

Collimated Beam Projector

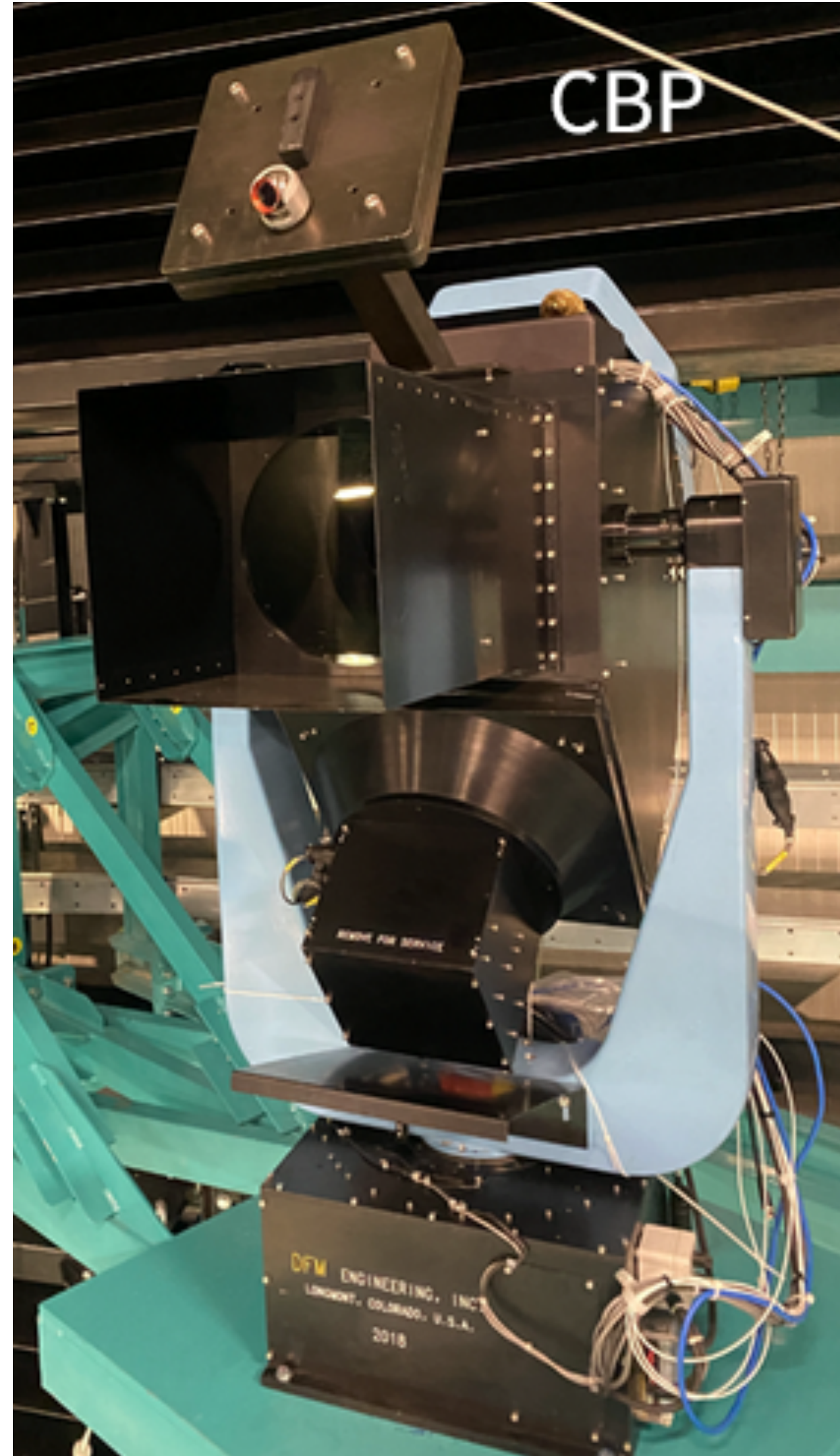
Progress and status from ComCam to LSSTCam

