

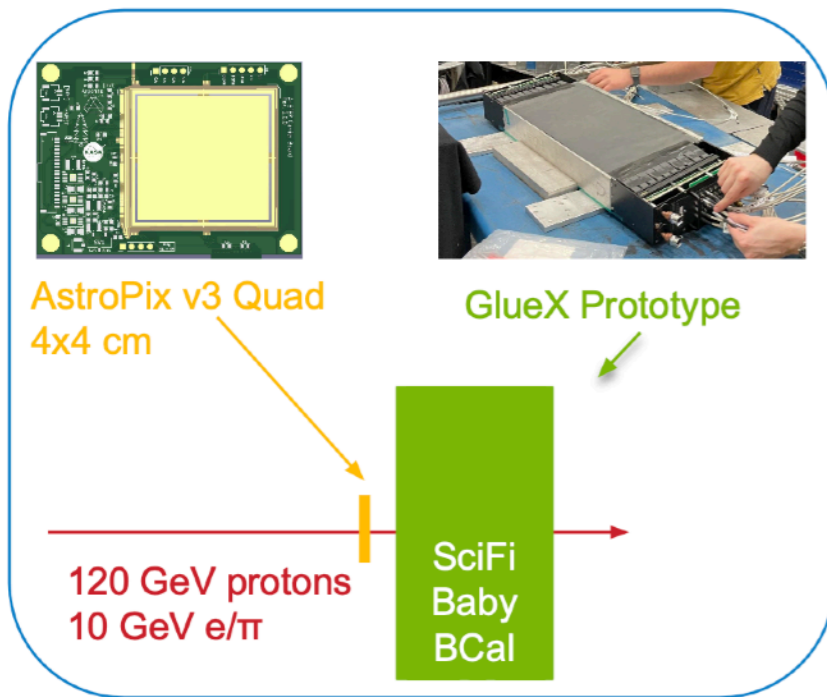
SFILs: Plans and Timelines

ePIC/Barrel Imaging Calorimeter

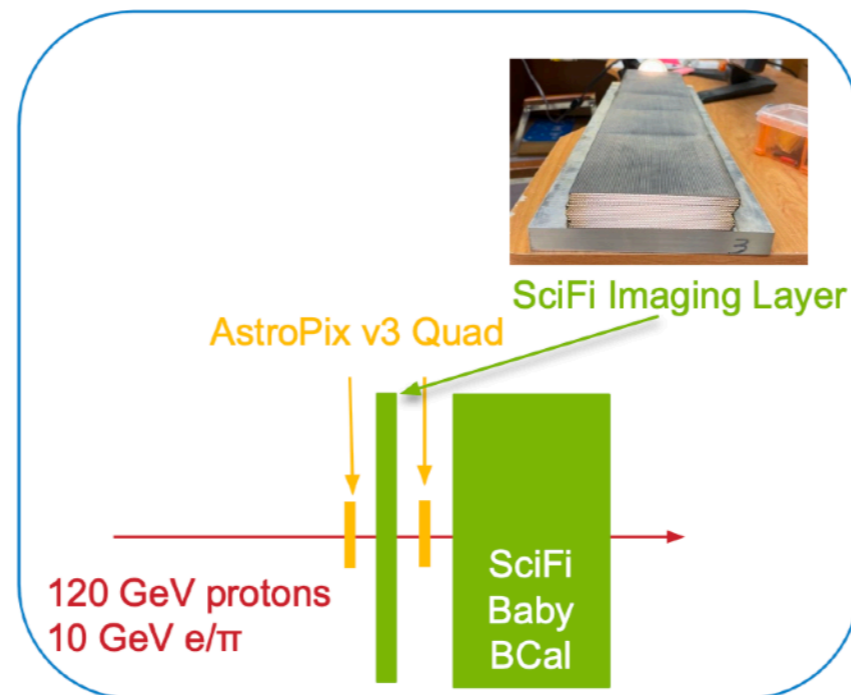
A. Teymurazyan, Z. Papandreou
BIC R&D Meeting
March 6, 2024

