



# Grounding Experiment

Ivan Aponte

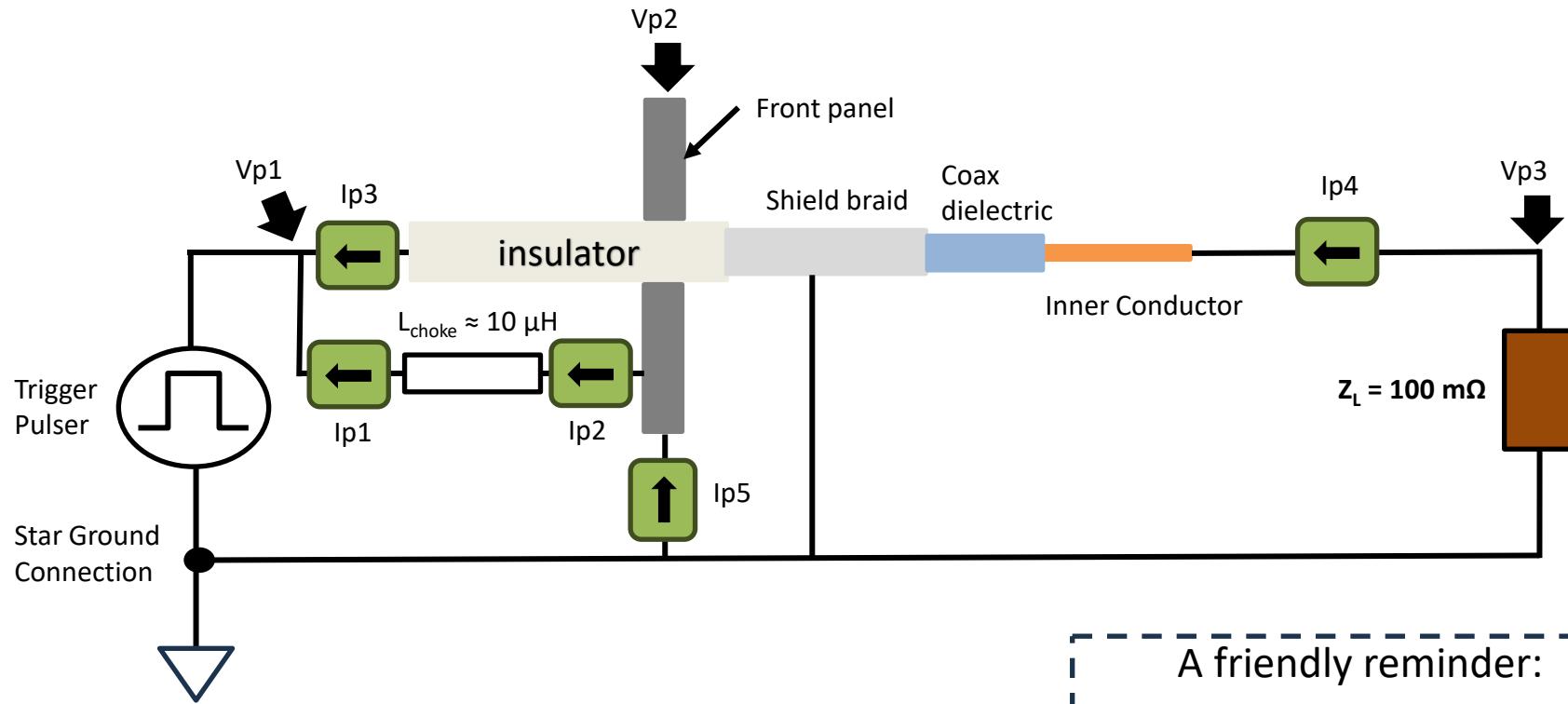
This work was done by Mission Support and Test Services, LLC, under Contract No. DE-NA0003624 with the U.S. Department of Energy and the National Nuclear Security Administration. DOE/NV/03624--1778.



