LAr R&D Progress Updates

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Lab Safety and Space Management

- BSA Operation Council visit on 07/23
  - The visit went well on the robotic test station
  - Lab tidiness received complimentary from the management
- EEI Inspection
  - A few EEI inspection requests were received
    - Existing old equipments without EEI inspection brought back into service from storage also need to be inspected
  - Coordinating with the equipment owners for the official inspection
    - Risk assessment document templates provided as a reference

Samples summary

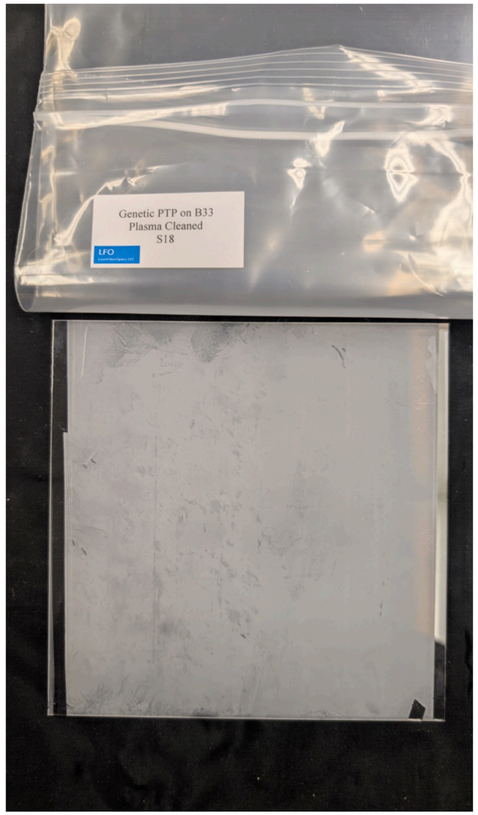
pTP samples received from LFO

- We conducted a thorough test on all the 35 pcs samples
  - Measurement with 266nm wavelength
  - All measured in transmission mode
  - Take 30 mins integration time on each sample
  - Photos taken for each sample
- The survey results file available at BNLIF-doc-379.
- The coating quality varies a lot by visual
- B33 samples have the best overall coating quality by visual
- 8x samples with the best coating quality by visual sent to IO for thickness measurement: S2, S9, S12,S15, S20, S21, S29 and S35

Bag Label	Substrate	Sample Index	Plasma Clean	Count
Line 2	Sapphire	S1–S5	Yes	5
Line 2	Sapphire	S31–S35	No	5
Line 3	B33	S11–S20	Yes	~~10~~ 9
Line 3	B33	S6–S10	No	5
Line 4	Quartz	S21–S24	Yes	4
Line 4	Quartz	S25–S30	No	6
Line 5	B33	Unlabeled	Unknown	1
	Total			**35**

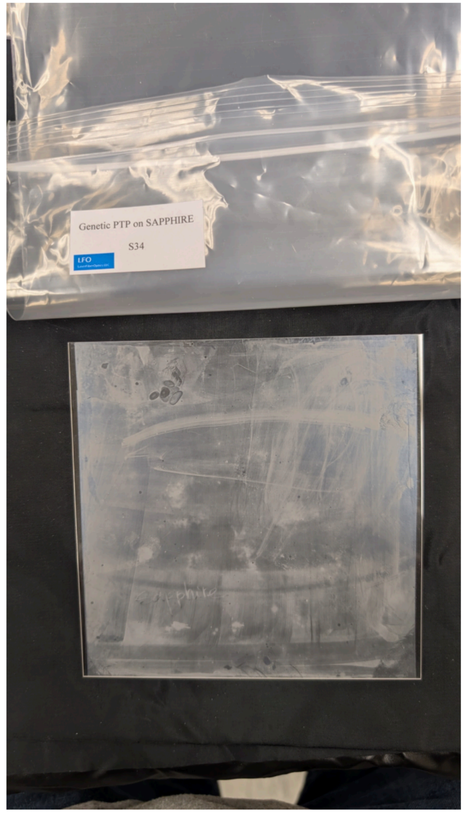
- **Visual inspection on the samples**
  - Overall, B33 samples have good coating quality(red framed as a “good example”)
  - The result are the ones with the relative poor coating by visual for demo

