

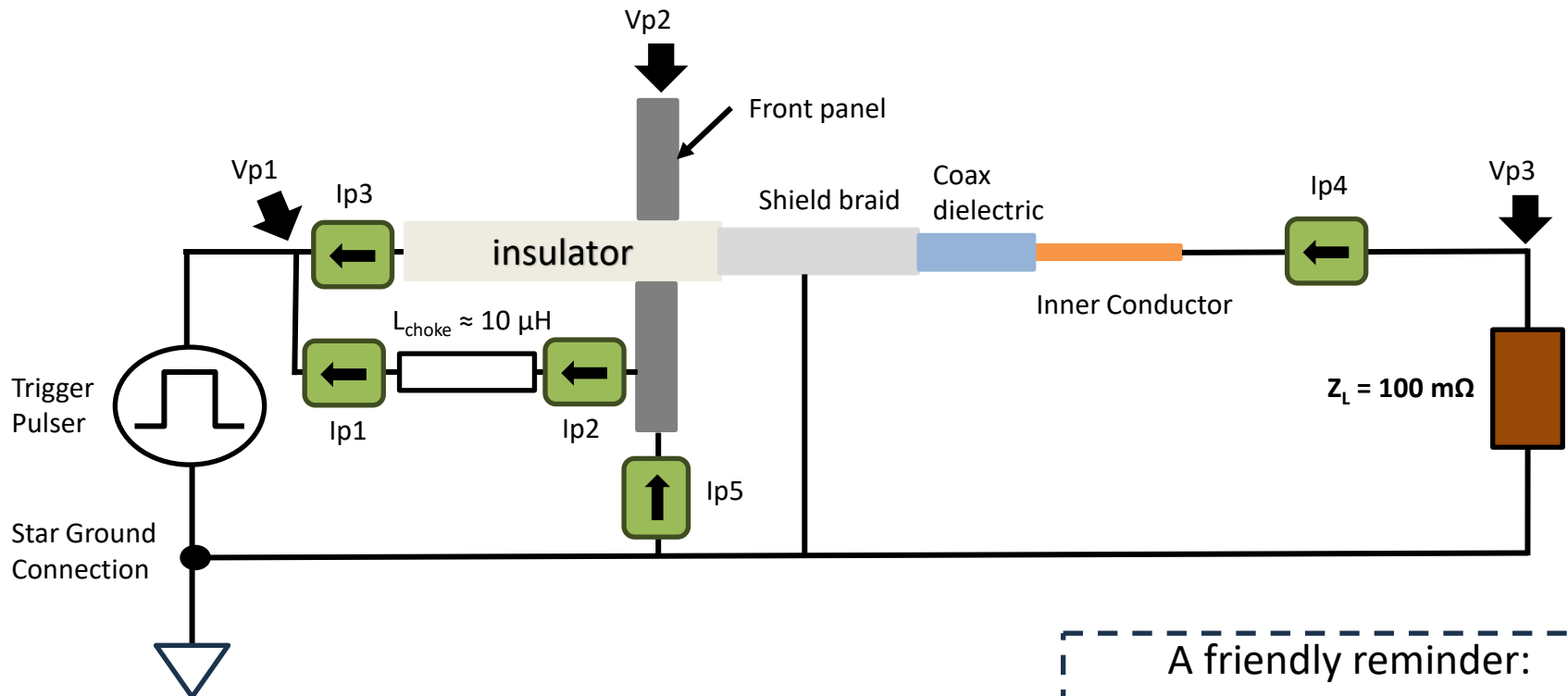


Grounding Experiment

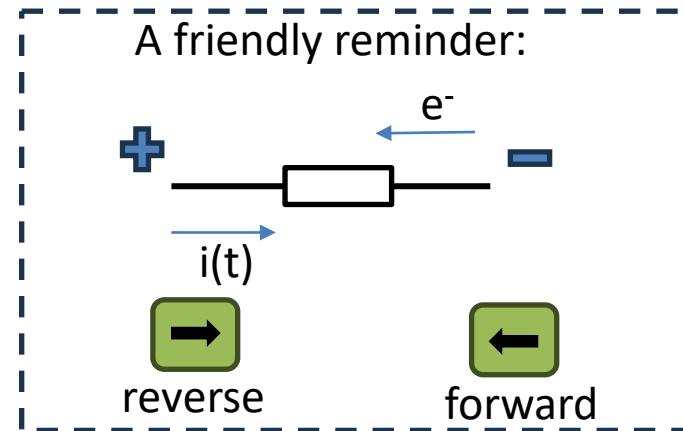
Ivan Aponte

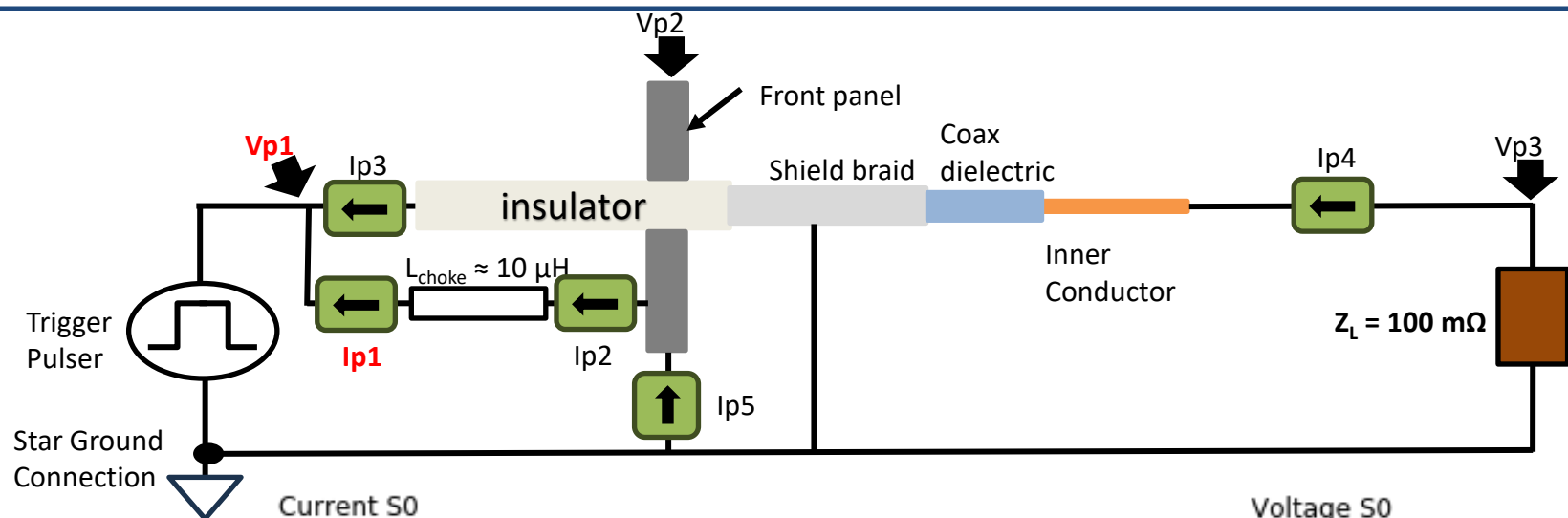
This work was done by Mission Support and Test Services, LLC, under Contract No. DE-NA0003624 with the U.S. Department of Energy and the