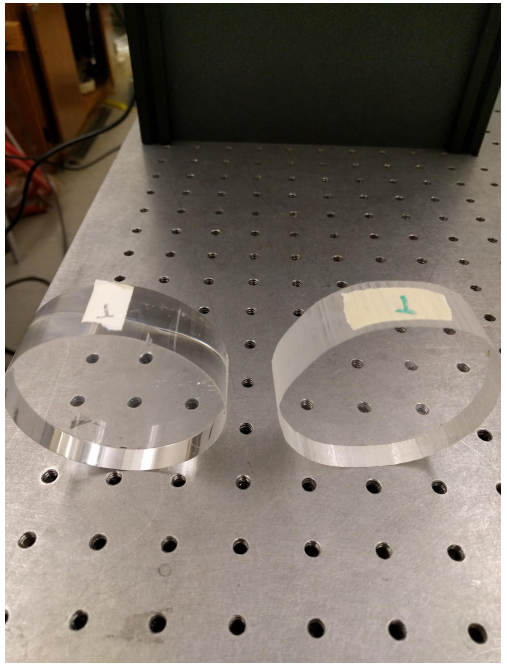
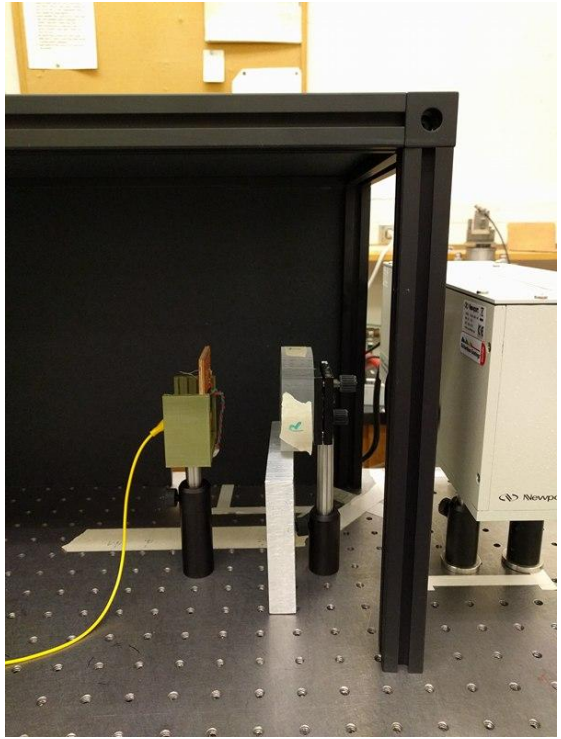
# Weekly Update

October 17, 2017

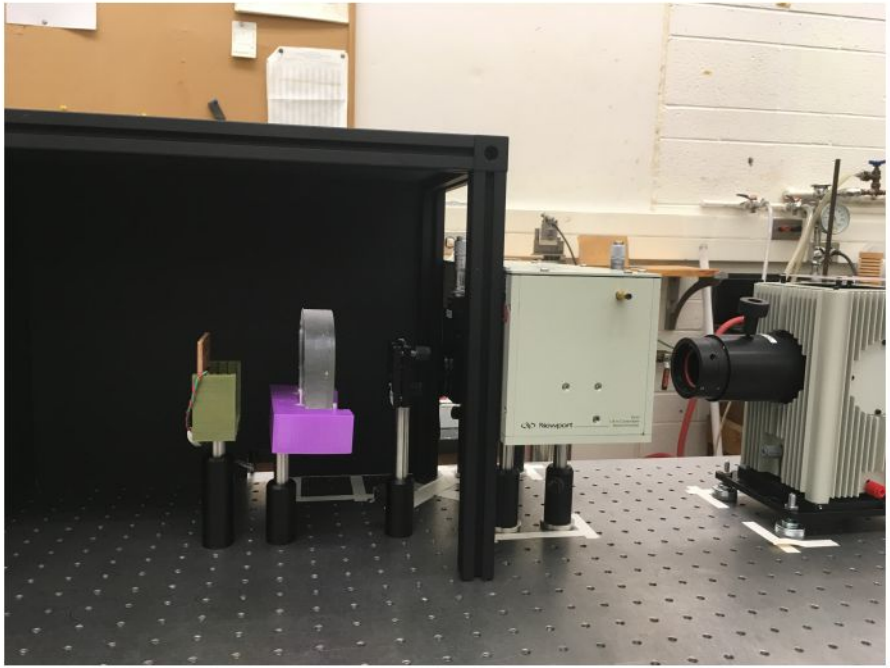
# Acrylic Pucks

- Left : “clear”
- Right: “rough”
- 8.1 cm distance
- 25 nm increments
- 100 points, 5 trials each
- Didn’t have room to fit puck stand
- Lamp warmup time of ~20 min
- T and R denotes Top and Right
- Centred by checking beam at 600 nm

