

Purity Monitor Update



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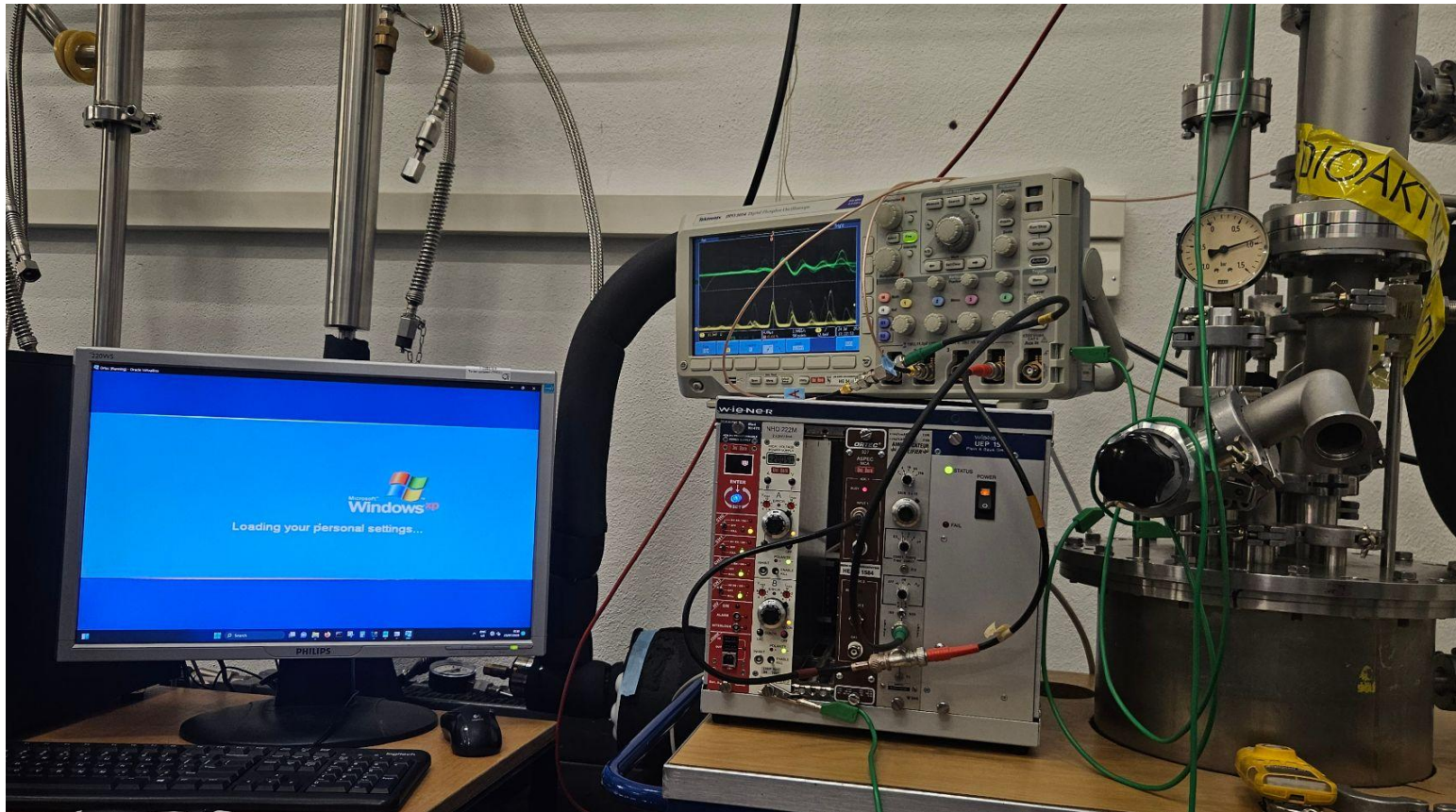
AEC

