Status of the Muon Trigger Resistive Plate Chamber Upgrade
Project in PHENIX IHNJEA CHOI, University of Illinois at Urbana Cham-
paign, PHENIX COLLABORATION — The exploration of proton spin structure
is one of the major goals of the PHENIX experiment at the Relativistic Heavy Ion
Collider at Brookhaven National Laboratory. Single longitudinal spin asymmetries
for high momentum muons from W-boson decay at $\sqrt{s} = 500$ GeV are a promising
probe for the flavor decomposition of quark helicity distributions in the proton. The
PHENIX muon trigger upgrade will provide the ability to select rare events with
high momentum muons from the dominant background of low momentum muons
from hadron decay. The upgrade consists of two components. (1) The existing muon
spectrometer will be upgraded with new, fast trigger front-end electronics. (2) Fast
Resistive Plate Chamber (RPC) stations will be added upstream and downstream
of the two PHENIX muon spectrometers. In combination these upgrades make it
possible to select high momentum tracks in the first level trigger and to reject beam
related backgrounds. PHENIX muon trigger RPC technology, including the fron-
tend electronics, follows closely the design of the CMS muon trigger RPCs. We
report the status of the RPC upgrade project including the progress in detector
assembly and RPC installation in the PHENIX muon spectrometers.

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