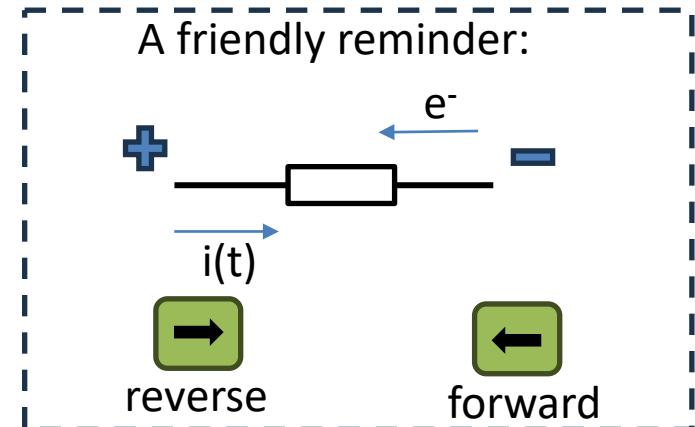
Lawrence Livermore  
National Laboratory



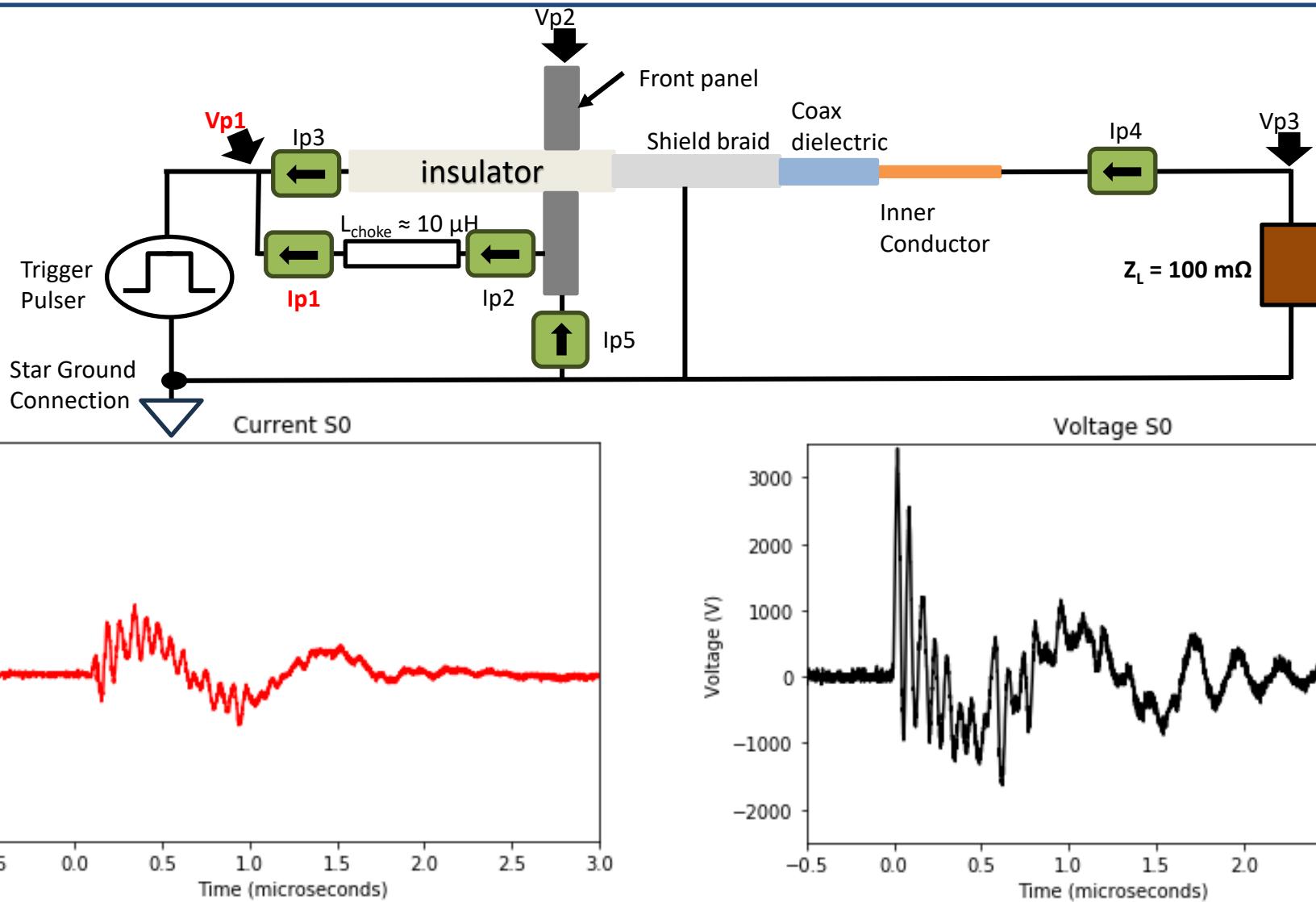
# Small Experiment Setup



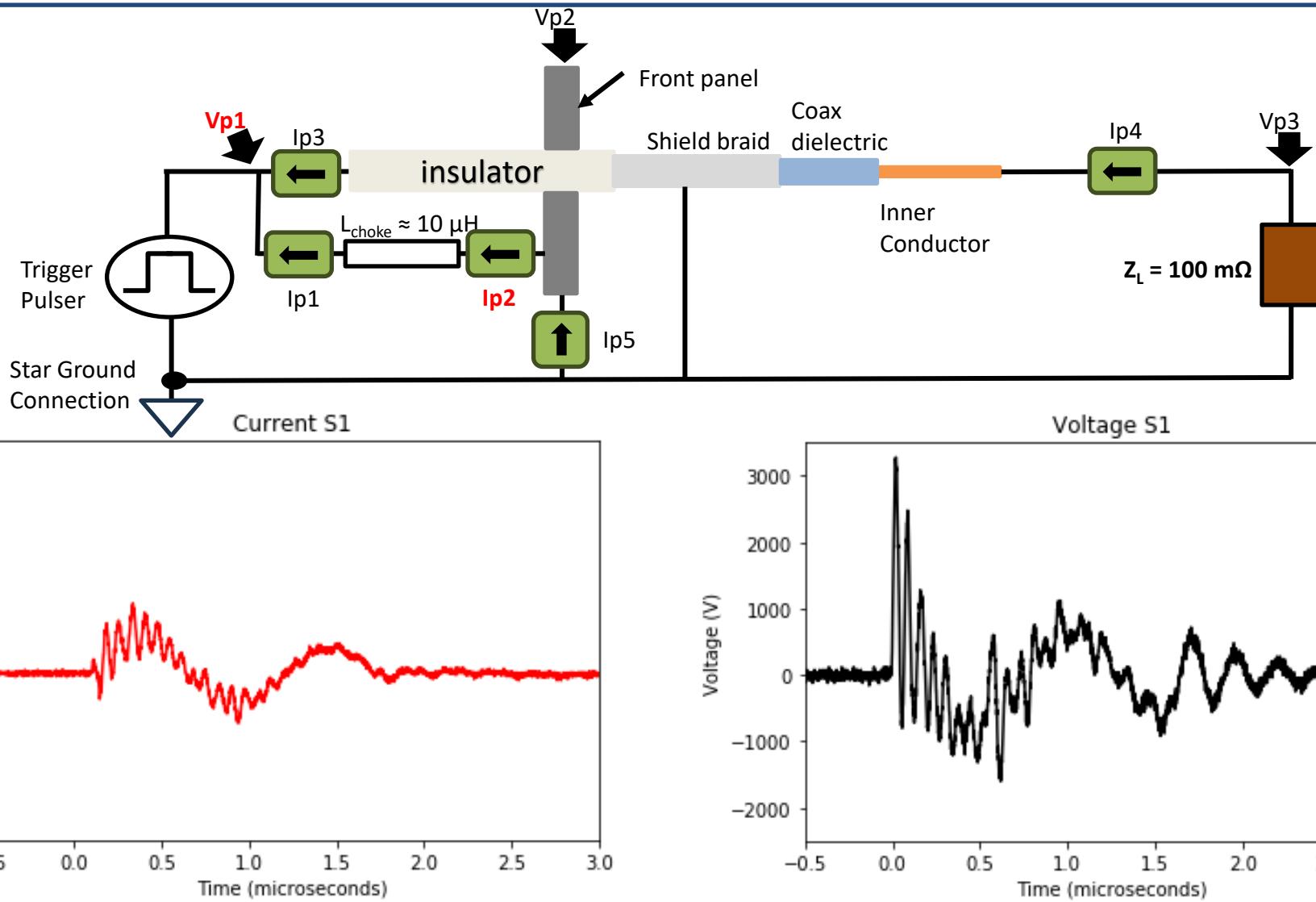
- kV pulser attached directly to setup for simplicity
- $V(t)$  and  $i(t)$  measurements made to assess what is going where
  - $V(t)$ : North Star probe
  - $i(t)$ : Pearson Coil



