LAr R&D Progress Updates

Yichen

6/24/25

Lab Safety and Space Management

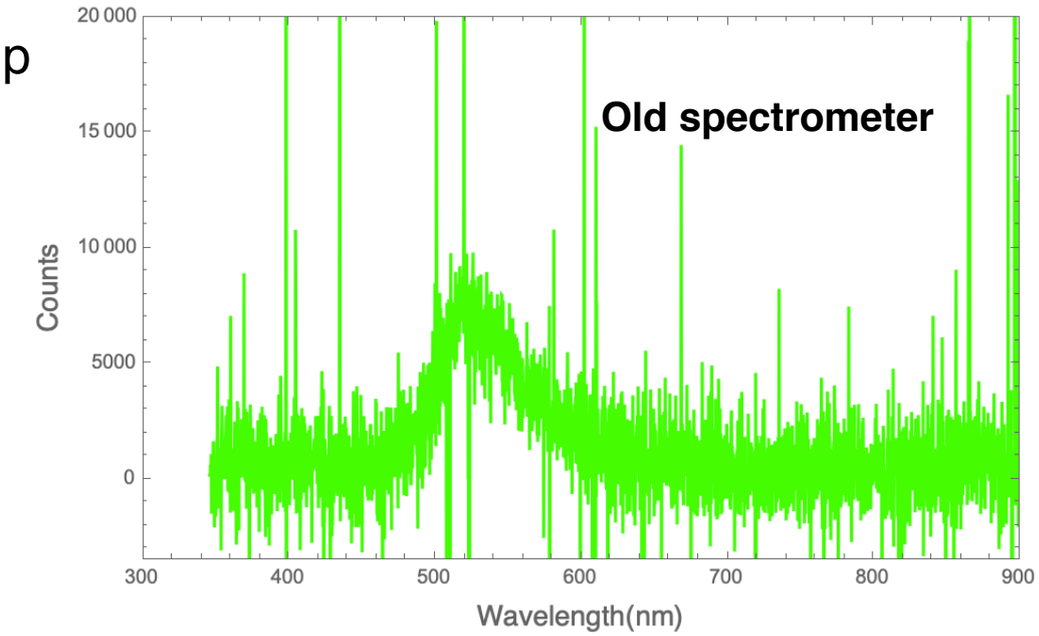
- **Safety Month in June**
  - A series of safety events hosted by the lab
  - https://www.bnl.gov/newsroom/results.php?kw=safety\
- **Extreme weather reminder**
  - Long Island is under Severe Weather Alert for today and tomorrow
  - Air quality is moderate
  - Refrain from outdoor activity if possible
  - Keep hydrated
- **ECP duty delegation**
  - Joel agreed to cover my duty as the ECP for EDG group during my leave 06/29-07/16
  - We are going to conduct a walkthrough following the SBMS ECP subject area
- **BSA visit on July 23**
  - BSA is visiting the highbay lab on July 23
  - I will clean up the lab space for the visit

Spectrometer Measurement

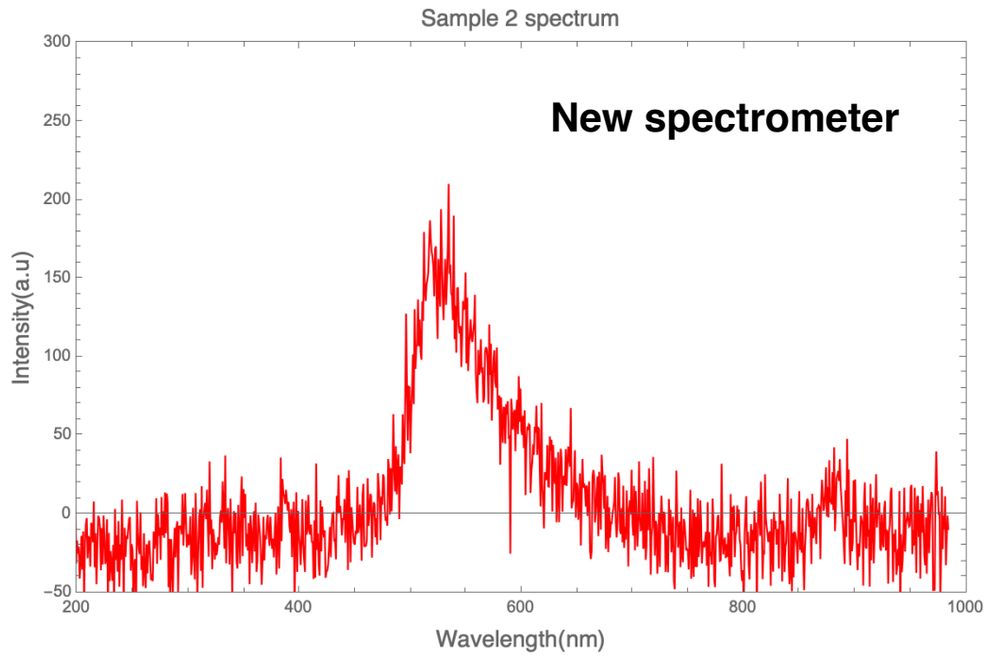
- **Repeat the measurement with diamond coating samples**
  - Vyara and Jay have been added to the ESR
  - A SOP drafted for the measurement with detailed steps:
  - Practice with Vyara of the measurement with spectrometer and monochromator this week
    - Went through the SOP steps with Vyara and Jay
    - Practice with Vyara everyday for this week
    - I believe she could conduct the measurement independently now
- New samples from Yimin
  - The production is going well, expected to be shipped out to us after July 4th
- pTP source clarification
  - SBU samples use Thermo-Fisher branded pTP
  - The 3 trial samples from Yimin were made with generic pTP, the source self-claimed as the supplier to Thermo-Fisher
  - The new samples will be made with both generic and TF branded one for comparison
- Vyara and Jay will conduct the measurement on the new samples

Diamond coating measurement

- **Repeat on diamond sample measurement**
  - As a double check and practice of the using the setup
  - Still can't observe any signal on Sample 1
  - Better signal observed on Sample 2 with the new spectrometer with 200nm excitation
- **Coating thickness measurement**
  - SBU and FNAL samples are at IO for thickness measurement
  - Need to remove some coating on SBU samples to create a step, Rado agreed



Sample 1 **Sample 2**



Measurement Plan(from Jay)

- **Todo lists with the old samples:**
  - Reproduce my measurement, all six samples (first with three LFO samples, then with other three when we get them back from IO), with both transmission and reflection mode
  - I think measuring some other reference samples will also be helpful for Vyara: The diamond sample as well as the BC408
  - Can we also practice the full wavelength scan on the samples? Doesn't have to be too fine-stepped, but maybe in 50nm steps between the allowed range (200-600nm?)
- **Near-future:**
  - Rado (SBU) will be bring in their pTP+solvent(+glue) samples to the lab soon. We want to measure their spectrum as well.
  - Light yield measurement: for this, we need the measurement of BC408 plastic scintillator mentioned above and use its result as a reference.
  - *Sample measurement in Chemistry with Minfang's help*
  - *Thickness measurement at IO on new samples*