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FOR FUNDAMENTAL PHYSICS

LABORATORIUM FÜR HOCHENERGIEPHYSIK

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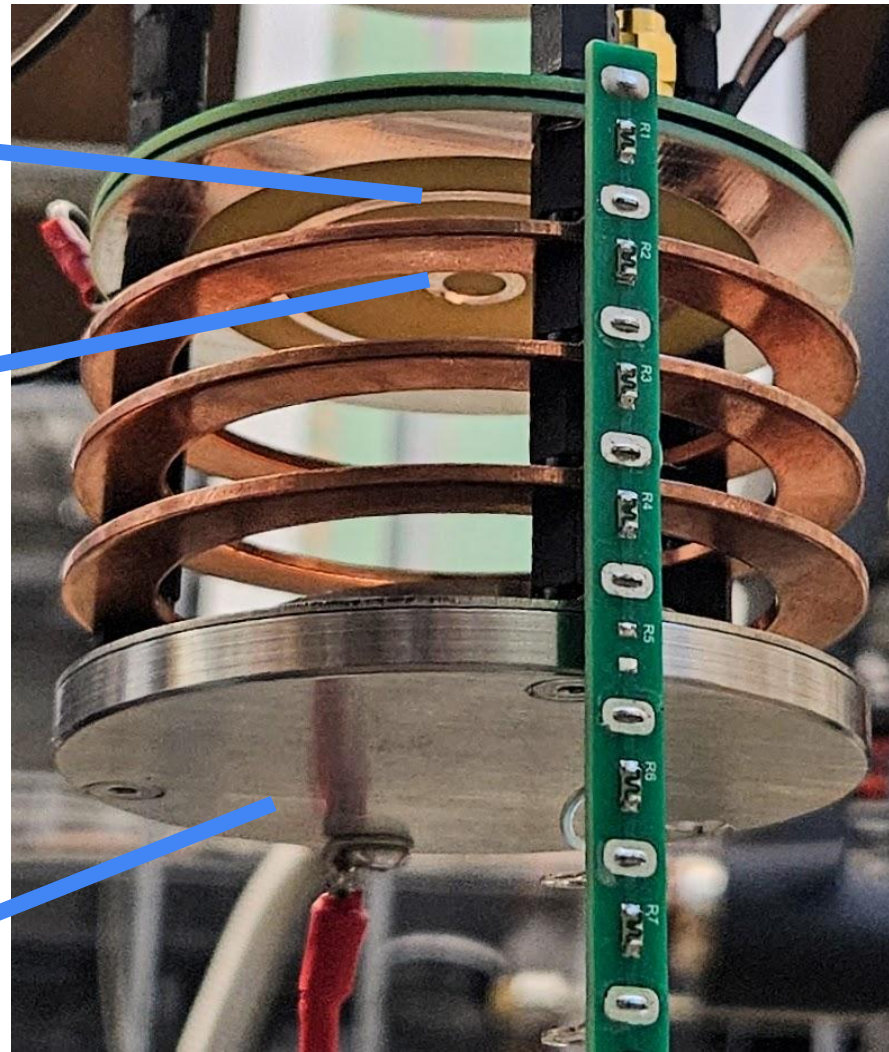
09.06.2026



