

LAr R&D Progress Updates

04/28/26

Yichen

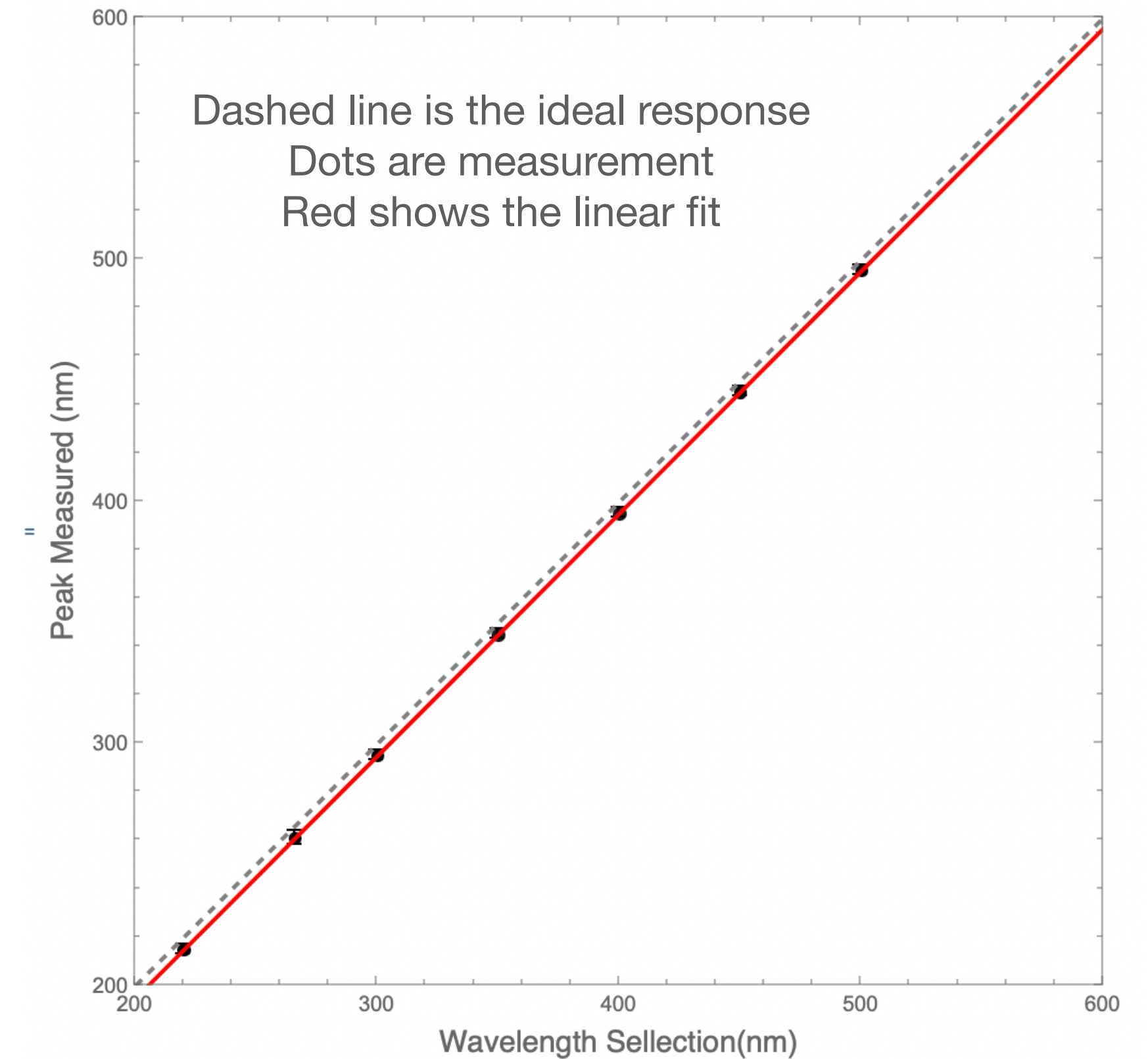
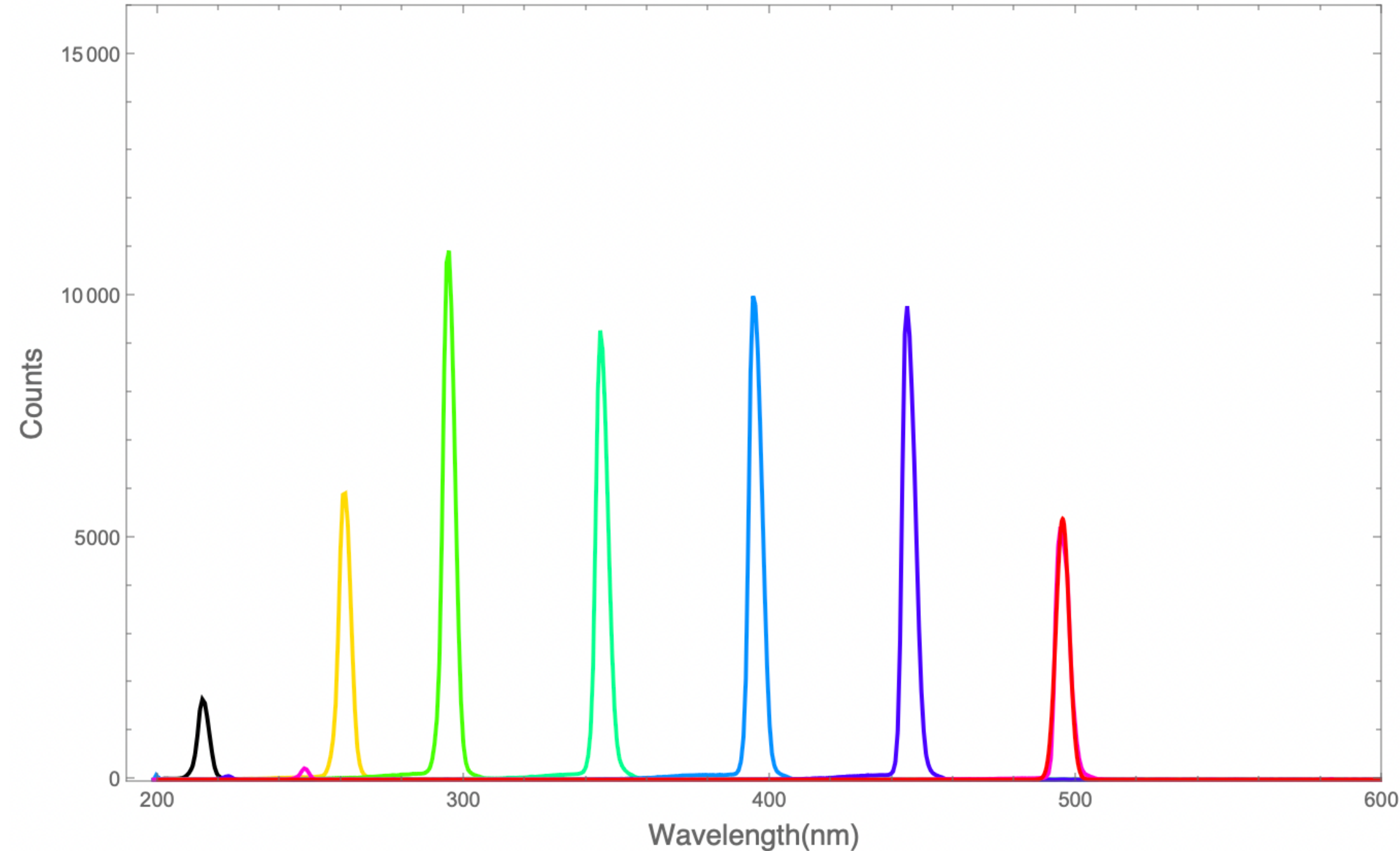


