New Amplifier
Based on BGA2803 RF
block – SPICE sim for 1 Ch
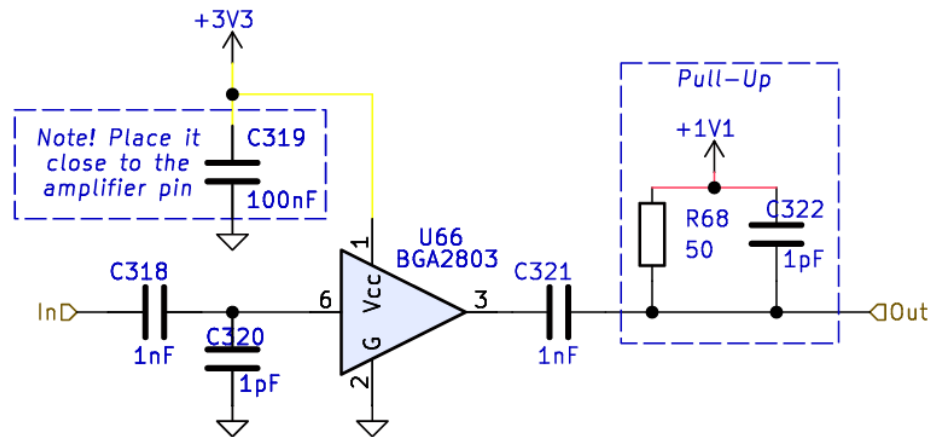
Time over threshold