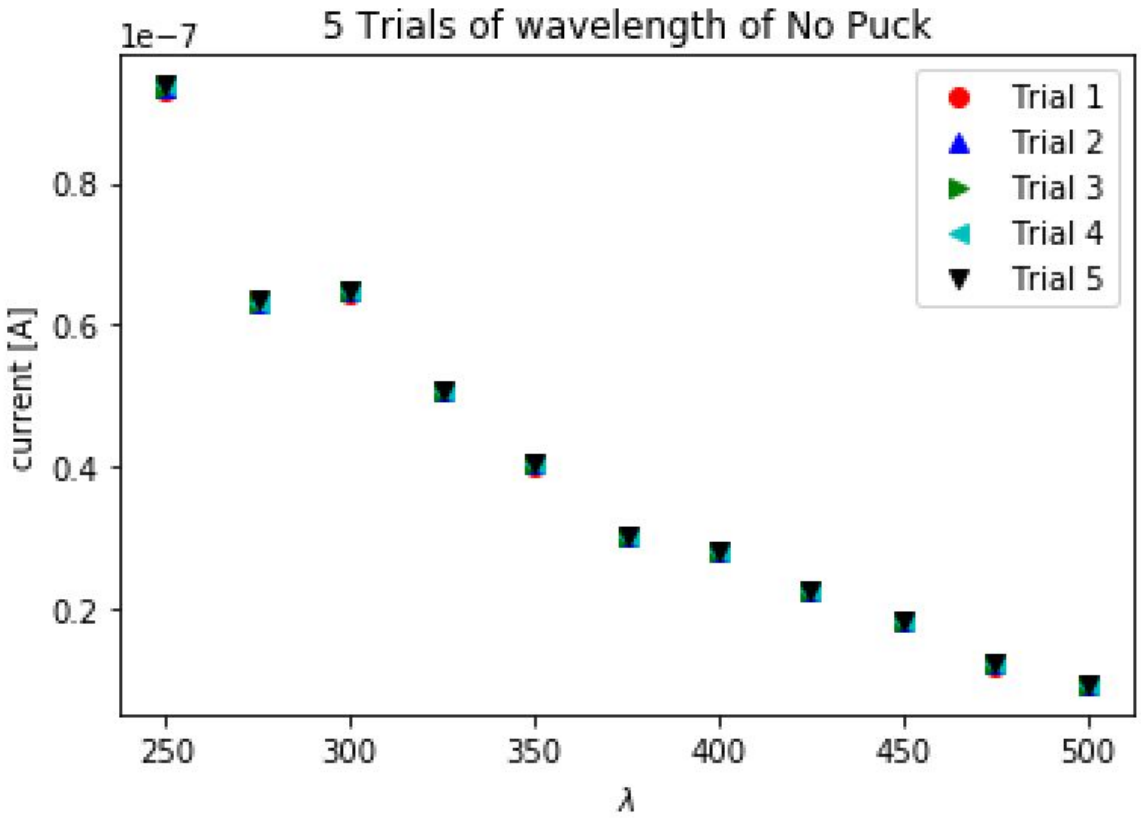


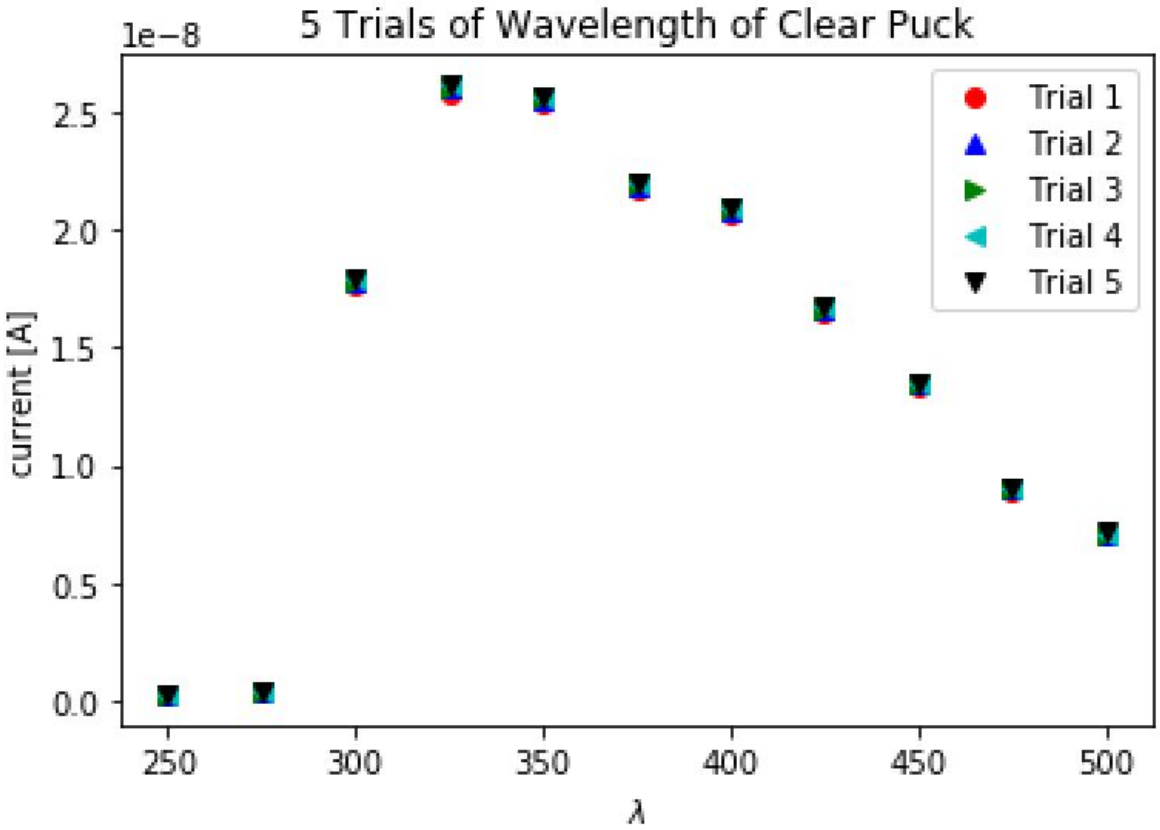


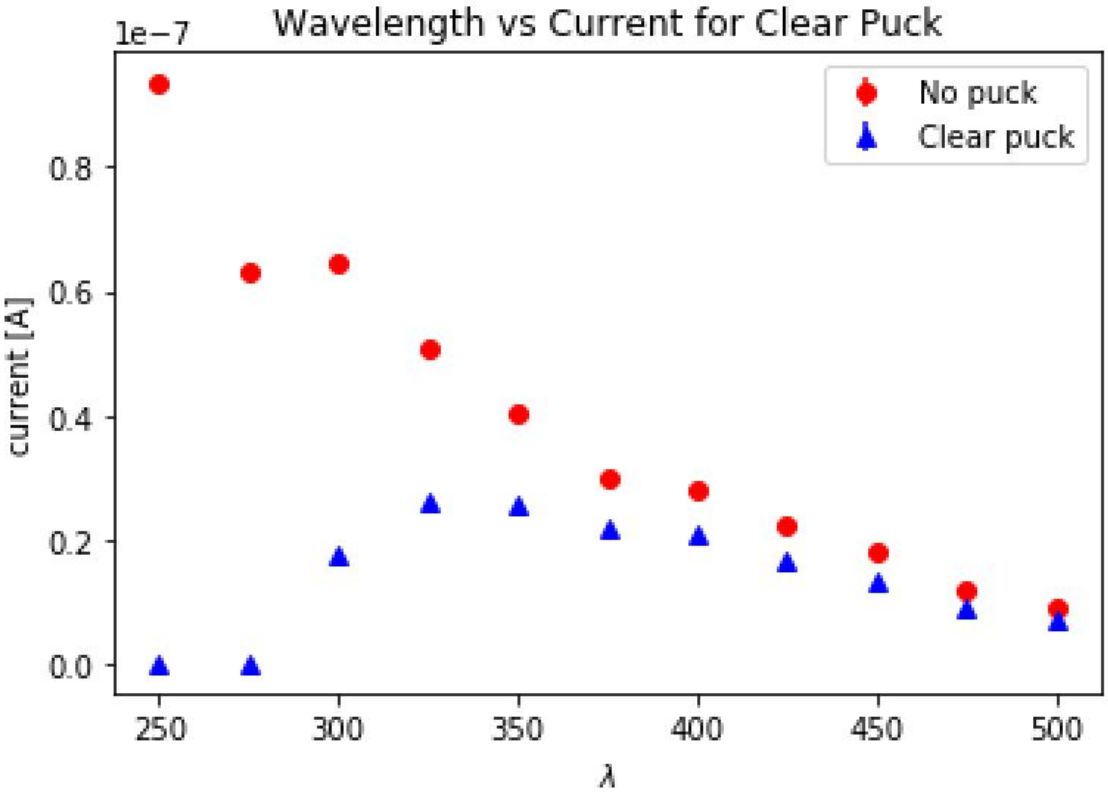
My setup

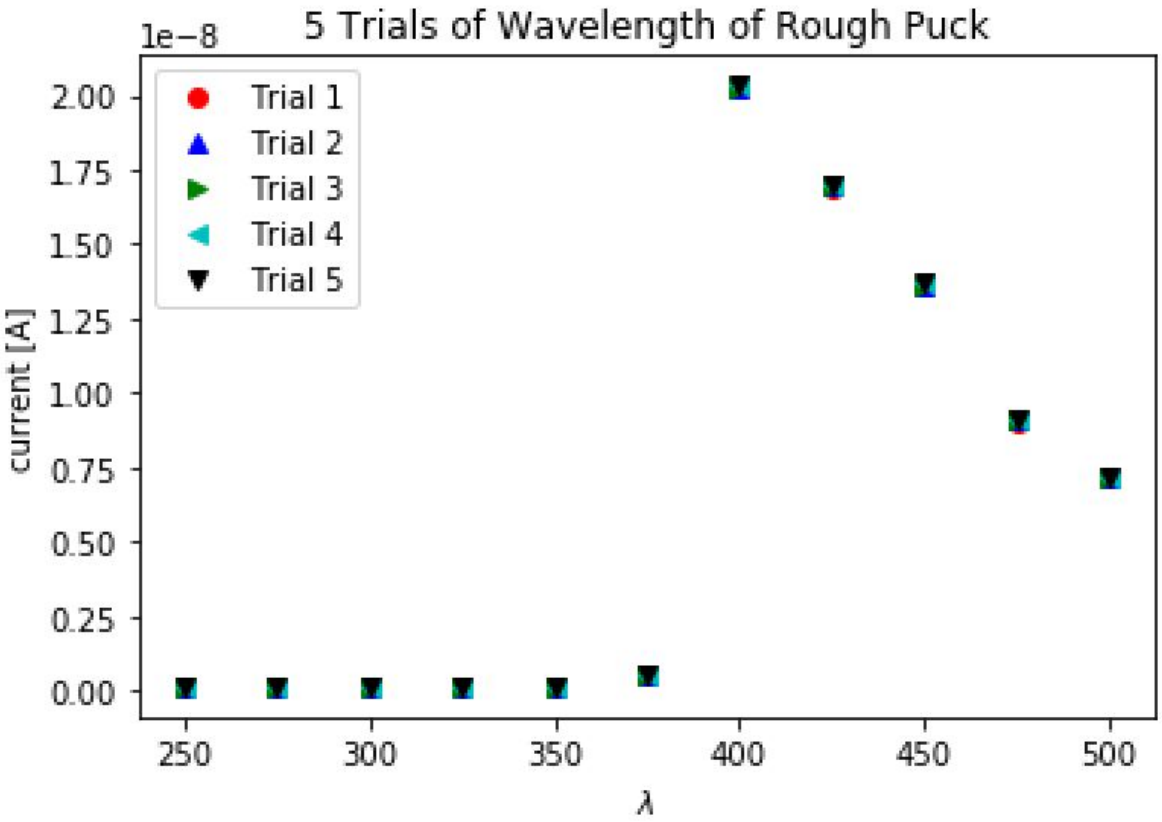


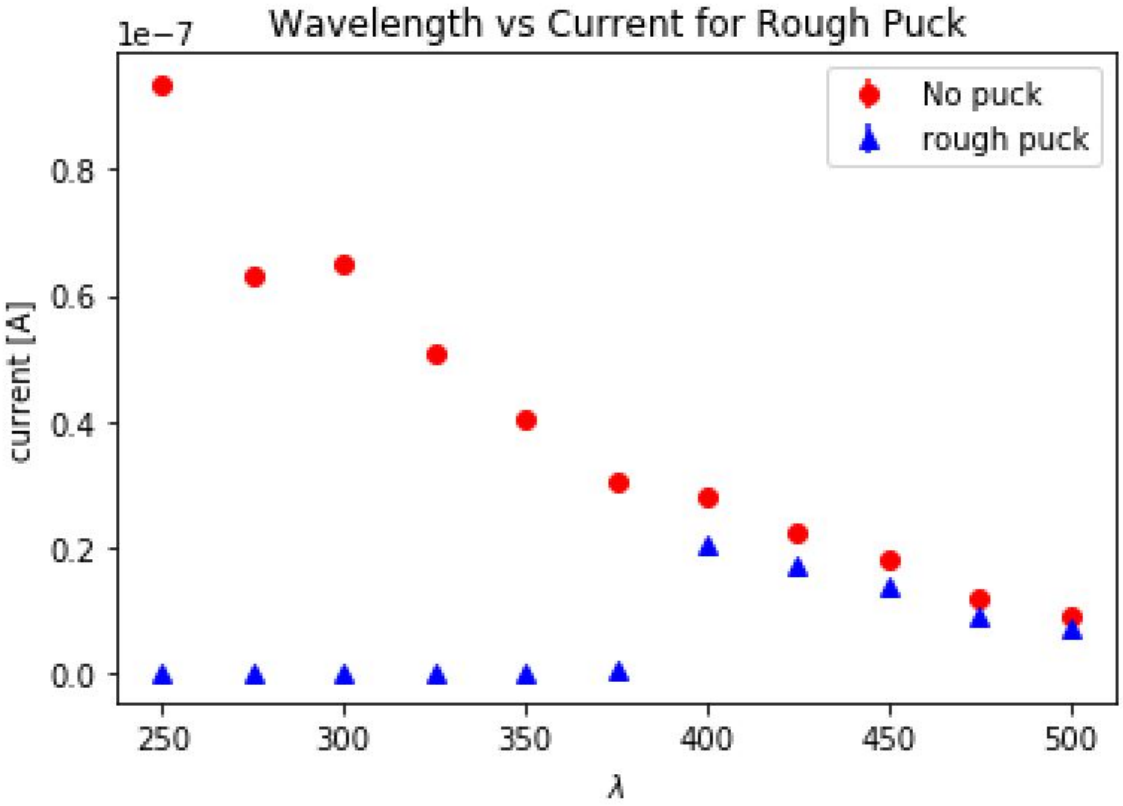