LSST France 13/06/2025

Nathan Amouroux

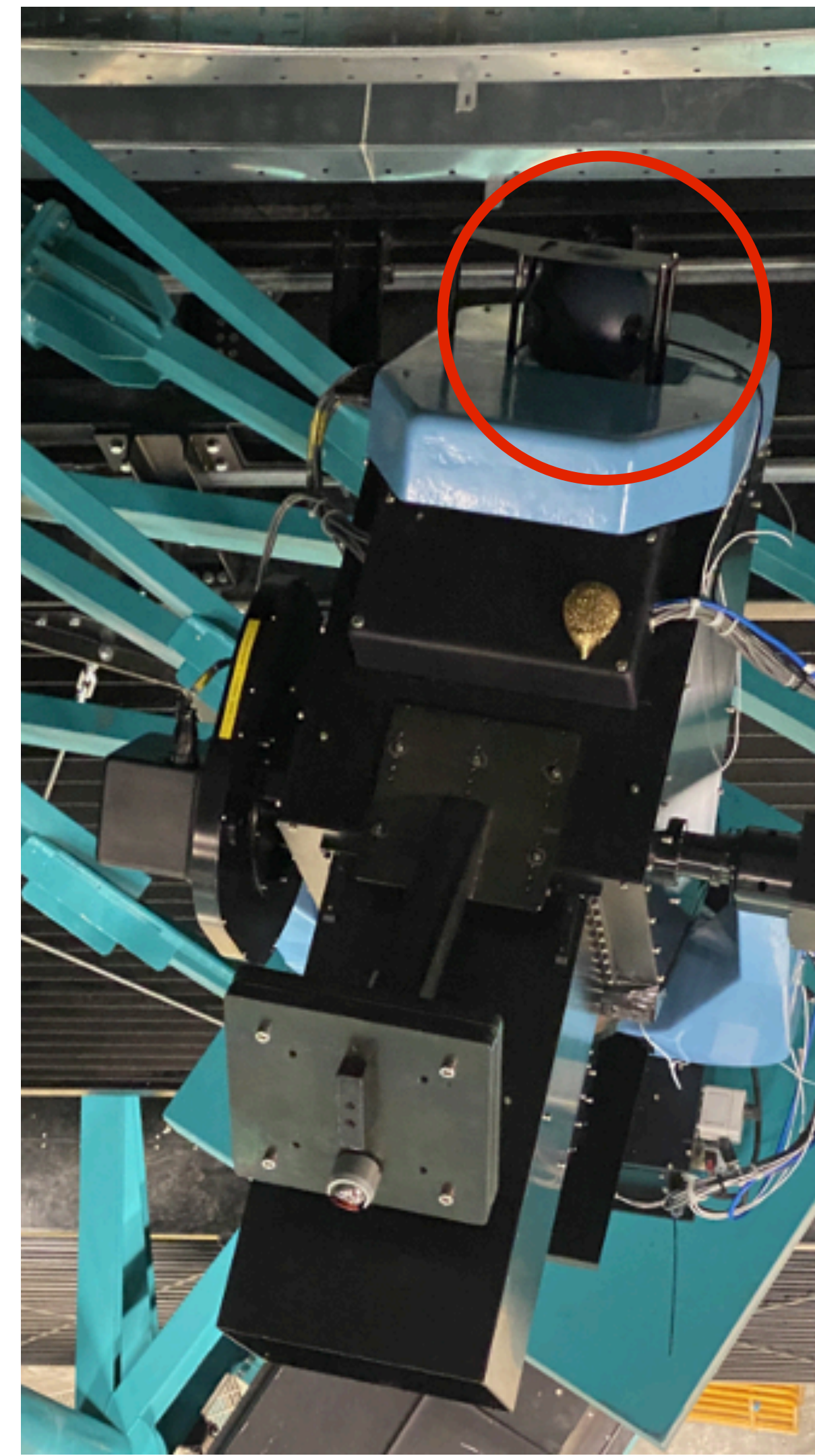