➢ page_4: *https://jspc29.x-matter.uni-frankfurt.de/trb/schematics/PADIWA3-all.pdf*
➢ *W. Zhi et al 2024 JINST 19 P06011 DOI 10.1088/1748-0221/19/06/P06011*
➢ *Joshua W Cates et al 2018 Phys. Med. Biol. 63 185022 DOI 10.1088/1361-6560/aadbcd*
➢ *F. Simon NIM-A Volume 926, 11 May 2019, Pages 85-100 Doi.org/10.1016/j.nima.2018.11.042*
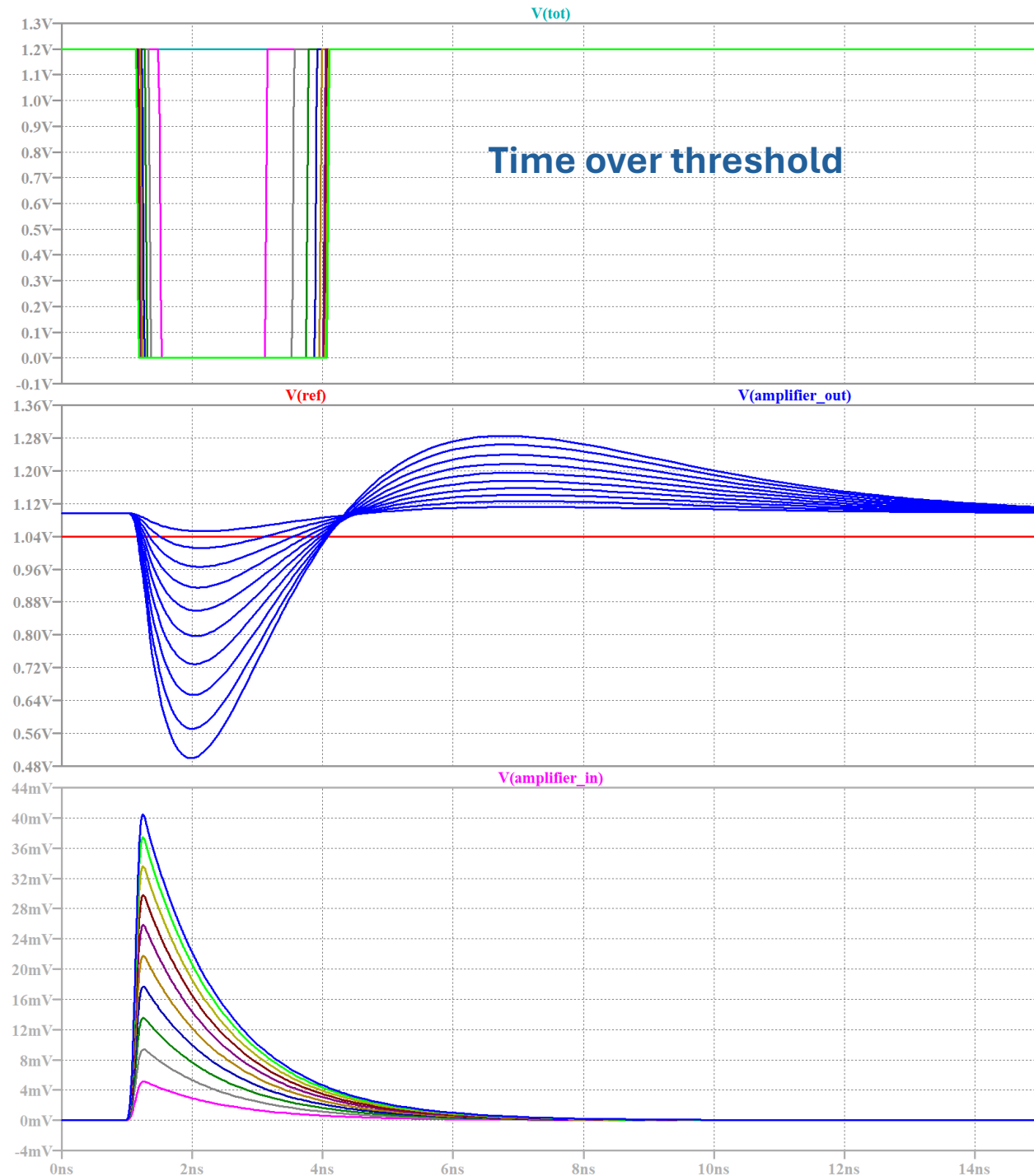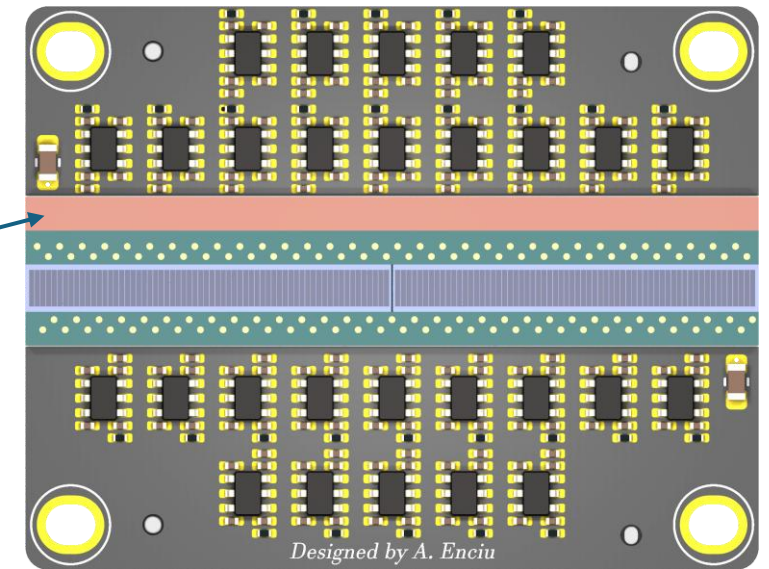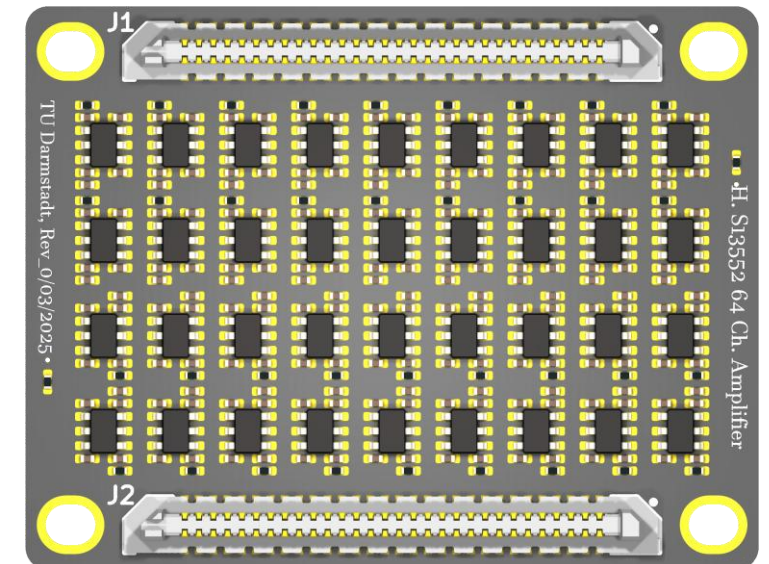
New Amplifier
Based on BGA2803 RF block
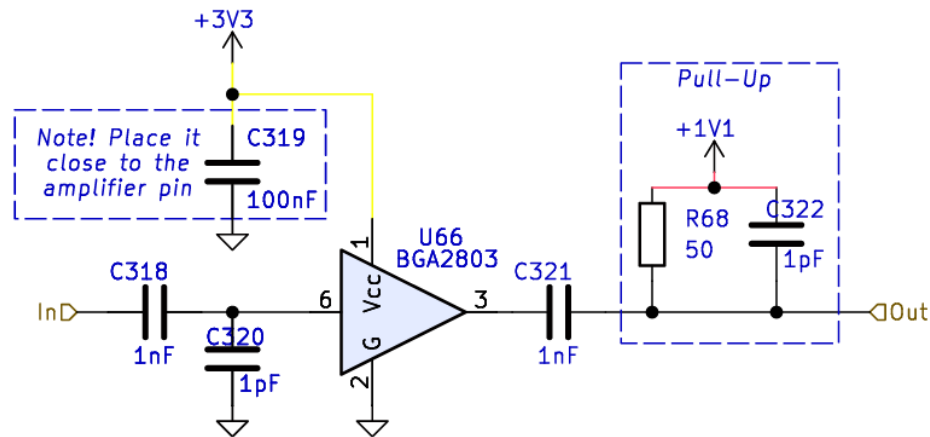
TOP VIEW