Lab Safety and Space Management

- ESH walkthru on 04/29
 - Lab cleaning up in process, expected to finish by the end of the day
- Highbay gate
 - Both doors on the north side can't be fully locked with the door closer
 - Please ensure the door is fully closed when exiting

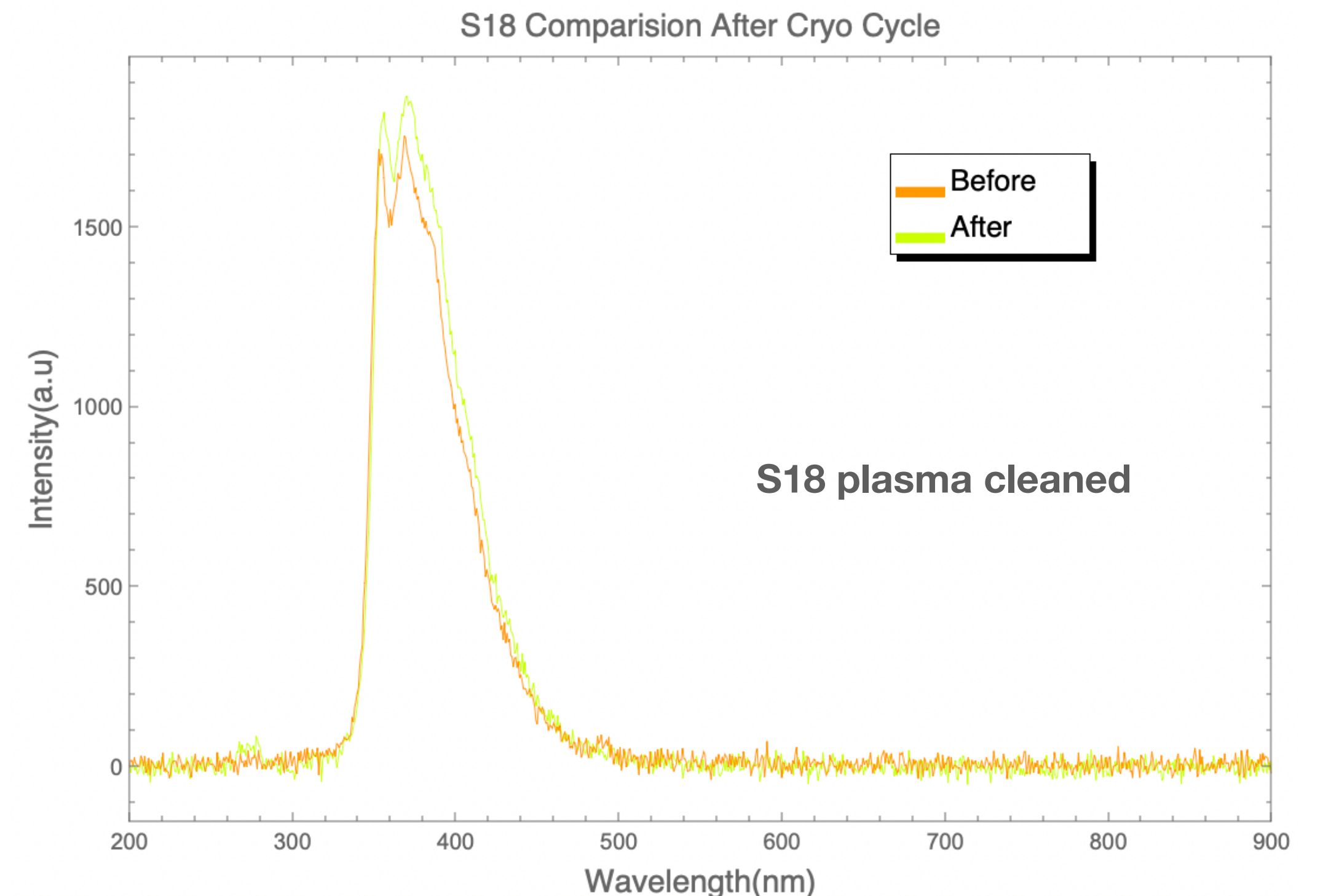
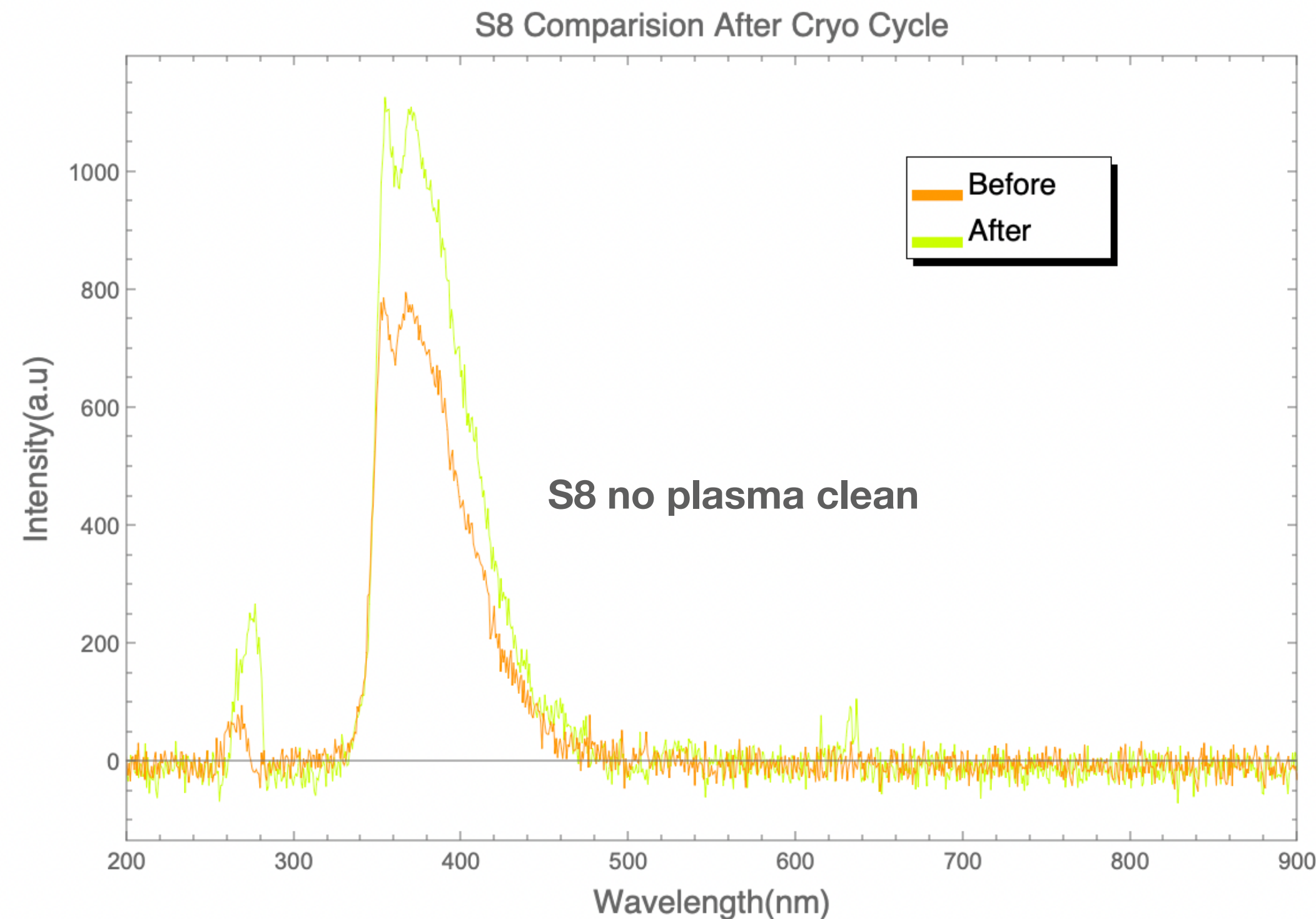
Monochromator+Spectrometer