Beam Test Plans

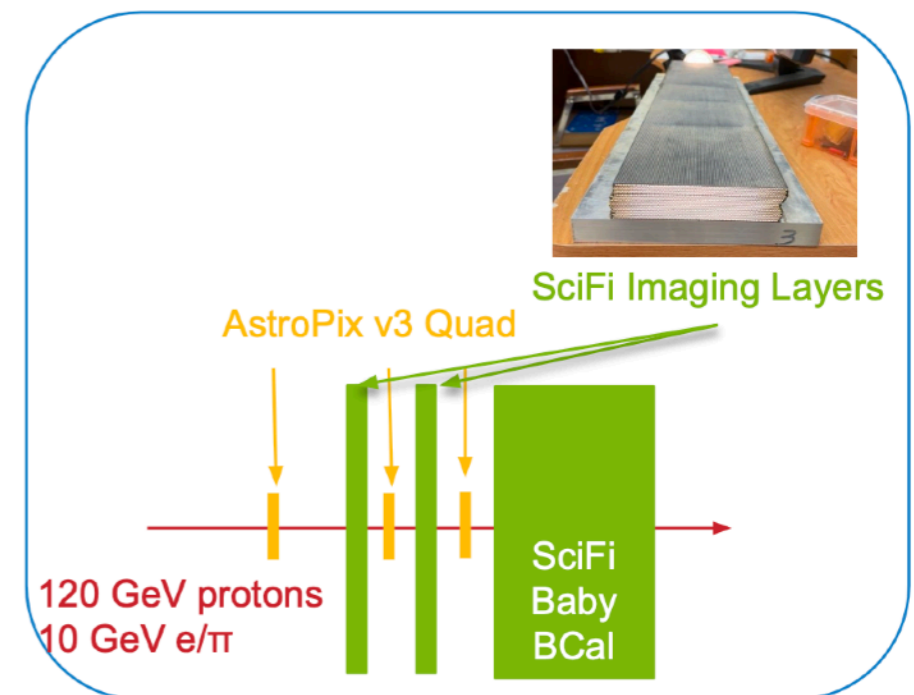
Stage I



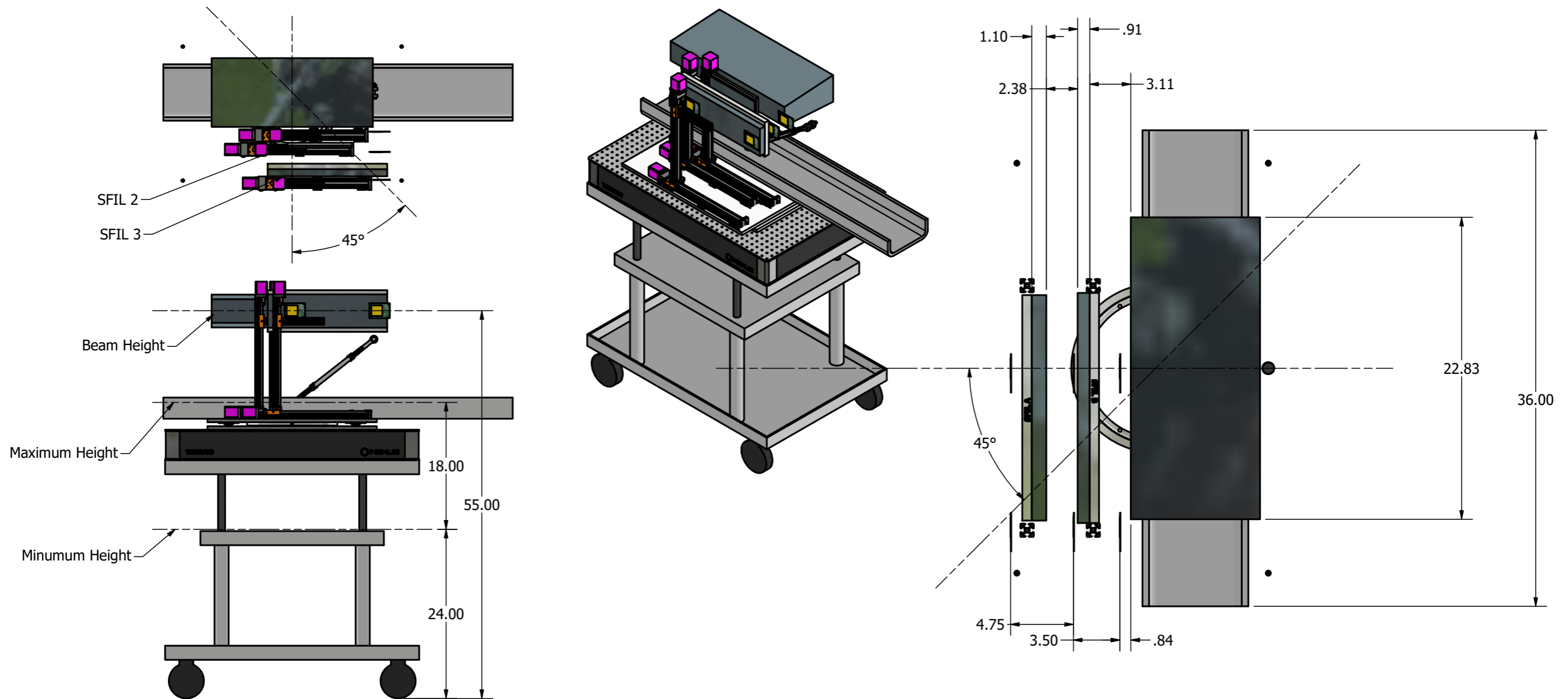