Elizabeth’s setup

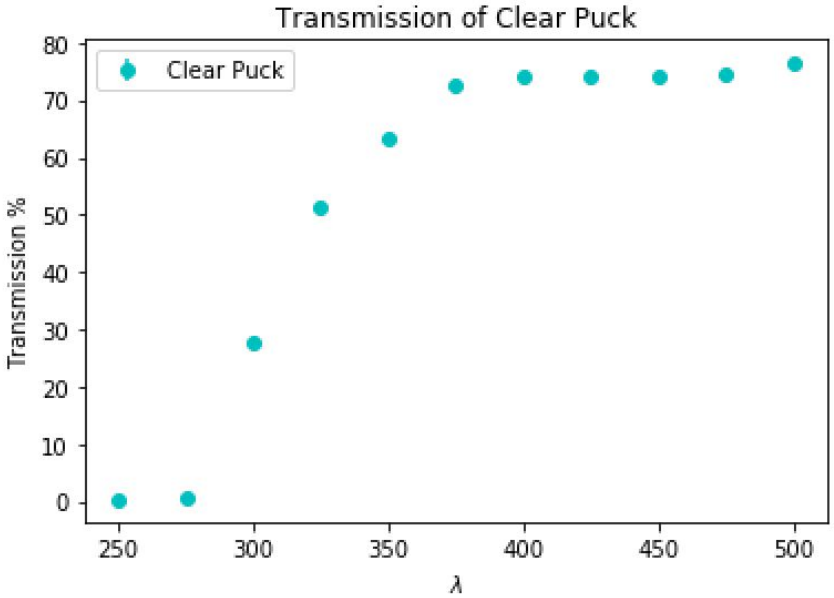

5 Trials of wavelength of No Puck
1e−7
current [A]
0.8
0.6
0.4
0.2
250
300
350
400
450
500
λ
Trial 1
Trial 2
Trial 3
Trial 4
Trial 5

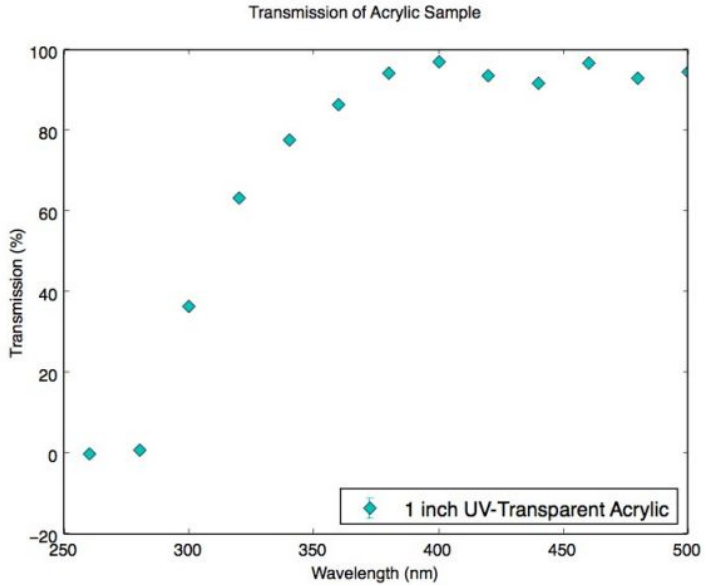

5 Trials of Wavelength of Clear Puck
1e−8
current [A]
λ
Trial 1
Trial 2
Trial 3
Trial 4
Trial 5
0.0
0.5
1.0
1.5
2.0
2.5
250
300
350
400
450
500


Wavelength vs Current for Clear Puck
1e−7
No puck
Clear puck
current [A]
0.0
0.2
0.4
0.6
0.8
250
300
350
400
450
500
λ


5 Trials of Wavelength of Rough Puck
1e−8
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
current [A]
Trial 1
Trial 2
Trial 3
Trial 4
Trial 5
250
300
350
400
450
500
λ