Outer anode

Inner anode

Cathode and Bi207
Source

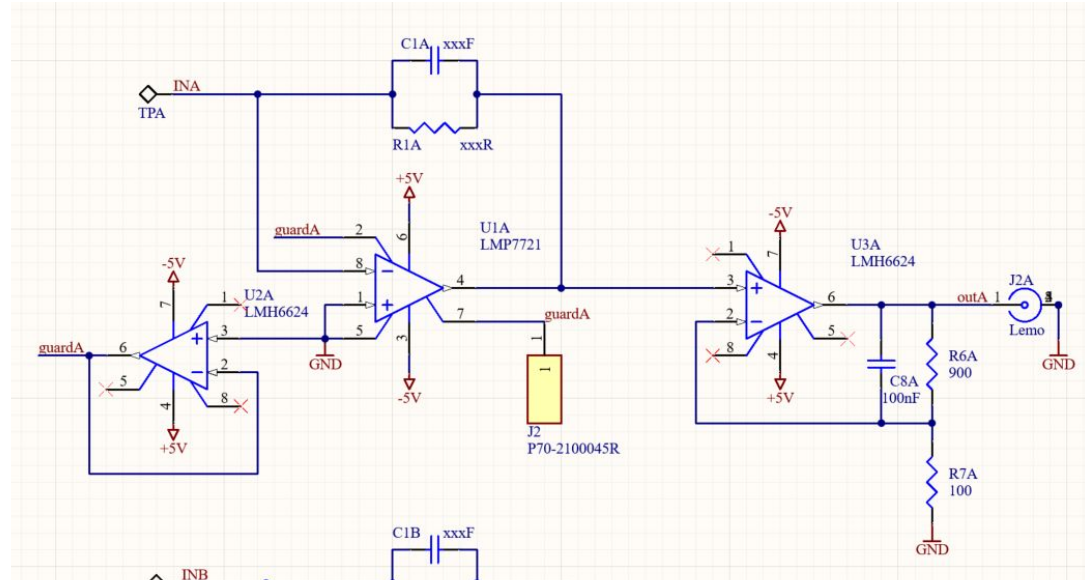


Amplifier Circuit

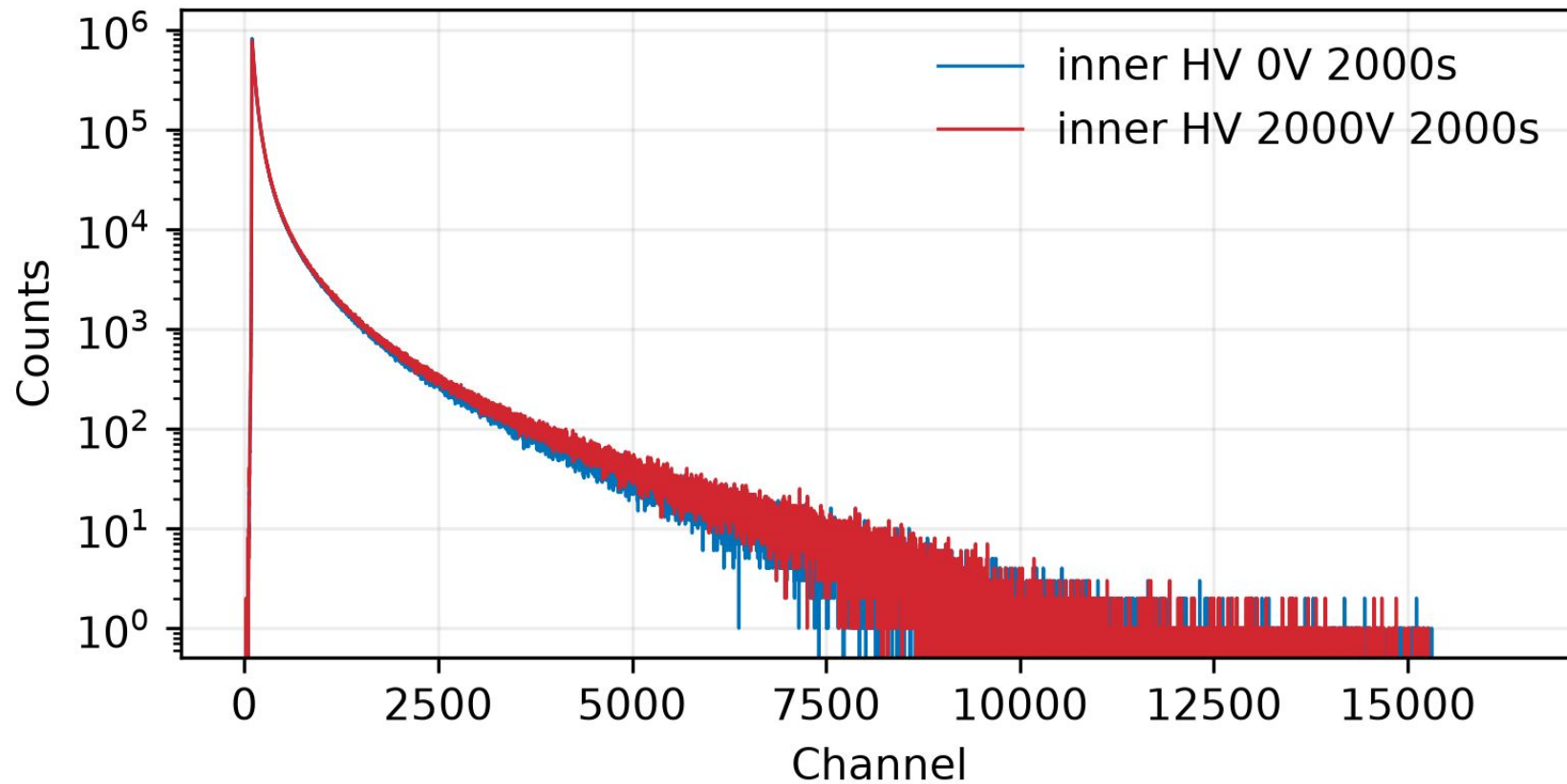
1st stage time constant: $2.2\mu\text{s}$
($C1=2.2\text{pF}$, $R1=1\text{M}$)

2nd Stage gain: $R6/R7 \sim 9$
(roughly)

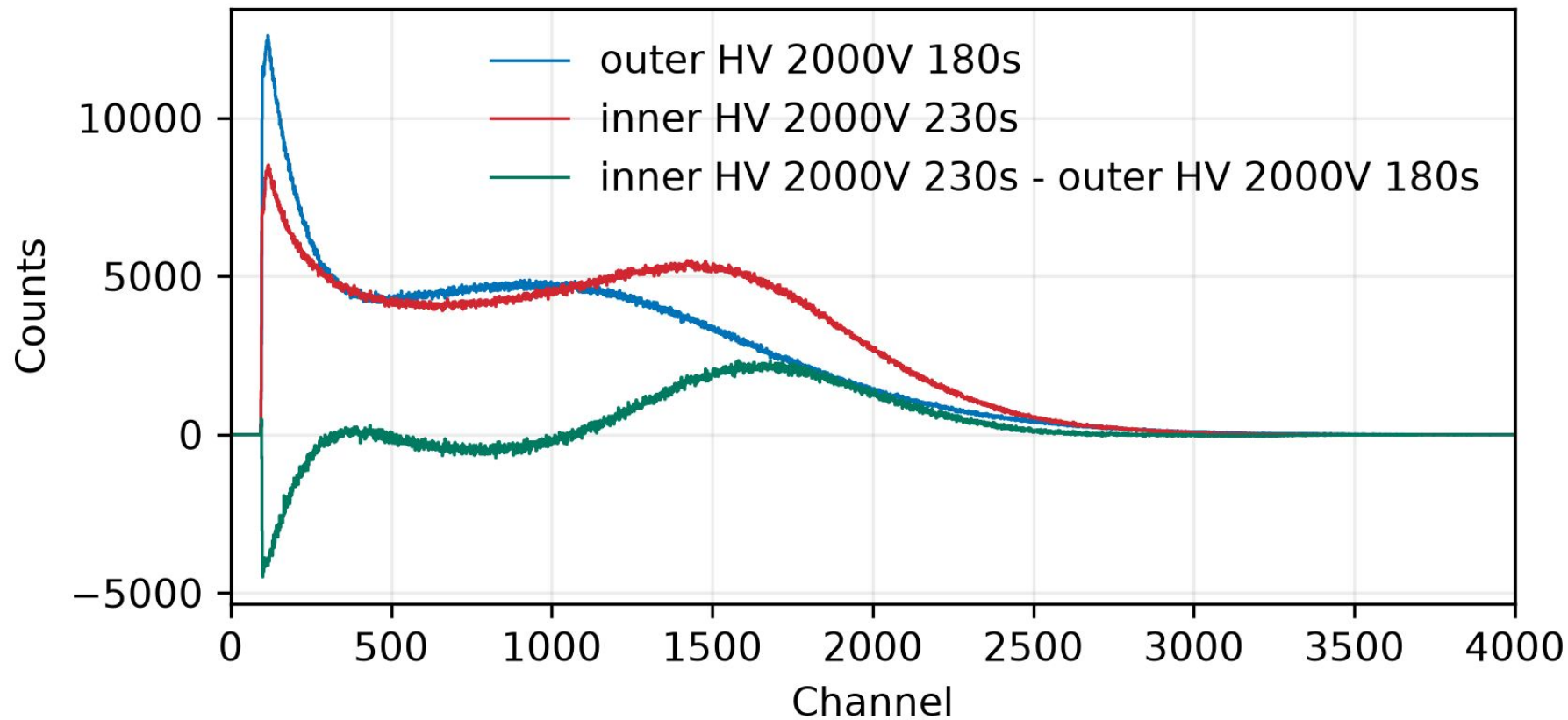
Operating Point in LAr is different
+/-2.5V -> +1.9V/-1.2V



