

Contribution ID : 112

MRPC-based detectors at STAR

Content :

The STAR experiment at RHIC was recently upgraded with a 23k-channel large-area time-of-flight detector (TOF). The technology is based on multigap resistive plate chambers (MRPCs) and involves custom digitization electronics based on the CERN HPTDC and NINO chips. China contributed the MRPC detectors for the upgrade. The new TOF detector was fully operational for RHIC Run 10 (2010). The TOF system achieved a time resolution of better than 90 ps in full-energy Au+Au collisions.

A second MRPC-based upgrade has been proposed for STAR, which is to be completed for RHIC Run 14 (2014). The Muon Telescope Detector (MTD) will use long MRPCs with double-ended readout, also to be contributed by China and India. The detector, positioned outside the STAR magnet, will detect muons that pass through the magnet steel, and use the particle time-of-flight to reject background. The MTD will detect di-muon pairs from thermal radiation, quarkonia, and light vector mesons. Excellent mass resolution will allow the separation of different upsilon states. This presentation will discuss the physics provided by the proposed muon detector, and cover its design and the performance of MTD prototypes.

Collaboration :

STAR Collaboration

Primary authors : Dr. GEURTS, Frank (Rice University)

Co-authors :

Presenter : Dr. GEURTS, Frank (Rice University)

Session classification : --not yet classified--

Track classification : --not yet classified--

Type : --not specified--