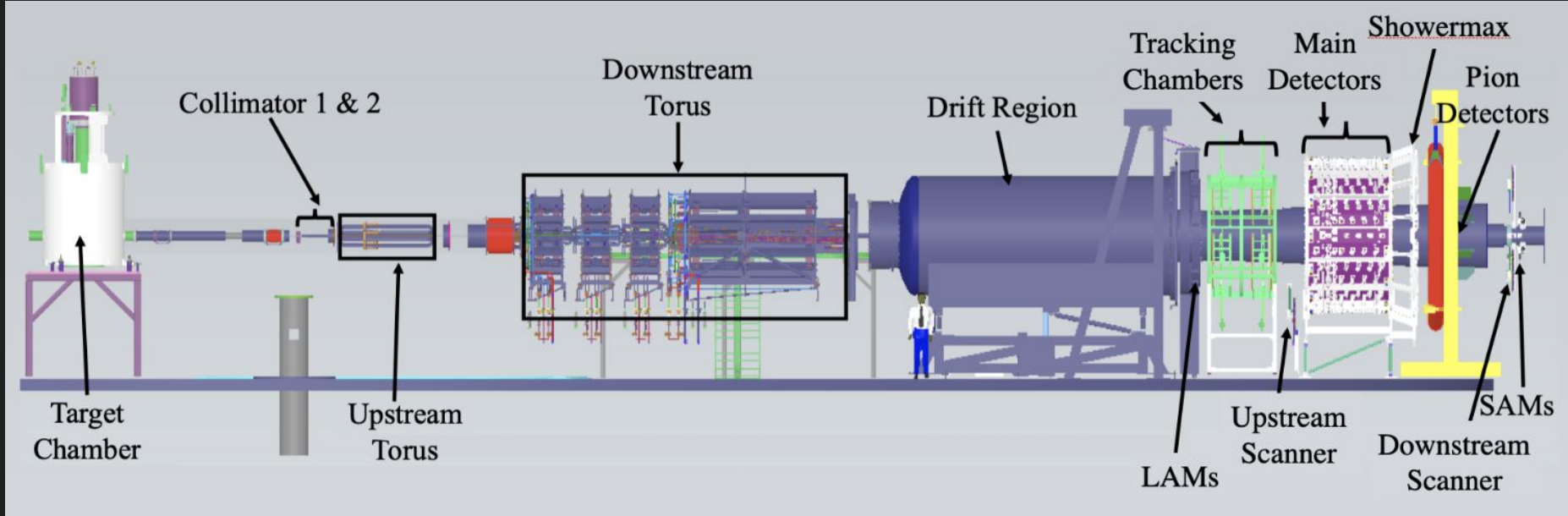


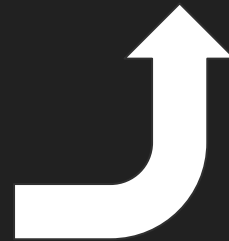
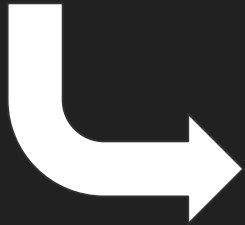
MOLLER Tracking detector status