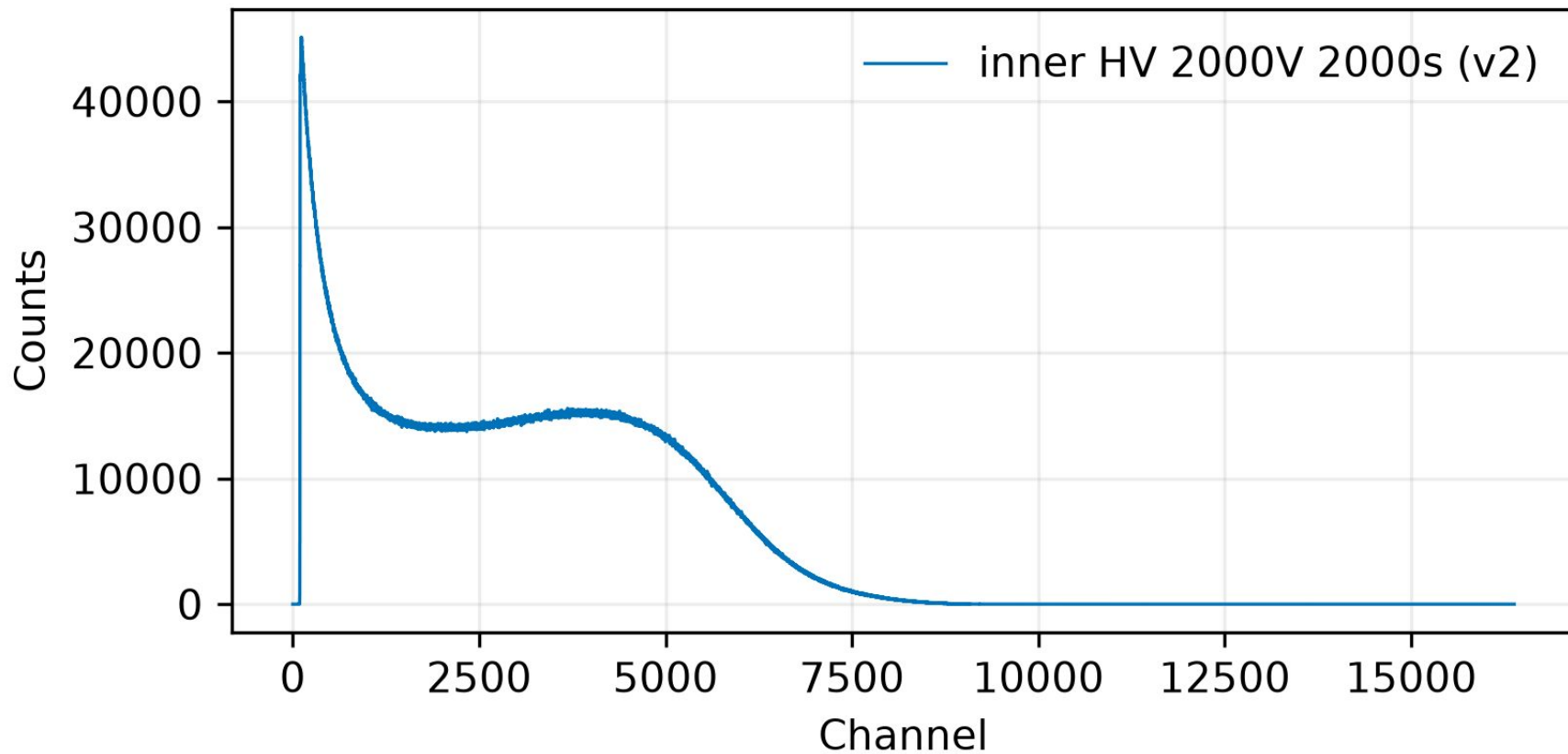
MCA Spectra (T=2000s)