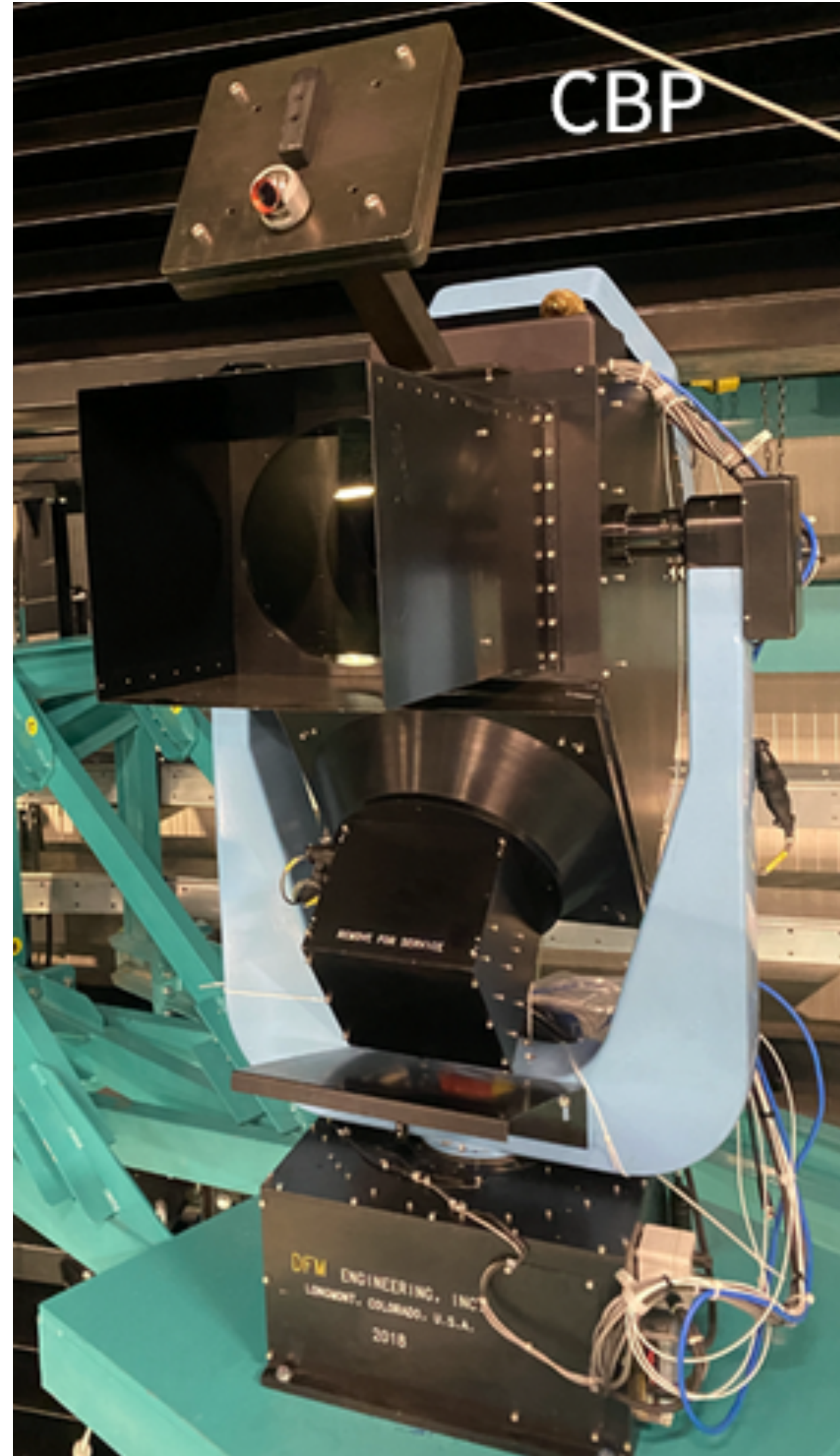