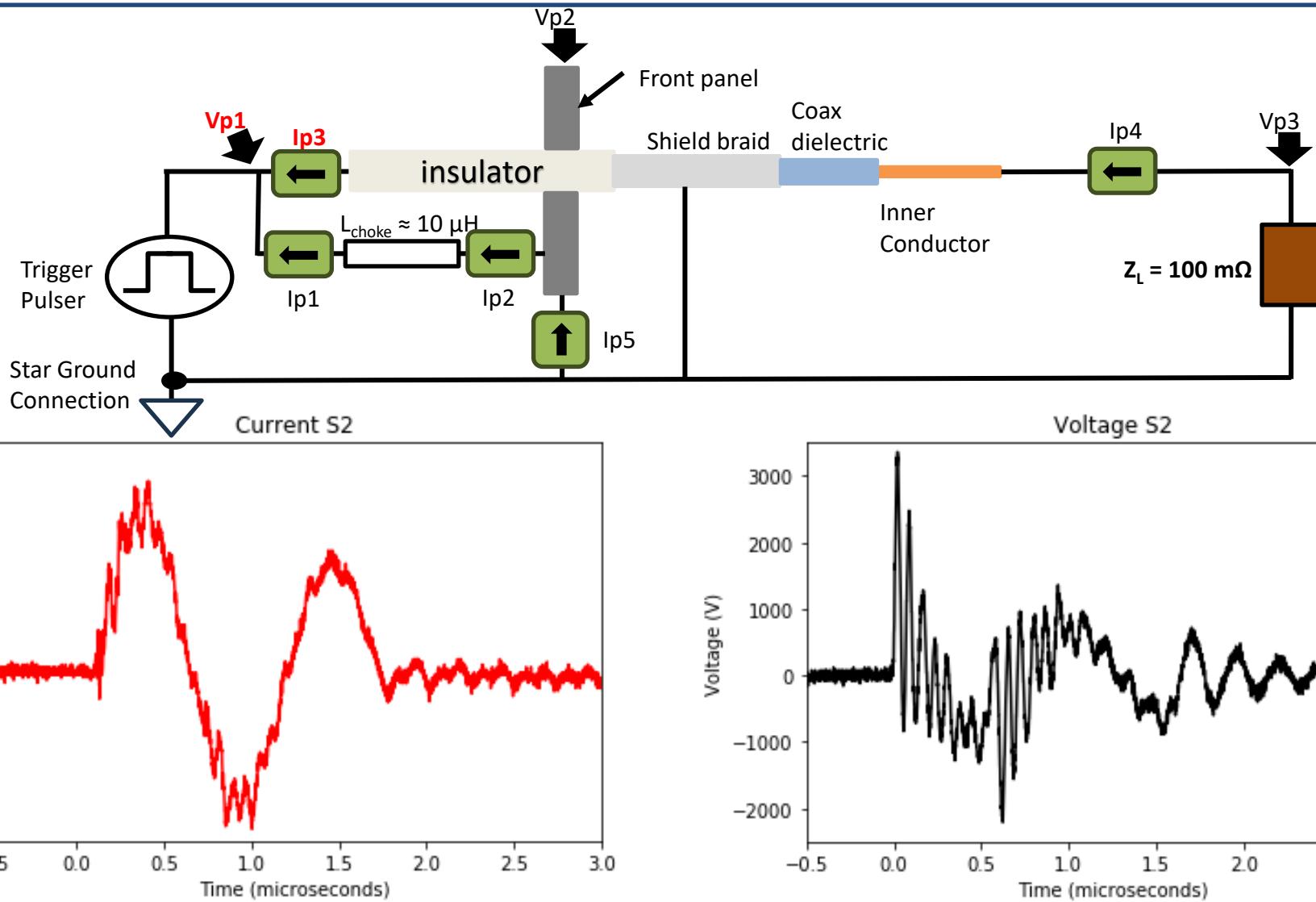
# S0



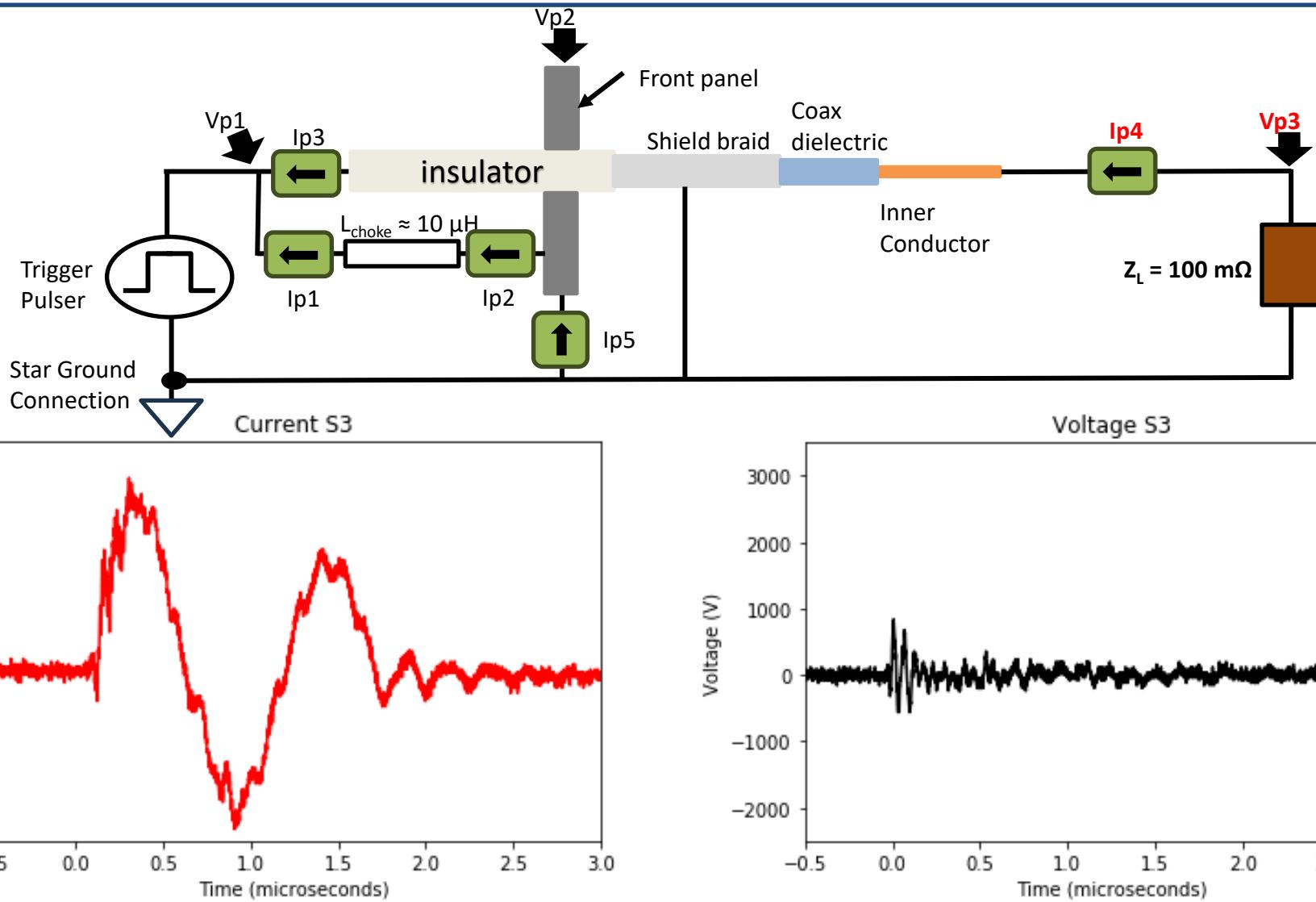
# S1



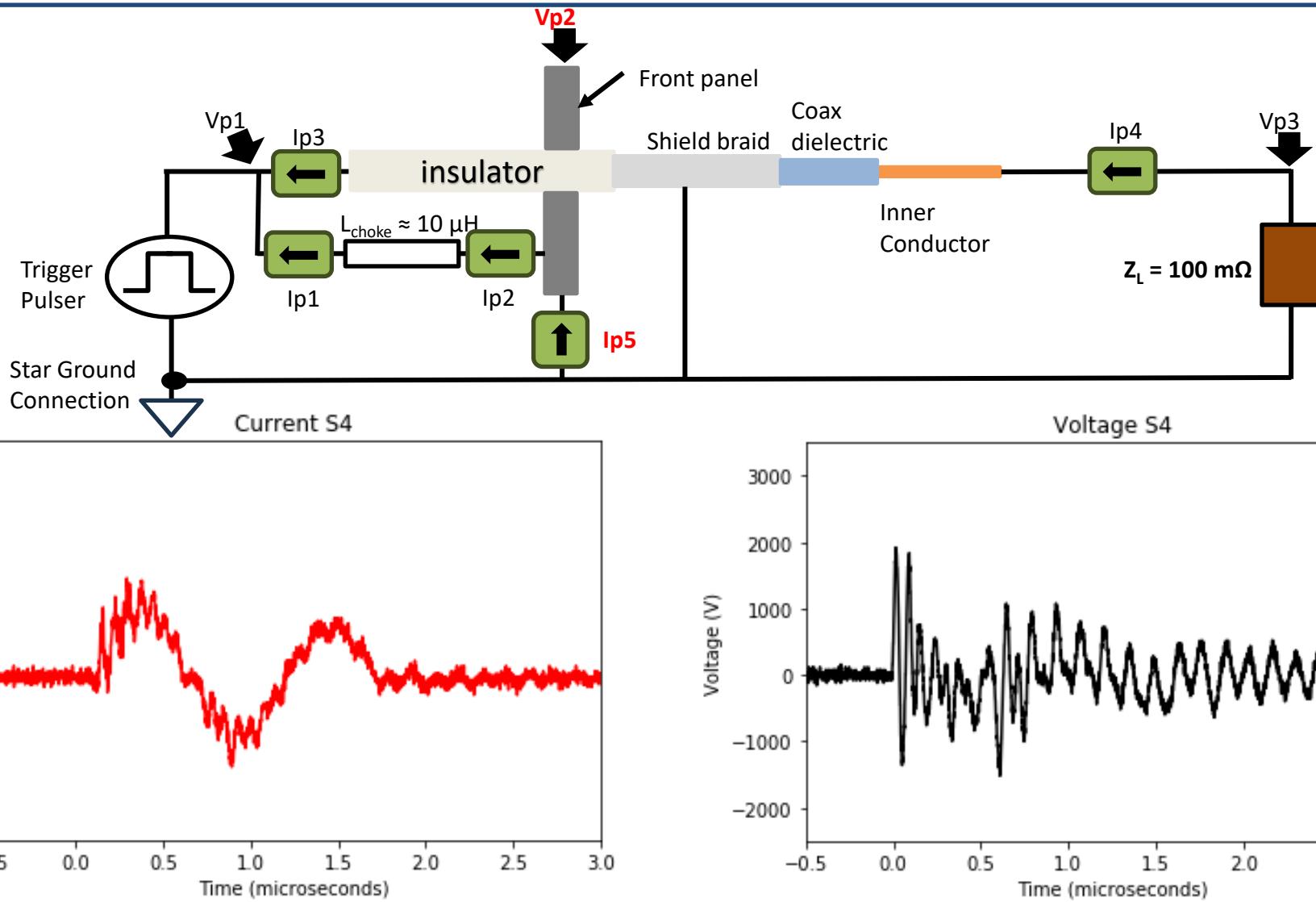