S18.jpg



B33 plasma cleaned

S34.jpg



Sapphire not plasma cleaned

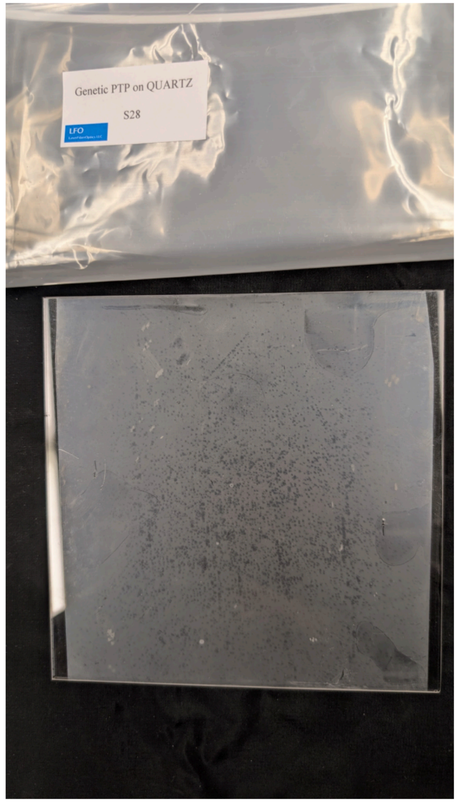
S3.jpg

Sapphire Plasma cleaned

S4.jpg

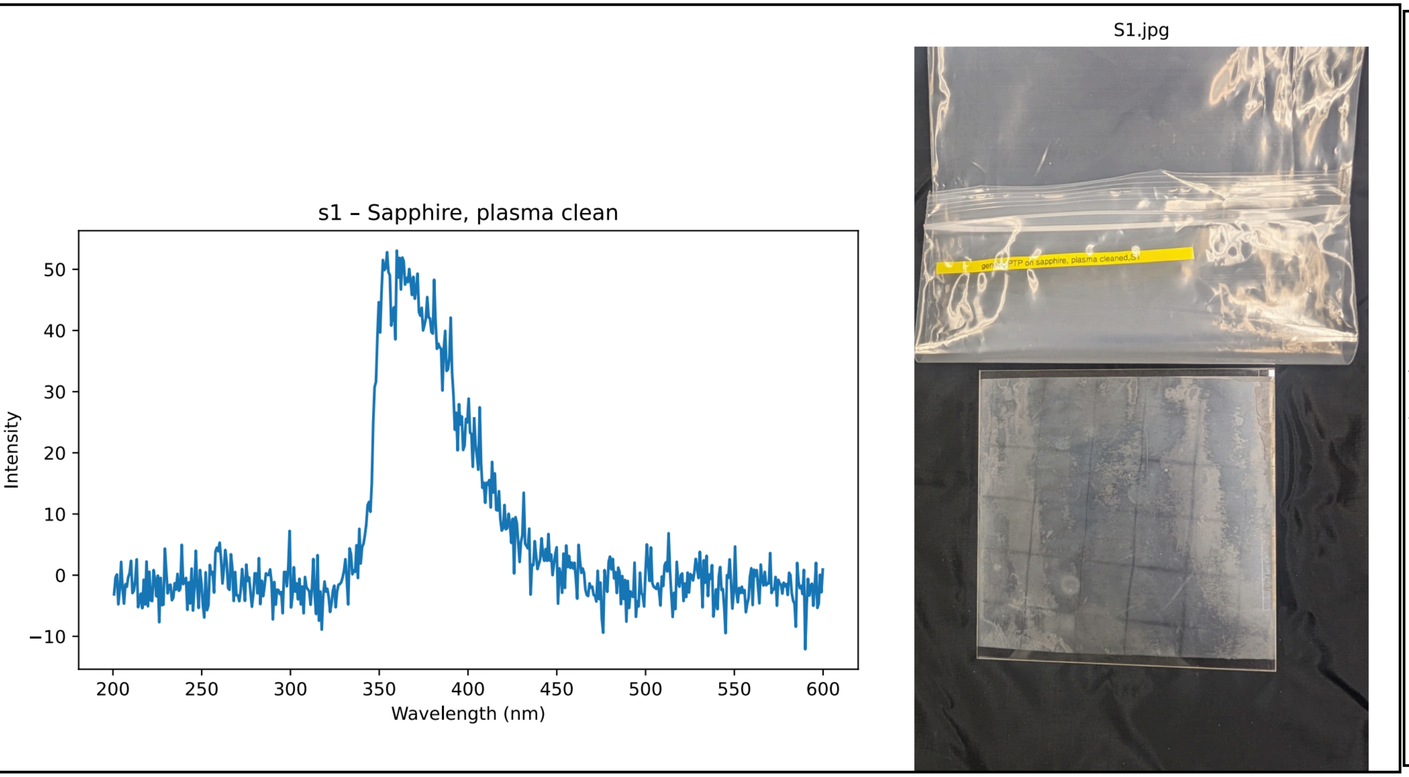
Sapphire Plasma cleaned

S28.jpg