The Collimated Beam Projector (CBP)



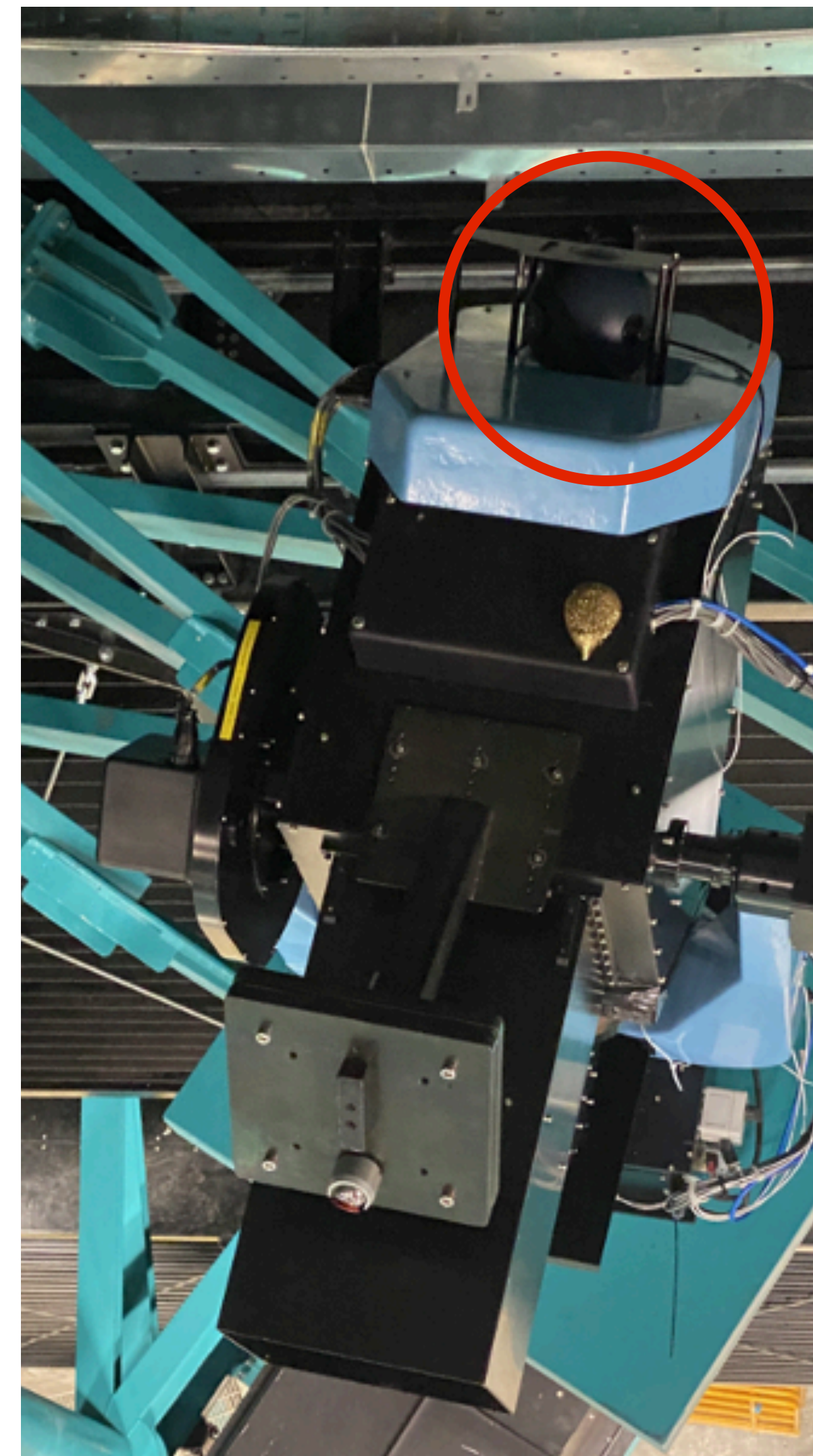
