Palomar Observatory Night Sky Brightness Program
Part 3 Measurements

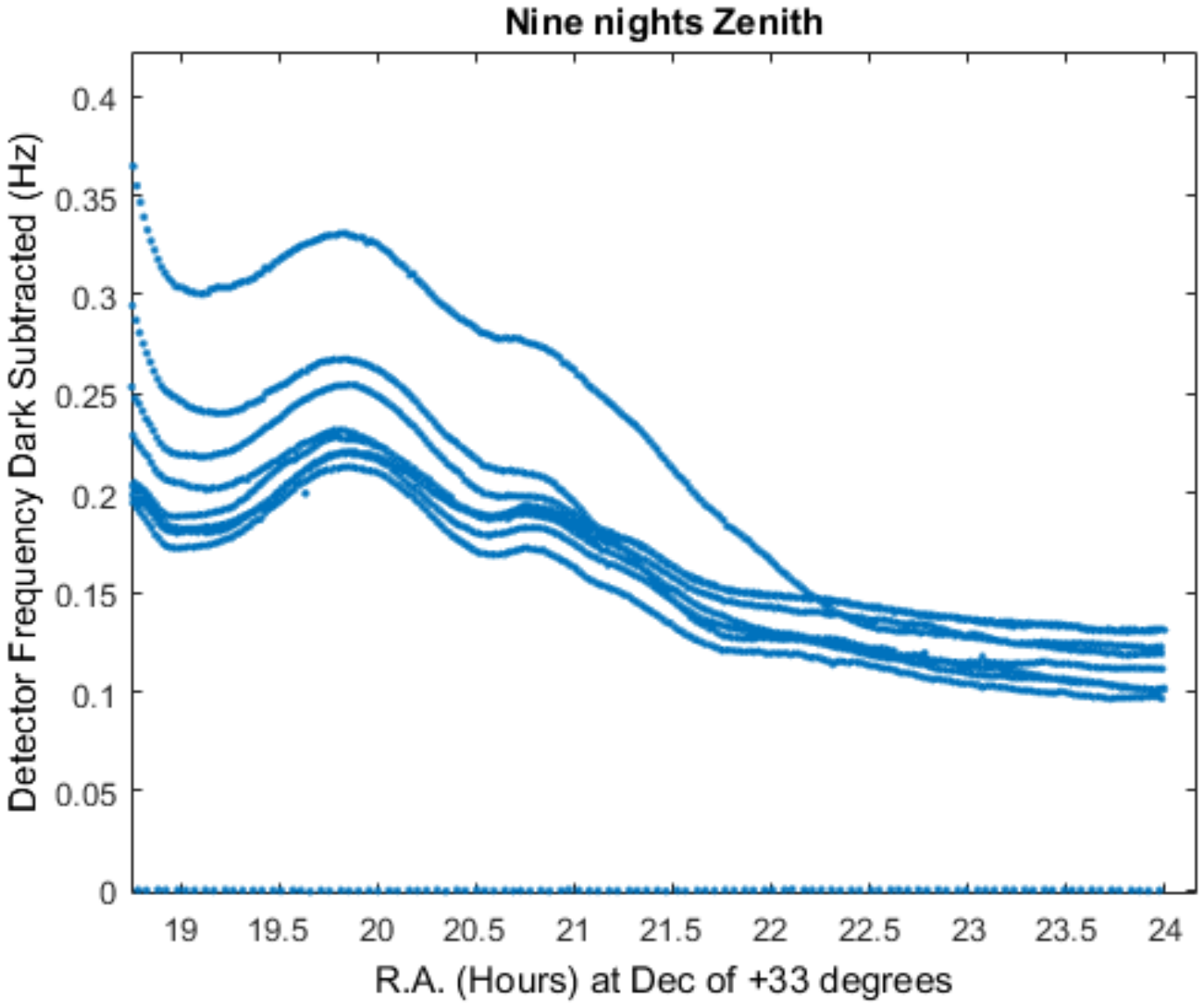
Dan McKenna Palomar Observatory

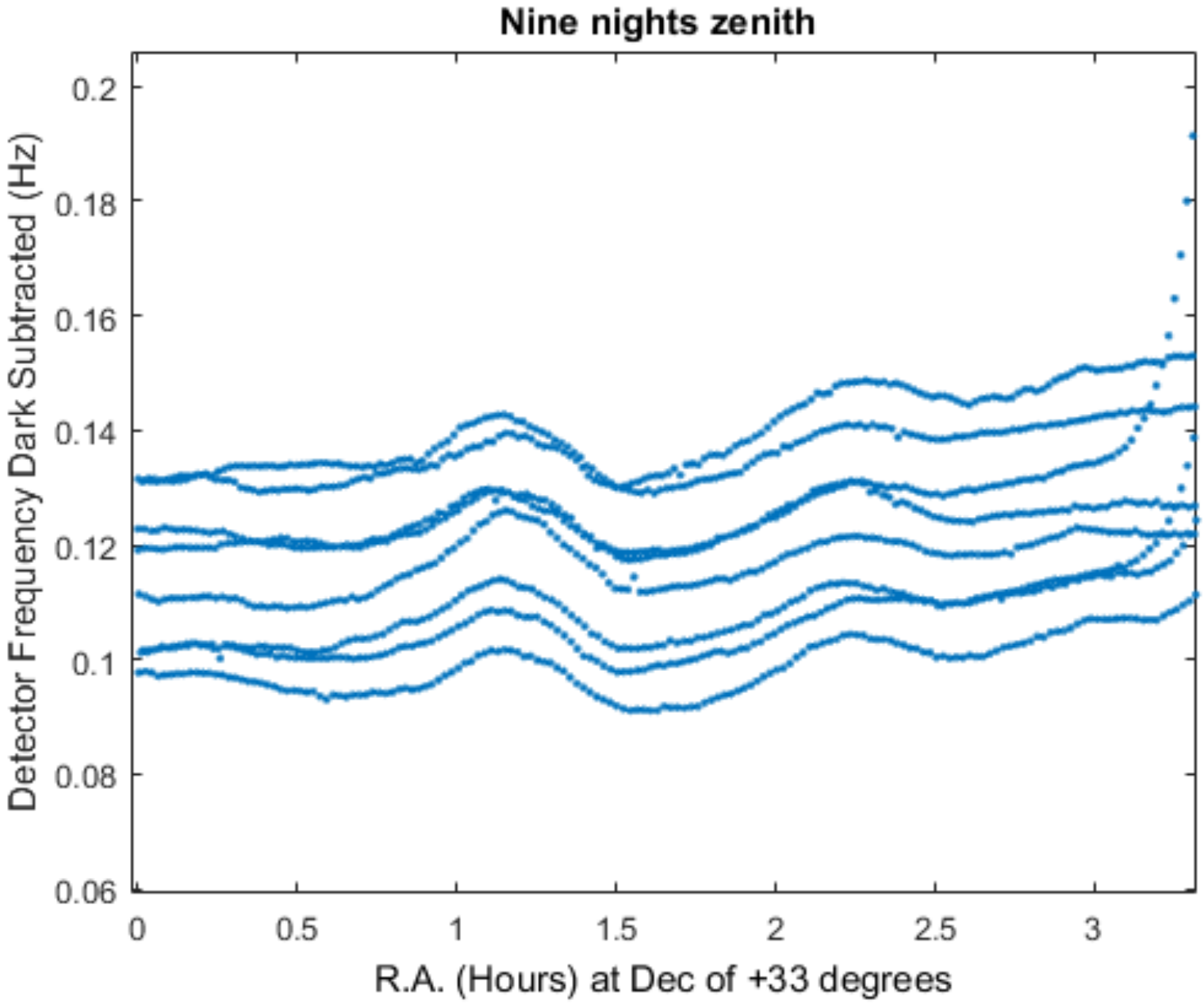
NSBM Photometer

- Palomar Observatory Night Sky Brightness Monitor (NSBM) uses technology developed for the IDA/Vatican project in 2008
- Photometer development goals were to produce a stable photometer for decades of service
- Unihedron, makers of the sky quality meter, copied the filter/detector combination giving us a large SQM dataset

