

New developments at LNS-INFN on Time Of Flight PET with Depth Of Interaction feasible, based on SiPM detectors

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In our measurements at LNS-INFN we proved that by coupling two Silicon Photomultipliers on both the sides of a LYSO scintillator finger, with suitable surfaces treatment, allow to achieve optimal performances in terms of time and spatial resolution, thus strongly supporting the feasibility of a high resolution TOF-PET probe. With a detector element of 1.5mm x 1.5mm x 10mm, we have achieved simultaneously a time-of-flight resolution around 150 ps and simultaneously DOI resolution below 1 mm.

In our opinion this proof of principle paves the way to the feasibility of a TOF-PET probe with unprecedented features and performance.

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