

RESISTIVE MICROMEAS

Detector Read-Out Interface for an Avalanche Particle Detector.

This technology is an interface between a detector vessel and a read-out structure for an avalanche particle detector, in particular for a MicroPattern Gas Detector (MPGD) such as the MicroMegas detector.

In this invention the various elements of the structure are optimised in such a way the electronic signal is not lost through the resistive layer but is propagated to a separate plane, carrying read-out pads or strips, by capacitive coupling. There is complete separation between the Micromegas detector and the read-out electronic plane.

The technology:

- *Reduces the charge released by Micromegas during spark formation. It provides spark protection to electronics.*
- *Easily accommodates any read-out electronics by separating detector function and electronics function.*
- *In the case of using integrated pixel chips this structure would solve a technical problem, related to the implementation of many chips, without creating dead space.*

AREA OF EXPERTISE

- Microelectronics.
- High performance detectors.

IP STATUS

- Patent application filed.

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APPLICATIONS

The use of the ceramic structure could permit the fabrication of a seal detector which is a must for many industrial applications: industrial fluorescence, radiology, UV photodetector.

ADVANTAGES

- Electronics protection.
- Seal detector.
- Compatibility with any read-out system and especially with integrated micropixel systems.
- Good potential for interchangeable detectors/read-out if built to a standard format.

LIMITATIONS

- Compared to the Bulk Micromegas technology, the disadvantage is that new technology will not compete for fabricating very large detectors of the order of 1x1 m².

RELATED PUBLICATIONS

- P. Colas et al., Nucl. Instr. and Meth. A 535 (2004) p.506.
- Bilevych et al., Nucl.Instrum.Meth. A629 (2011) 66-73.
- M. Campbell et al., Nucl.Instrum.Meth. A540 (2005) 295-304.



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