LAr R&D Progress Updates

Yichen, Milind, Aleksey, Steve

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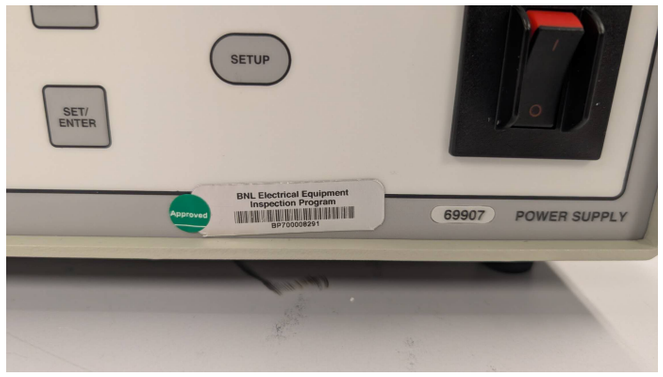
Lab Safety and Space Management

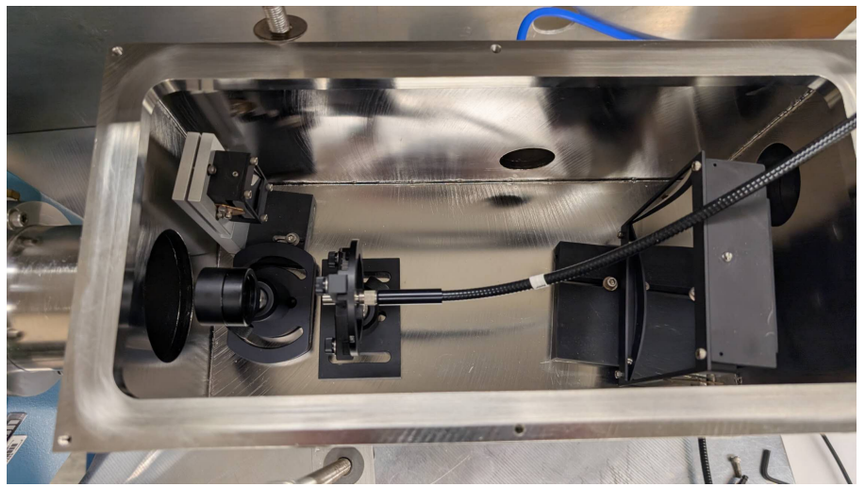
- **HighBay AC work**
  - LOTO on the power panel removed, robotic testing can be resumed now
  - The air handler work on the ceiling is still on going
- **EEI Inspection**
  - I conducted my first EEI inspection on a 150W Xenon lamp for EIC
  - Both power supply and the lamp housing was inspected



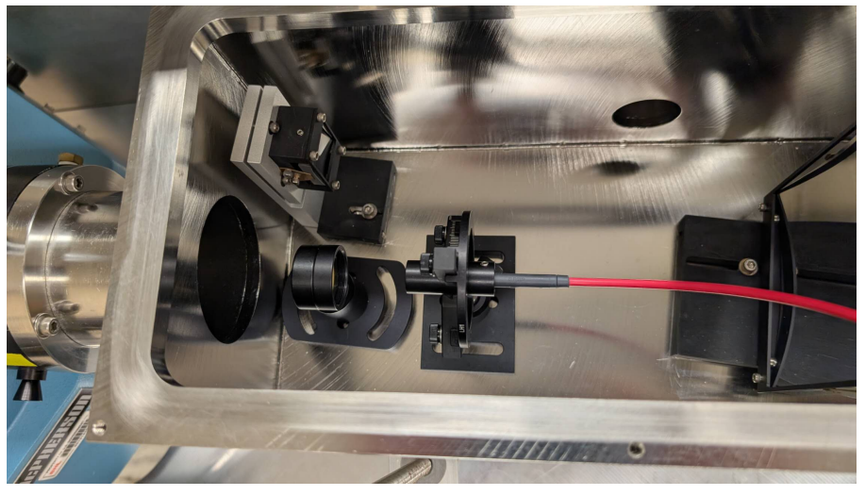
Diamond emission spectrum measurement

- **Emission spectrum test with a new sample added**
  - Two sample provided by Aleksey
    - Sample 1: Diamond substrate with 1” did
    - Sample 2: Diamond power coating on silica substrate
  - Equipment
    - UV spectrometer borrowed from EIC 185 nm lowest wavelength
    - 1/8” UV collimator
    - 1/4” Collimator with 300 nm cut off
  - Wavelength Selection
    - 160, 200, 266 nm single peak

