

Abstract Submitted  
for the APR12 Meeting of  
The American Physical Society

**A New Muon Trigger for W-Physics at Forward Rapidity in PHENIX** FRANCESCA GIORDANO, UIUC — The last decades have witnessed an enormous effort to understand nucleon spin structure. Nevertheless, many open questions remain. One important unresolved problem is the flavor dependence of quark and anti-quarks contributions to the nucleon spin. Parity violating W boson production in polarized proton-proton collisions at the Relativistic Heavy Ion Collider (RHIC) is sensitive to the flavor-dependence of quark and anti-quark spin contributions. Events including a W boson can be identified in the PHENIX experiment at RHIC by the presence of a high energy muon at forward rapidity. In order to improve the efficiency in selecting such events, the PHENIX collaboration has recently upgraded the muon trigger system of the two PHENIX forward muon spectrometers. The trigger upgrade consists of new front-end electronics for the muon tracking chambers, the installation of two new Resistive Plate Chamber (RPC) stations in each muon arm and new fast FPGA based trigger processor boards. The upgrade makes it possible to identify high momentum muons from W-decay within the 4 micro second latency of the PHENIX first level trigger. In this presentation, the upgrade design will be reviewed and the initial performance of the new muon trigger systems will be discussed.

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Date submitted: 11 Jan 2012

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