Stage II



Stage III

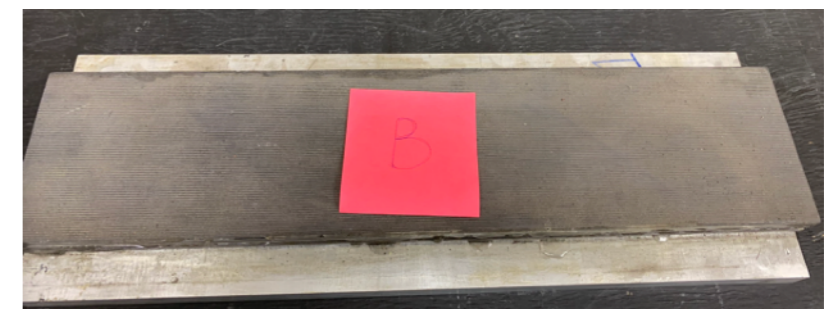
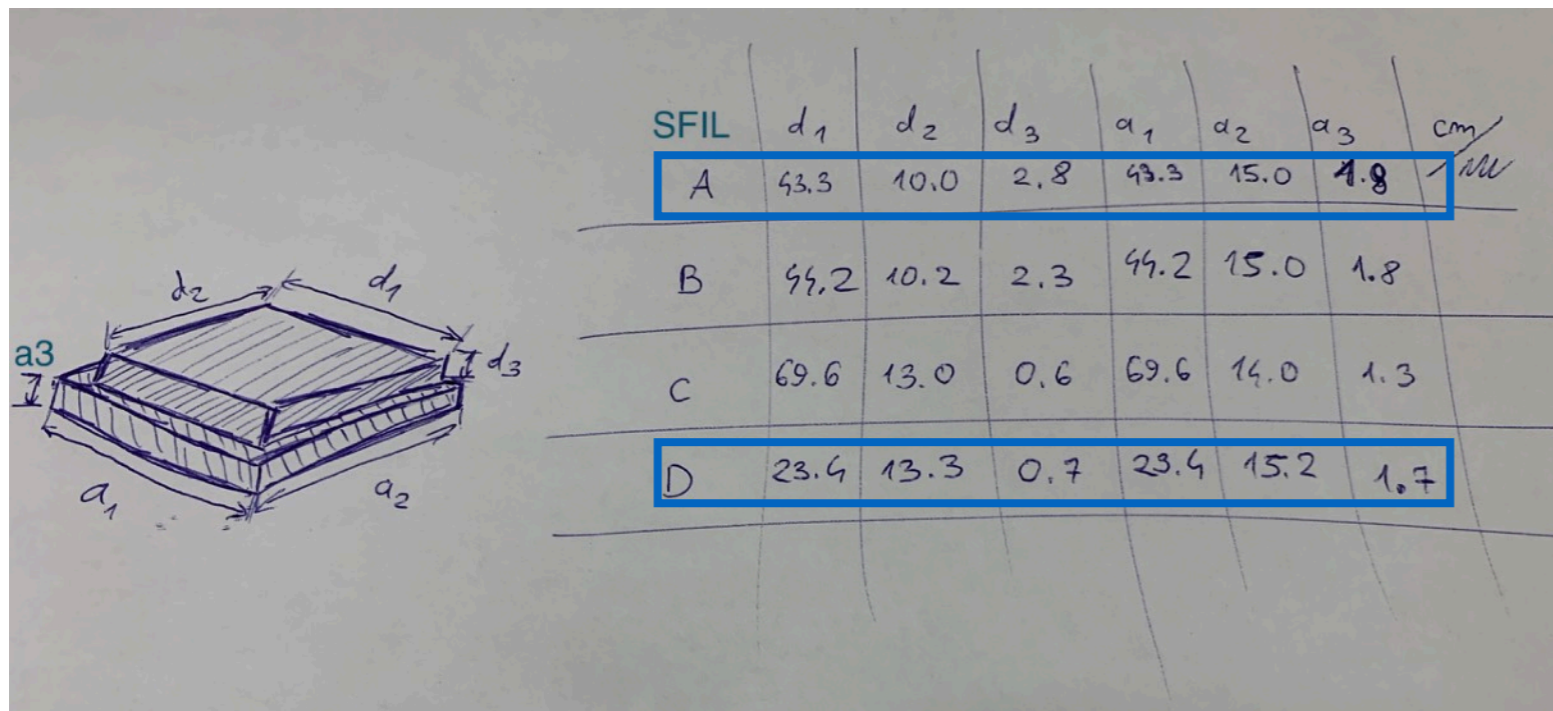