Hamamatsu S13552
https://www.hamamatsu.com/eu/en/product/optical-sensors/mppc/mppc_mppc-array/S13552.html

BOTTOM VIEW

➤ page_4: *https://jspc29.x-matter.uni-frankfurt.de/trb/schematics/PADIWA3-all.pdf*
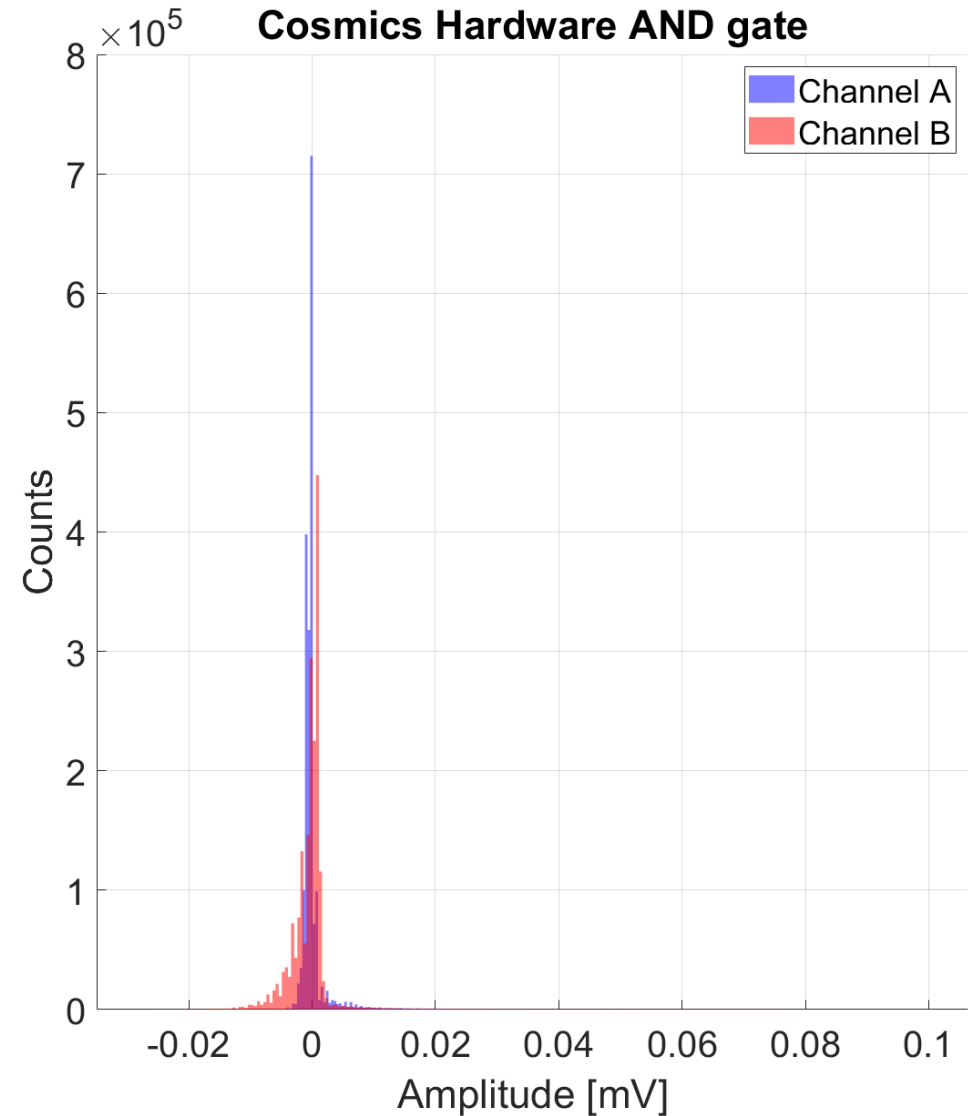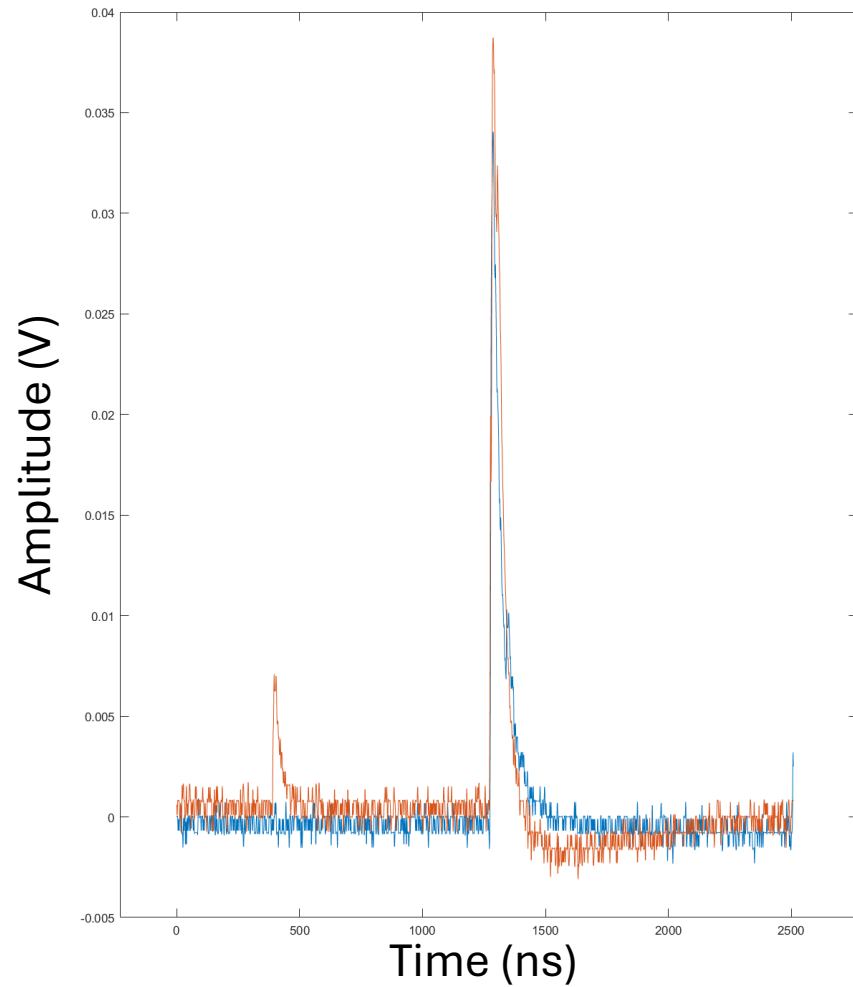➤ **W. Zhi et al 2024 JINST 19 P06011 DOI 10.1088/1748-0221/19/06/P06011**
➤ **Joshua W Cates et al 2018 Phys. Med. Biol. 63 185022 DOI 10.1088/1361-6560/aadbcd**
➤ **F. Simon NIM-A Volume 926, 11 May 2019, Pages 85-100 Doi.org/10.1016/j.nima.2018.11.042**