# S2



# S3



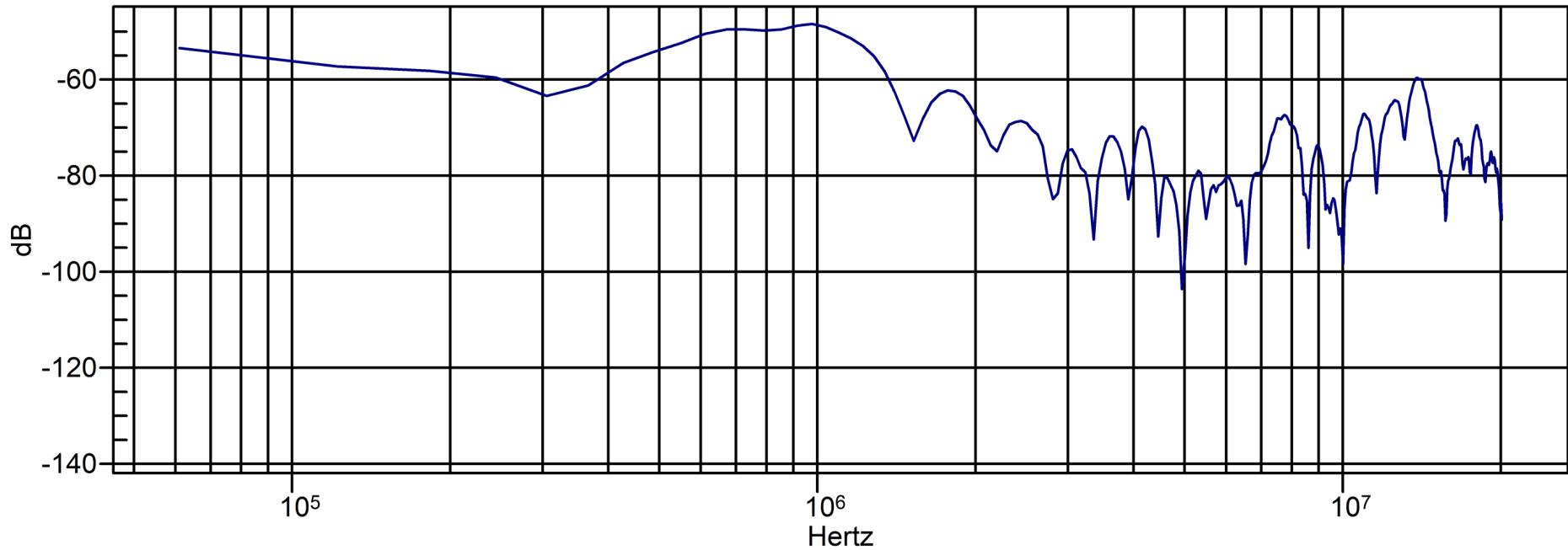
# S4



# Some thoughts

FFT of the S0 current waveform, the others

Trigger\_Tester\_Current\_000.dig -- Frequency Response



$$L_c := 10 \mu H$$

$$f_p := 970 \text{ kHz}$$

$$X_L := 2 \pi \cdot f_p \cdot L_c = 60.947 \Omega$$

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