

Abstract Submitted  
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**Resistive Plate Chamber Upgrade for the PHENIX Muon Arm Trigger** RUSTY TOWELL, Abilene Christian University, PHENIX COLLABORATION — Many significant questions remain to be answered about the origin of the proton spin. A new fast Resistive Plate Chamber (RPC) based trigger system is being developed for the PHENIX muon spectrometer arms that will allow for the first time the measurement of the flavor structure of the quark polarization in the proton through the observations of W-bosons in polarized proton-proton collisions at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL). The new PHENIX Muon Trigger will improve the efficiency by which the data acquisition system can identify potential W events by approximately two orders of magnitude. W-bosons can be detected through the appearance of a high-energy muon in one of the two existing muon spectrometers. The trigger upgrade is based on new front-end electronics for the muon tracking chambers and RPCs that will be installed in two stations of both muon arms. Measurements possible in the next RHIC run will be reviewed and the current production status and quality control of RPCs in the production factory will be presented.

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