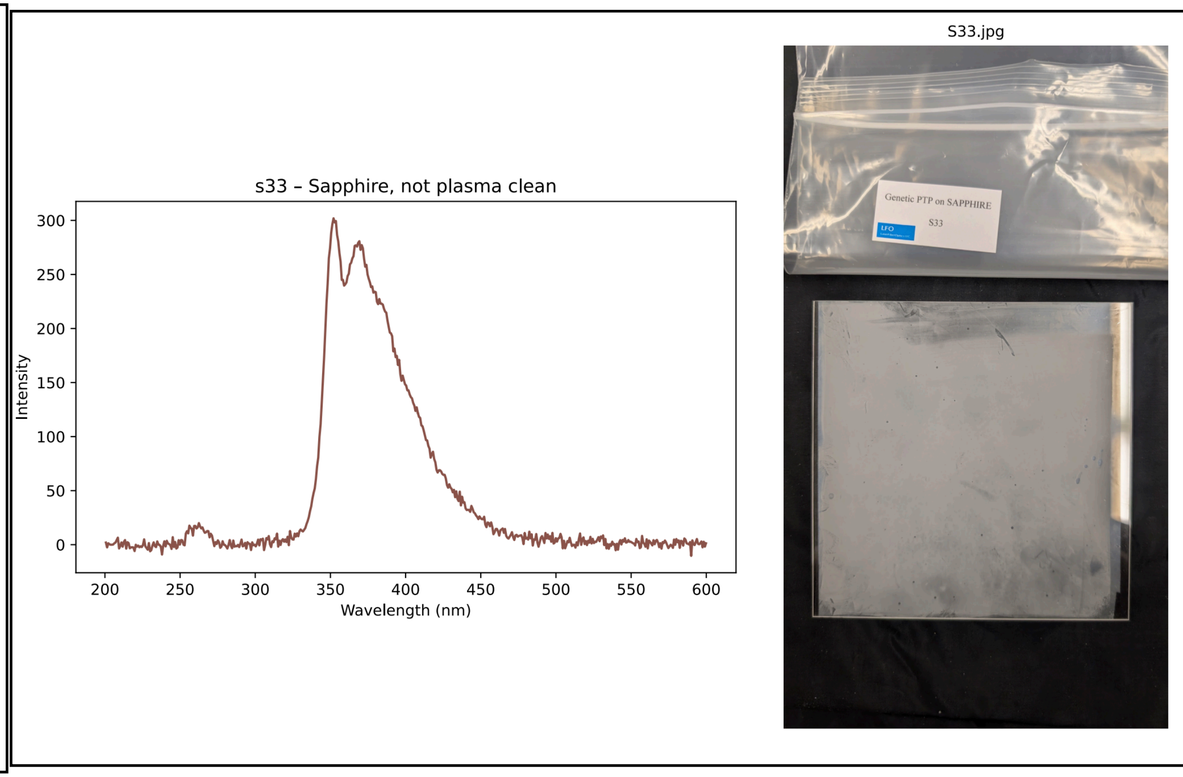


Quartz not plasma cleaned

- **Sapphire samples**
- The sample coating thickness difference can be determined by visual
- Significant difference in terms of light yield
- Hard to determine the impact of plasma cleaning



