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(G*) POS-J93 – Validating misalignment measurements between particle detectors for the ATLAS New Small Wheels

Wednesday 9 June 2021 14:11 (2 minutes)

The major ongoing upgrade of the ATLAS detector at the Large Hadron Collider at CERN consists in the replacement of parts of its muon spectrometer. The so-called New Small Wheels (NSWs) will be covered with two detector types that must trigger on and track outgoing particles - one type is small-strip thin gap chambers (sTGCs) assembled into modules of four layers. Canadian-built sTGC modules are characterized at McGill University using cosmic rays before being shipped to CERN for integration into the wheels. To achieve the design tracking performance, misalignments between sTGC layers must be corrected for. The charge profile left by an x-ray gun and coordinate measuring machine (CMM) measurements of quadruplet layers are being used to define these parameters. Work on using cosmic ray data to validate misalignment parameters derived using the above-mentioned methods will be presented.

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