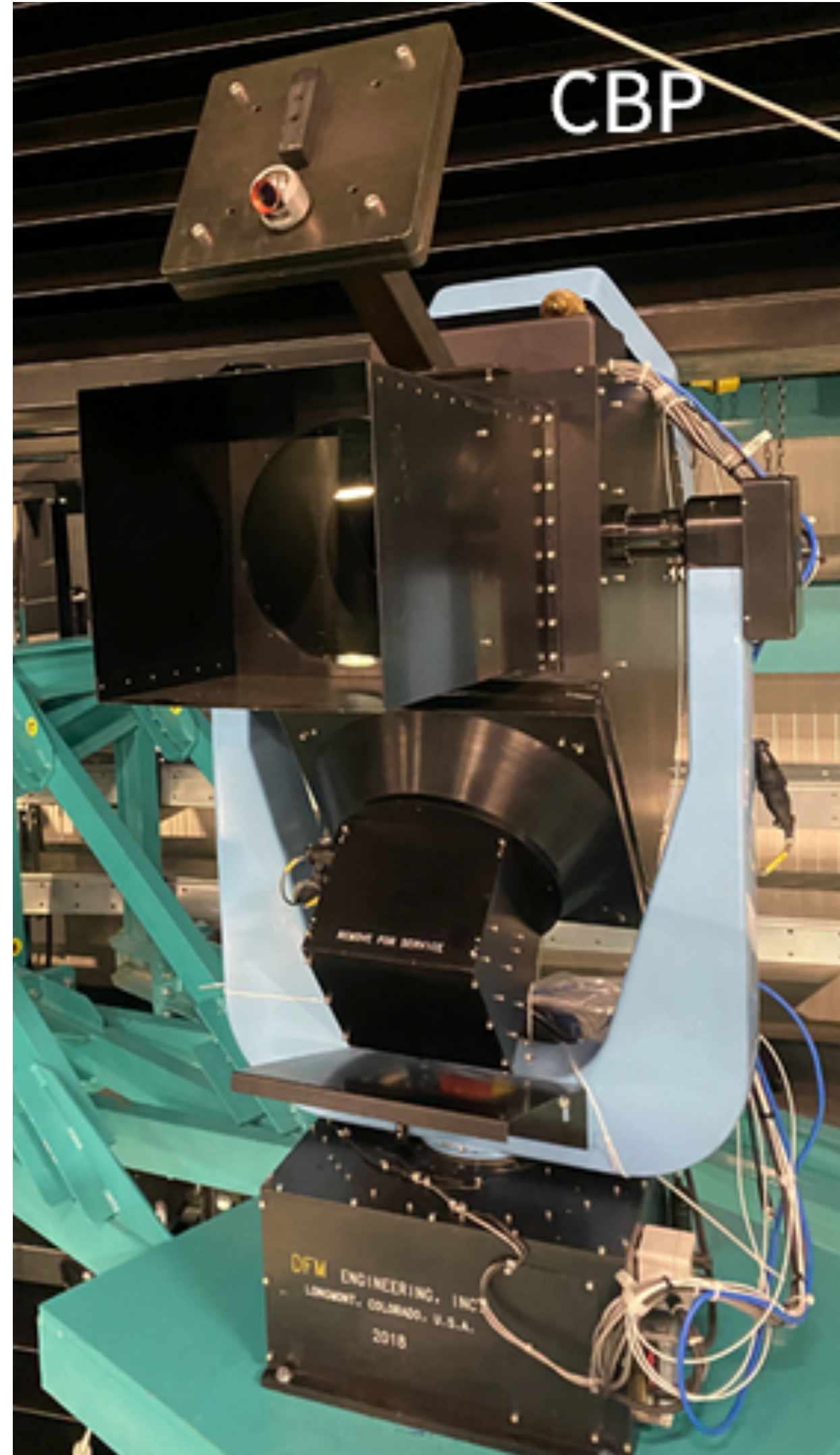
The Collimated Beam Projector (CBP)

