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The ATLAS Muon Trigger Performance in pp collisions at sqrt(s)=8 TeV

Events with muons in the final state served an important signature for many physics topics at Large Hadron Collider (LHC), for instance, discovery of Higgs boson production, searches for new phenomena, and measurements on the standard model processes like top-quark, W, Z production. Thus, efficient trigger on muons in data taking and understanding its performance were crucial to perform these physics studies. At LHC high rejection power against large backgrounds, while maintaining high efficiency for rare signal events, is required already at such online trigger stage. The ATLAS experiment employs a multi-level trigger architecture that selects the events in three sequential steps of increasing complexity and accuracy to cope with this challenging task.

This paper reports about efficiency, resolution, and general performance of the ATLAS muon trigger by using proton-proton collision data at sqrt(s)=8 TeV collected in year 2012.

 Author:
 KISHIMOTO, Tomoe (Kobe University (JP))

 Presenter:
 KISHIMOTO, Tomoe (Kobe University (JP))

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