National Nuclear Security Administration. DOE/NV/03624--1778.

Small Experiment Setup

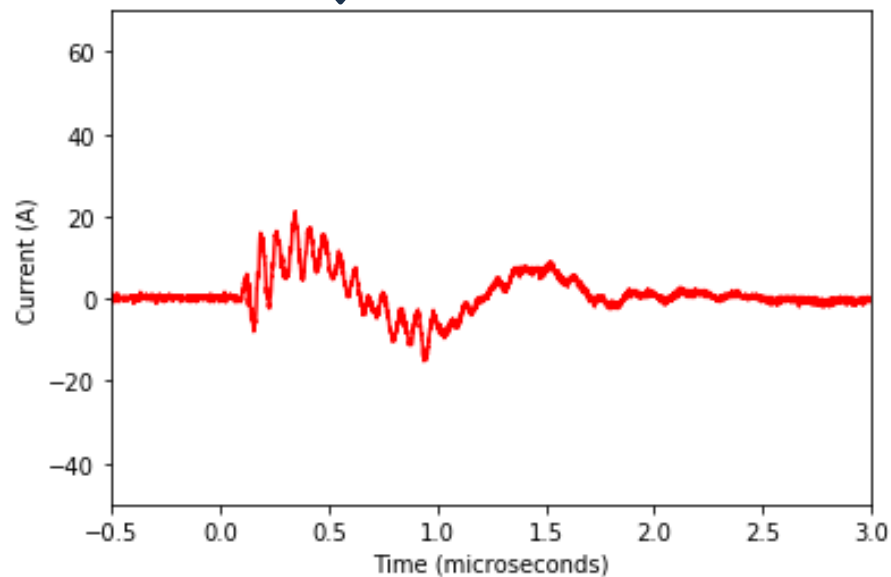


- kV pulser attached directly to setup for simplicity
- $V(t)$ and $i(t)$ measurements made to assess what is going where
 - $V(t)$: North Star probe
 - $i(t)$: Pearson Coil

