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ATLAS NSW sTGC Readout Electronic Integration and Commissioning

Saturday, 9 April 2022 19:20 (20 minutes)

The most challenging ATLAS Phase I upgrade project during Long Shutdown 2 (2019-2021) is the New Small-Wheel (NSW) for Muon Spectrometer. The main purpose of the NSW upgrade is to improve the performance of muon triggering and precision tracking for the High-Luminosity Large-Hadron-Collider (HL-LHC), which will deliver 3,000 fb-1 of data at √s = 14 TeV. The NSW will feature two new detector technologies: Resistive Micromegas (MM) and small-strip Thin Gap Chambers (sTGC), with MM playing the role of a primary tracking detector and sTGC as a primary trigger. To retain the good precision tracking capabilities in the high background environment of the HL-LHC, each sTGC plane must achieve a spatial resolution better than 100 μm to allow reconstruction of the Level-1 trigger track segments with an angular resolution of approximately 1mrad. This presentation focuses on the electronic readout integration and readout commissioning of sTGC detectors at CERN, both in the integration phase and for the two, separate, NSW commissionings, including a summary of the progress achieved, the problems encountered, and adapted solutions.

Career stage

Graduate student

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