James Shirk

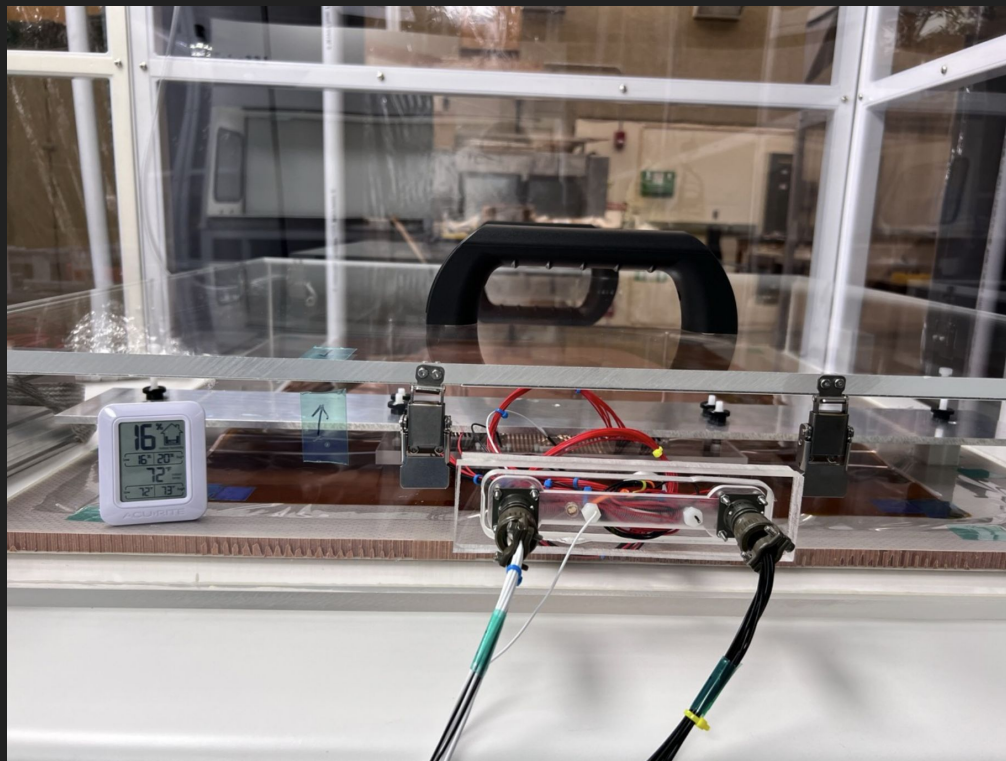
MOLLER beamline



Prototyping



“Production”