- The exit slit was installed
- Validation of the monochromator linearity
 - Given the slit has been rebuilt with full disassembly, need to double the linearity of wavelength selection
 - Conduct the single wavelength selection from 220nm-500nm
 - Still showing similar offset of ~5nm like before
- Focal length measurement
 - Will conduct the measurement today after the meeting with Bob



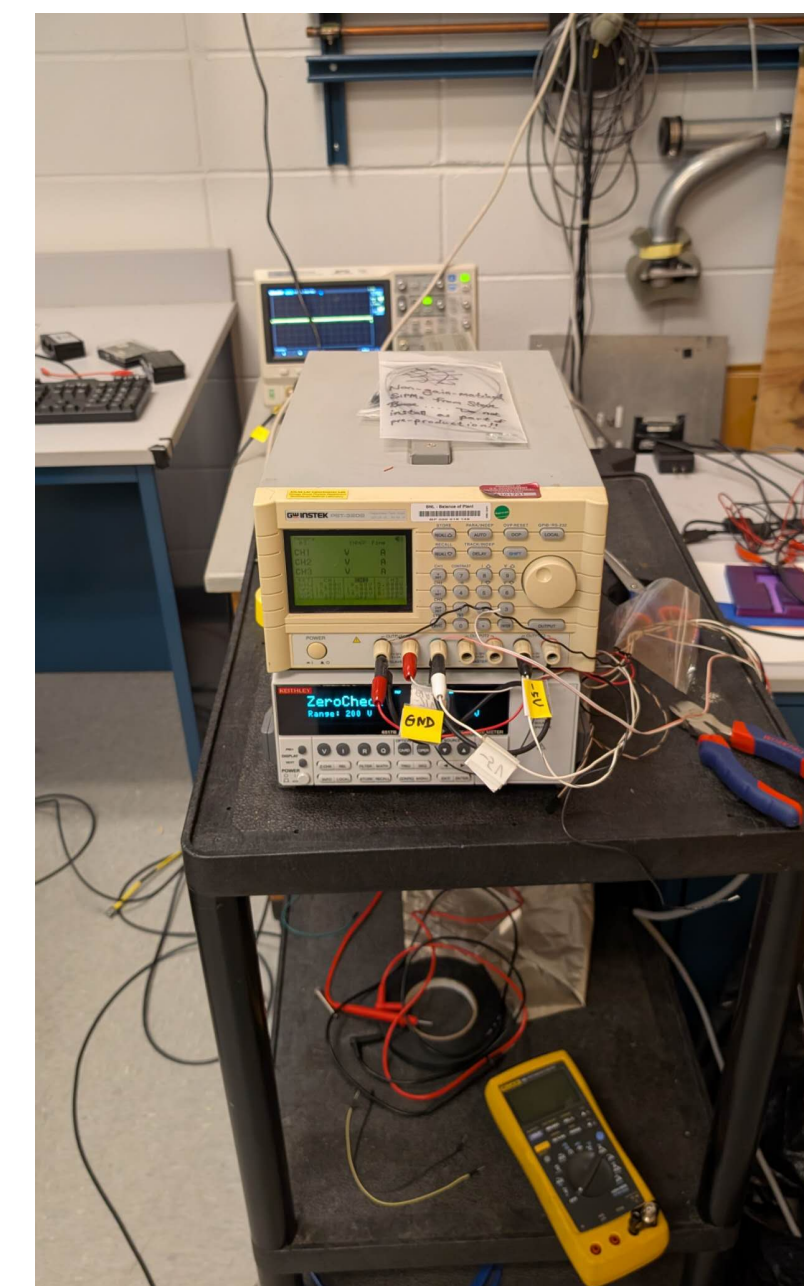
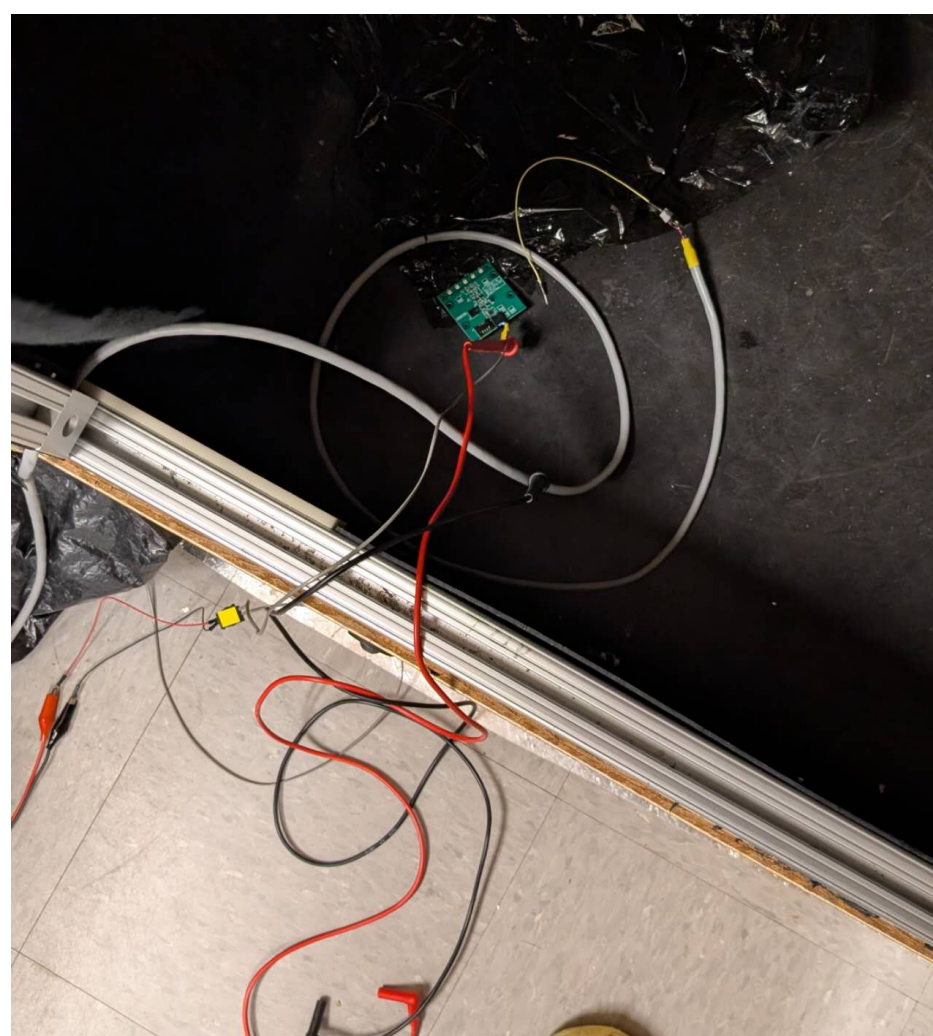
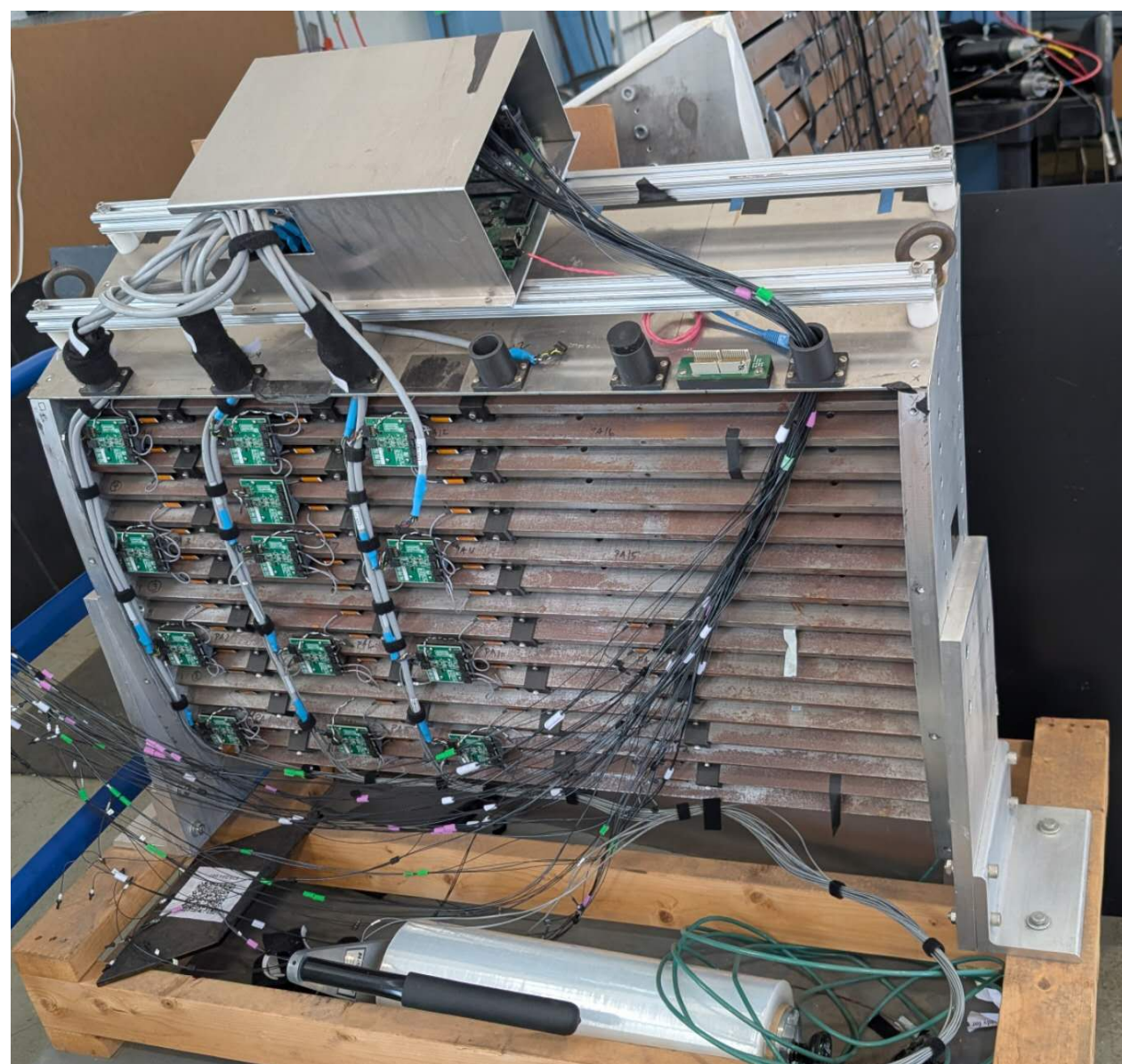
pTP sample spectrum after cryogenic cycle

