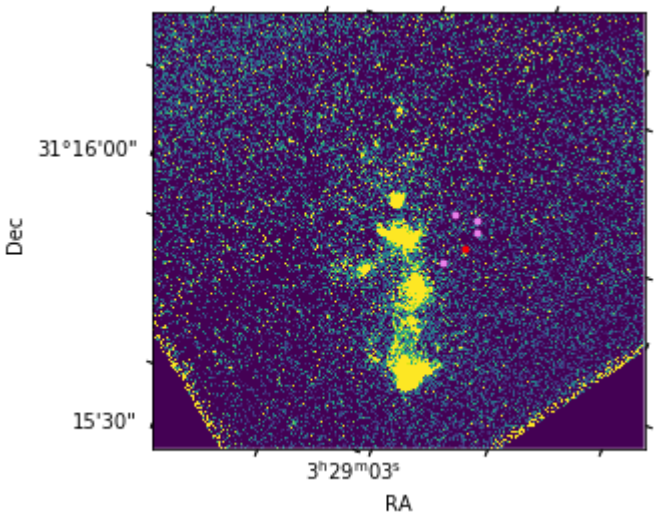
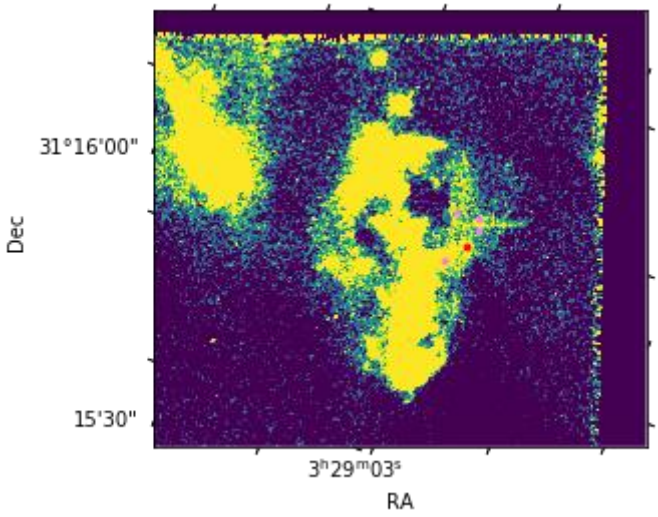
Images of Pixels Plotted

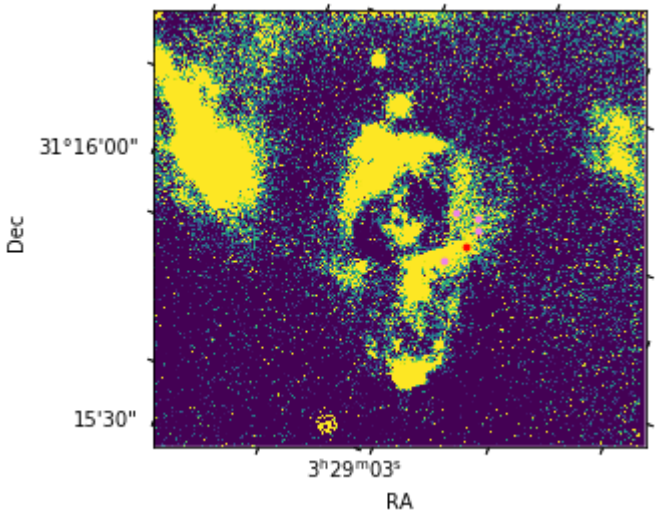
Below, plotted images in order of increasing wavelength. The **purple dots** plotted show successful, perfect fits. The **red dot** is the original pixel I tested where I could not make a perfect fit. NOTE I CAN fit pixels *next to* (1 pixel to right / left) of that red dot.



