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Overview of ATLAS muon detectors: status and performance

The ATLAS Muon Spectrometer, the largest muon system ever built at colliders, now comprises both legacy gaseous detectors—Monitored Drift Tubes (MDT), Thin Gap Chambers (TGC), and Resistive Plate Chambers (RPC)—which have been in operation for over 15 years, as well as newer technologies like Micromegas and small-strip TGCs in the NSW. These new systems are now in stable operation following an extensive phase of construction and commissioning, providing enhanced muon tracking and trigger capabilities.

This presentation will cover the status and performance of the Muon system, focusing on the stability of the legacy detectors over time, their ability to handle increasing luminosity and associated irradiation levels, and studies on detector ageing. Emphasis

will be placed on the NSW upgrade, including the strategies adopted for simulation, alignment, track reconstruction, and trigger.

Secondary track

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