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The ATLAS muon spectrometer upgrade for high-luminosity LHC

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The muon spectrometer of the ATLAS detector will undergo a major upgrade in order to cope with the operational conditions at the high-luminosity LHC. The trigger and readout system will need to support Level-0 trigger rates of 1 MHz and a latency of 10 us. The readout electronics of all the trigger and precision chambers will be replaced and the precision chambers, currently not included in the hardware trigger, will be integrated into the Level-0 trigger in order to sharpen the momentum threshold and increase the system redundancy. New-generation RPC chambers will be installed in the inner barrel layer to increase the acceptance and robustness of the trigger. Some of the MDT chambers in the inner barrel layer will be replaced with new small-diameter MDTs. New TGC triplet chambers in the barrel-endcap transition region will replace the current TGC doublets to suppress the high trigger rate from random coincidences in this region. A major upgrade of the power system is also planned. In this presentation the main detector technology developments of the project will be presented.

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