- S8 and S18 emission spectrum after cryogenic cycle
 - The same configuration with the same integration time, with maximum monochromator output as used in previous measurement
 - The emission spectrum shapes keep the same
 - Some positive changes observed: enhancement on emission spectrum amplitude
 - This should conclude the cryogenic performance of the pTP samples



SiPM measurement setup

- I set up the basic SiPM testing in RM 2-224
 - Using the sPHENIX 5 channel readout board and Hamamatsu S12572-015 SiPM to start with
 - The power supplies and SiPM are all connected and validated with proper voltages on the pins
 - Tried to observe the dark current signal but can't see anything yet
 - In debugging phase now, just talked to John, the bias applied to SiPM was a bit low
 - Sufficient electric supply located: John gave all the parts on the small HCal prototype to us. It is sitting in highbay. We can take whatever we need from the prototype



LN2 supply dewar repair

- The LN2 supply dewar after flowing compressed air for a week resumed to work
 - Previously, it can't withdraw any LN2 even with pressure builder on
 - Now it restores liquid flow with pressure builder on
- Conduct similar procedure on another LN2 dewar now
- They can be used as the back up portable LN2 storage



Miscellaneous

- The 260-L system paper has been submitted to JINST and arXiv <https://arxiv.org/pdf/2604.20703>
- Scheduling pTP testing data results meeting with CIEMAT on next Tuesday at 10am EST