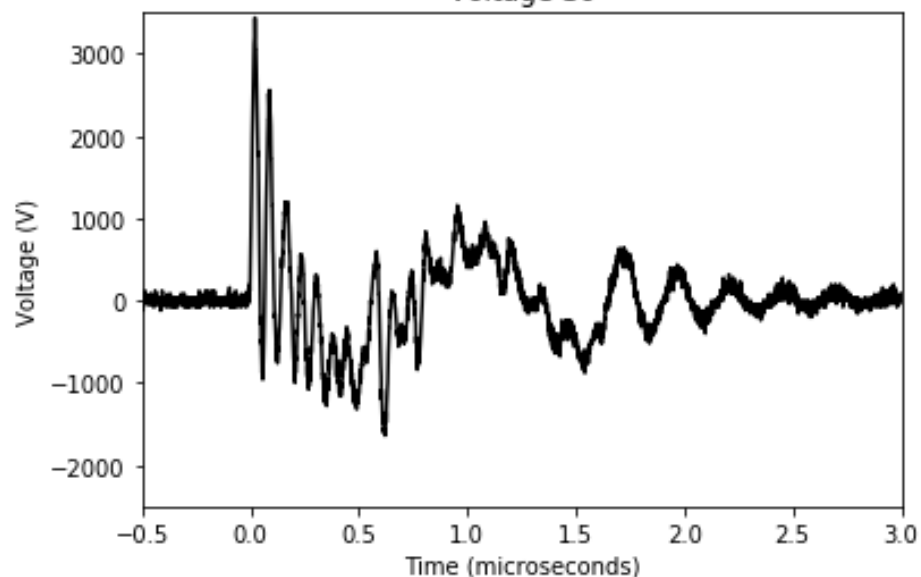


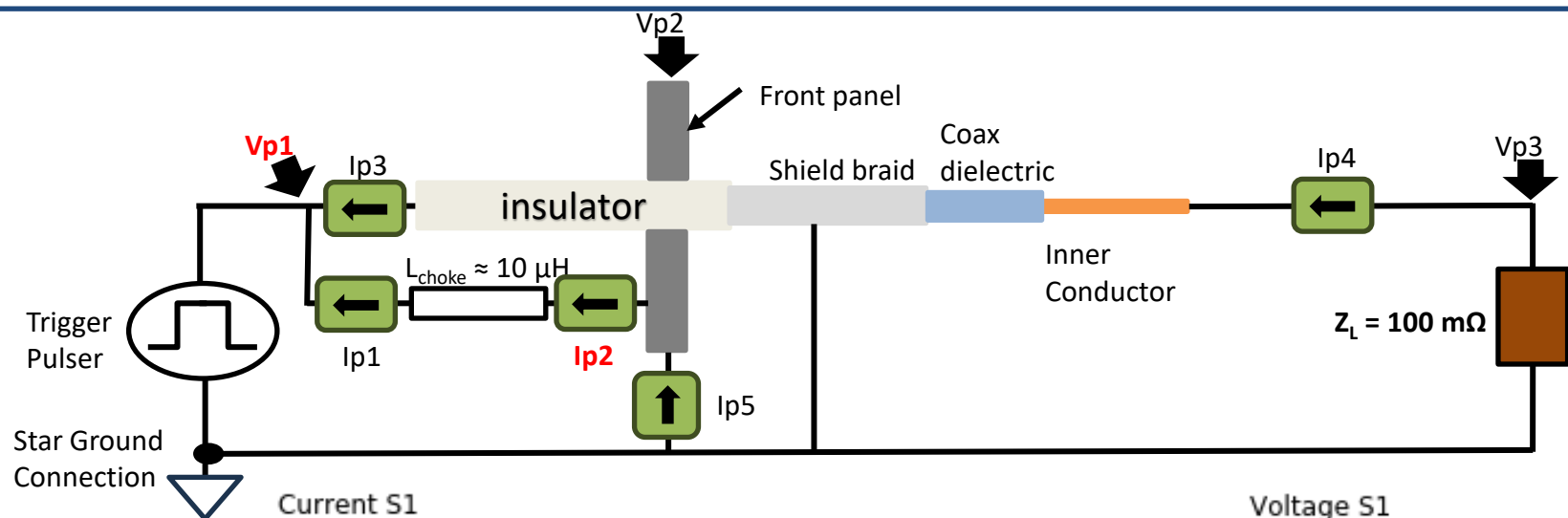


Current S0

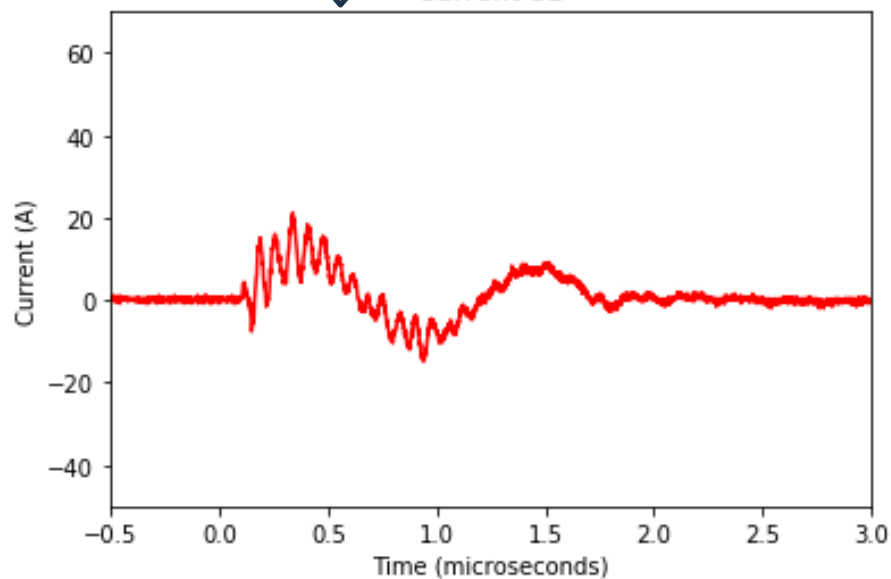


Voltage S0

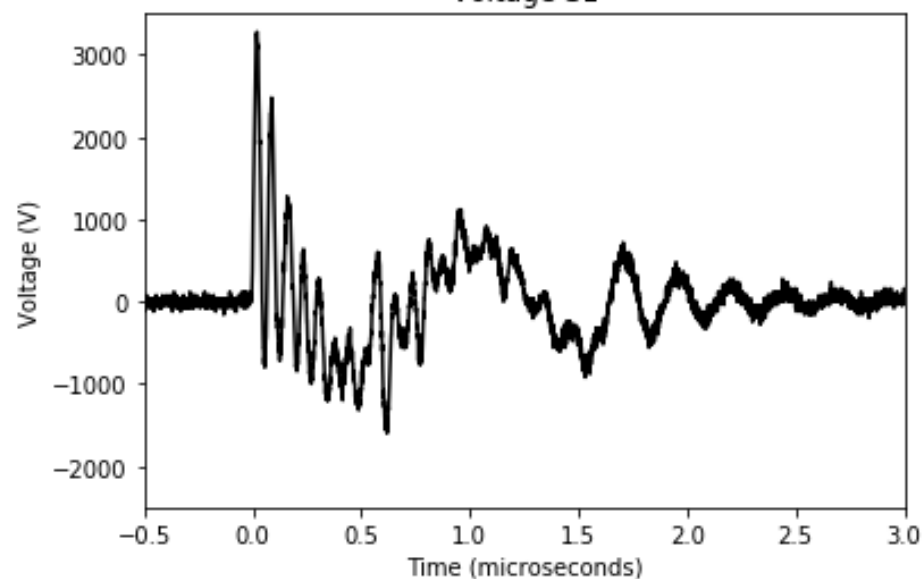


