



Contribution ID: 30

Type: **Oral Contribution**

## **Position Sensitive Scintillator Based Detector Improvements by Means of an Integrated Front-End**

*Tuesday 2 September 2008 12:30 (20 minutes)*

PESIC is an integrated front-end for multianode photomultiplier based nuclear imaging devices. Its architecture has been designed to improve time behavior and increase spatial resolution. Its preamplifying stage introduces two main benefits: digitally programmable gain adjustment for every photomultiplier output, and isolation from other front-end electronics by means of current buffers. This last feature allows to use different types of photomultipliers such as SiPM and optimizes front-end deadtime, reducing impact position dependent output delay. PESIC includes an indirect measurement of the depth of interaction of the gamma ray inside the scintillator crystal, based on the width of its light distribution. Test measurements have been carried out in an experimental dual detector PET setup in order to quantify improvements due to front-end integration and detector calibration.

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**Session Classification:** Applications in Nuclear Medicine and Radiology

**Track Classification:** Applications in Nuclear Medicine and Radiology