



Contribution ID : 734

Type : **Poster**

New Small Wheels for the ATLAS muon Spectrometer

Monday, 5 October 2020 17:30 (150)

The ATLAS collaboration at LHC has chosen the Large size multi-gap resistive strips Micromegas (MM) technology along with the small-strip Thin Gap Chambers (sTGC) for the high luminosity upgrade of the first muon station in the high-rapidity region, the so called New Small Wheel (NSW) project. The NSW is expected to be installed in the ATLAS underground cavern in the current long shutdown. After the R&D, design and prototyping phase, the series production MM and sTGC are being constructed. At CERN, the final validation and integration of the modules in sectors composing the wheel is well advanced. The achievement of the requirements for these detectors revealed to be even more challenging than expected, when scaling from the small prototypes to the large dimensions. In this presentation the main challenges of the project, the adopted solutions and performance results will be reviewed.

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Session Classification : Poster session

Track Classification : Facilities and advanced detector technologies