BGA2803 Demo Board

- 2 RF amplifiers
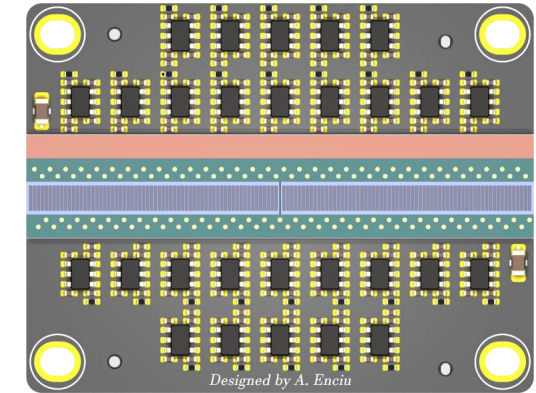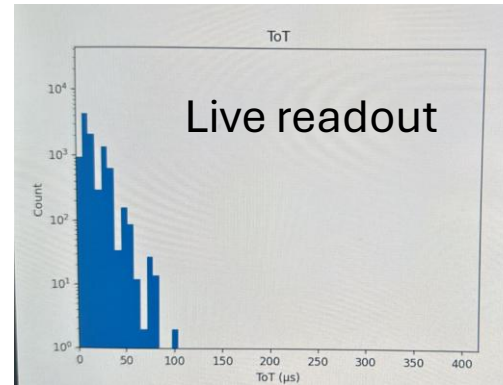- 2 SiPMs
- 1 HV PSU
- Power via USB-C
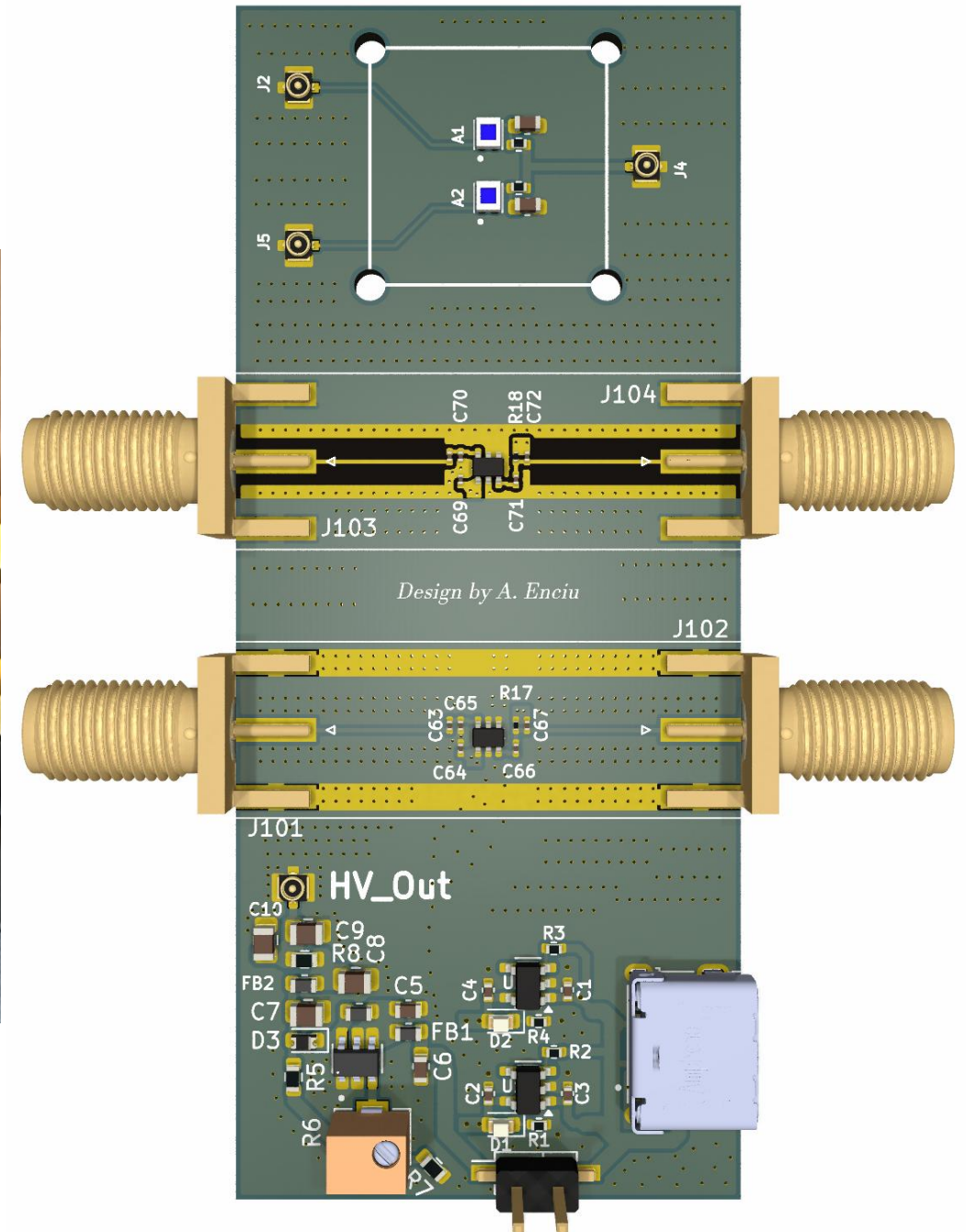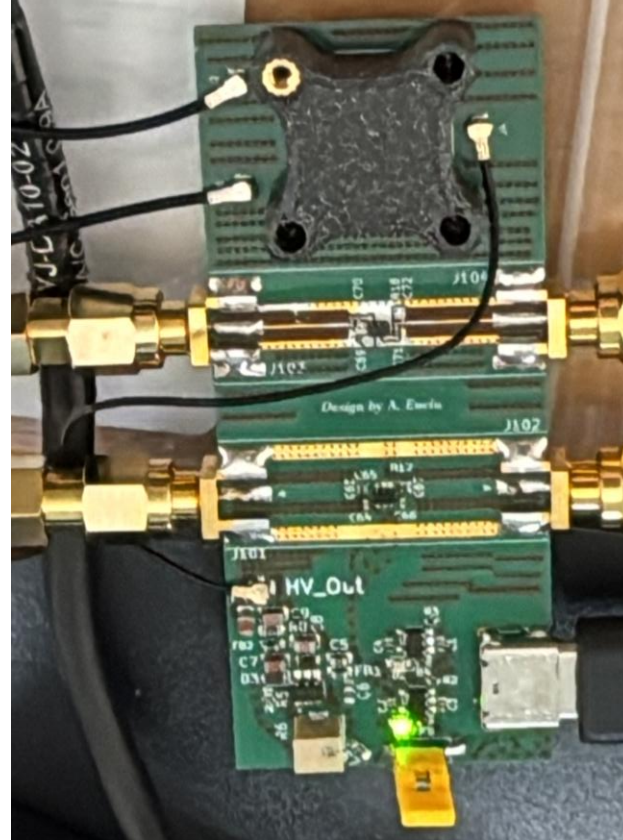
Cosmics on the oscilloscope

64-Ch FPGA-Based MCA

Prototype (1-Ch) CMOD-S7/A7

- 12 MHz Clock (83.33 ns/cycle)
- 16-bit counter (83.33 ns – 5.4 ms)
- Data transmitted via USB 2.0

Live readout

Prototype (64-Ch) Alinx 7103

- 100 MHz clock (10 ns/cycle)
- Data transmitted via UDP

Custom made FPGA Board

- **Alinx board specs in a smaller format**