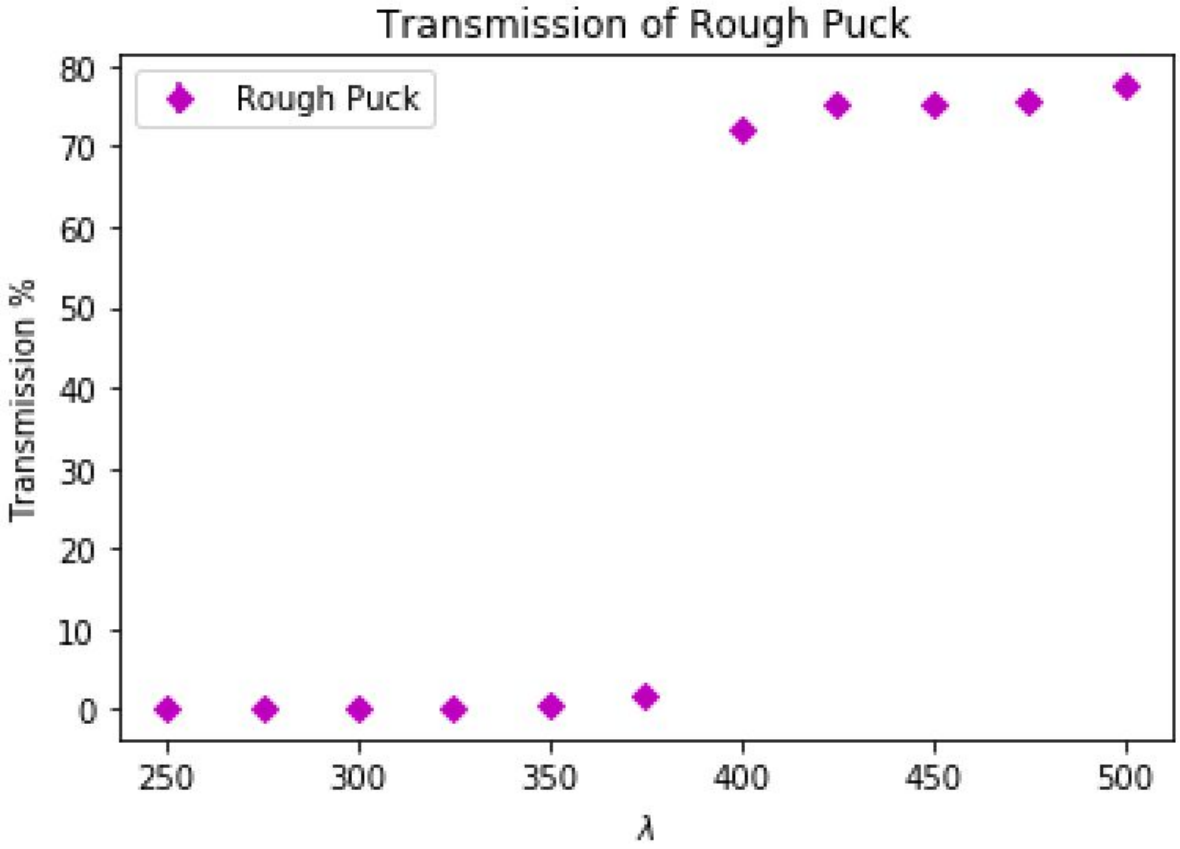

Wavelength vs Current for Rough Puck
1e−7
No puck
rough puck
current [A]
0.0
0.2
0.4
0.6
0.8
250
300
350
400
450
500
λ

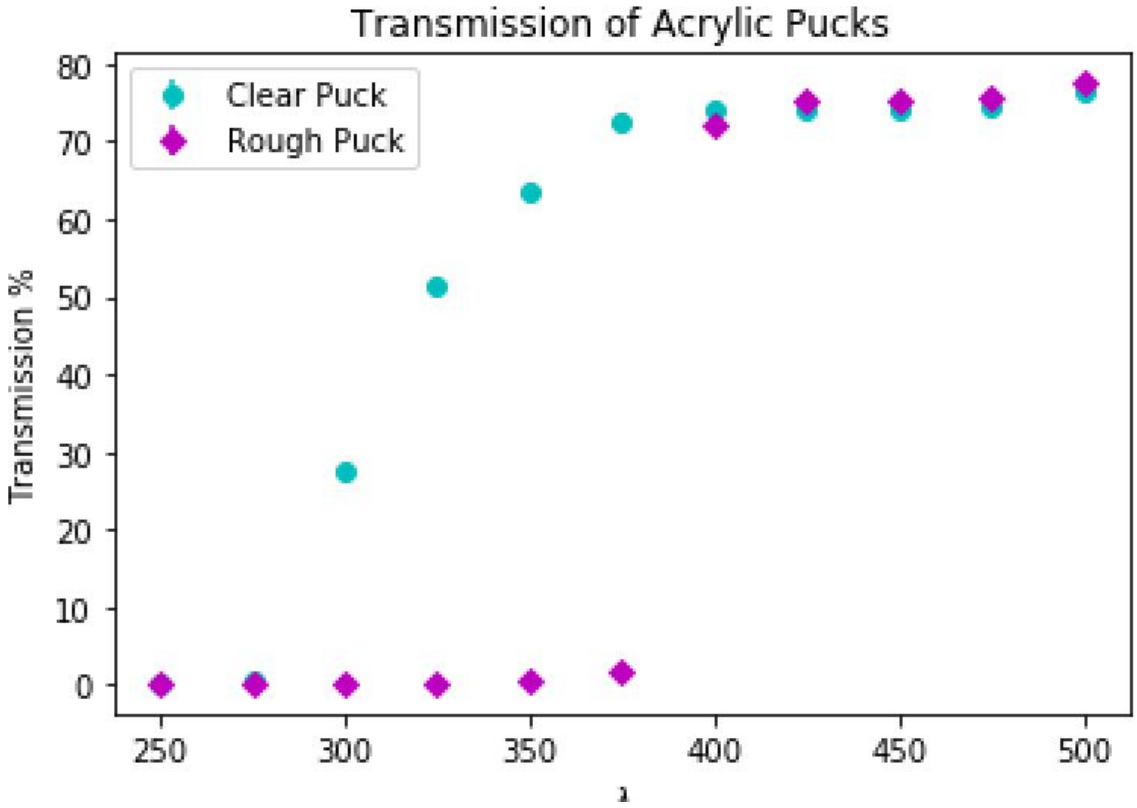



- More transparency because of where she placed the puck
  - She had gap, I put directly in front