Sapphire Plasma cleaned



Sapphire NOT Plasma cleaned

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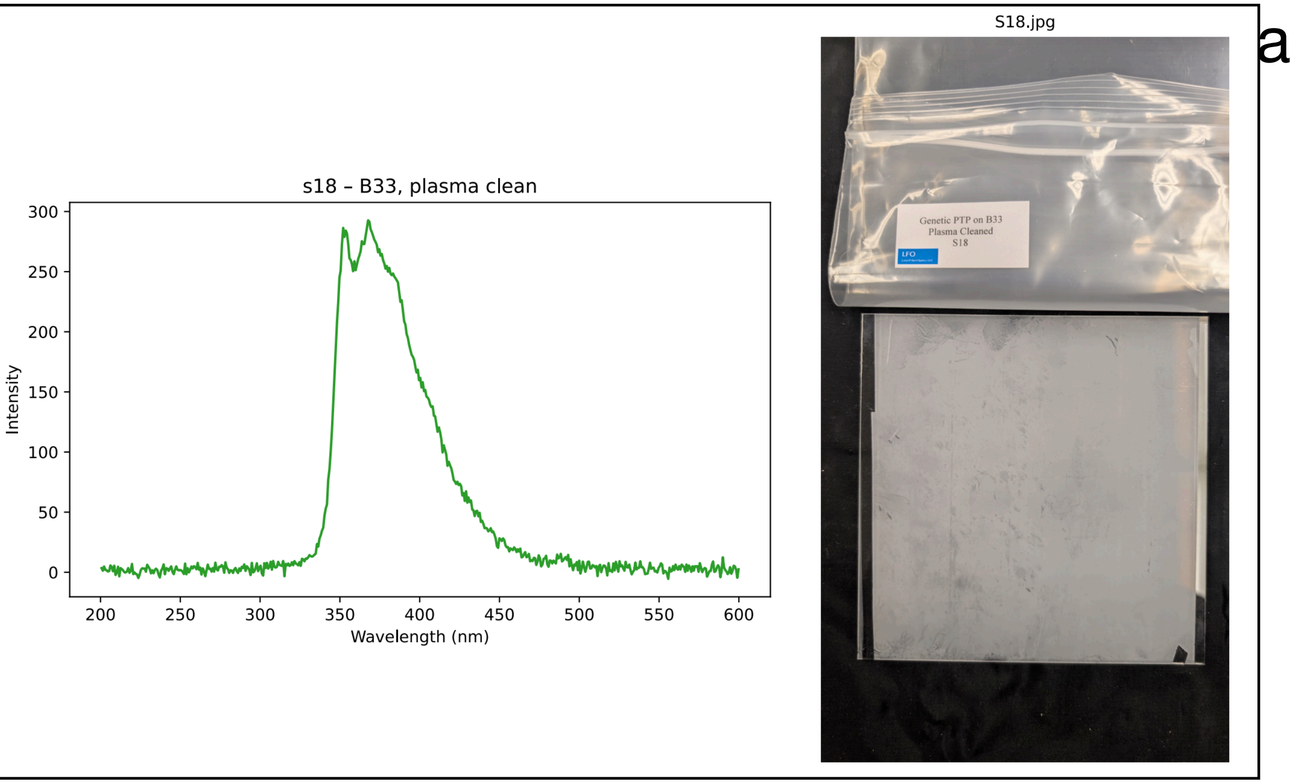
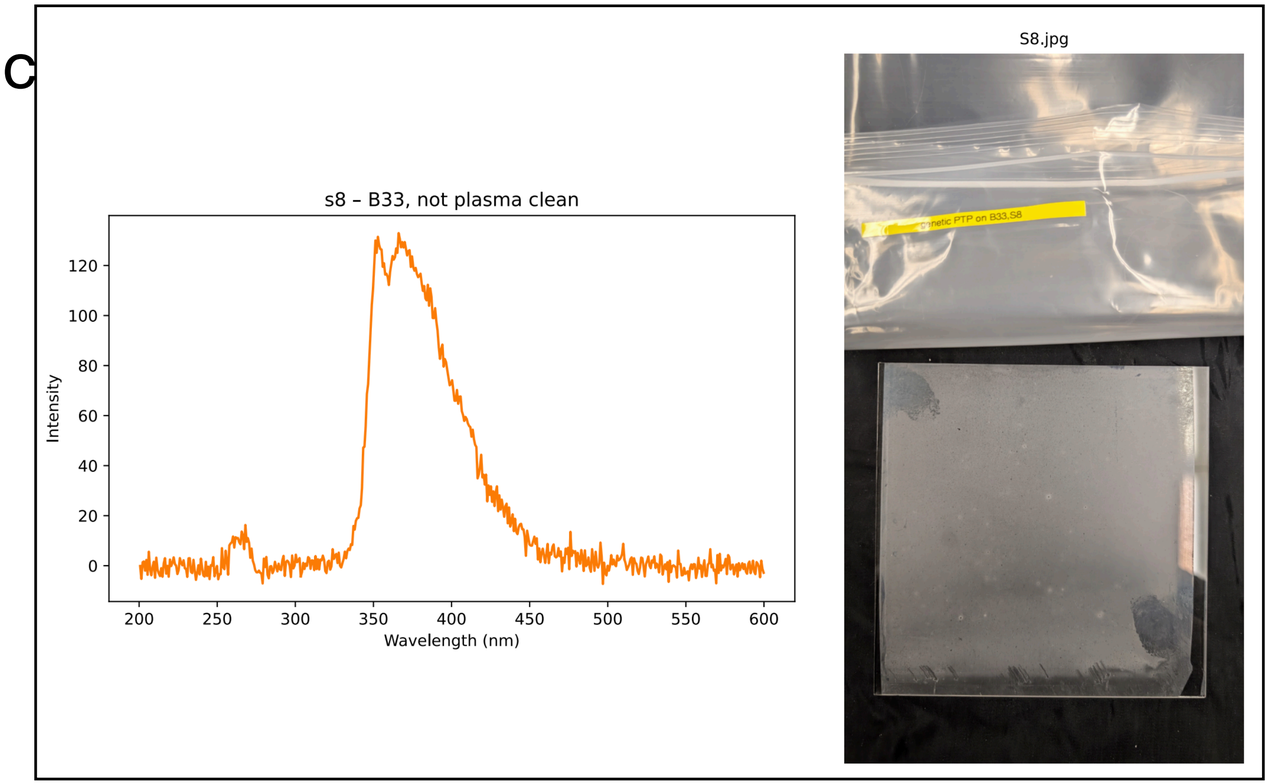