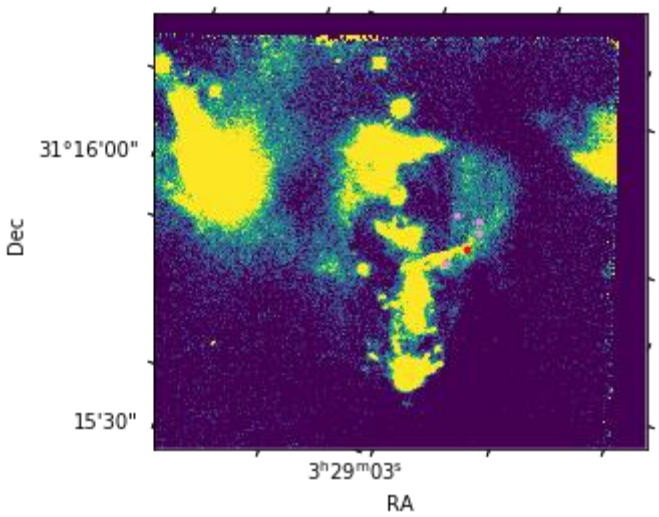
Hα:



1.26:



1.28:



1.64:

Blackbody Fits

Fitting the blackbody fits…labeling the regions by number:

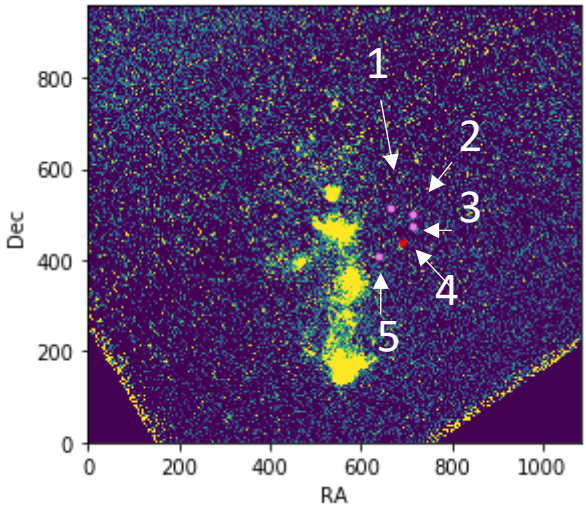
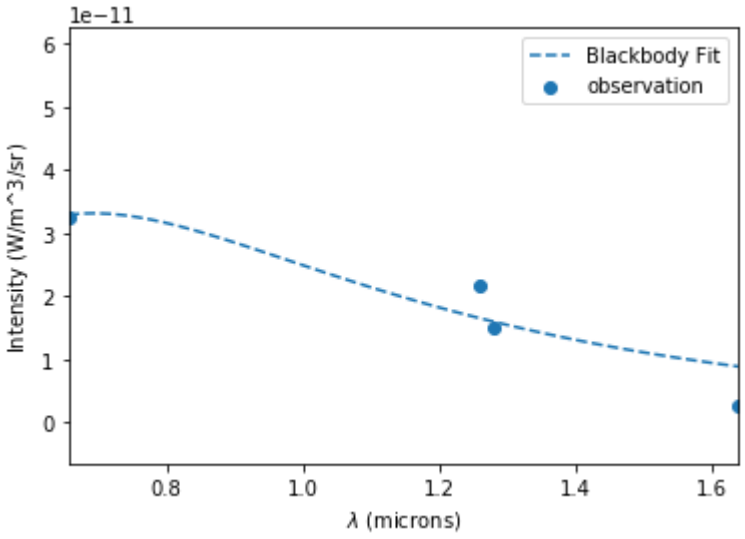


