RPC2012 - XI Workshop on Resistive Plate Chambers and Related Detectors



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Analysis of the front structure of EAS with the HADES tRPC wall

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In the last months of 2009, during the commissioning of the HADES tRPC TOF wall at the GSI (Darmstadt, Germany), more than 500 million cosmic ray data were taken with a precision in time measurement below 100ps for each tRPC cell. The six sectors, with an area greater than 1 square meter each, were placed horizon-tally in pairs, with their axes pointing in the direction east-west, and a distance of about 30cm. Each sector consisted on two layers of RPC cells partially overlapped to avoid dead zones and each cell was read-out from both ends so that in the optimal case, a cosmic particle went through up to 4 cells allowing a fit of high quality. The mean position resolution was approximately 1cm in north-south and about 3cm in the east-west directions. The mean granularity of each detector was about 20cm2. This arrangement allows us to reconstruct the arrival direction of cosmic rays with an accuracy of about 1 degree in the north-south and about 3 degrees east-west directions.

Although data were taken over an surface of scarcely one square meter, the knowledge of the very accurate

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