

Abstract Submitted
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Signal Readouts in a PHENIX RPC KELLER ANDREWS, PHENIX COLLABORATION — The PHENIX collaboration at RHIC studies polarized proton-proton and heavy ion collisions to better understand the structure of the proton. PHENIX is in the process of upgrading the muon trigger to improve their capabilities of studying the production of W-bosons. By triggering on single, high transverse momentum muons among a background of low transverse momentum muons, new observations on the inner structure of a proton can be obtained. The trigger upgrade will consist of six stations of Resistive Plate Chambers (RPCs), three stations on each side of the interaction region. Inside an RPC, there are several copper strips, called a signal plane. When a charge is induced on them by a charged particle (a muon) traveling through an adjacent gas gap, it passes a charge from the strip, into a readout wire. The wire runs to a card that transitions from the signal plane to the readout electronics (a transition card). In the readout electronics, the signal is amplified and sent to a discriminator that produces a digital record of the charged particle's path. This poster will explain how RPCs work and how the signal is generated in the prototype PHENIX detectors.

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