Mechanical Setup



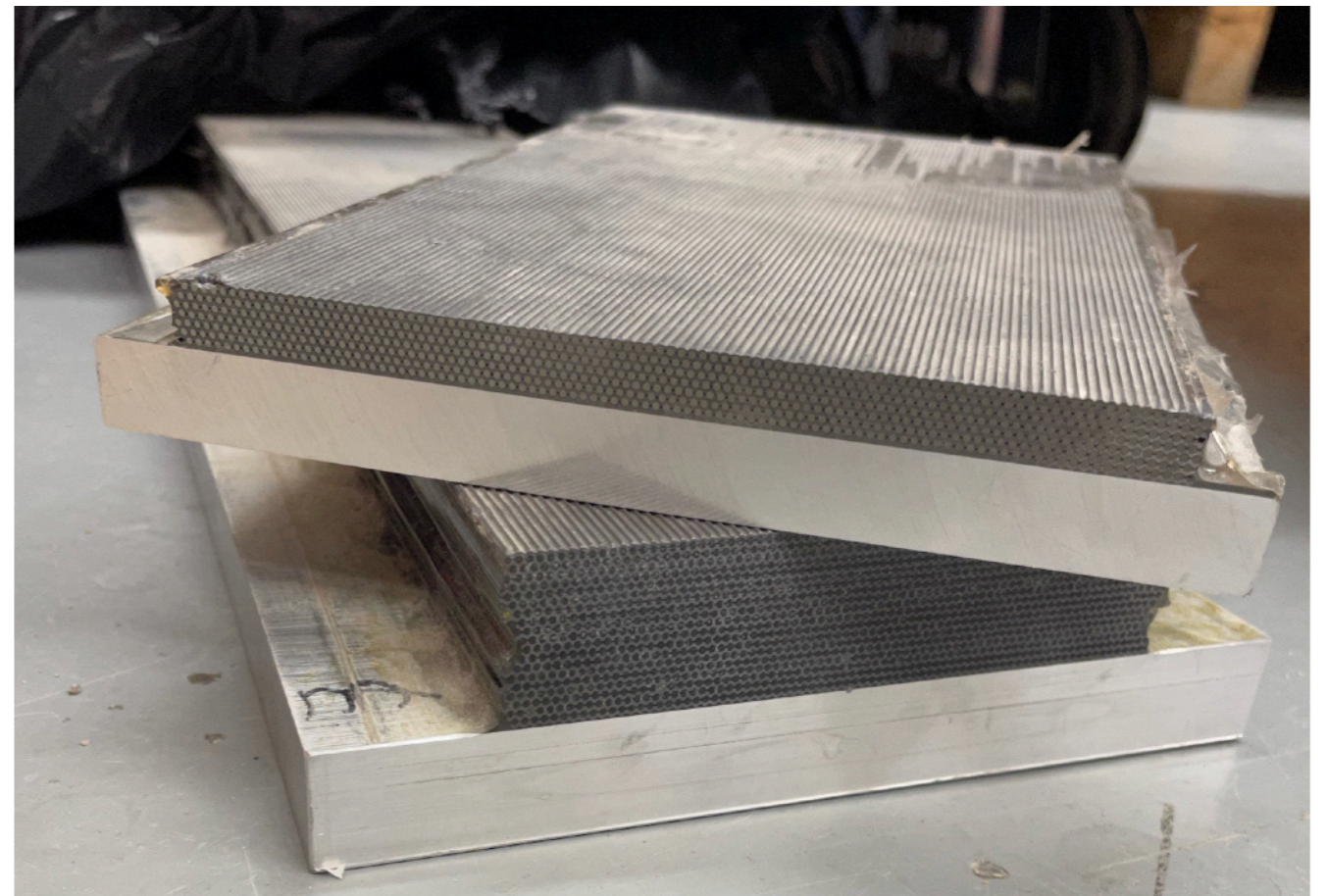
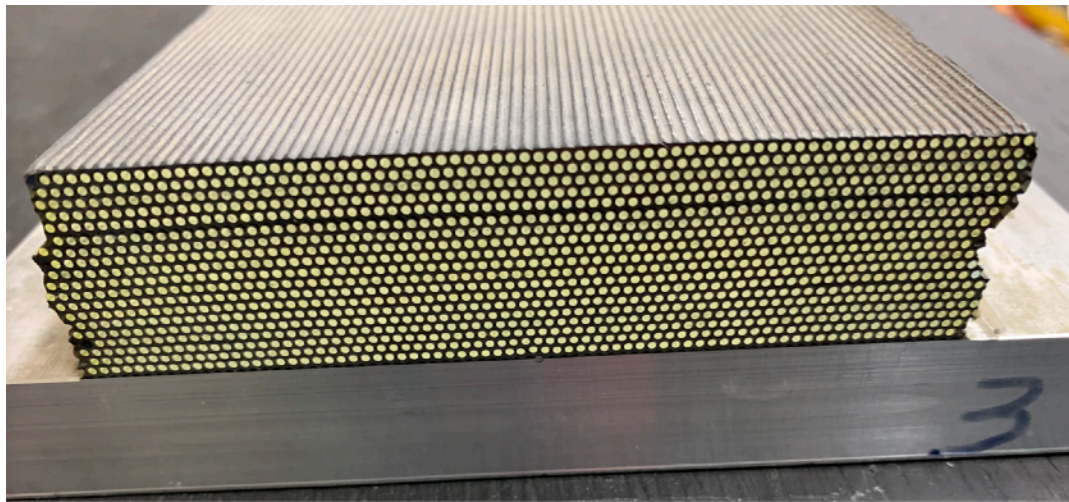
Courtesy: Tom O'Connor