Sample 1 **Sample 2**



Col 2



Col 1

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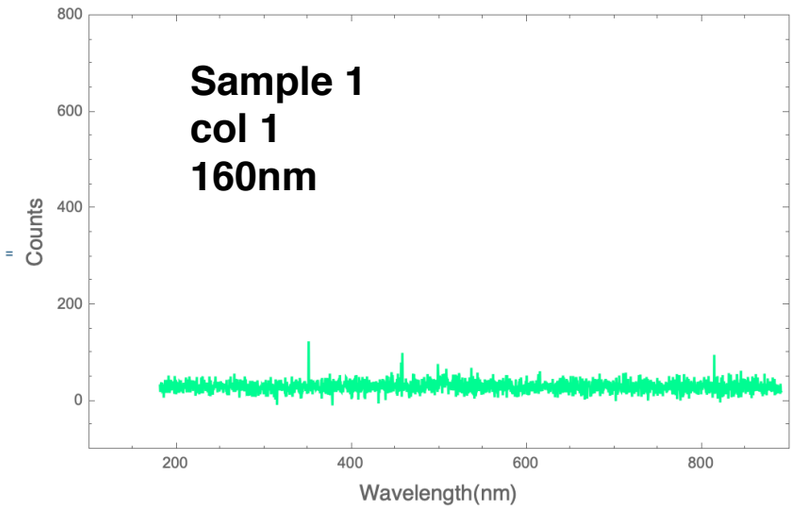
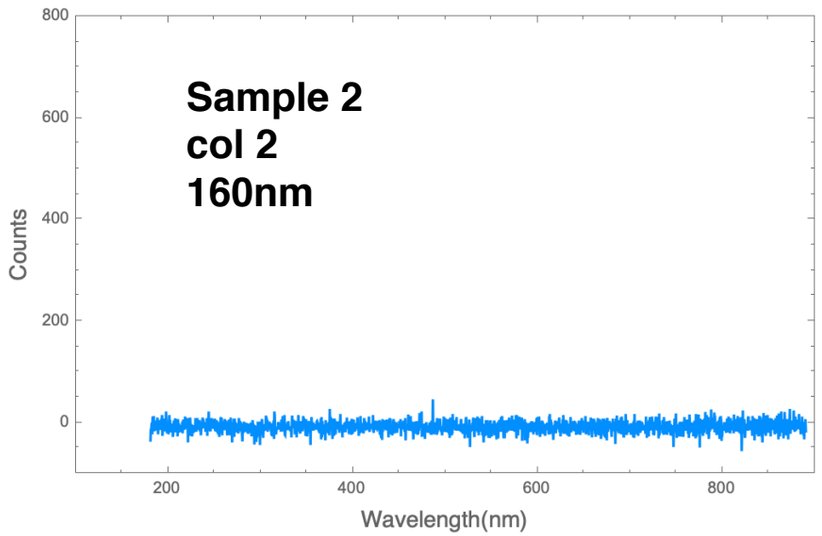
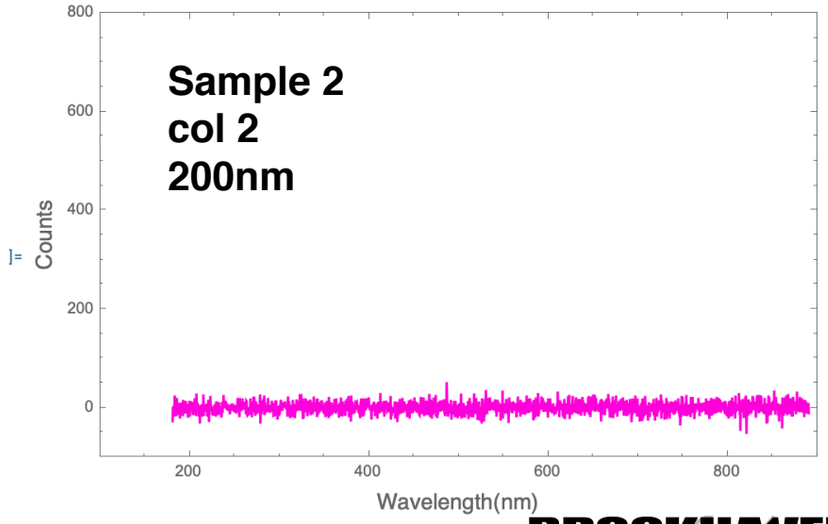
Diamond Substrate Emission Measurement Preliminary