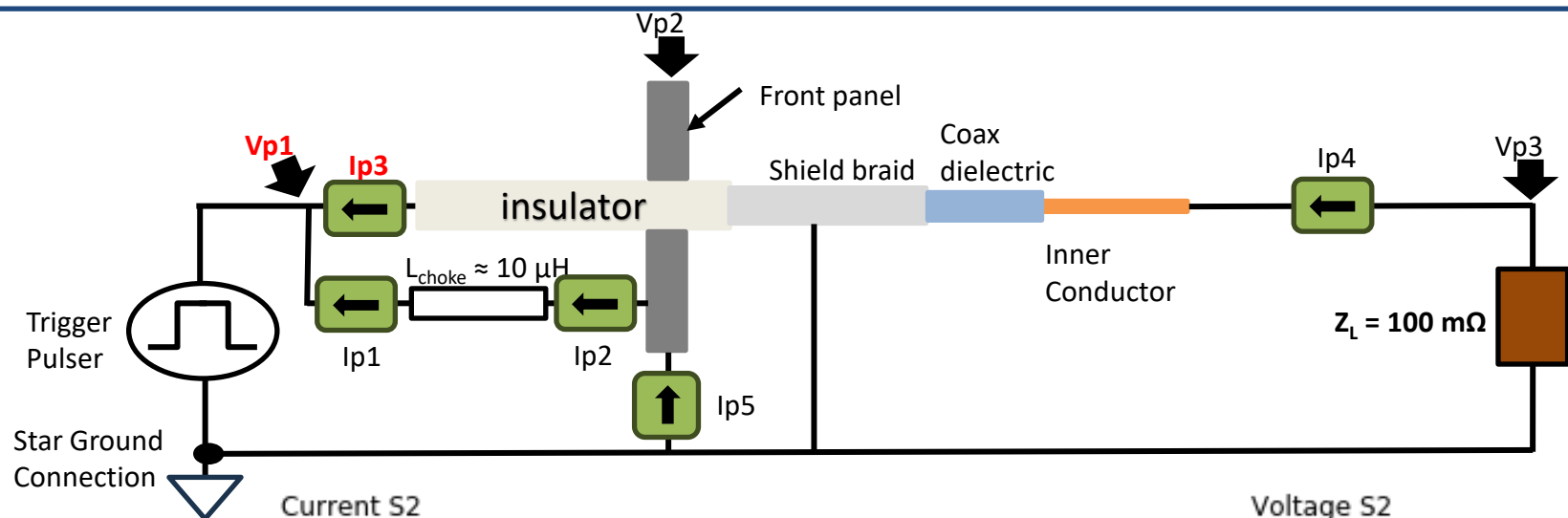


Current S1

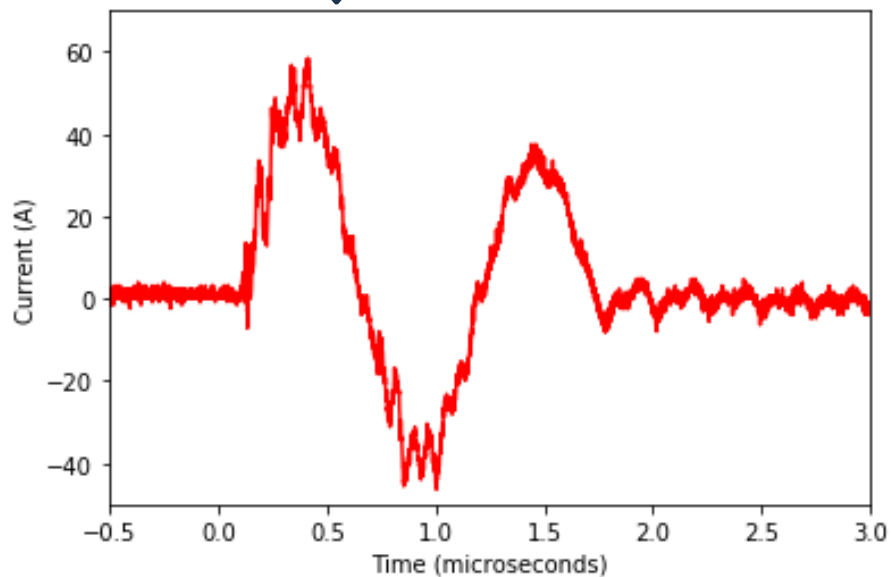


Voltage S1

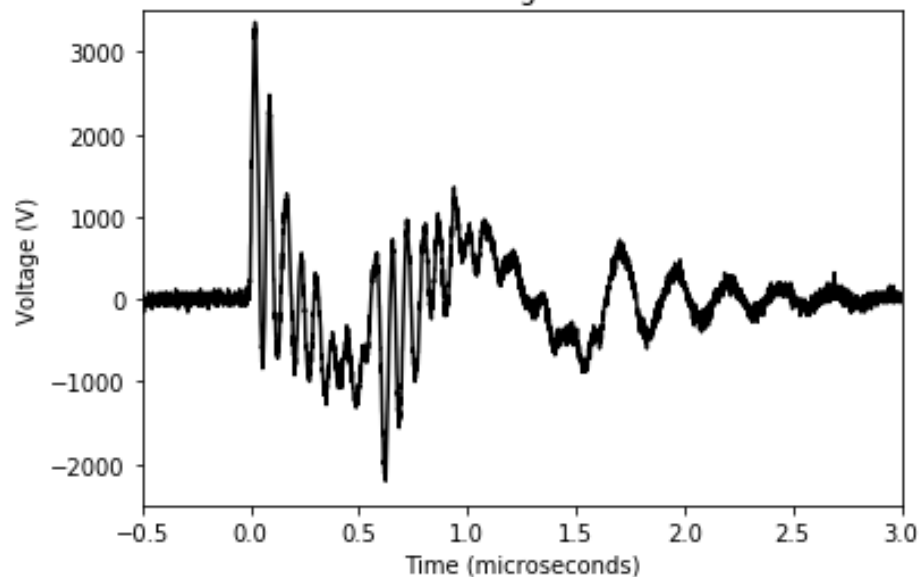