B33 Plasma cleaned



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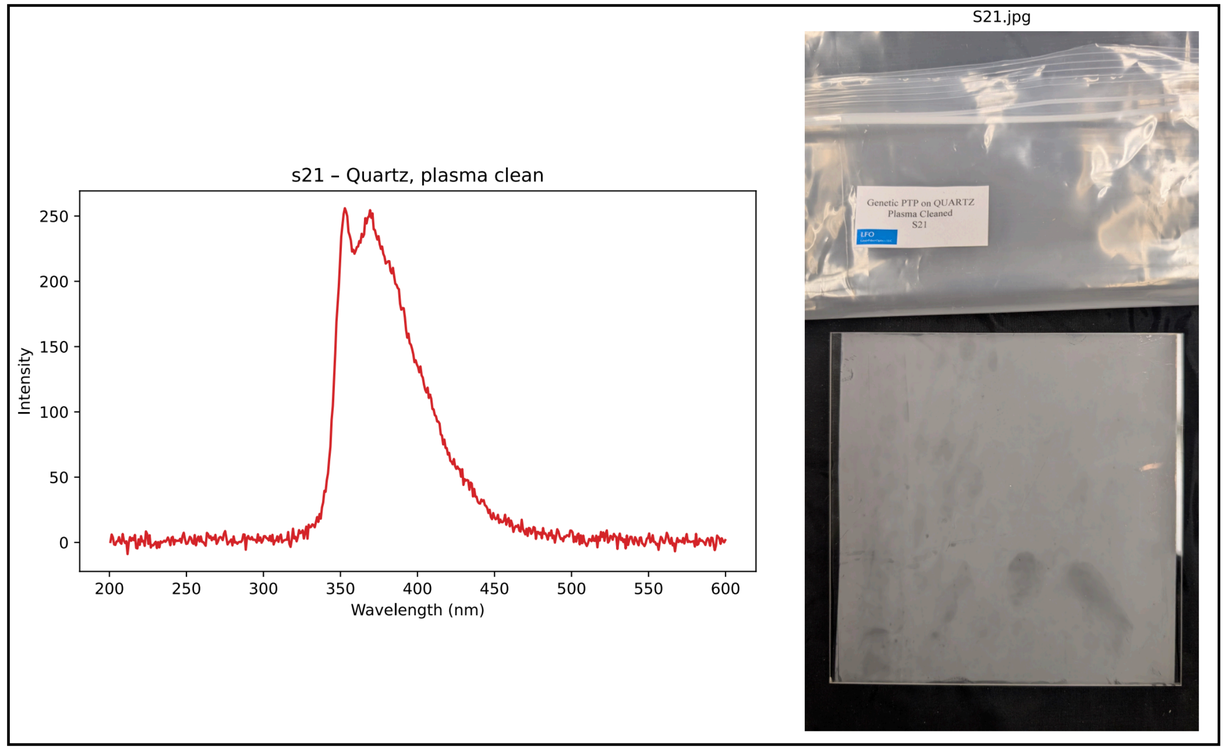
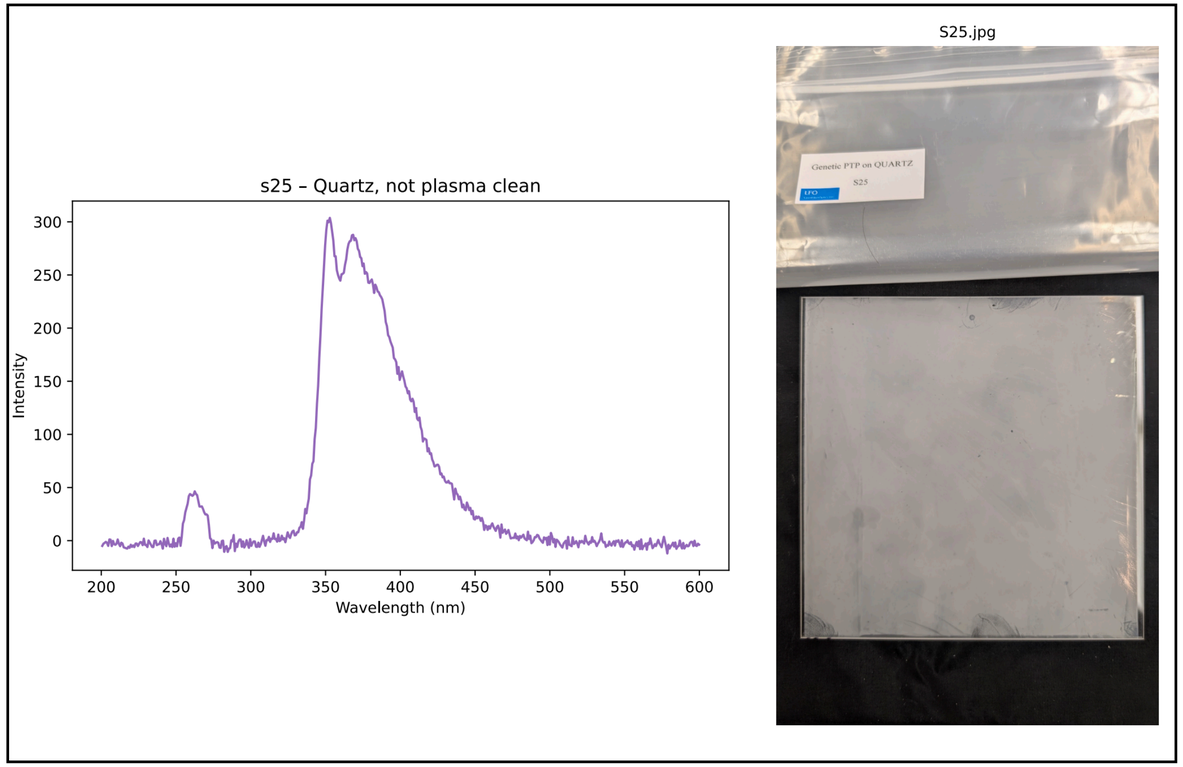