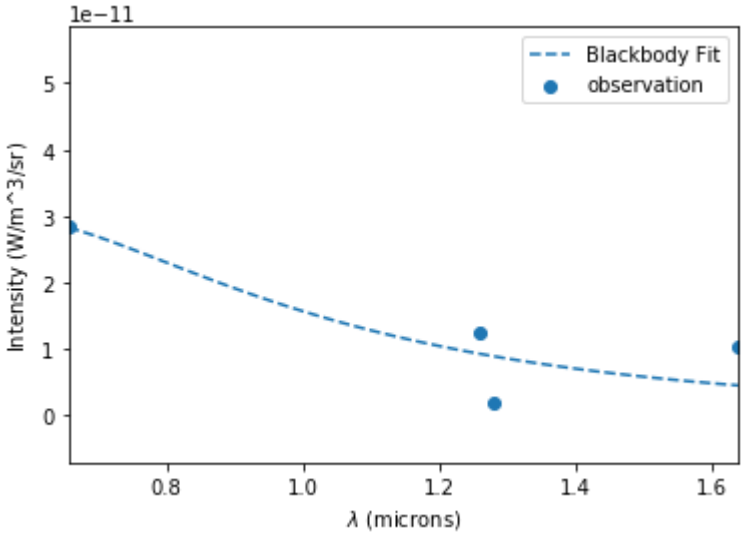
Table of fit properties:

Region #	T (K)	C
1	4.18739155e+03	6.30258435e-24
2	5.13146882e+03	2.04852698e-24
3	3.00545330e+04	2.12119272e-25
4	3.56578721e+03	1.36161449e-23
4 (1 pix right, up)	8.26237724e+03	1.87543255e-24
4 (1 pix left, up)	5.09903288e+03	5.13022565e-24
5	5.40730961e+03	5.39241732e-24

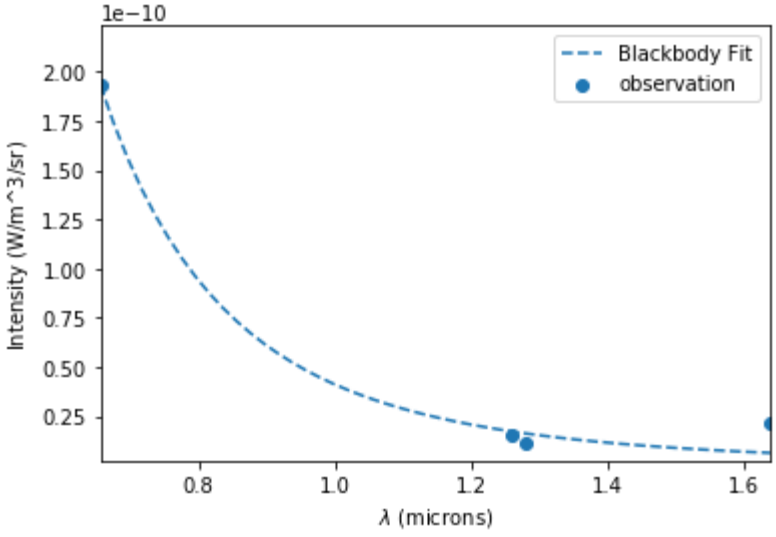
Blackbody plots (same order as table):