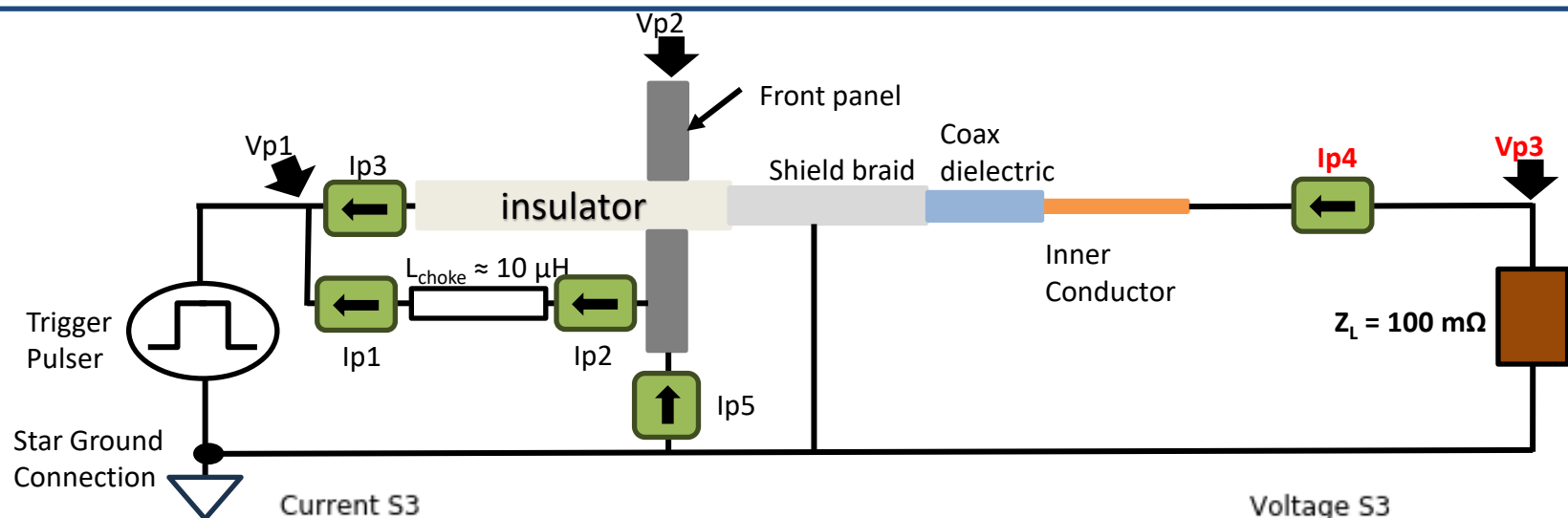


Current S2

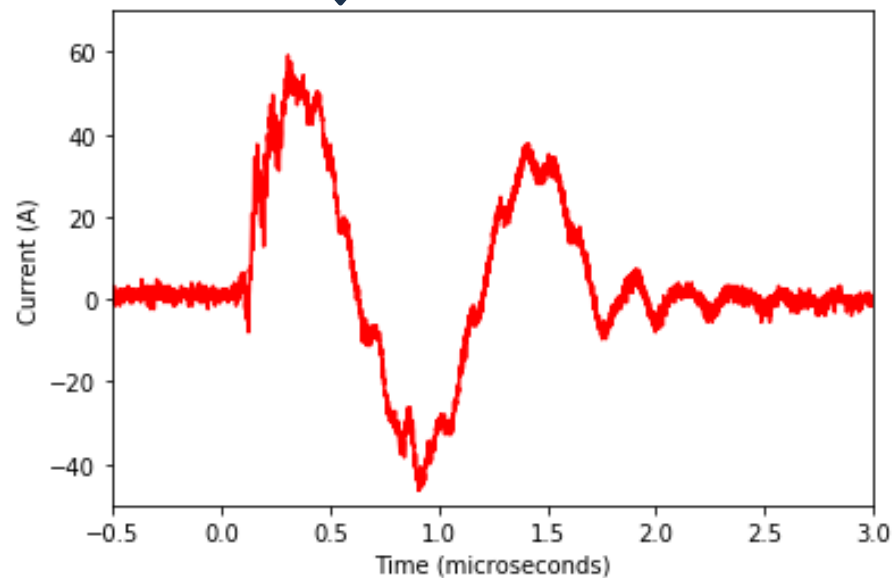


Voltage S2

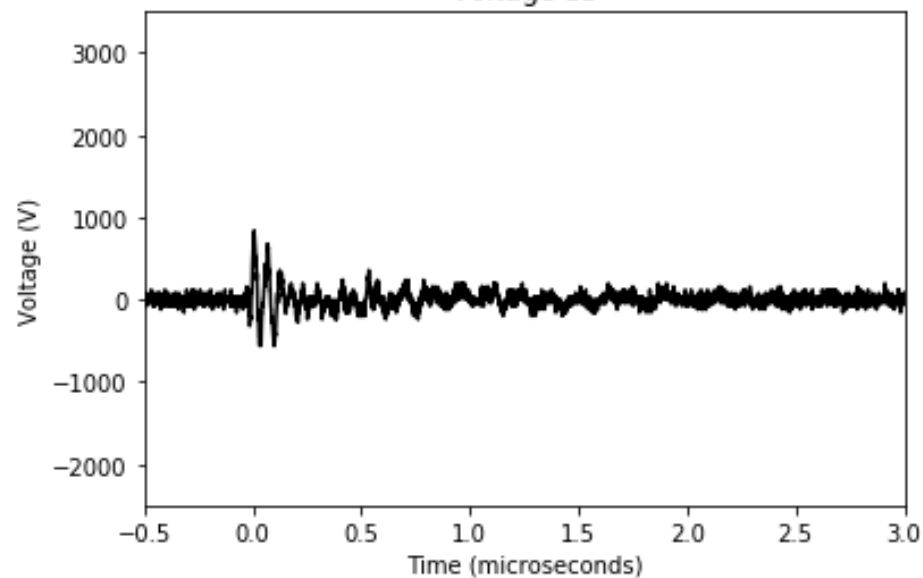


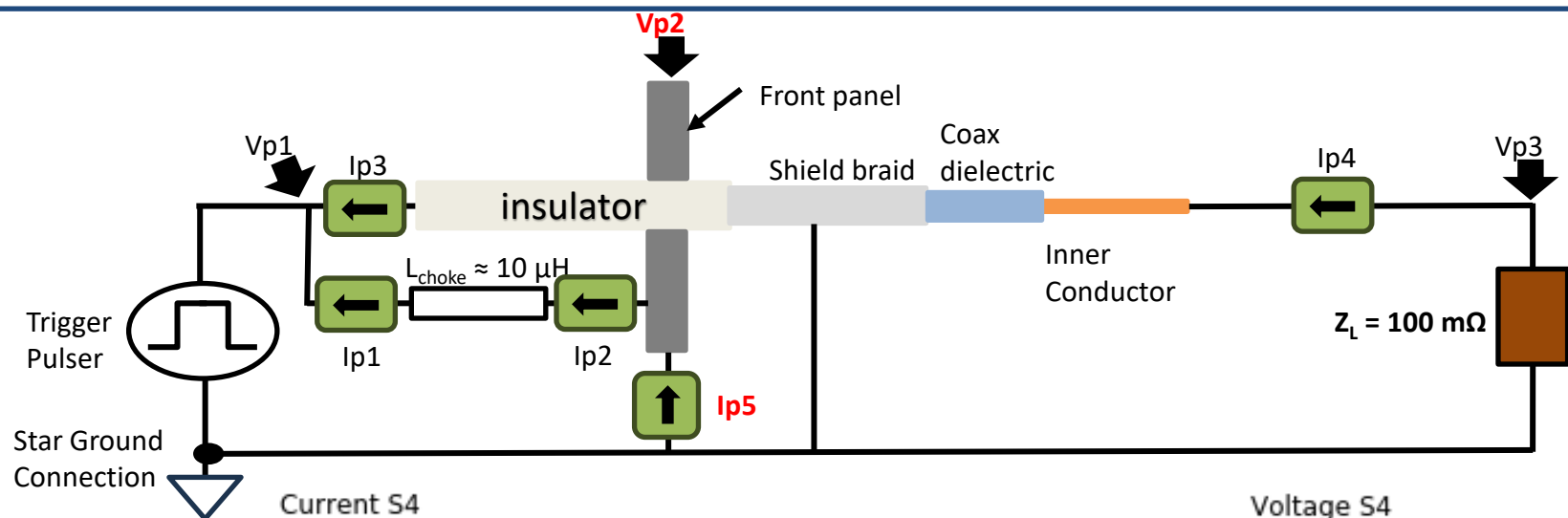


