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**Drift Chamber Development for PHENIX Muon Trigger RPC Tests.** AARON VEICHT, University of Illinois at Urbana-Champaign, PHENIX COLLABORATION — The PHENIX experiment at the Relativistic Heavy Ion Collider at Brookhaven National Laboratory will measure the flavor dependent quark and anti-quark polarizations in the proton. In proton-proton collisions a quark and anti-quark interaction can be signaled by the formation of a W-Boson. Experimentally in PHENIX, W- Bosons are detected through the presence of a high energy muon. The PHENIX detector presently triggers muons above 2 GeV, including those from meson decays. This trigger condition results in a data flow ten times higher than the available data acquisition bandwidth in PHENIX. We propose to introduce fast first level trigger counters for an on-line measurement of the muon momentum. With this upgrade in place, a trigger condition of muon momenta greater than 10 GeV will decrease the data rate by a factor of twenty. The proposed first level muon trigger will rely on technology developed for the CMS detector at LHC. Application of the CMS RPC's in PHENIX will require an improvement in position resolution. In this paper we present the design, simulation and construction of a drift chamber package to be used in the PHENIX RPC cosmic ray test stand.

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