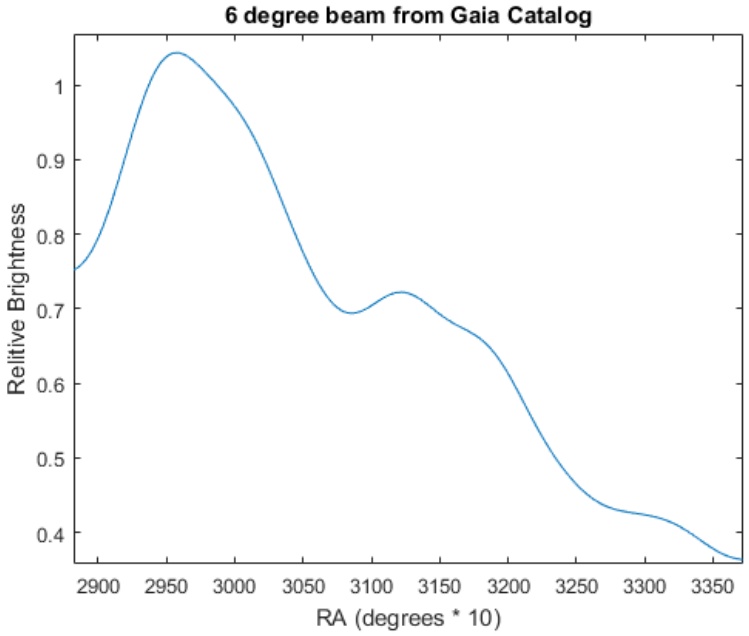
Photometer Head

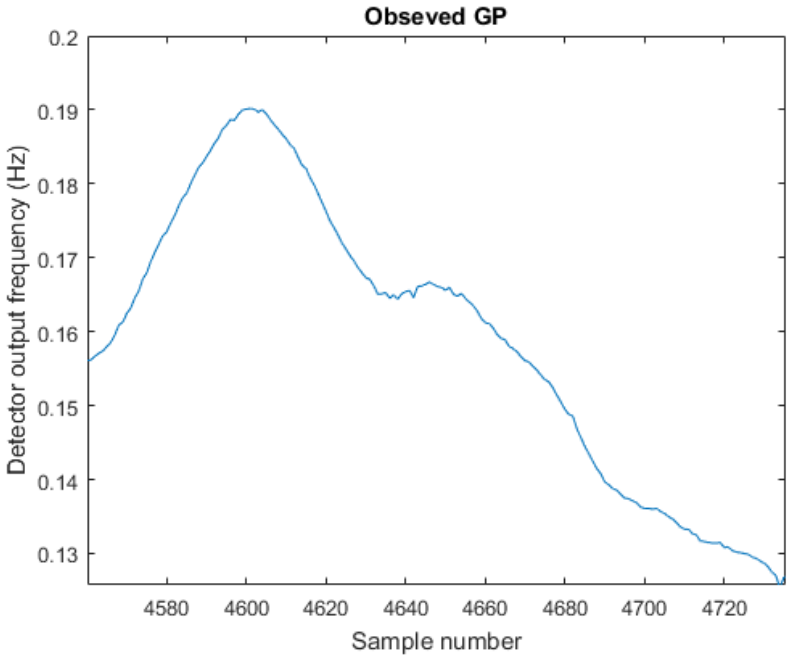
On sky Data


Nine nights Zenith
Detector Frequency Dark Subtracted (Hz)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
19
19.5
20
20.5
21
21.5
22
22.5
23
23.5
24
R.A. (Hours) at Dec of +33 degrees