A GEM's leakage current being measured



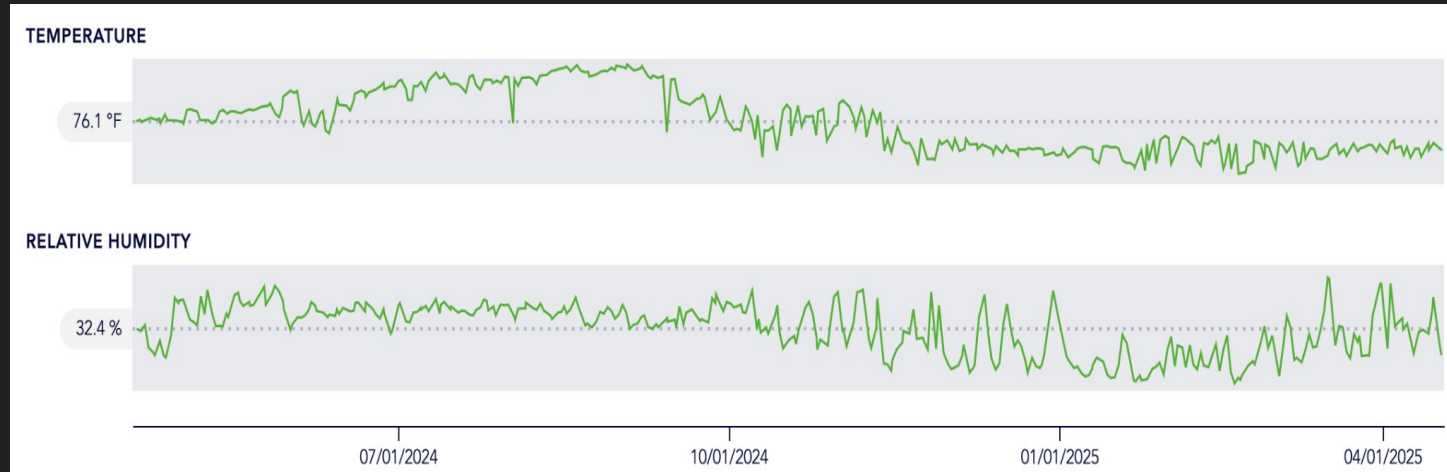
SBU_02 in the x-ray box

Timeline

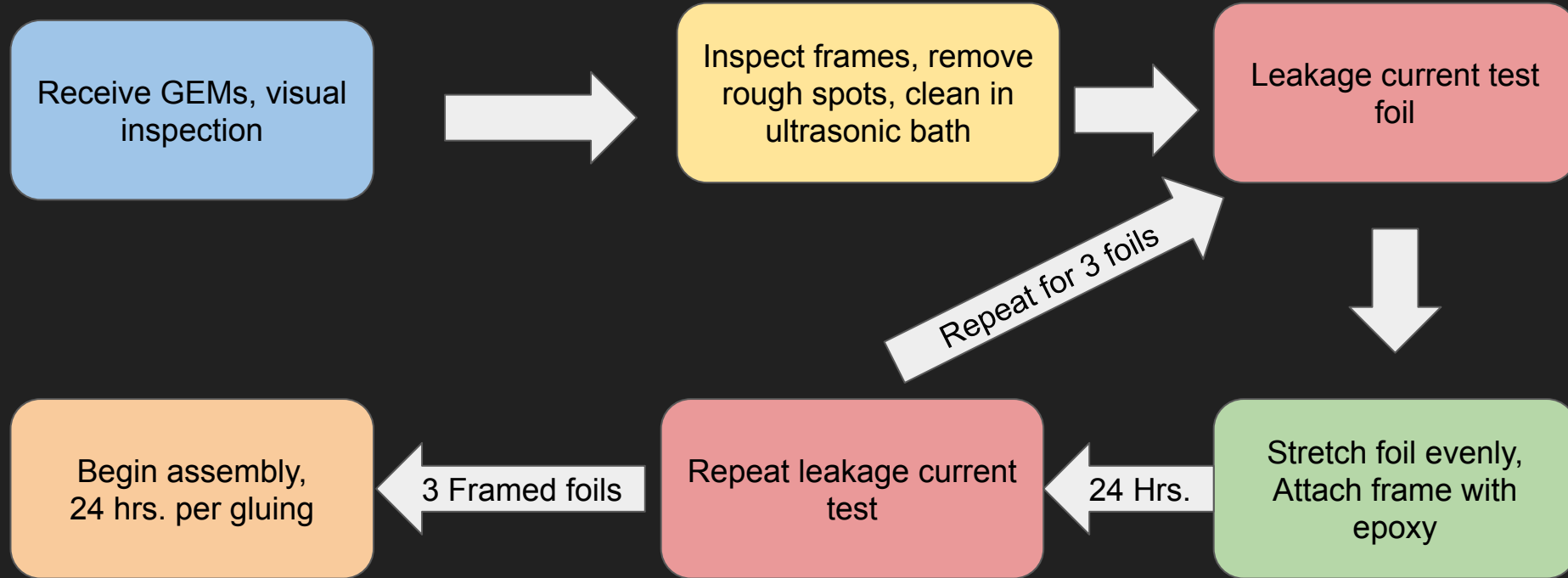
- Received materials beginning of January
- Need to deliver 12 modules by June 21