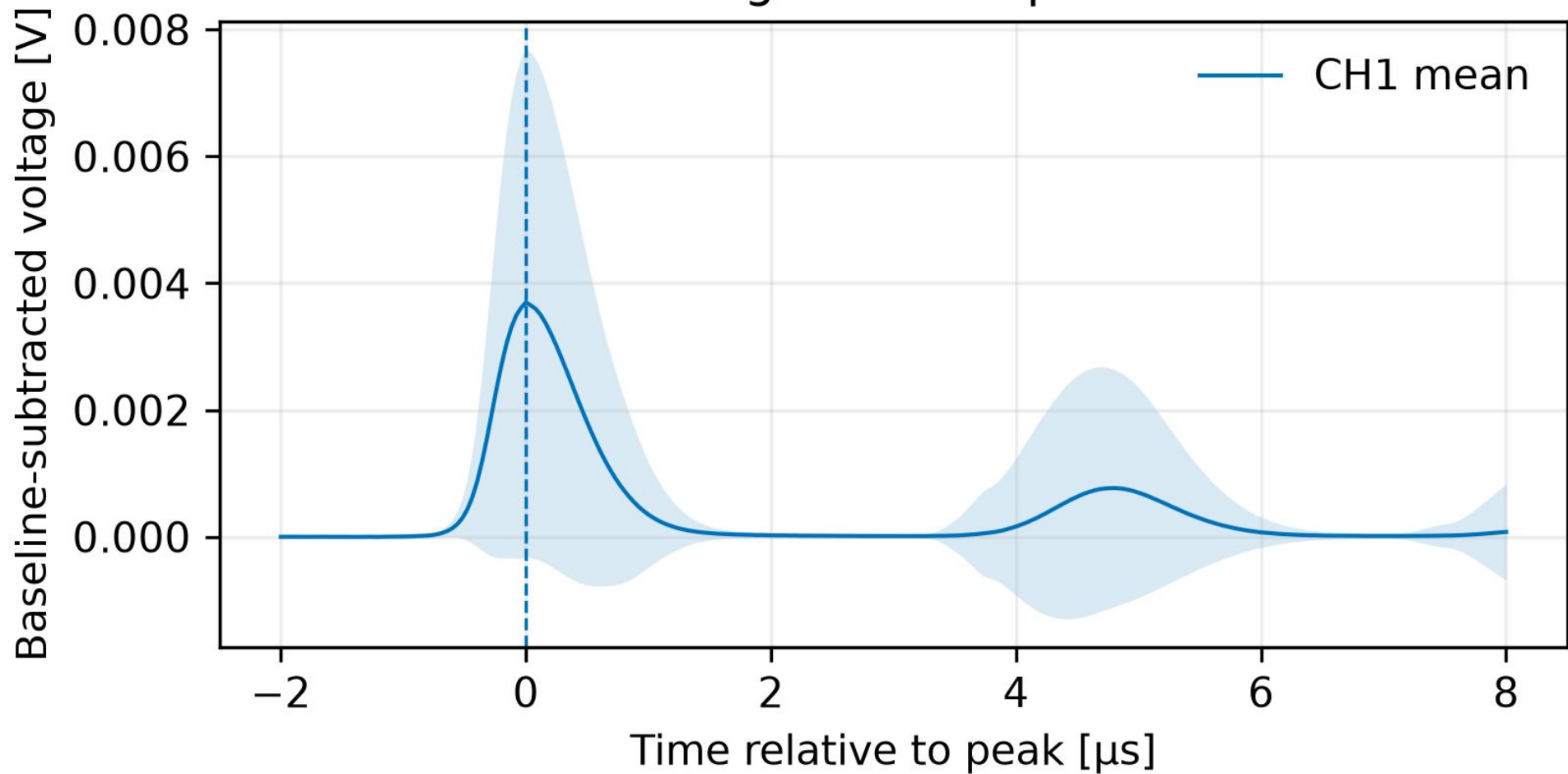
MCA Spectra (T=180s and T=230s)