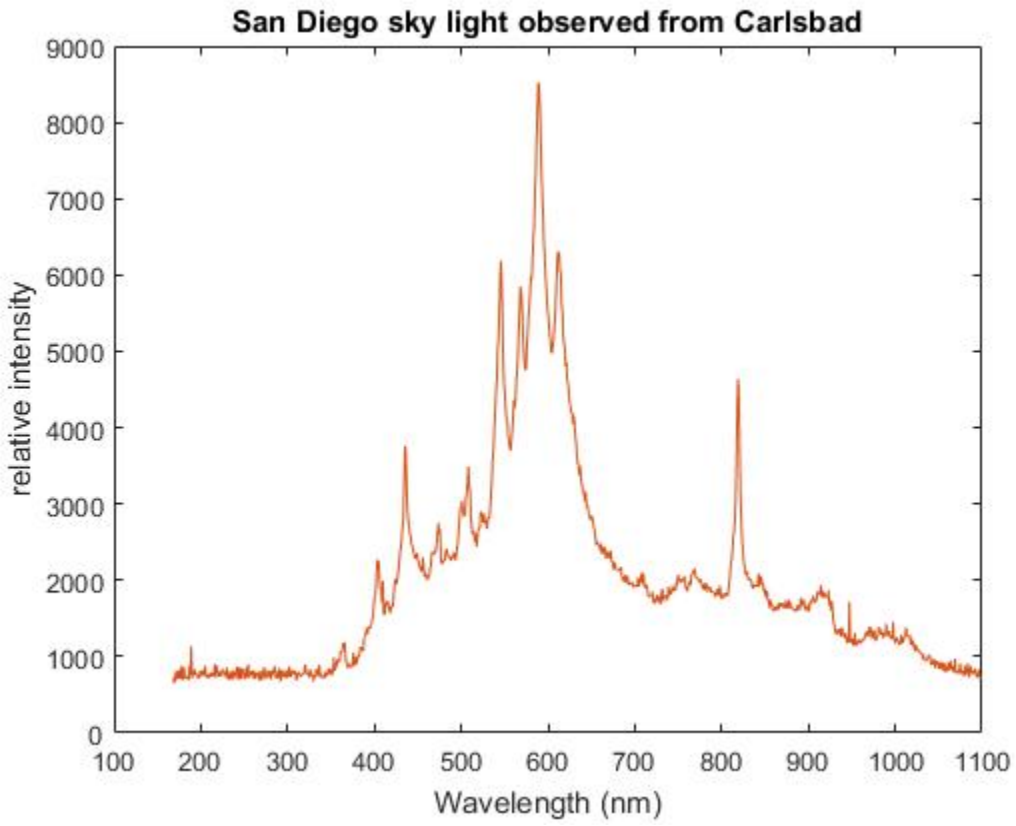

Nine nights zenith
Detector Frequency Dark Subtracted (Hz)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0
0.5
1
1.5
2
2.5
3
R.A. (Hours) at Dec of +33 degrees