SFIL Dimensions

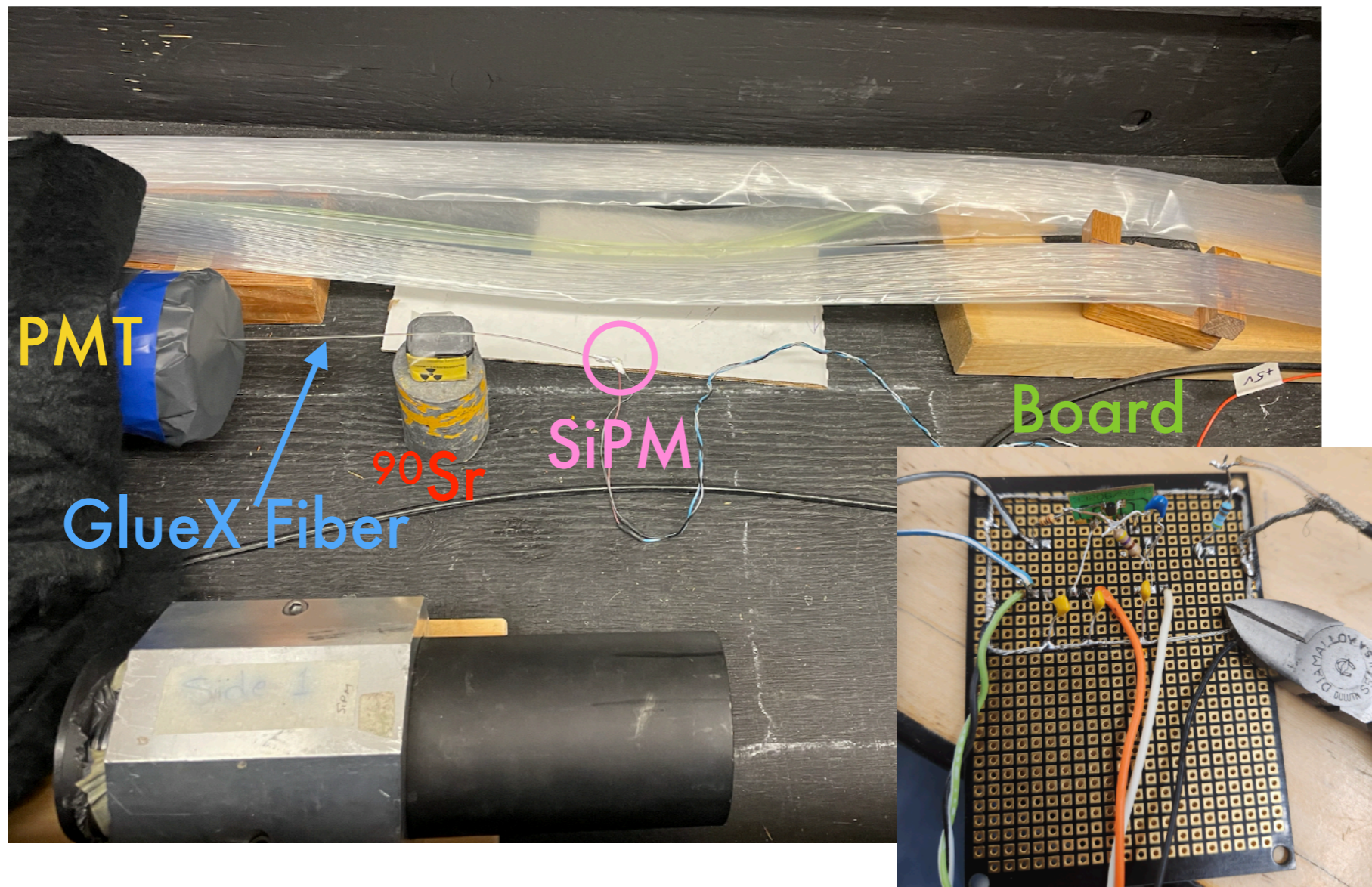


Tom uses A and D for the setup;
A and B will work too.