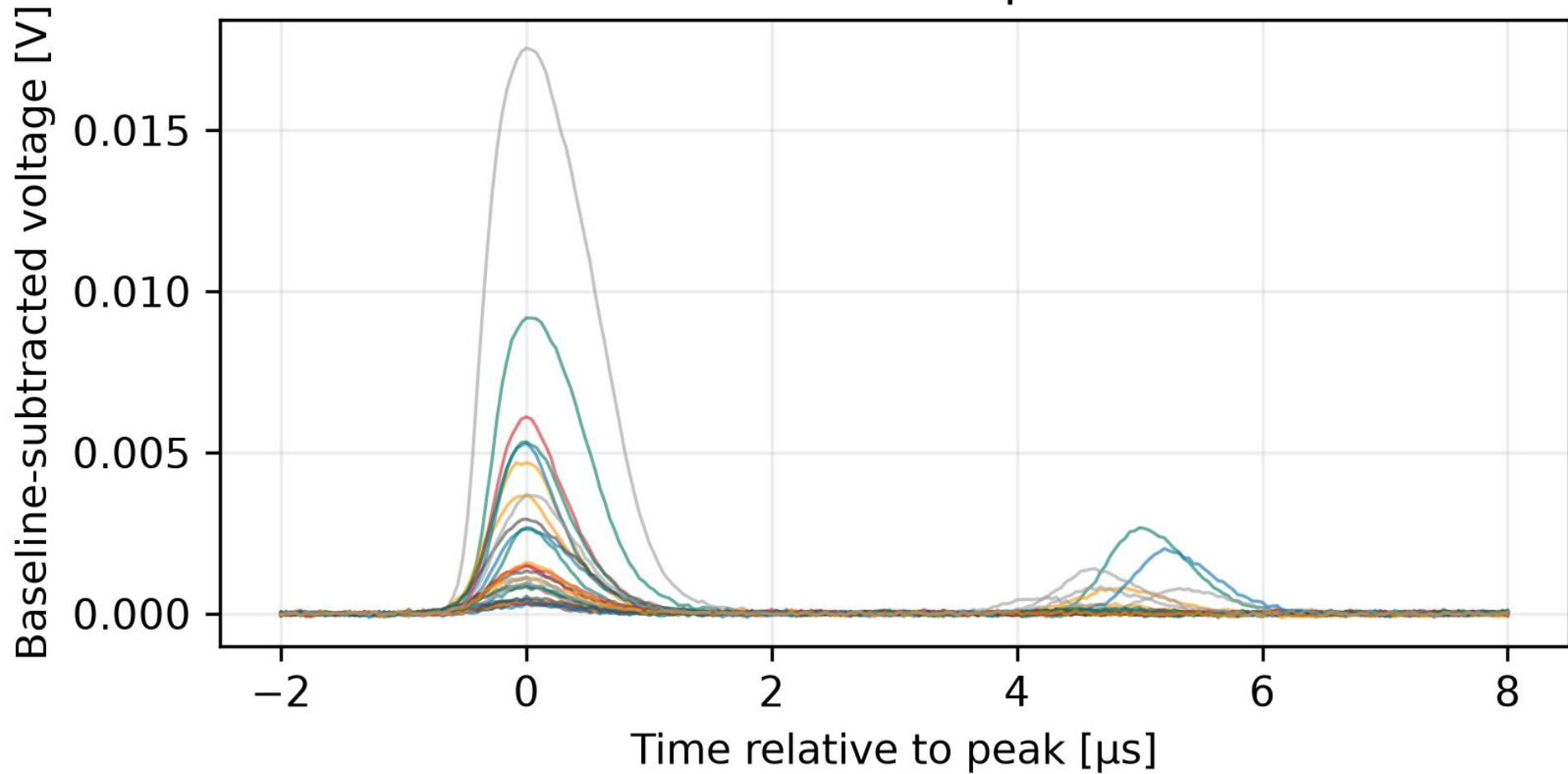
MCA Spectra (T=2000s)



