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Development and Performance Evaluation of Front-end Electronics for Forward W Trigger at RHIC-PHENIX experiment YOSHINORI FUKAO, RIKEN, PHENIX COLLABORATION — RHIC performed the first polarized proton-proton physics run with $\sqrt{s} = 500$ GeV in 2009. One of the challenging goals in 500 GeV run is to probe flavor-sorted sea quark contribution to the proton spin through the measurements of spin asymmetry in W boson production. High momentum muons from W's are detected by forward muon arms in PHENIX. Two major upgrades for the muon arm are in progress, Resistive Plate Counters (RPC) and Muon-Tracking-Chamber Front-end-Electronics Upgrade (MuTRG-FEE), to provide a trigger for the W detection. RPC features good timing and spacial resolution. MuTRG-FEE extracts fast signal of Muon Tracking Chamber. Combination of these detectors realizes the high-momentum muon trigger for W by rough online tracking. We installed MuTRG-FEE into a half of muon arm as well as the prototype of RPC in 2008. Commissioning of the new trigger was carried out with beam collisions in 2009 run. The analysis is underway to evaluate the performance of the trigger such as the efficiency and the rejection power. In this talk, I focus on the result of the MuTRG-FEE analysis and will discuss the observed performance from the data in 2009.

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