SFIL Structure

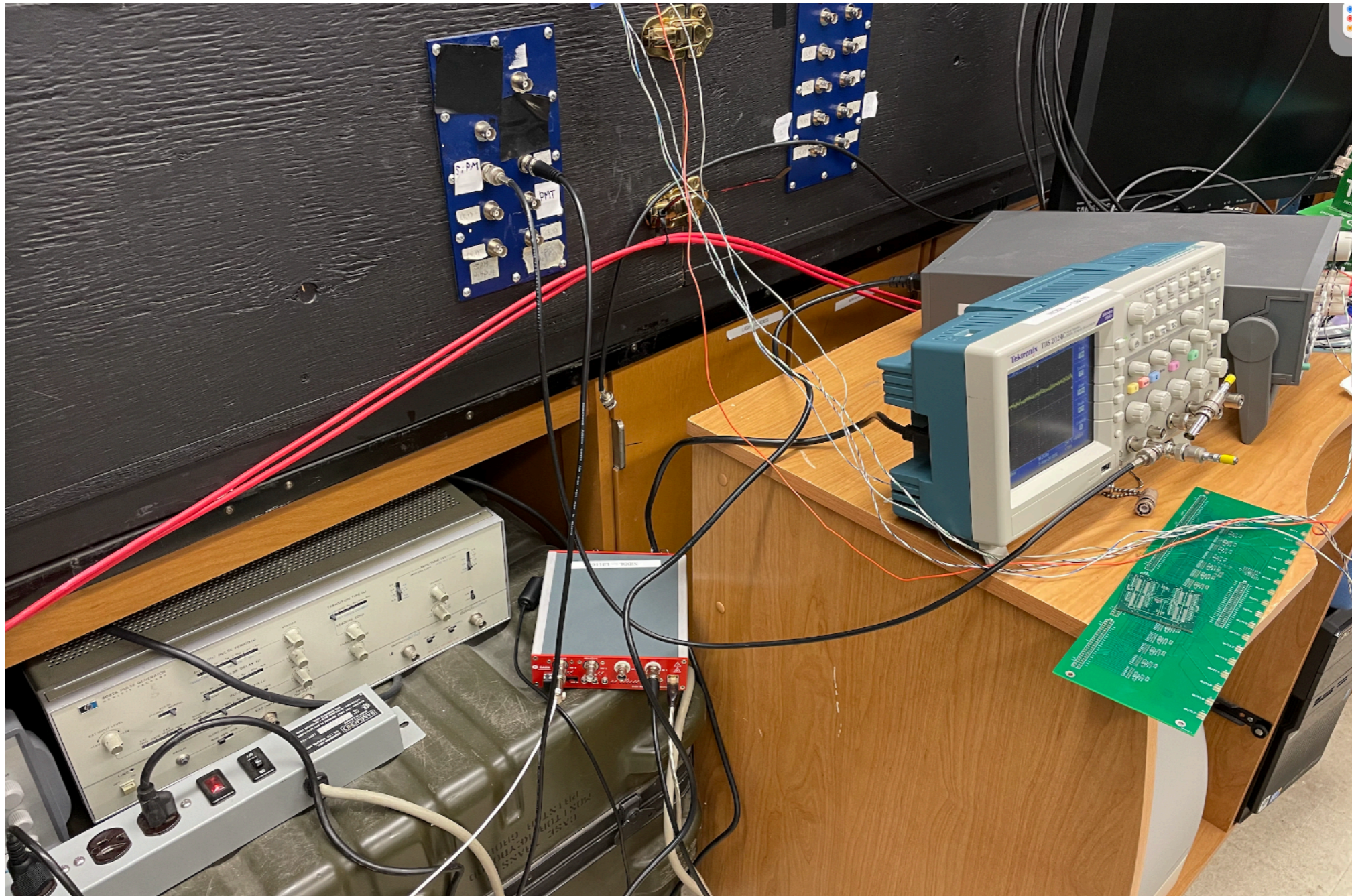


Electronics Test Setup

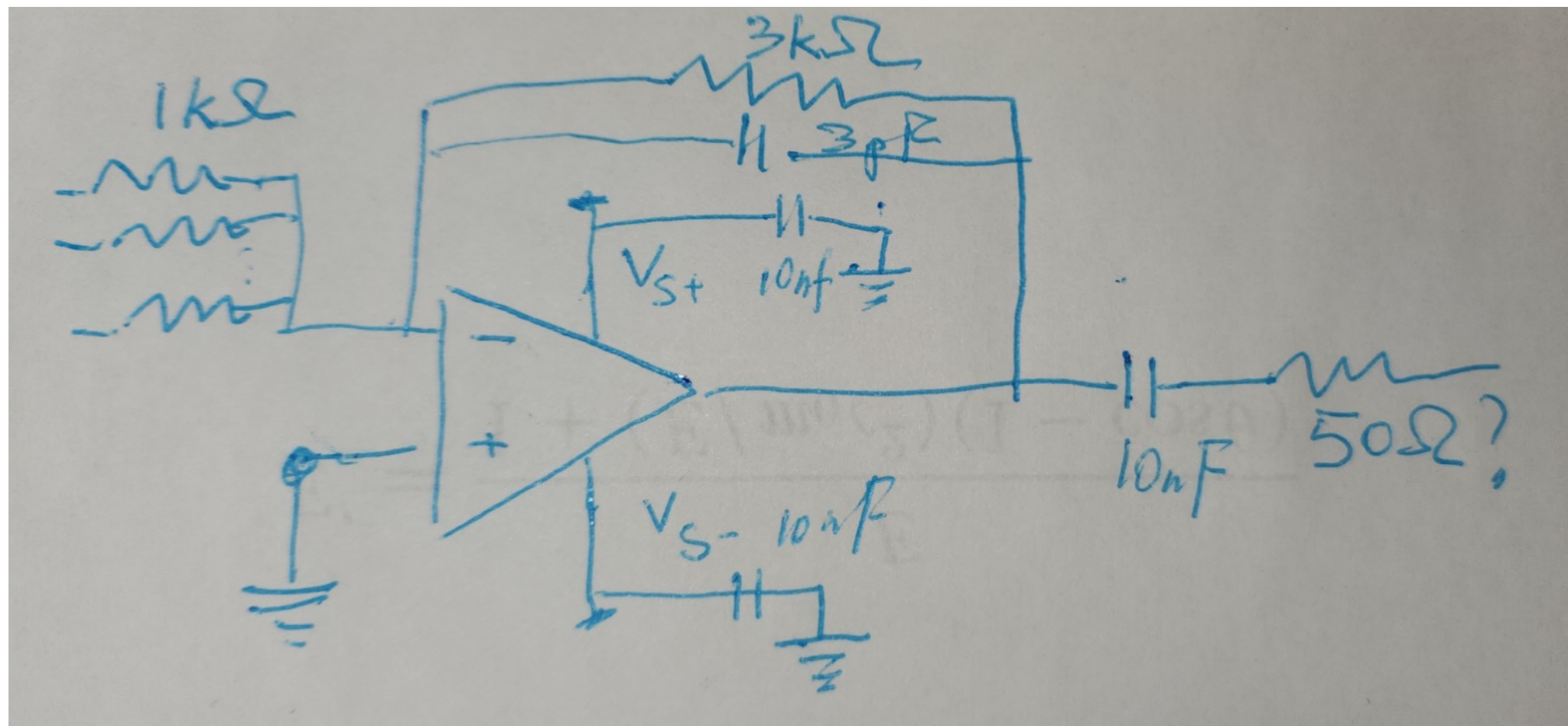


Aram's setup: Coincidence between PMT and 3x3mm² SensL/onesemi SiPM

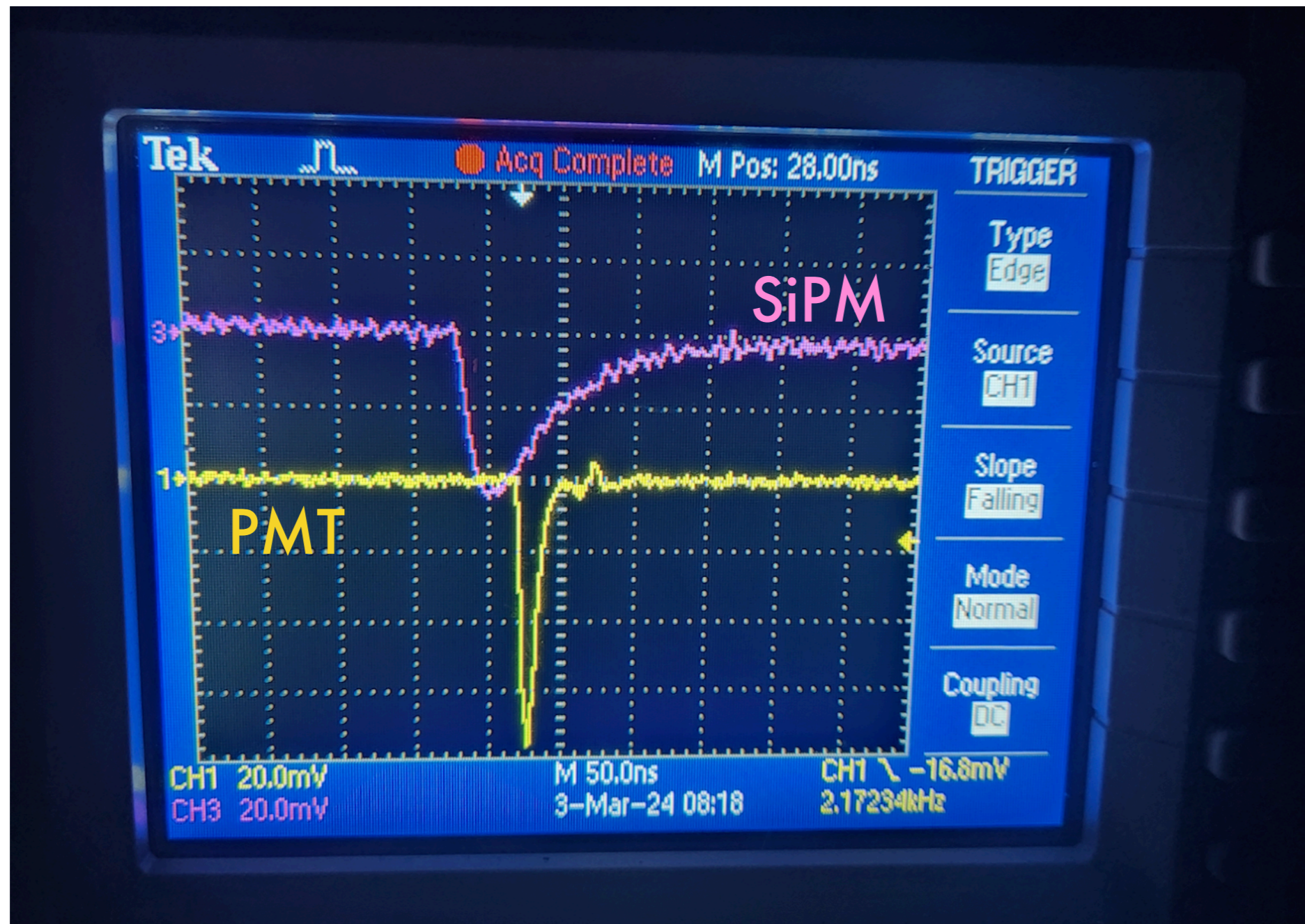
Electronics Test Setup



Electronics Diagram



Signal Pulse - One stage



Discussion

- **Electronics**
 - One or Two-stage amplification?
 - Summing, noise, signal size and width, signal shaping?
 - Risetime? Triggering? Energy resolution?
 - Radiation damage?
- Discussion
 - Rates; Threshold; Impedance
 - Dynamic range (FADC)
 - Electrical setup (power supply: just 5V?, connectors, etc)
 - Mechanical (# of LGs, mounting, PCB, 3D-printer jig,

Timeline

- **ANL SiPMs tested with quick electronics setup: March 12**
- **Send pulse share to ANL; GAGG+²²Na?**
- PCB design: March 15
- PCB Production: 2-3 weeks
- SiPM mounting: ???

