

Abstract Submitted
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Multi-Gap Resistive Plate Chamber (MRPC) for the PHENIX TOF upgrade HUGO VALLE, Vanderbilt University, PHENIX COLLABORATION — The PHENIX experiment has observed enhanced proton/pion ratios in central Au+Au collisions as compared to the expectation from parton fragmentation. The measurements have been done using the scintillator based Time-of-Flight (TOF) detector in the PHENIX East arm, which allowed pi/K and K/p separation up to $p_T = 2.5$ and 4 GeV/c respectively. Particle identification (PID) to higher p_T (> 8 GeV/c) is needed to better characterize the hadron production mechanism at intermediate and high- p_T and differentiate between competing theoretical descriptions. The PHENIX detector is being upgraded with a high- p_T PID system. A cost-effective TOF system based on Multi-gap Resistive Plate chambers (MRPC) has been implemented as part of this upgrade. The MRPC-TOF will provide high-resolution timing measurement in the PHENIX West arm. It will supplement the PID provided by the Aerogel and Ring Imaging Cerenkov Counters, and allow for seamless particle identification in the range $0.2 < p_T < 9$ GeV/c. Three different prototypes were installed and operated in heavy ion beam conditions during RUN5. The design goal of $\sigma_t \sim 100$ ps has been achieved. The final TOF-MRPC detector will be installed and ready for operation for RUN7. The details on the MRPC design and the electronics chain will be presented.

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