

Abstract Submitted  
for the HAW09 Meeting of  
The American Physical Society

**Timing Resolution of the Prototype Resistive Plate Chambers for the PHENIX Trigger Upgrade** KYLE GAINNEY, Abilene Christian University — The PHENIX collaboration at the Relativistic Heavy Ion Collider (RHIC) studies polarized proton-proton collisions to understand the spin structure of the proton. The muon trigger in PHENIX is being upgraded to improve its ability to select high  $p_T$  single muons such as those produced in the decay of  $W$ -bosons. Two prototype Resistive Plate Chambers (RPCs) have been in the interaction region taking data through the run that ended earlier this year. The addition of the RPCs to PHENIX will provide precision timing information to the muon reconstruction. Among other benefits, this will allow for the differentiation between particles originating from collisions at the interaction point and background particles originating elsewhere. The additional capability to reject background will be important at the higher energies needed to study  $W$ -bosons. The 2009 run was the first time RHIC collided polarized protons at 500 GeV and thus the background levels were initially imprecisely known. This poster will focus on how the prototype chambers performed during this high energy run and include details about their timing resolution.

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Date submitted: 31 Jul 2009

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