- Historically have issues with temperature/humidity in cleanroom in summer

Timeline

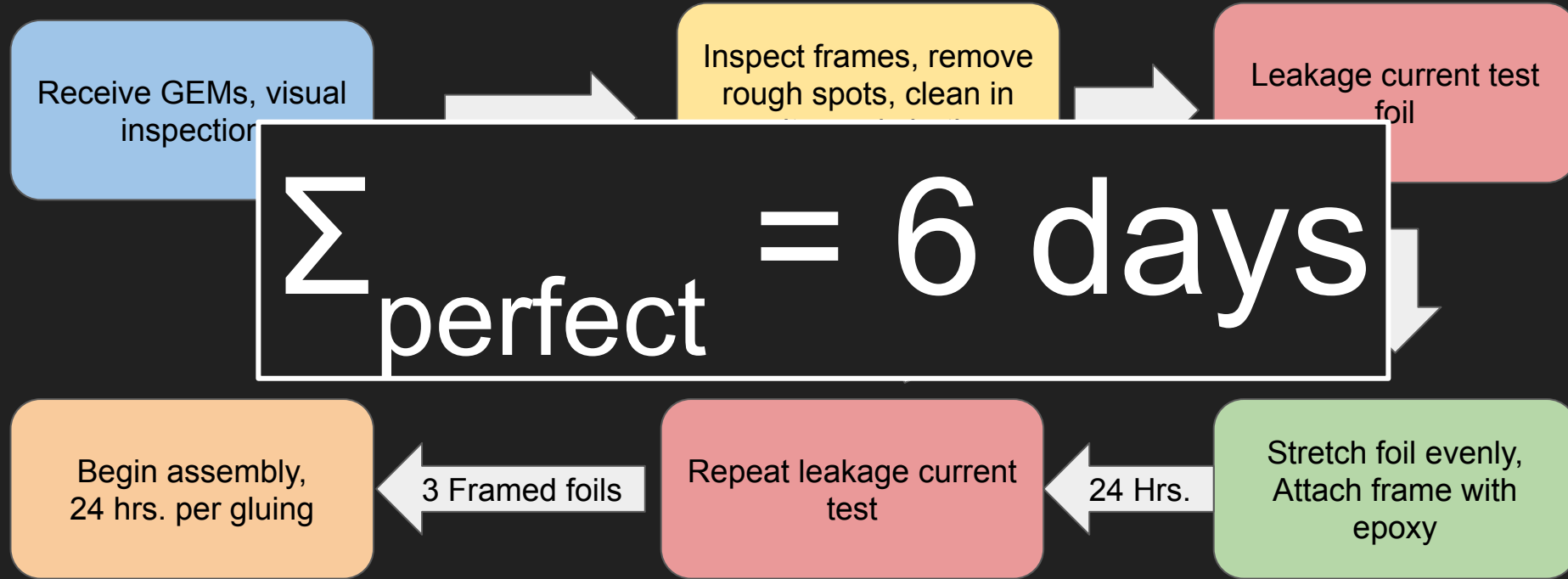
- Received materials beginning of January
- Need to deliver 12 modules by June 21
- Historically have issues with temperature/humidity in cleanroom in summer



