverse momentum and associates them with the correct bunch-crossing number. The trigger system is able to take a decision within a latency of about 2 μs.

The detailed measurement of the RPC detector efficiencies and of the trigger performance during the ATLAS Run-II data taking is here presented.

Experimental Collaboration

ATLAS

Primary author: SESSA, Marco (Universita e INFN, Roma Tre (IT))

Presenter: SESSA, Marco (Universita e INFN, Roma Tre (IT))

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