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The ATLAS Trigger System in 2010 LHC proton-proton collisions

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The ATLAS trigger system has collected proton-proton collisions over 5 orders of magnitude in instantaneous luminosity during the 2010 LHC running. The trigger system is designed to reduce the event rate from 40MHz to 200Hz using a hardware-based Level 1 Trigger (L1) and a software-based High Level Trigger (HLT). The trigger selection is based on identifying object candidates, such as, electrons, photons, muons, tau leptons, and jets as well as global event features, such as missing transverse energy. This talk will present the commissioning, operations, and performance of the ATLAS trigger system with a focus on the performance of the system with respect to data collected for physics analysis. We describe how the trigger system has evolved with increasing LHC luminosity and give a brief overview of plans for forthcoming LHC running.

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