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First Measurements with the PETsys TOFPET2 ASIC Evaluation Kit

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We present results obtained with the PETsys TOFPET2 ASIC Evaluation Kit.
The TOFPET2 ASIC is a time-of-flight capable 64-channel ASIC and is a promising candidate to build high-performance TOF-PET systems.
For a first characterization, we used two KETEK-PM3325-WB SiPMs each equipped with a 3x3x5 mm³ LYSO scintillation crystal.

For the measurements presented in this work, we changed the discriminator threshold t1 = 5 - 30 in steps of 5 and the bias voltage V_bias = 29 V - 35 V in steps of 0.25 V and acquired data during 60 s.
For all measurements, we performed an energy calibration including a correction for saturation.
We evaluated the energy resolution, the coincidence resolving time (CRT) and the coincidence rate.

At the optimal operating point, we obtained an energy resolution of about 9-7% FWHM, a CRT of approximately 210 ps FWHM and 395 ps FWTM, the coincidence rate showed only small variations of about 5% in the evaluated parameter range.

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