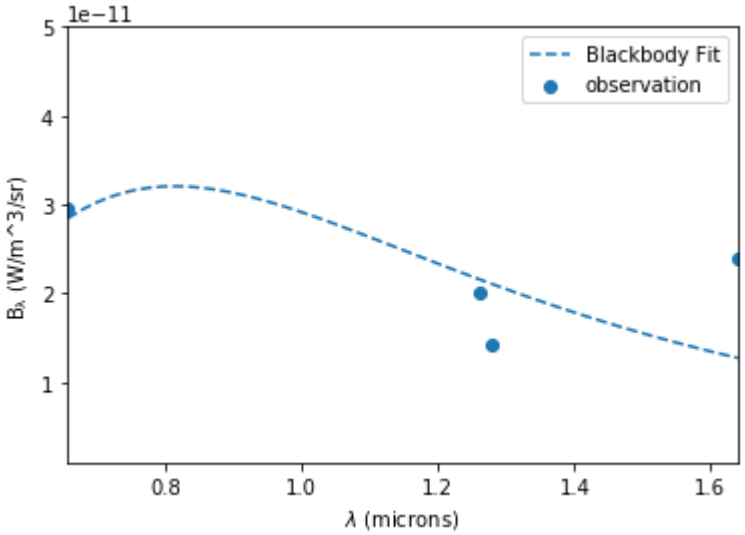
1…



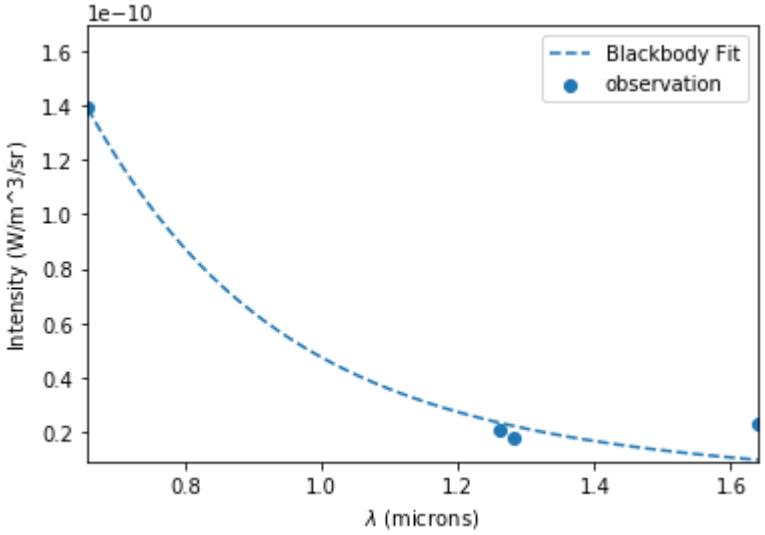
2…



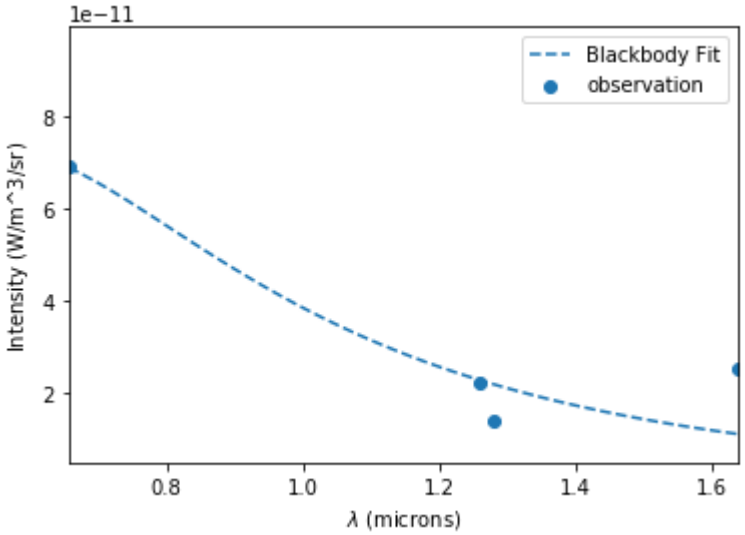
3…



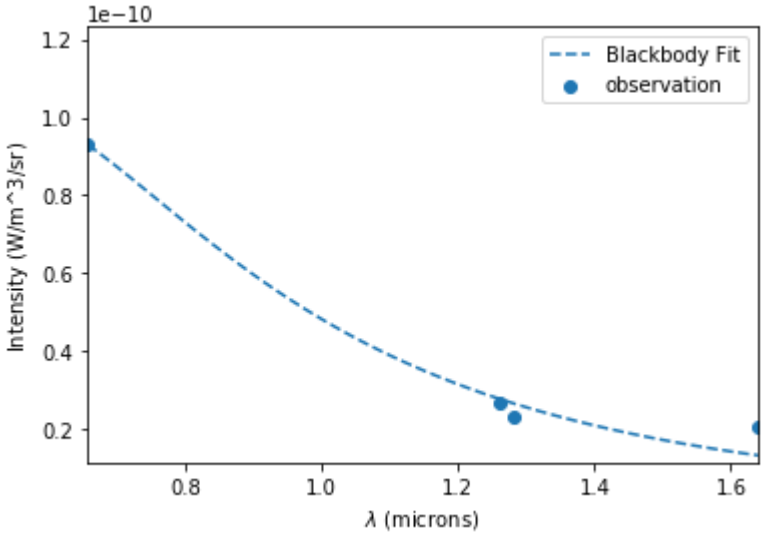
4…



4, 1 pix up, right…



4, 1 pix left, up…


1e−10
1.2
1.0
0.8
0.6
0.4
0.2
Intensity (W/m^3/sr)
0.8
1.0
1.2
1.4
1.6
λ (microns)
Blackbody Fit
observation