Backup slides

GlueX/BIC SiPMs

HAMAMATSU
PHOTON IS OUR BUSINESS

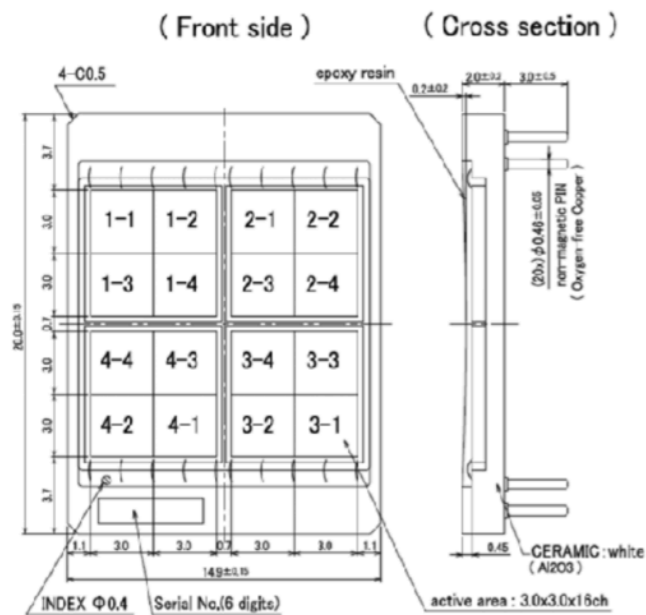
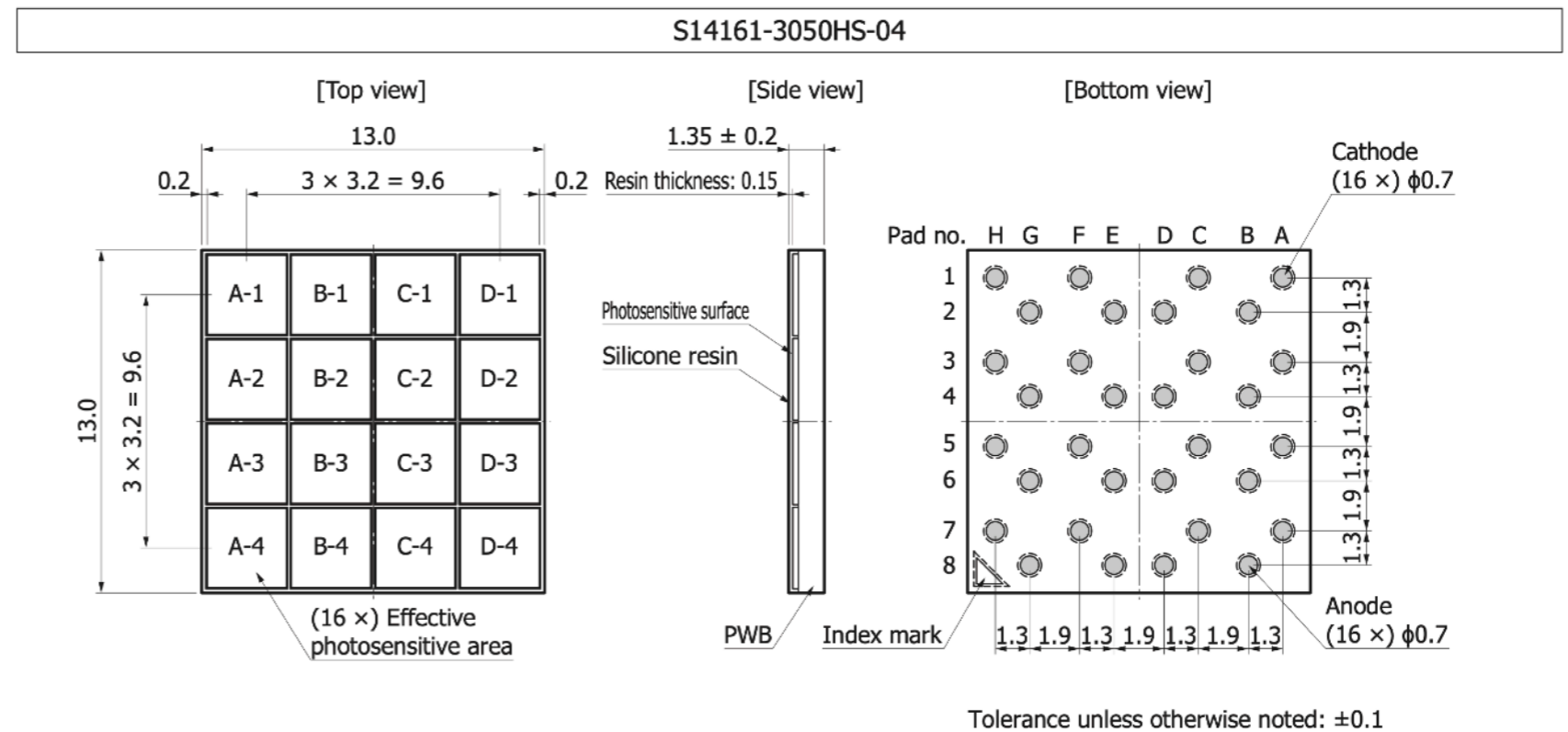


Fig. 1. A schematic drawing of the front and side views for the Hamamatsu MPPCs for the GlueX experiment is shown, detailing the tiling of the $3 \times 3 \text{ mm}^2$ cells into a 4×4 configuration. The numbered cells are active; all other areas and spacings are inactive. (Courtesy of Hamamatsu).



GlueX

BIC