Quartz Plasma cleaned

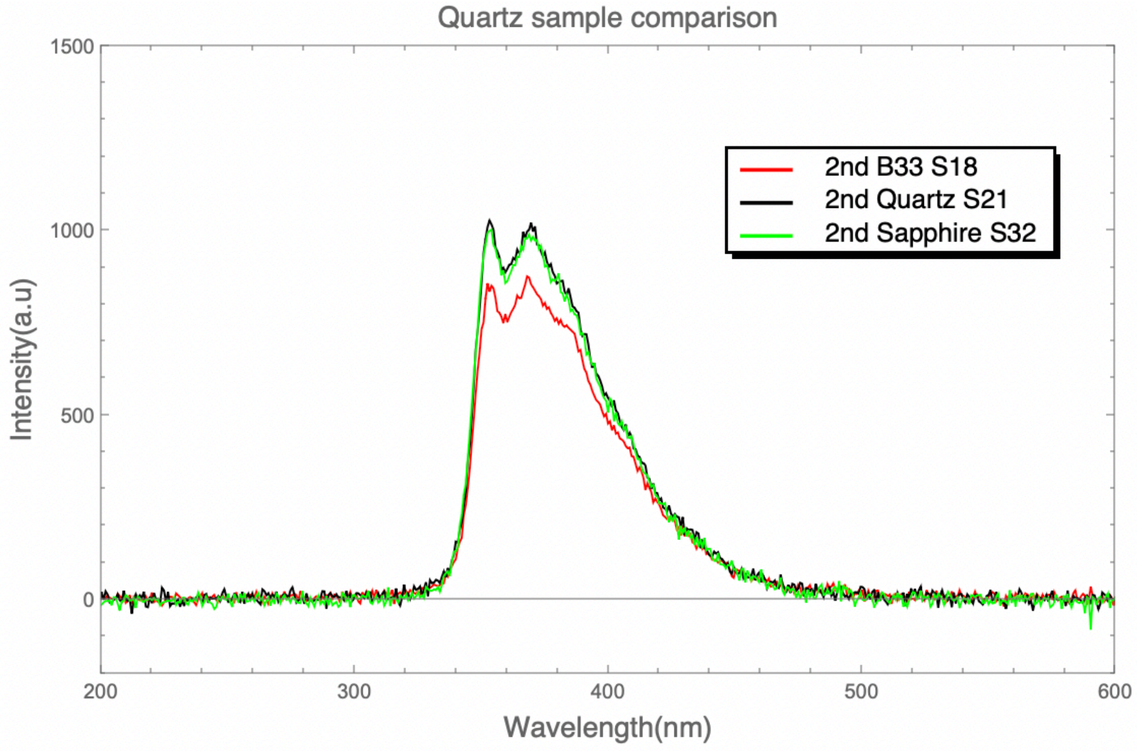


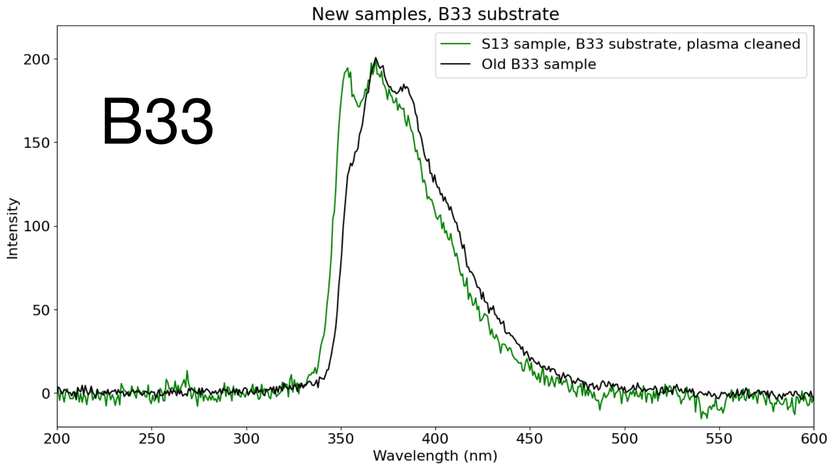
Quartz NOT Plasma cleaned

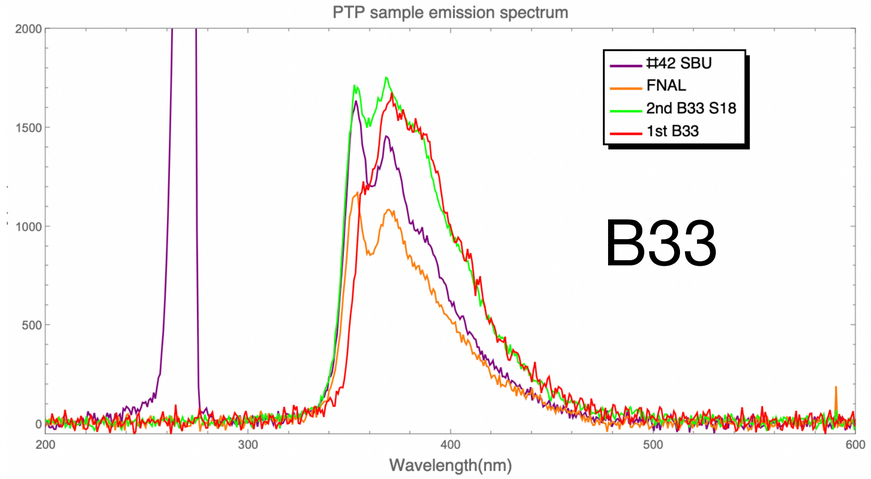
Spectral Measurement

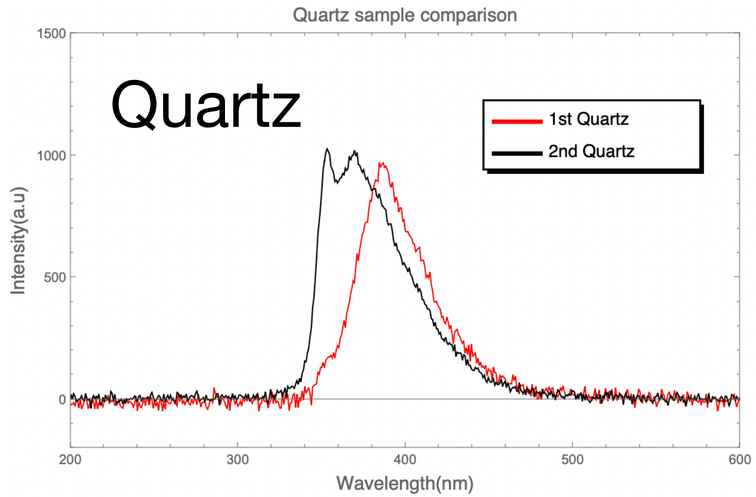
Comparison between two batches

- The new samples have the peak shifted down slightly
- In better agreement with FNAL and SBU samples now
- Quartz samples now have the expected spectrum









Results presentations

- Vyara will report the results on the poster session for summer students on Aug. 7th, draft at: https://docs.google.com/presentation/d/1Gu_Bcwm-qWXj_Mc73MPnthvqMW4hJG7GtxmUW_dBimQ/edit?slide=id.g344fdafd02f_0_96#slide=id.g344fdafd02f_0_96
- I will submit an abstract to the CPAD25 on our work
- Jay will prepare a journal publication with input from Yimin about coating