Current S3

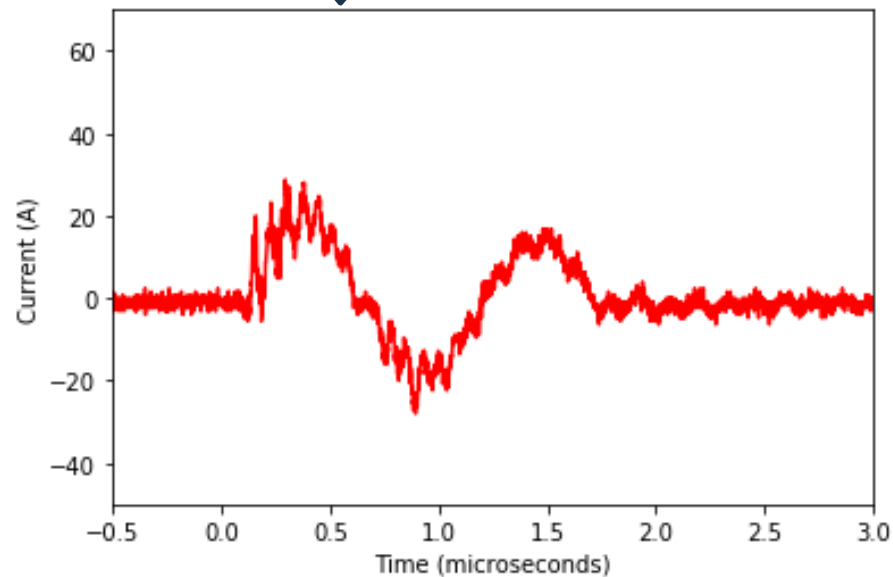


Voltage S3

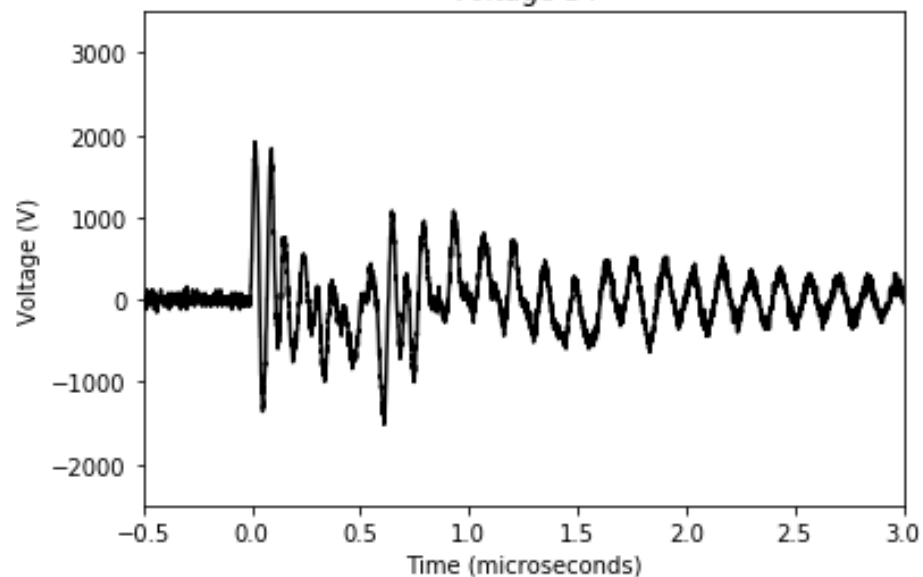




Current S4



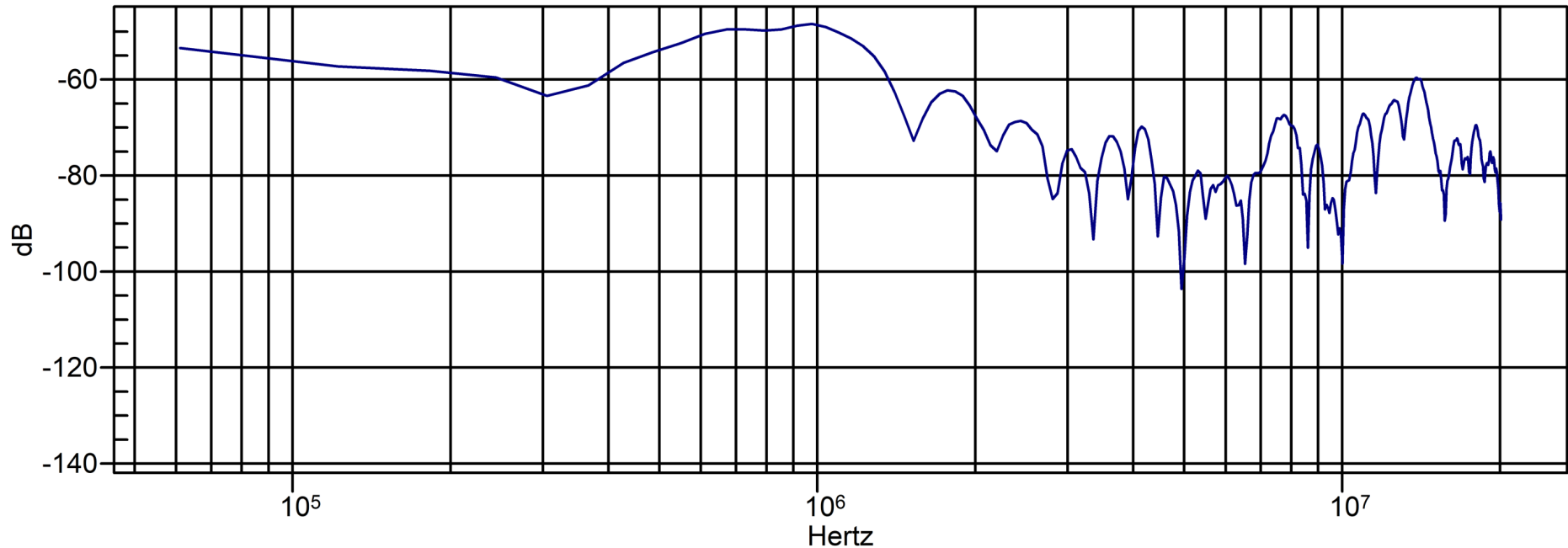
Voltage S4



Some thoughts

FFT of the S0 current waveform, the others

Trigger_Tester_Current_000.dig -- Frequency Response



$$L_c := 10 \mu H \quad f_p := 970 \text{ kHz}$$
$$X_L := 2 \pi \cdot f_p \cdot L_c = 60.947 \Omega$$

- Dominant frequency ~ 1 MHz
- Choke inductor reactance on the same order as the HV output cable impedance, current split between load and inductor path