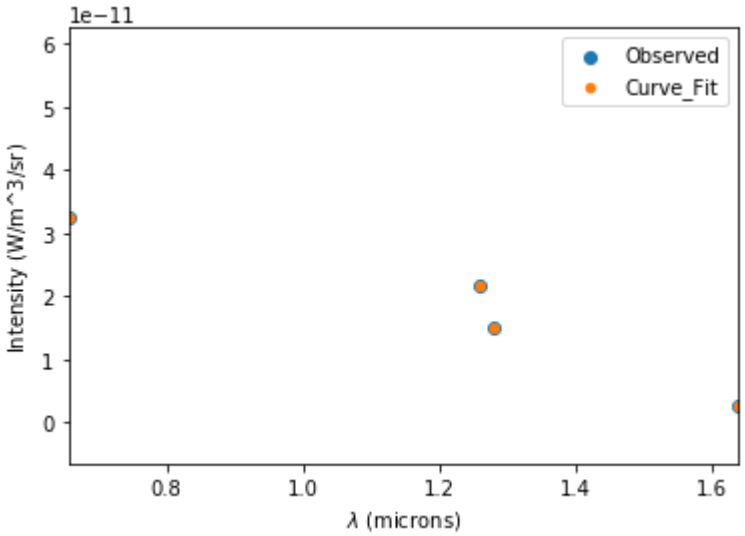
5...

Fitting Non-Lin Equs for Multiple Pixels

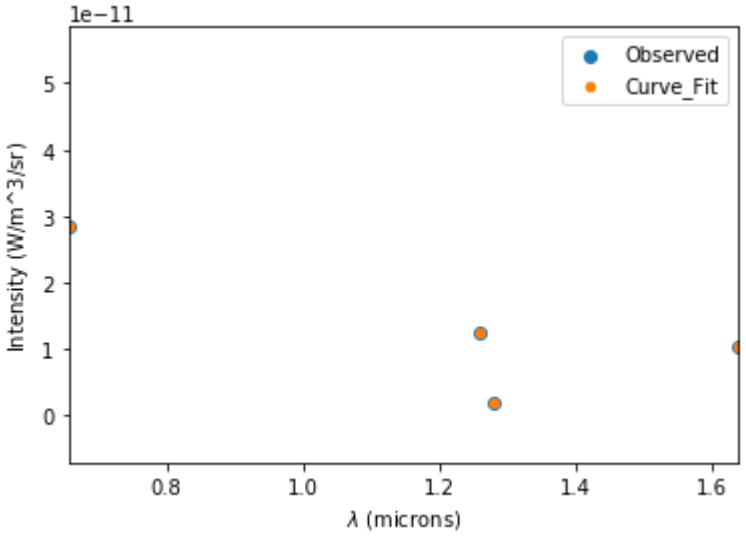
For each pixel, I *fit by scipy curve_fit* (except for the original pixel I was trying to and failing to fit perfectly…). Newton-krylov will converge to a similar but slightly more accurate value from my tests on the one pixel that didn't fit, but it is slower to do that, so I'm doing this for efficiency. I consider a fit with the sum of squares is ~1E-40 to 1E-50 (and I can't distinguish the points on the plot):

