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Integration and commissioning of the ATLAS small-strip Thin Gap Chambers

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ATLAS endcap inner station muon detector is being replaced with a New Small Wheel (NSW) detector to handle the increase in data rates and radiation expected at HL-LHC. The NSW will feature two new detector technologies, Resistive Micromegas (MM) and small-strip Thin Gap Chambers (sTGC). Both detector technologies will provide trigger and tracking primitives. The sTGC detector is composed of 192 four-layer chambers and pad, strip and wire signals will all be read out. Its frontend electronic system has 11,776 ASICs on 1,536 frontend boards and ˜354,000 readout channels. Tasks such as time, trigger and control signal distribution and readout are performed by an Front End Link Interface eXchange (FELIX) system. Integration and commissioning of frontend and backend electronics on these chambers is ongoing at CERN. I will discuss the overall detector and electronic system and present integration and commissioning results.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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