Process for assembling modules



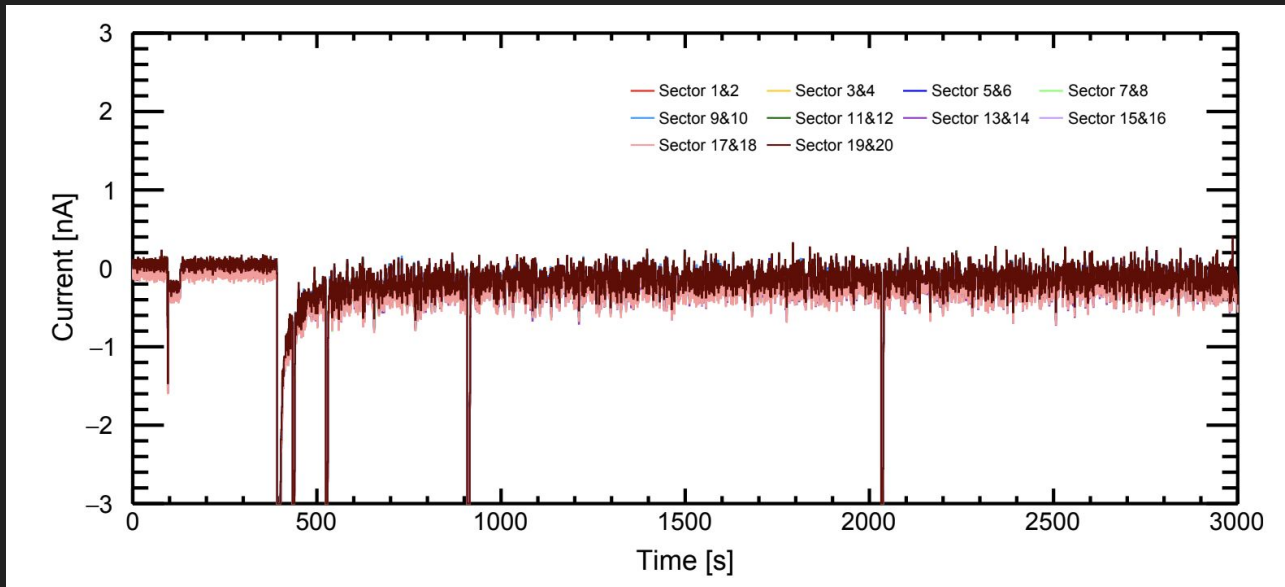
Process for assembling modules



Run Several Tests

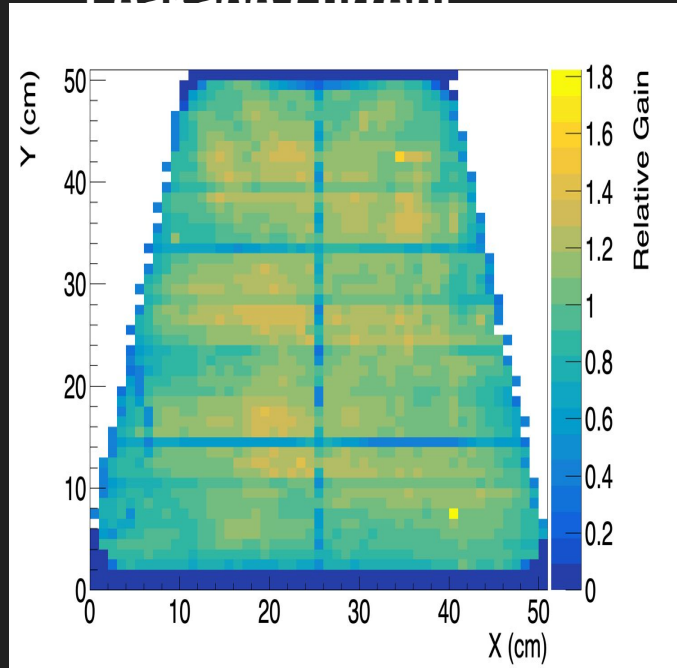
Leakage current

1. Do GEM foils have adequate resistance?
2. Does this resistance change over time?
3. How often do they discharge?



Run Several Tests

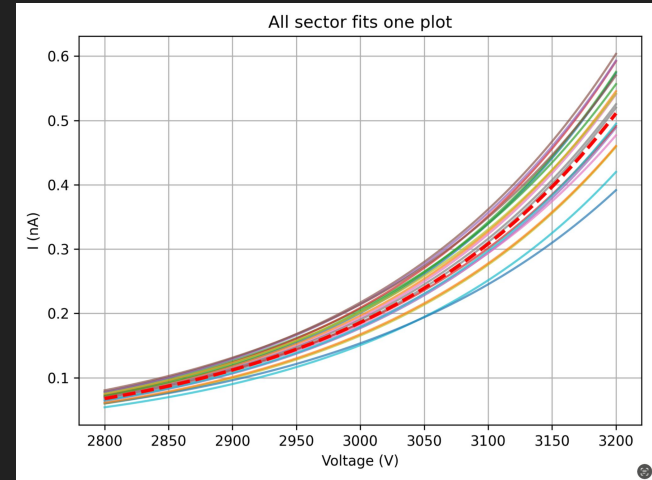
Leakage current



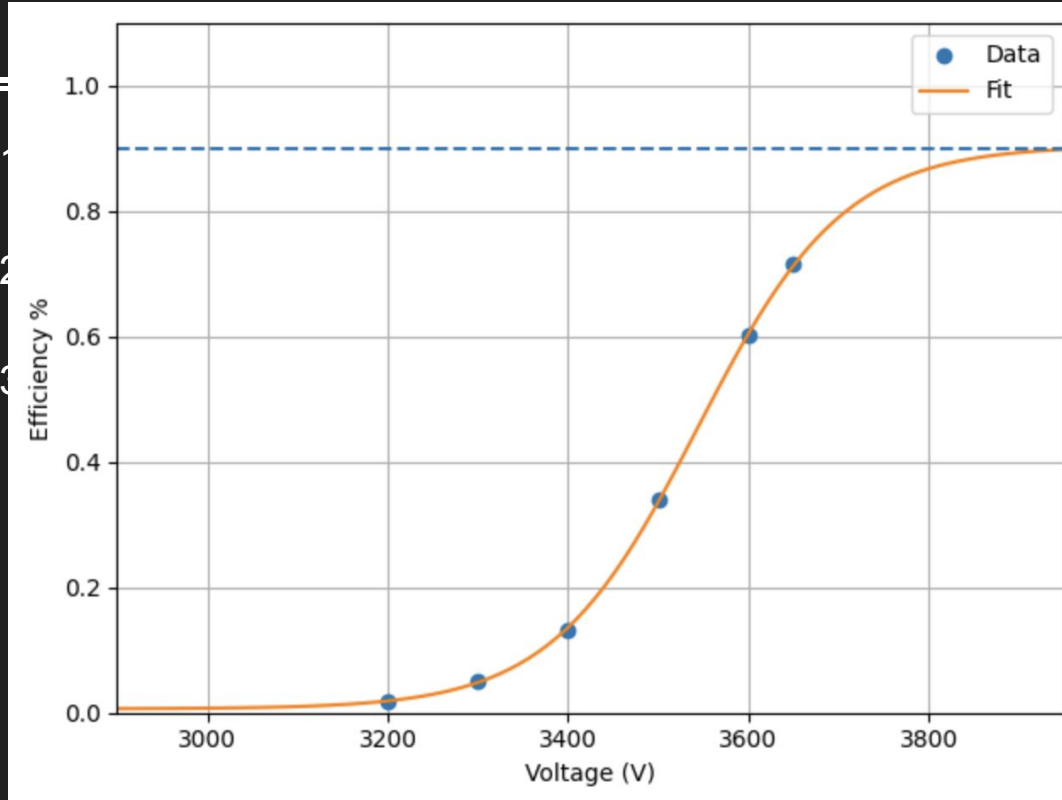
Gain Analysis

1. How does the gain vary over the position of the detector?
2. Are any areas in our detector likely to be inefficient?
3. How does the gain change with voltage?

Efficiency



