

A new readout scheme for RPC and other gaseous detectors

Wednesday, May 26, 2021 6:06 AM (18 minutes)

A new readout scheme allowing the exploitation of Resistive Plate Chamber (RPC) spatial precision while using a limited number of electronic channels was designed. The new scheme that exploits the spread of the RPC induced charge on several adjacent inter-connected pads, allows the simultaneous detection of several particles without ambiguity. In this scheme, pads are connected in rows through buried vias in a genuine way so the charge induced by the passage of one particle is shared among pads belonging to different directions. The pads of one row are connected to one electronic channel. The position of the particle is determined by the intersection of the rows associated to the fired pads. PCBs with pads of lozenge shape were produced and equipped with HARDROC ASICs. They were then successfully tested on detectors in a cosmic bench. To equip large detectors, a modular electronic board using this scheme was conceived and successfully tested.

TIPP2020 abstract resubmission?

Yes, this would have been presented at TIPP2020.

Funding information

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Session Classification: Sensors: Gaseous Detectors

Track Classification: Sensors: Sensors: Gaseous Detectors