Fit Parameter	C	A_V	f_H	f_{Fe}	Σ(squares)
1	1.23092420e-25	-16.0909485	-3.67251890e-14	1.11616659e-14	1.0823979396786784e-45
2	-1.63177894e-23	4.91608297	7.77976415e-11	5.93311494e-11	7.0473288254384065e-53
3	-1.61366973e-24	2.23233290	1.43044186e-10	7.87134333e-11	1.1797750478141332e-51
4	-1.97416054e-23	5.23938071	8.62153822e-11	6.25492719e-11	4.607205358862025e-23
4 (1 pix right, up)	-1.57759310e-23	4.10464801	2.39356853e-10	1.28828116e-10	1.2319774835581214e-51
4 (1 pix left, up)	-2.29099942e-22	7.22270364e	1.06816911e-09	5.82845407e-10	2.3491096084794688e-51
5	-1.24016029e-23	4.08133199	1.25824740e-10	7.03554475e-11	1.5556325851708482e-51

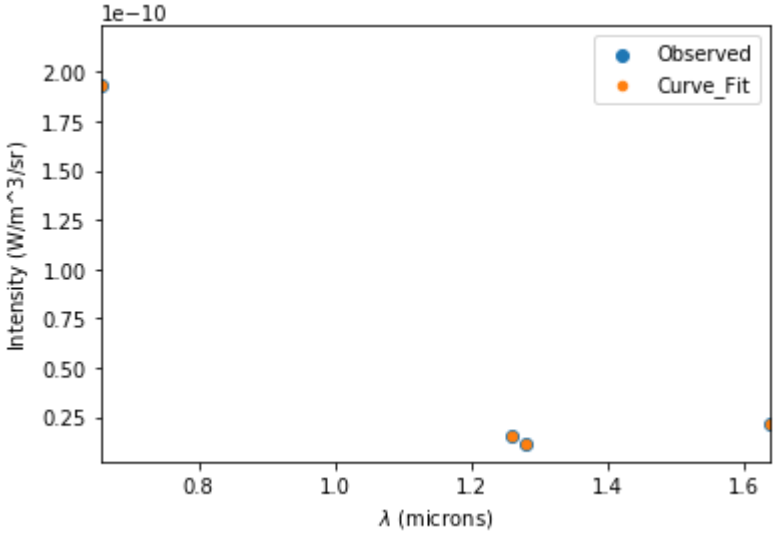
Intensity Plots of Fits (same order):



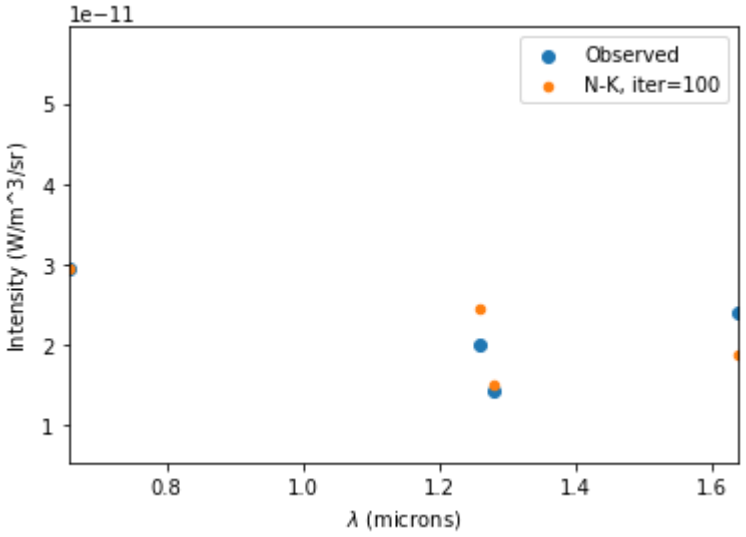
1…


1e−11
Observed
Curve_Fit
Intensity (W/m^3/sr)
λ (microns)