- **Preliminary results**

  - The light spot at the back of the sample at full spectrum is very clear
  - Besides the 266nm, I also tried the 200nm and 160nm(maximum spectra intensity)
  - Unfortunately, still no emission spectrum observed after background substation
  - The only improvement I can think of at this moment is a large collimator, 1/8—>1” could improve the collection by 64x





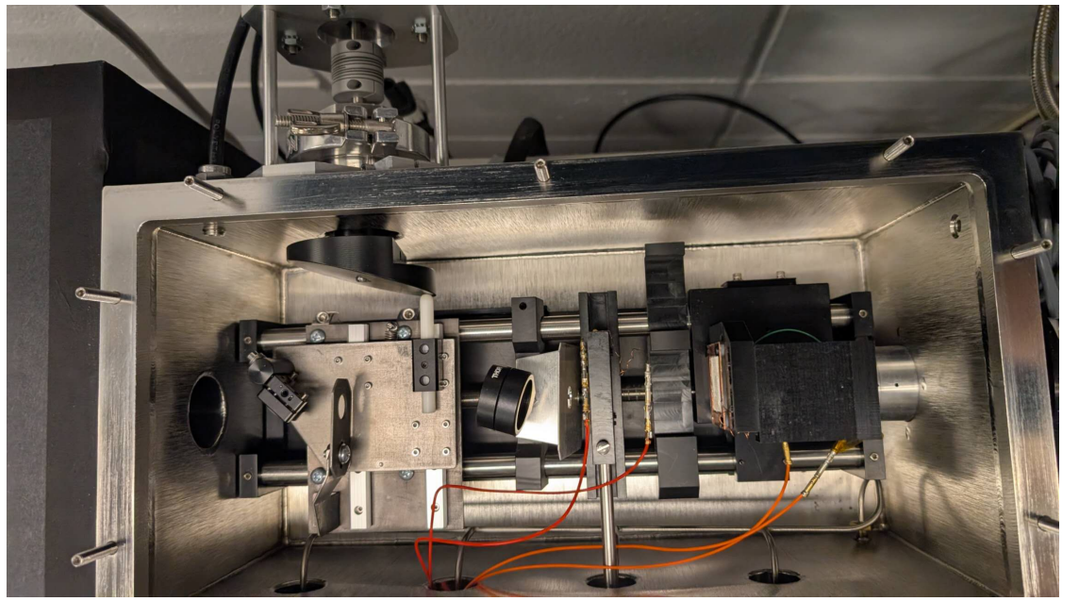


Filter production progress

- **Check with Yimin about the PTP coating progress**
  - It turned out to be challenging to coating on the large machine with the 143.75 x 143.75 mm size
  - The coater is not suitable for the low temperature of PTP
  - Yimin is still working on a solution and still commit for delivery
  - He should be able to deliver some test sample of the original 77 x 100 mm size by the end of this month for our test
  - Current contract ends at 04/30. He required for an extension of 2 months for now
  - I've in contract with procurement. It seems we just need to put in a no-cost change order for the extension
  - We will have a meeting with Yimin this week for more details.

Proposed Shopping List

- New exit slit for the spectrometer ~3k
- Step motor and stage for moving the sample~1.5k
- microPC for 260L-slow control ~0.5k
- UV collimator to improve collector ~1.2k
- (UV spectrometer) ~5.0k



Similar setup with step motor

RENEW program

- I’m going to have a meeting with Wellesley about running their LAr test stand discussion about student arrangement
- Spectrometer measurement seems to be a good topic for student coming in summer