

Dear Editors,

Please find attached the article entitled ‘Design, Characterization, and Digital Linearization of an ADC Analogue Front-End for Gamma Spectroscopy Measurements,’ to be considered for publication in the IMEKO TC-4 2020 Special Issue of ACTA IMEKO.

This work results from the collaboration between the Polish Institute for Nuclear Research (NCBJ), the Warsaw University of Technology in Poland, and the University of Bologna in Italy.

The article significantly extends the conference contribution entitled ‘Digital post-distortion of an ADC analog front-end for gamma spectroscopy measurements’ presented at the *24th IMEKO TC-4 International Symposium and 22nd International Workshop on ADC and DAC Modelling and Testing* in September 2020. The present one is the first original submission of this manuscript, which has not been submitted to any another journal.

With respect to the conference contribution, this article adds novel content in the following areas:

- It provides a detailed overview and working principle of the gamma spectroscopy system under development at the NCBJ, including the detector of gamma radiation (see Sec. 2).
- It includes the description of the design steps for the ADC analogue front-end board (see Sec. 3).
- It discusses the design choices (see Sec. 3) as well as the characterization of the on-board ADC reference clock (see Sec. 4).
- It reports experimental examples on the use of the designed architecture and the application of the post-distortion techniques within the actual spectroscopy system at NCBJ, in the presence of a Caesium-137 radiation source reference (see Sec. 6).

Thank you for considering this work for publication.

The authors