Using the Gaia Catalog

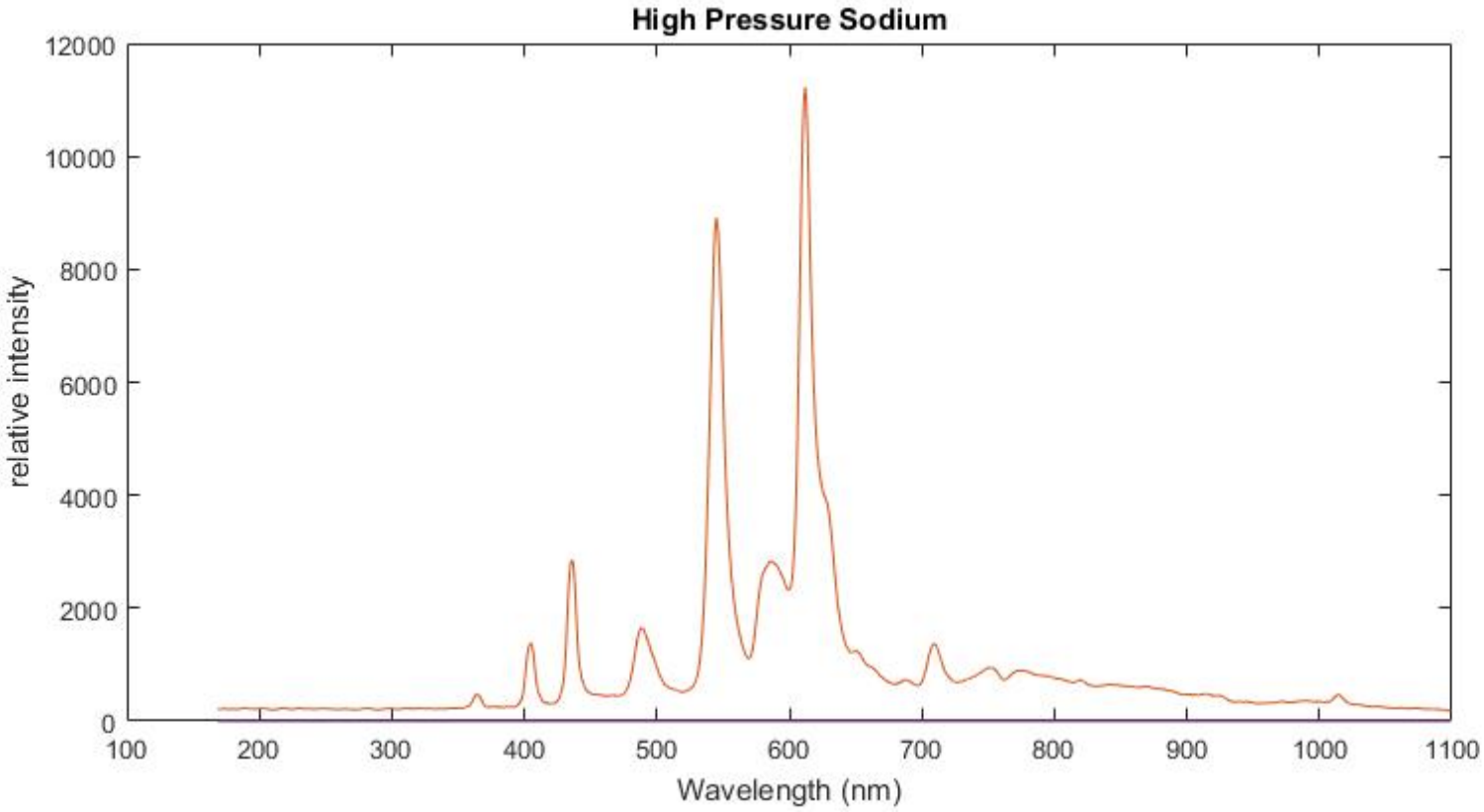




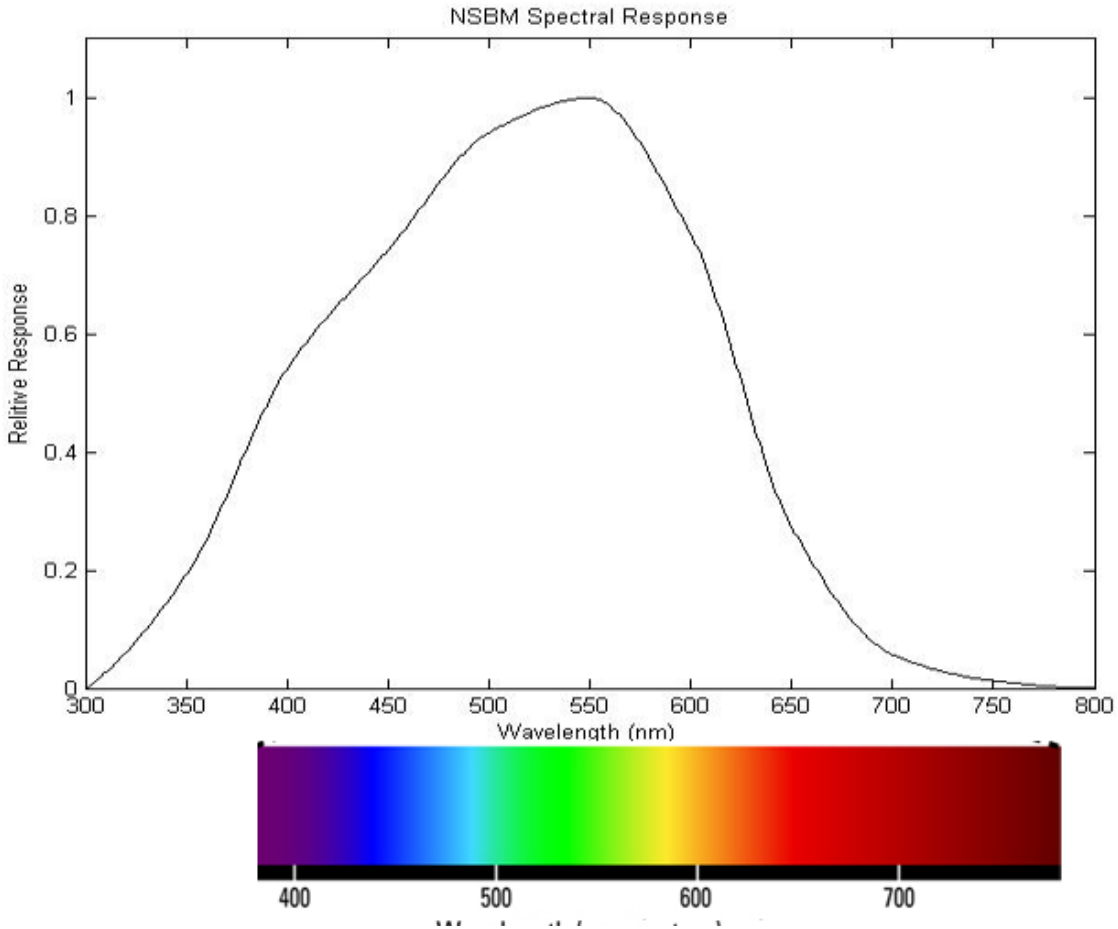
Mobile Spectrograph



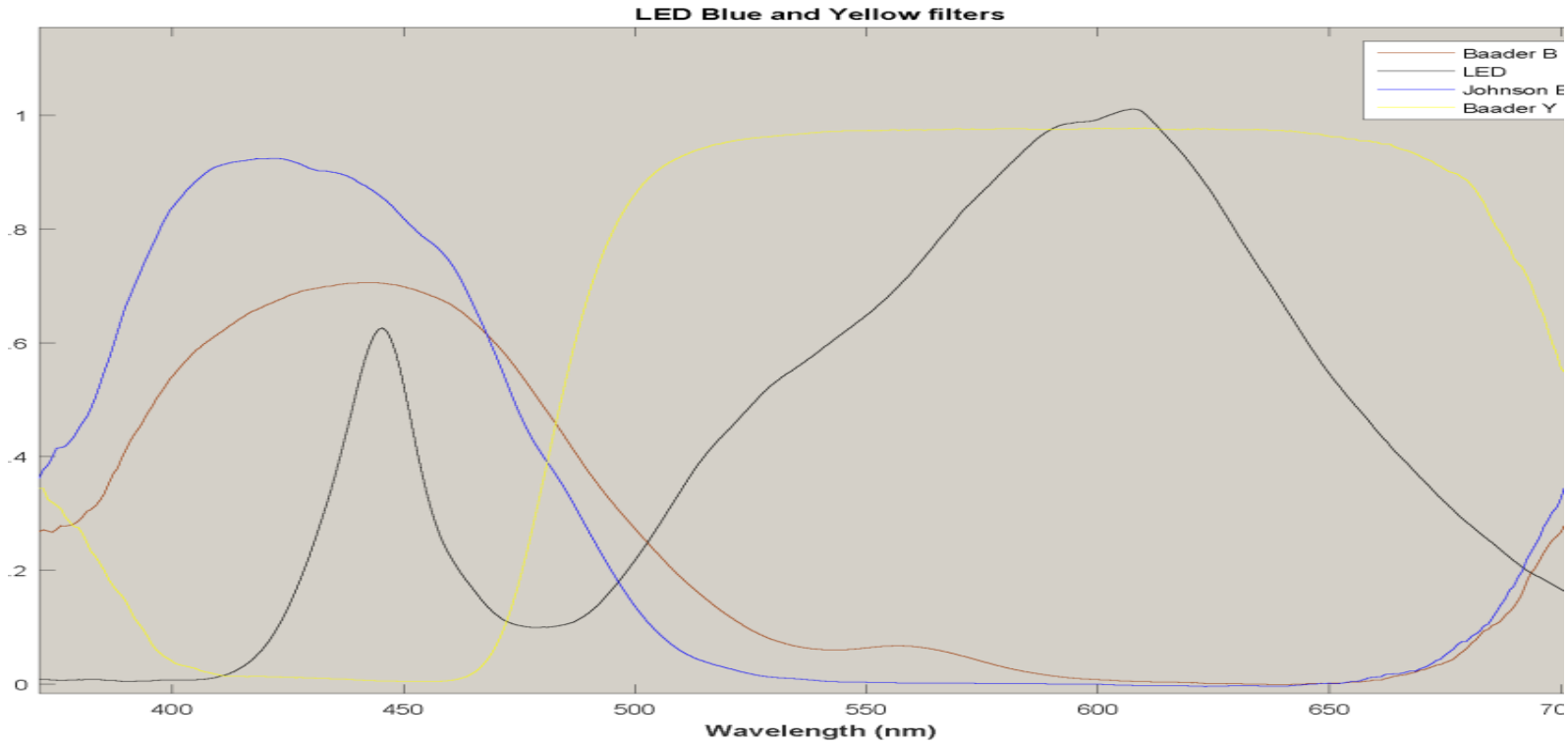
Catalog Collection



NSBM Spectral Response



Filtered NSBM



Goals for Sky Brightness Program

- Refine the use of the Gaia catalog to calibrate long term sky brightness monitoring
- Measure Sky Spectra from Palomar and use catalog to estimate the light inventory
- Modify current photometer design to include standard filters
- Refine Photometer Point spread calibration and pointing
- Use open source hardware and publish design/ software

GO Team GO!

Thank you for being here!

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