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sMDT Production and Testing at UM for the HL-LHC ATLAS Muon Spectrometer Upgrade

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To accommodate the high trigger-rate conditions at the High Luminosity Large Hadron Collider (HL-LHC) in Run 4 and onwards, the Monitoring Drift Tube (MDT) chambers in the inner barrel layer of the ATLAS muon spectrometer will be replaced with new small-diameter MDTs. The upgrade will allow for better muon tracking resolution and for the installation of new Resistive Plate Chambers (RPCs) to maintain a high trigger efficiency. To ensure consistency and quality in each individual drift tube, a detailed construction and testing process is developed and used for the sMDT production process at the University of Michigan (UM) and Michigan State University (MSU). A major effort in tube production was made by UM during 2021 to ensure a timely sMDT chamber construction schedule. In this talk, I will present the cumulative testing results between the two sites which show an excellent production year in quality and quantity.

Career stage

Graduate student

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