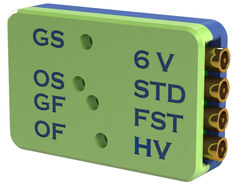
SiPM-Based Beta Detectors

ISOLDE Tape station miniaturized detector

- Drop in replacement solution for existing detector
- Used for 2π and 4π detection, β-γ coincidences
- Miniature SiPM array and FEE, 30x30mm each module
- Fast and Slow signals output allows both timing and energy measurement with proper scintillator
- Can be easily adapted to other applications
- Adjustable gain and offset, configurable polarity

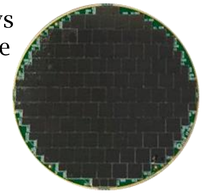
VETO Detectors for HPGe Clovers

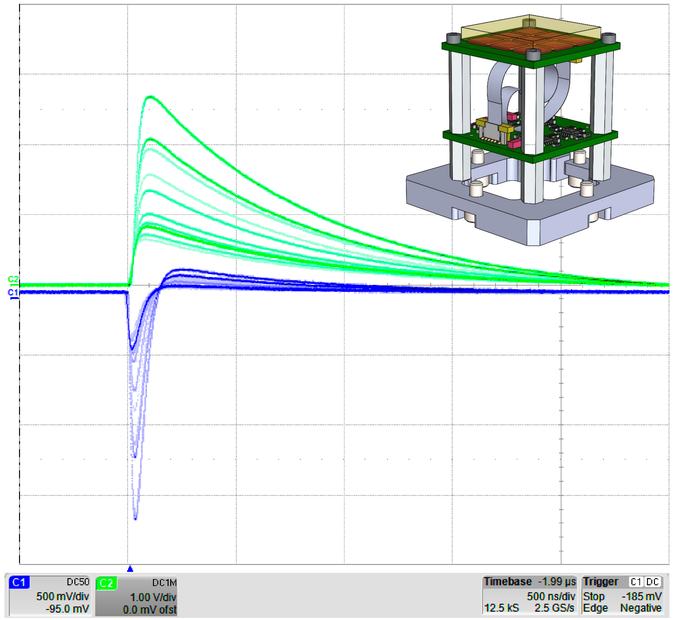
- Matches box size preamplifier
- Adjustable gain and offset
- Configurable pulse polarity
- Dual signal output
- 4ns rise time
- Very thin scintillator pad
- Miniature SiPM array (6x12mm)

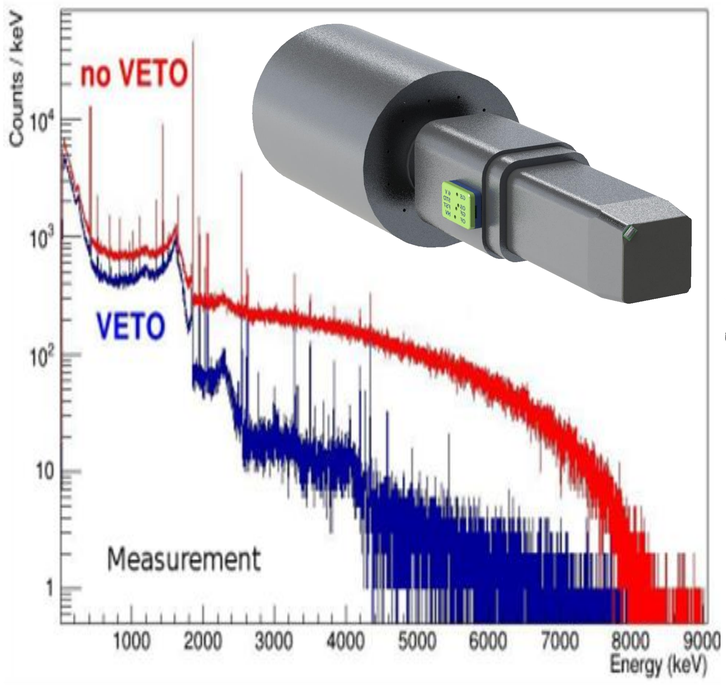


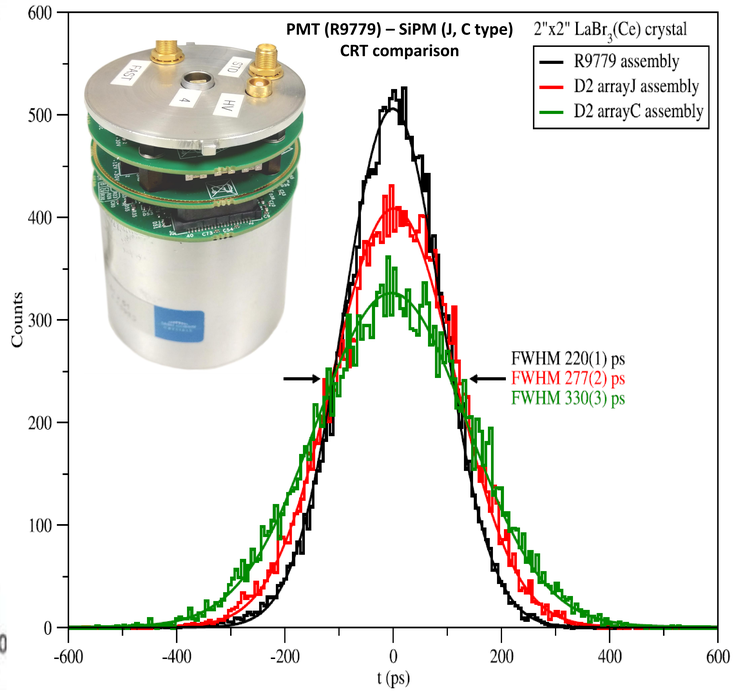
Other detectors developed by IFIN-HH

- 2” and 3” custom shape, large arrays
- Minimized dead area and SiPM noise
- Fast and Standard signal outputs
- 15ns - 18ns fast signal rise time
- 3.2(1)% energy resolution
- LaBr3(Ce) CRT: 2”→236(3)ps;
  3”→298(3)ps









References

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[2] G. Pascovici, C Mihai et al., The use of Micro-Technologies in Nuclear Instruments, the Development of a Set of Modern Gamma-Ray Detectors based on SiPM Arrays, Nanomaterials – Functional Properties and Applications, Editura Academiei Române, 2020
[3] R. Lica – Development of the ISOLDE Decay Station and γ spectroscopic studies of exotic nuclei near the N=20 “Island of Inversion”, Doctoral Thesis, 2017