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Performance of the PHENIX Multi-Gap Resistive Plate Chamber Time-of-Flight Detector RONALD BELMONT, Vanderbilt University, PHENIX COLLABORATION — In Run7 of RHIC the PHENIX experiment operated a Time-of-Flight detector based on Multi-Gap Resistive Plate Chamber technology. The detector covers an area of 8 m^2 in the PHENIX West arm spectrometer and has an intrinsic timing resolution of σ_t 80 ps. In conjunction with the Aerogel Cherenkov Counters (ACC), it allows for 4σ π/K separation up to p_T 3 GeV/ c and K/p separation up to p_T 5 GeV/ c . Combined with the ACC, the new detector system provides seamless particle identification (PID) for $\pi/K/p$ in the range $0.2 < p_T < 9$ GeV/ c , and for hadronic resonances the PID has been extended even higher ($p_T > 10$ GeV/ c). Furthermore, the track-by-track identification with increased angular coverage allows for jet correlation measurements with PID in both the near side and away side jet cones. Jets in heavy ion collisions at RHIC have been shown to be significantly modified when compared to the p+p reference data, and Identified particle measurements at high p_T are fundamental to understanding the underlying jet suppression mechanisms. The MRPC-TOF performance and the consequential extended physics capabilities of PHENIX will be discussed.

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