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Resistive Plate Chambers and the Forward PHENIX Upgrade at RHIC[1] DONALD ISENHOWER, Abilene Christian University, PHENIX COLLABORATION — The PHENIX experiment at the Relativistic Heavy Ion Collider (RHIC) is in the process of upgrading the forward region of the detector to allow for a level one trigger to reject low-momentum muons. The goal is to improve the rejection of low p_T particles by a factor of 5,000 to 10,000. This will allow the selection of events with W bosons in high luminosity polarized proton-proton collisions during $\sqrt{s} = 500$ GeV at RHIC, providing a powerful tool to study the spin dependent distributions for quarks and anti-quarks seperately for each quark flavor. The chosen solution consists of three Resistive Plate Chamber (RPC) stations for each muon arms constructed of bakelite designed to handle rates on the order of 1,000 events/cm^2. They will cover the forward and backward rapidity ($1.2 < |y| < 2.2$) regions. Prototypes of these chambers will utilize experience of other collaborations building similar RPCs. The major differences required for PHENIX is that they must be able to be installed into the already assembled detector. These and other challenges will require some unique aspects to the PHENIX RPC design.

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