Run Several Tests

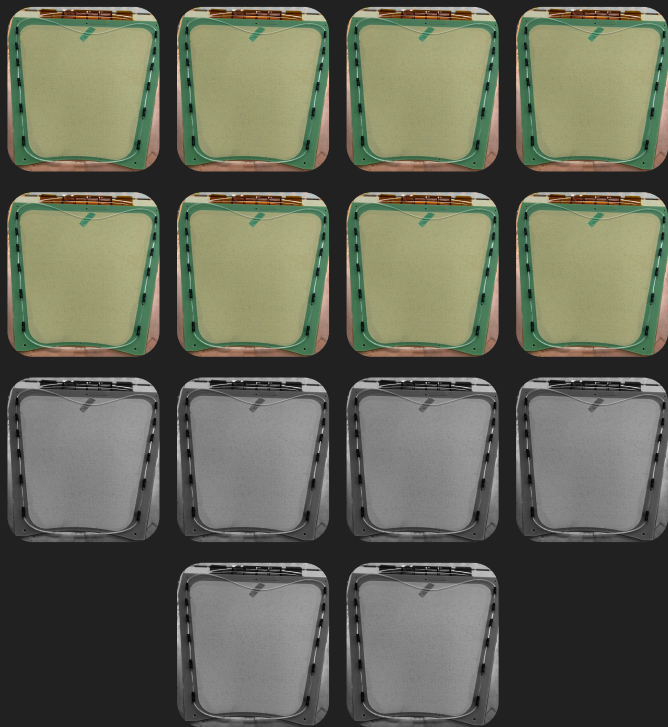


Efficiency

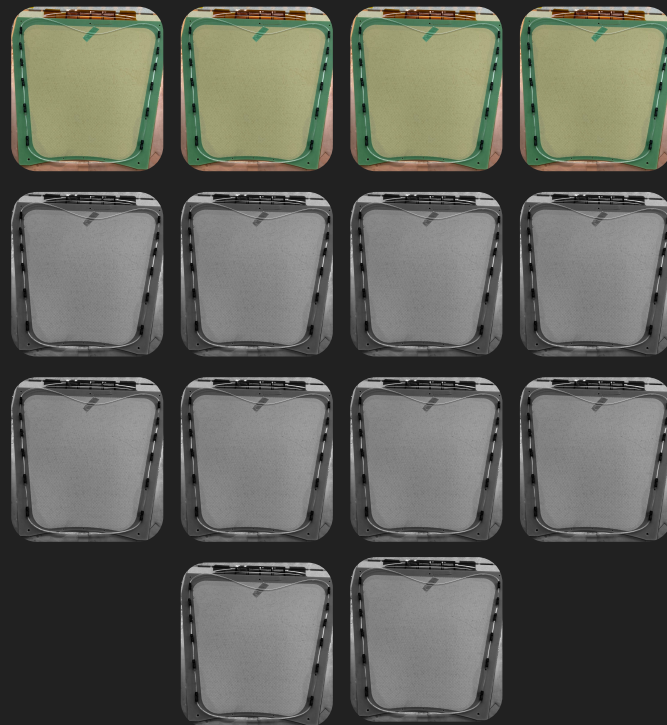
1. Is our detector sensitive to ionizing particles?
2. What is the probability that an ionizing particle will pass through and be detected?

Status

Built



Tested



Expected time

- It's been 99 days since Jan 9 2025
- We've built 8 modules and are 20% done with the 9th
- 12 days per module so far

Summary

- SBU is making 17* triple GEM detectors for the MOLLER experiment
- Of these, 11 have been assembled, all materials received for the rest
- 3** are going to be taken to JLab Monday (6/21)