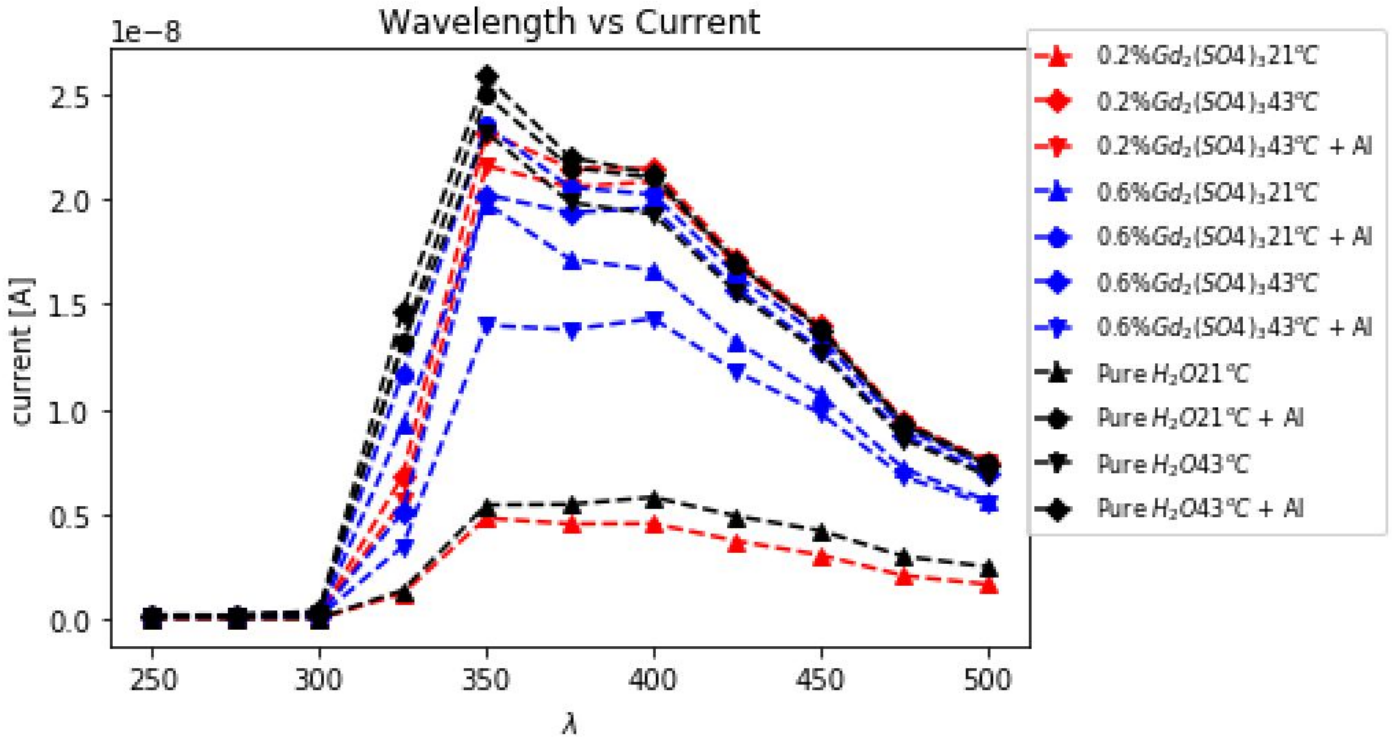
- **Both results agree NOT UV-Transparent**

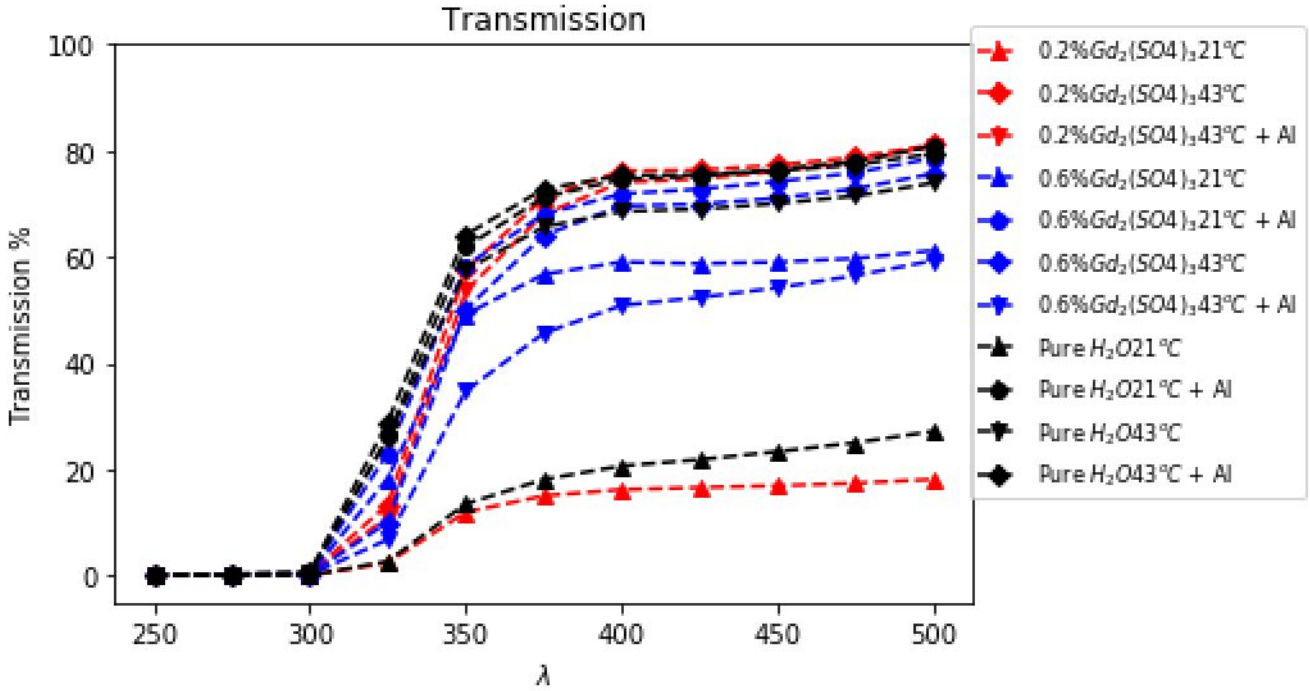

Transmission of Rough Puck
Rough Puck
Transmission %
λ
0
10
20
30
40
50
60
70
80
250
300
350
400
450
500

