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Developing a High Precision Cosmic Test Stand for PHENIX Research and Development[1] CECILY TOWELL, Abilene Christian University, PHENIX COLLABORATION — The multi-purpose Pioneering High Energy Nuclear Interaction eXperiment (PHENIX) at the Relativistic Heavy Ion Collider (RHIC) has been very successful, producing many discoveries. Specifically, PHENIX made critical contributions to the discovery of a new state of matter, the Quark Gluon Plasma (QGP). To allow for the continuation of effective study of the QGP, significant detector upgrades are being developed. A potential upgrade is the addition of high-resolution Time-of-Flight (TOF) detectors. The TOF detectors currently installed in PHENIX have a resolution of about 100ps. To improve the particle identification capabilities of the TOF detectors, an order of magnitude improvement is desired. Possible means of achieving this resolution include Multi-gap Resistive Plate Chamber's (MRPC's) and MicroChannel Plate-PhotoMultiplier Tubes (MCP-PMT's), which are being studied. In order to test these detectors, a cosmic test stand has been commissioned. This test stand includes scintillator triggers, high precision silicon tracking and fast ADCs. To achieve a timing resolution measurement of less than 10 ps, each component in the test stand was chosen carefully. The design and initial results of the test stand will be presented.

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