

First results and surface commissioning experience with the New Small Wheel ATLAS Upgrade

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For the LHC luminosity upgrade, ATLAS will install 2 muon New Small Wheels (NSW), which will significantly reduce the fake muon trigger rate and maintain muon tracking performance in the end-cap region of the detector. NSWs are made Micromegas (MM) and sTGC, both to be used for precision tracking and triggering, providing a total of 16 layers of redundancy. Detectors of both technologies are being combined into sectors at CERN. This contribution will introduce the steps and tests performed when the detector modules are installed on the NSW structure. These tests include the connection and usage of the final services, noise runs, pulser tests, calibration, trigger path validation and some cosmic track data to validate the entire read-out chain. Moreover, the analysis methods and tools shall be outlined, along with the DAQ and Trigger chain. This set of final validation steps is a major milestone for the NSW project and for the ATLAS collaboration.

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