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Performance of the HADES-TOF RPC wall in a Au-Au beam

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In this work we present results concerning in beam operation of the new Resistive Plate Chamber (RPC) Time of Flight (TOF) wall for the High-Acceptance DiElectron Spectrometer (HADES) spectrometer at GSI.

The new RPC-TOF wall, fully integrated in the spectrometer, has been successfully operated under final operation conditions corresponding to collision of Au + Au @ 1.25 GeV.

Results confirm an uniform time response below 85 ps sigma, crosstalk on the few % level and moderate timing tails along with an average longitudinal position resolution better than 10 mm sigma. The multihit capability of the system has also been investigated revealing a slight degradation of timing resolution when particles hit the detector at neighboring cells.

Additionally, the PID (particle identification) capability of the spectrometer, after preliminary system calibration, shows a good separation capability of the different species.

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