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## ATLAS Muon Detectors upgrades for High Luminosity LHC

The muon spectrometer of the ATLAS detector will undergo a substantial upgrade during the Phase-II upgrade to meet the operational demands of the High- Luminosity LHC. Most of the electronics for the Monitored Drift Tube (MDT) chambers, Resistive Plate Chambers (RPC), and Thin Gap Chambers (TGC) will be replaced to ensure compatibility with the higher trigger rates and extended latencies required for the new level-0 trigger. The MDT chambers will be integrated into the level-0 trigger to sharpen the momentum threshold. Additional RPC chambers will be installed in the inner barrel layer to enhance the acceptance and robustness of the trigger. Some MDT chambers in the inner barrel layer will be replaced with new small-diameter MDTs to optimize performance. New TGC triplet

chambers will be installed in the barrel-endcap transition region, replacing the current TGC doublets to reduce the high trigger rate caused by random coincidences in this area.

Additionally, the power systems for the RPC, TGC, and MDT chambers, along with their associated electronics, will be replaced due to component obsolescence, ageing, and radiation damage.

This contribution will provide an overview of the upgrade challenges, the current status of the projects, prototype and production results.

## Secondary track

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