

The ATLAS RPC Phase II upgrade for High Luminosity LHC era

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RPC detectors play a crucial role in triggering events with muons in the ATLAS central region; it is facing a significant upgrade in view of the HL-LHC program. In the next few years, 306 triplets of new generation RPCs, with 1 mm gas gap (instead of 2 mm) will be installed in the innermost region of the ATLAS Muon Barrel Spectrometer, increasing from 6 to 9 the number of tracking layers, doubling the trigger lever arm and increasing the coverage. An innovative front-end electronics will allow to operate the RPCs with an order of magnitude less of average charge. Both sides of RPCs are readout by strip panels, the second coordinate is reconstructed from the time difference of signal drift at opposite detector's ends. The expected time resolution is approximately 300 ps; the possibility of a stand-alone Time of Flight measurement will have a huge impact on ATLAS searches for long-lived particles. An overview and the present status of the ATLAS RPC Phase II project will be presented.

Alternate track

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