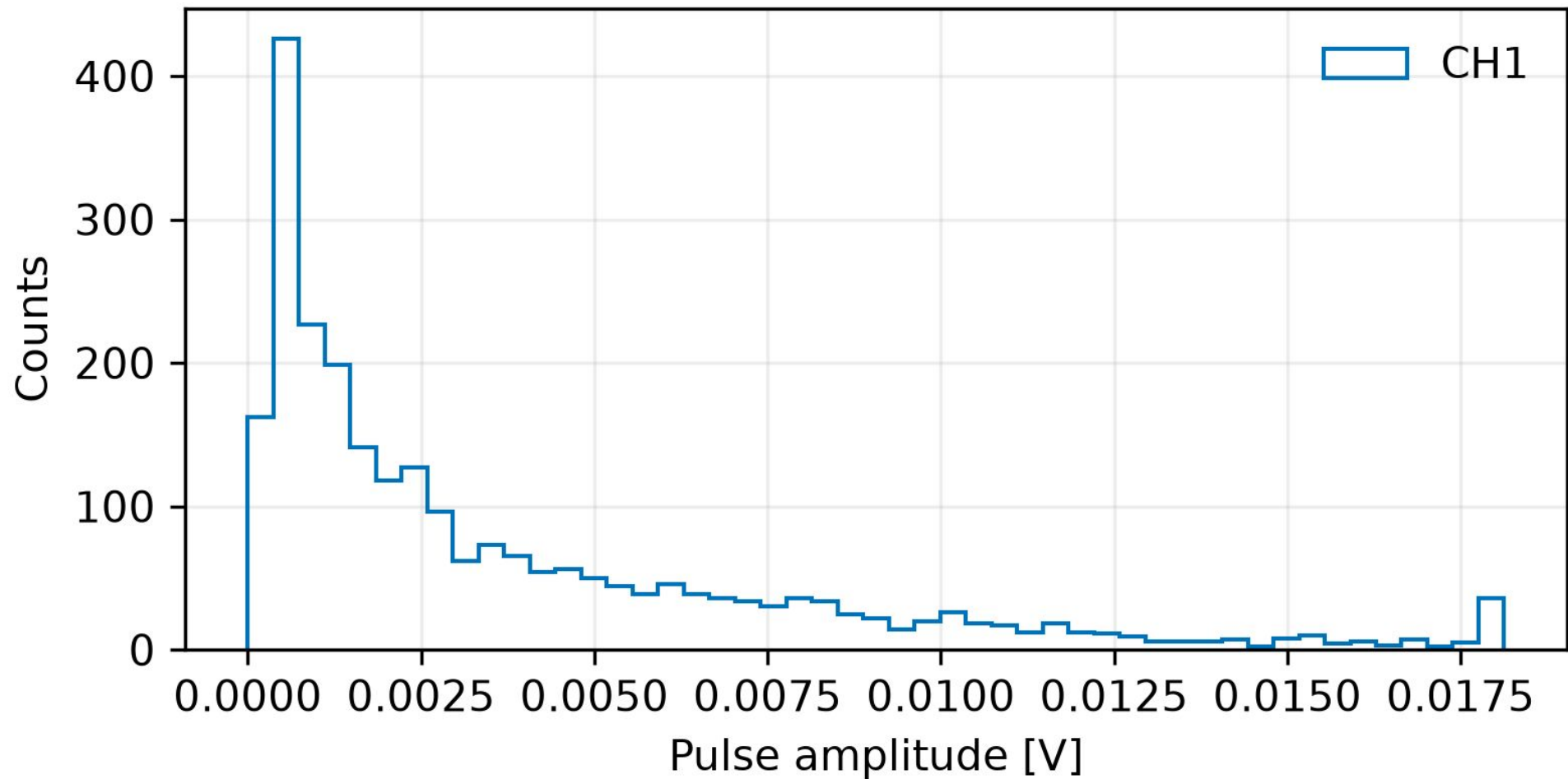
Average of 2506 pulses



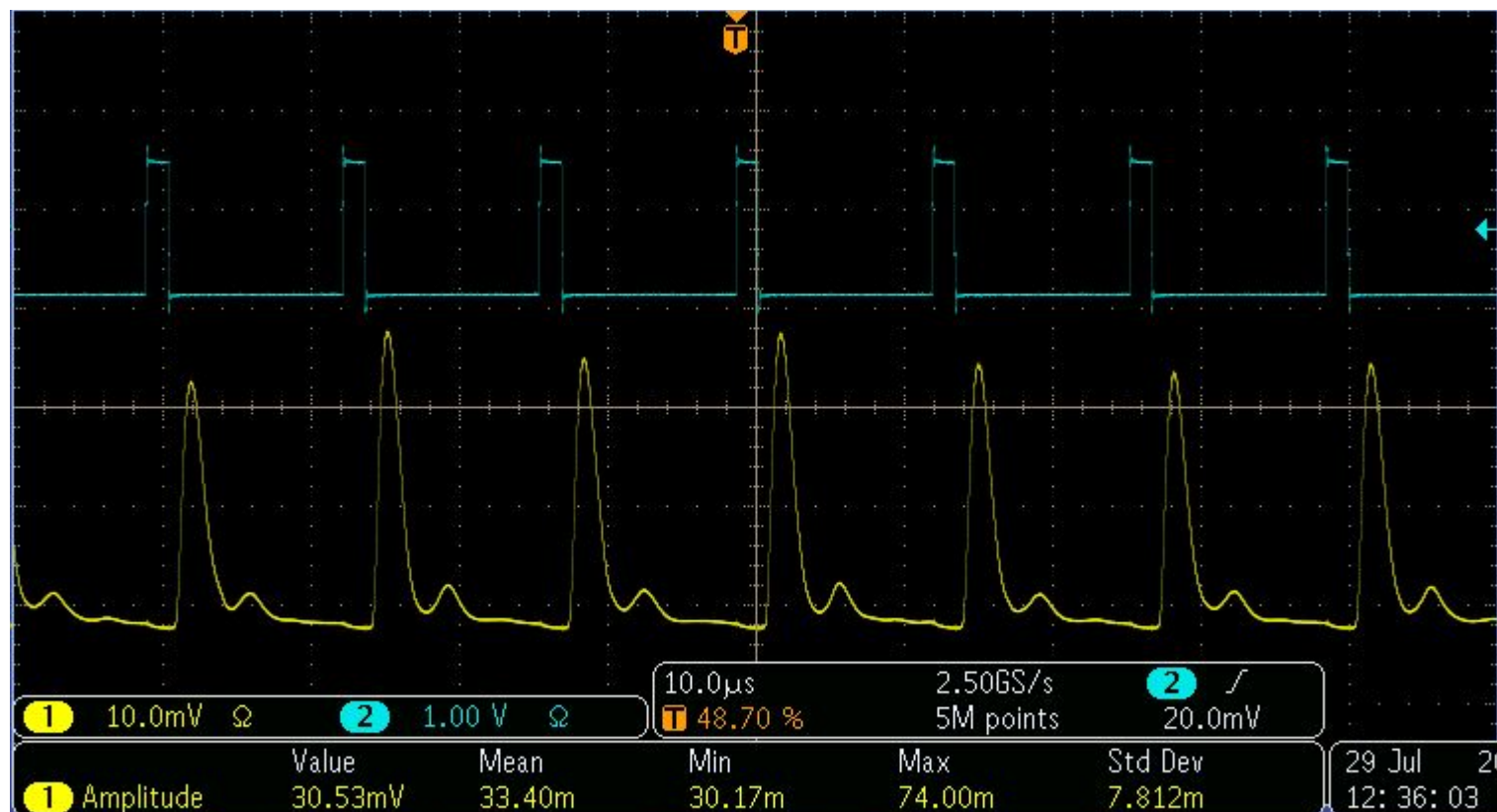
Individual CH1 pulses



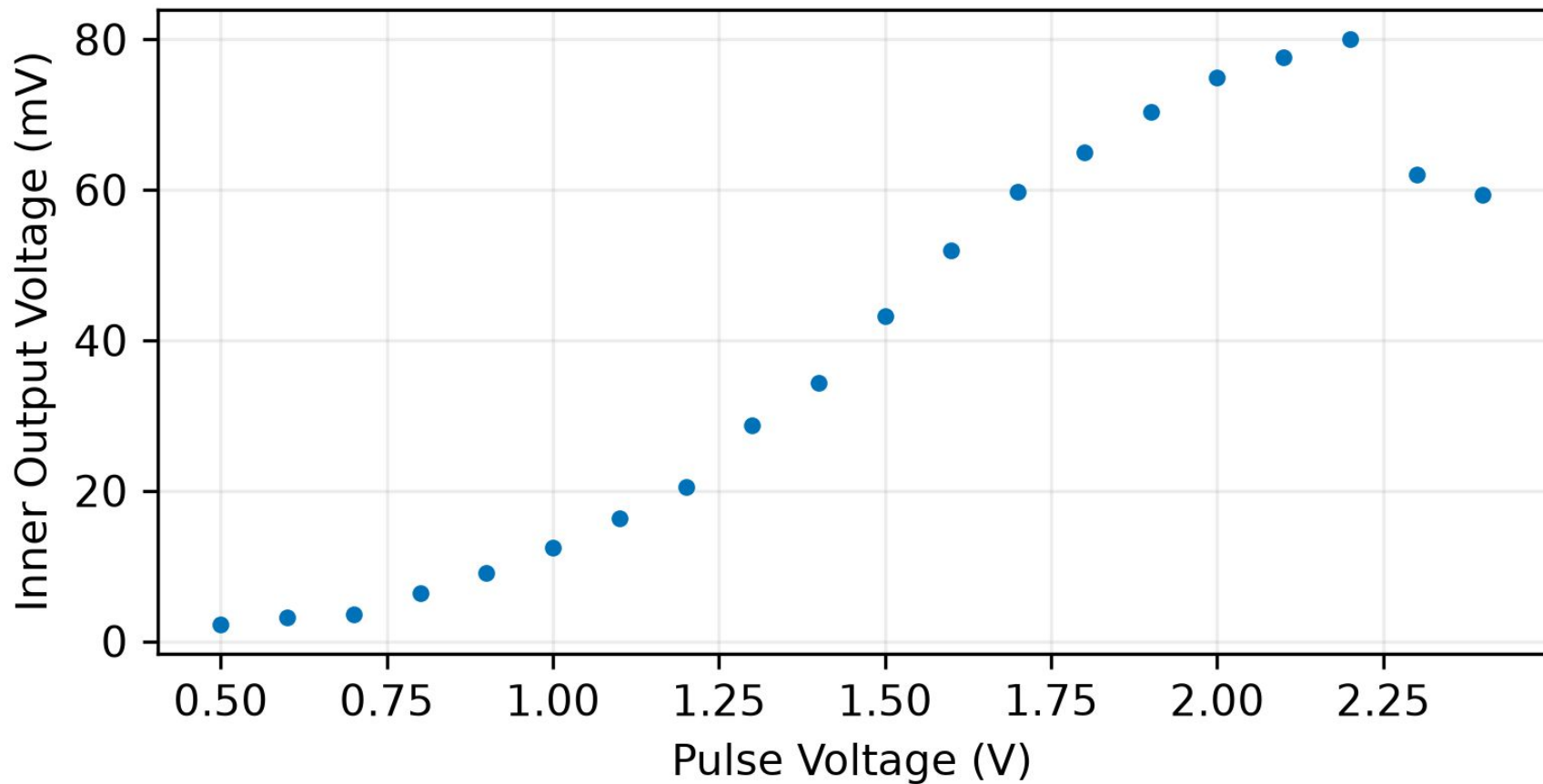
Oscilloscope pulse-height spectrum (2506 events)



Cathode Pulse Test



Purity Monitor Cathode Pulse



Quick Conclusions

- The cold preamp circuit is working and picks up signal
- Very narrow range of suitable supply voltages which are different for Both channels.
- Time constant ($2.2\mu\text{s}$) might be too short?
- Pulse height spectra show no interesting characteristics yet