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Performance studies of the New Small Wheel trigger processor in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector

The instantaneous luminosity of the Large Hadron Collider at CERN will be increased by about a factor of five with respect to the design value by undergoing an extensive upgrade program over the coming decade. The largest phase-1 upgrade project for the ATLAS Muon System was the replacement of the first station in the forward regions with the New Small Wheels (NSWs) which took place during the long-LHC shutdown in 2019-2021. The two NSWs cover a positive and negative pseudorapidity acceptance in the range $|\eta| = 1.3$ to 2.7. Both wheels have been successfully installed in ATLAS in 2021 and took data from pp collisions at 13.6 TeV in 2022. The new system is designed to assure high tracking efficiency, reduction of fake trigger rates and precision measurement of muon tracks. In this presentation, after an introduction of the NSW, a series of latest results from the trigger processor system in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector will be reported.

Mini Symposia (Invited Talks Only)

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