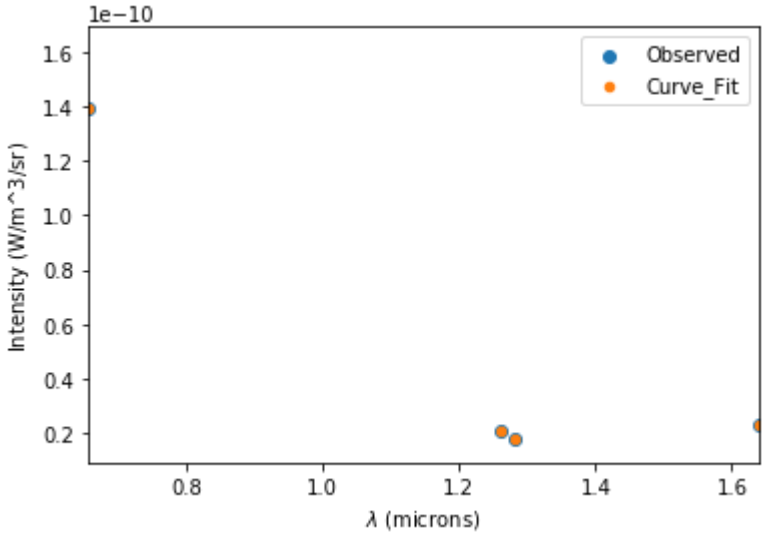
2...


1e−10
Observed
Curve_Fit
Intensity (W/m^3/sr)
λ (microns)

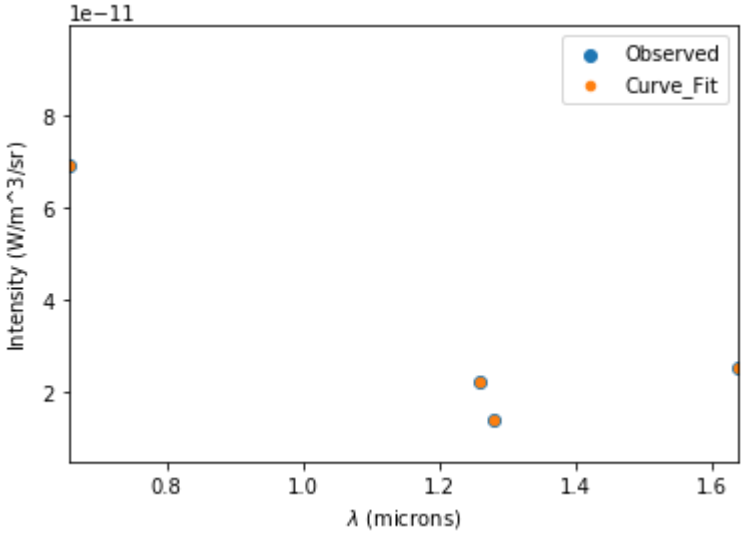
3...


1e−11
Observed
N-K, iter=100
Intensity (W/m^3/sr)
λ (microns)

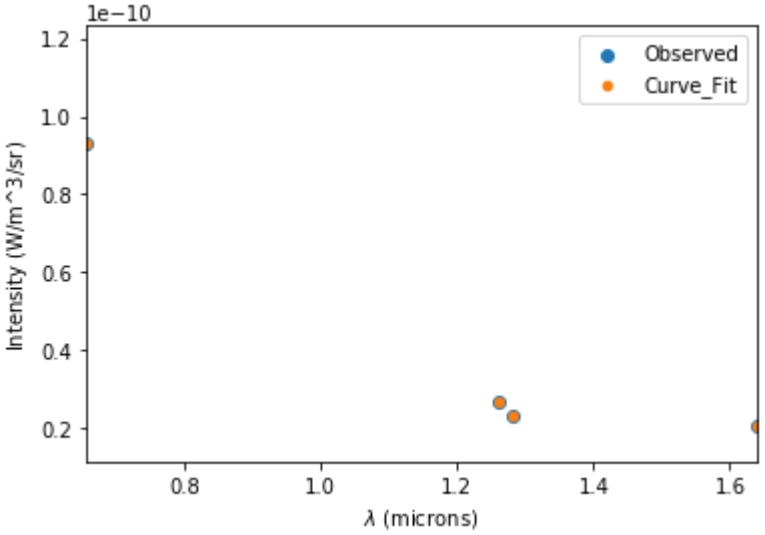
4...



4, 1 pix right, up…



4, 1 pix left, up…



5…