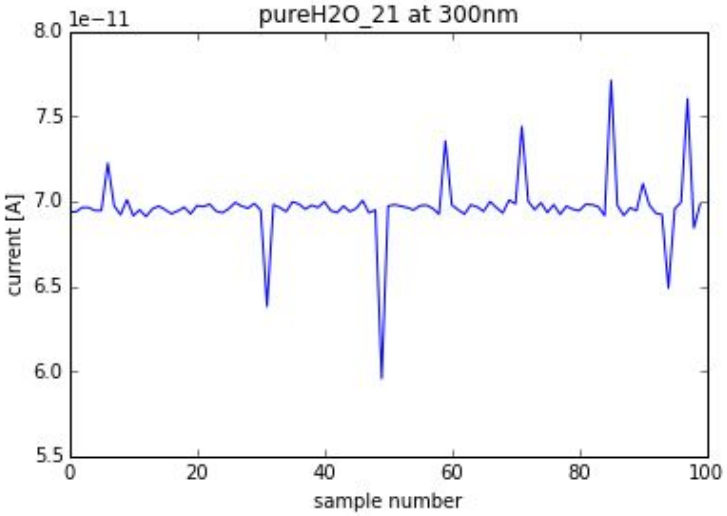

Transmission of Acrylic Pucks
Clear Puck
Rough Puck
Transmission %
80
70
60
50
40
30
20
10
0
250
300
350
400
450
500
λ

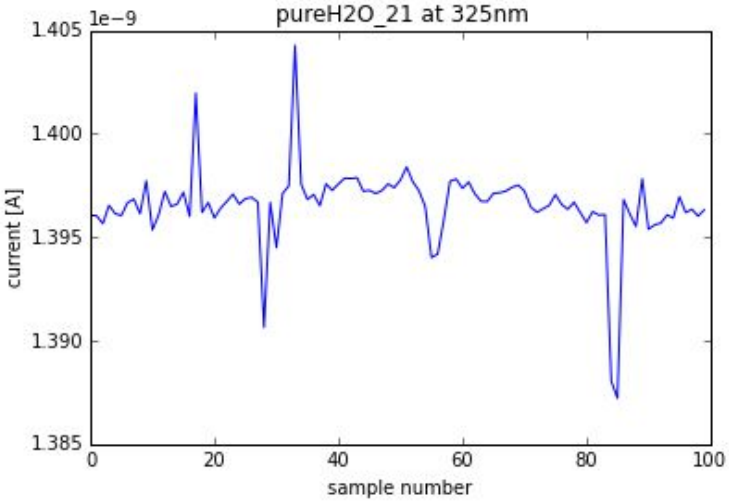
# Liquid media

- 11 liquid media: Pure Water, Gadolinium Sulfate ($Gd_2(SO_4)_3$) 0.2% and 0.6%
- Each includes one sample with aluminum and without
- Includes 2 temperatures 21°C and 43°C
- 0.2% $Gd_2(SO_4)_3$ at 21°C and 43°C (no Al on the 21°C)
- 0.6% $Gd_2(SO_4)_3$ at 21°C and 43°C, with and without Al
- Pure Water at 21°C and 43°C, each with and without Al


Wavelength vs Current
1e−8
current [A]
λ
0.0
0.5
1.0
1.5
2.0
2.5
250
300
350
400
450
500
0.2%Gd2(SO4)321℃
0.2%Gd2(SO4)343℃
0.2%Gd2(SO4)343℃ + Al
0.6%Gd2(SO4)321℃
0.6%Gd2(SO4)321℃ + Al
0.6%Gd2(SO4)343℃
0.6%Gd2(SO4)343℃ + Al
Pure H2O21℃
Pure H2O21℃ + Al
Pure H2O43℃
Pure H2O43℃ + Al


Transmission
Transmission %
λ
100
80
60
40
20
0
250
300
350
400
450
500
0.2%$Gd_2(SO4)_3$21℃
0.2%$Gd_2(SO4)_3$43℃
0.2%$Gd_2(SO4)_3$43℃ + Al
0.6%$Gd_2(SO4)_3$21℃
0.6%$Gd_2(SO4)_3$21℃ + Al
0.6%$Gd_2(SO4)_3$43℃
0.6%$Gd_2(SO4)_3$43℃ + Al
Pure $H_2O$21℃
Pure $H_2O$21℃ + Al
Pure $H_2O$43℃
Pure $H_2O$43℃ + Al




- Weird things… not sure what this is
- All happened to the same sample
- Bottom right is 500 samples instead of 100
  - Did a previous 100 and same result
  - Wanted to see if it reoccurs