

Abstract Submitted
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Testing of multigap Resistive Plate Chambers for Electron Ion Collider Detector Development HANNAH HAMILTON, Abilene Christian University, PHENIX COLLABORATION — Despite decades of research on the subject, some details of the spin structure of the nucleon continues to be unknown. To improve our knowledge of the nucleon spin structure, the construction of a new collider is needed. This is one of the primary goals of the proposed Electron Ion Collider (EIC). Planned EIC spectrometers will require good particle identification. This can be provided by time of flight (TOF) detectors with excellent timing resolutions of 10 ps. A potential TOF detector that could meet this requirement is a glass multigap resistive plate chamber (mRPC). These mRPCs can provide excellent timing resolution at a low cost. The current glass mRPC prototypes have a total of twenty 0.1 mm thick gas gaps. In order to test the feasibility of this design, a cosmic test stand was assembled. This stand used the coincidence of scintillators as a trigger, and contains fast electronics. The construction, the method of testing, and the test results of the mRPCs will be presented.

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