CBP & its integrand sphere

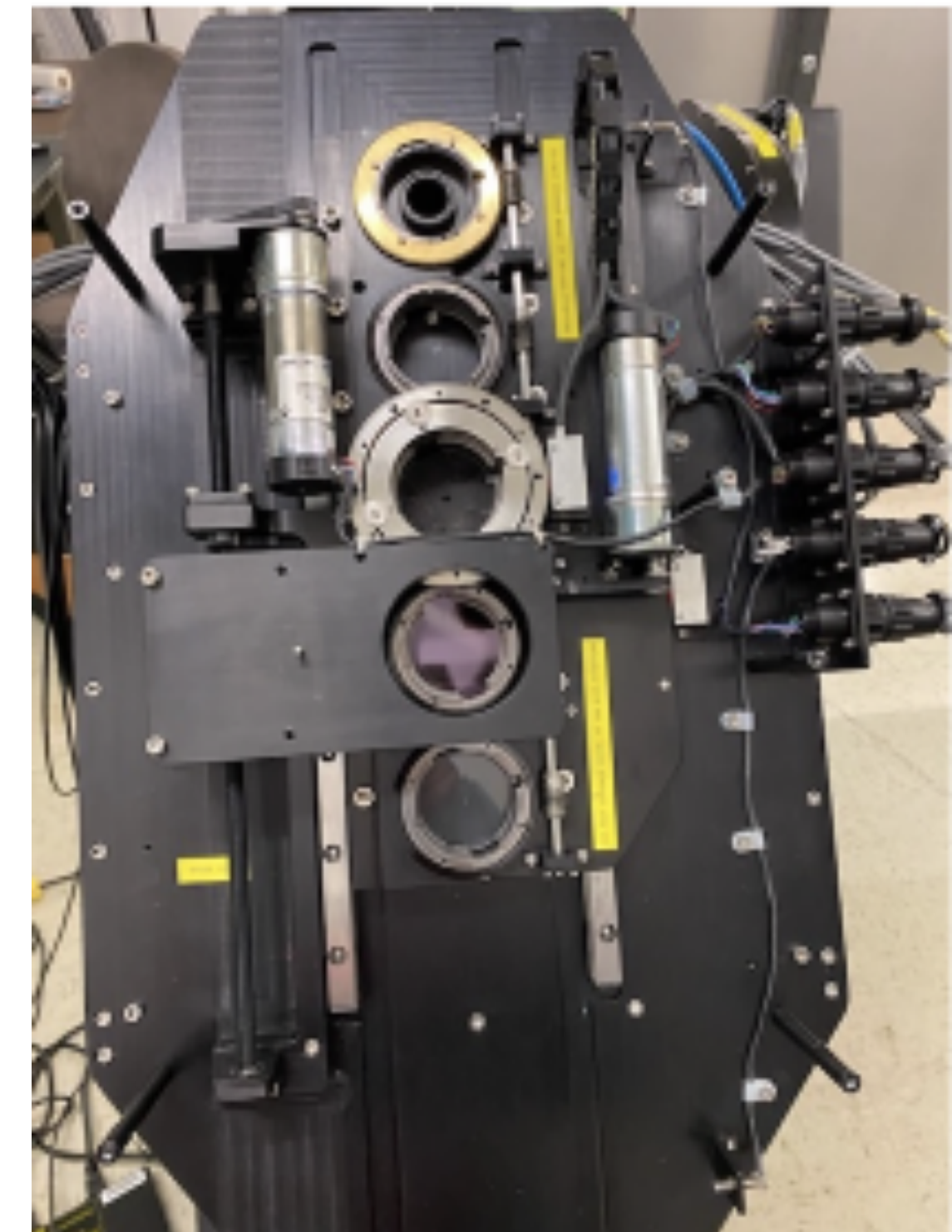


The Collimated Beam Projector (CBP)

CBP & its integrand sphere



Mask holder (ComCam)

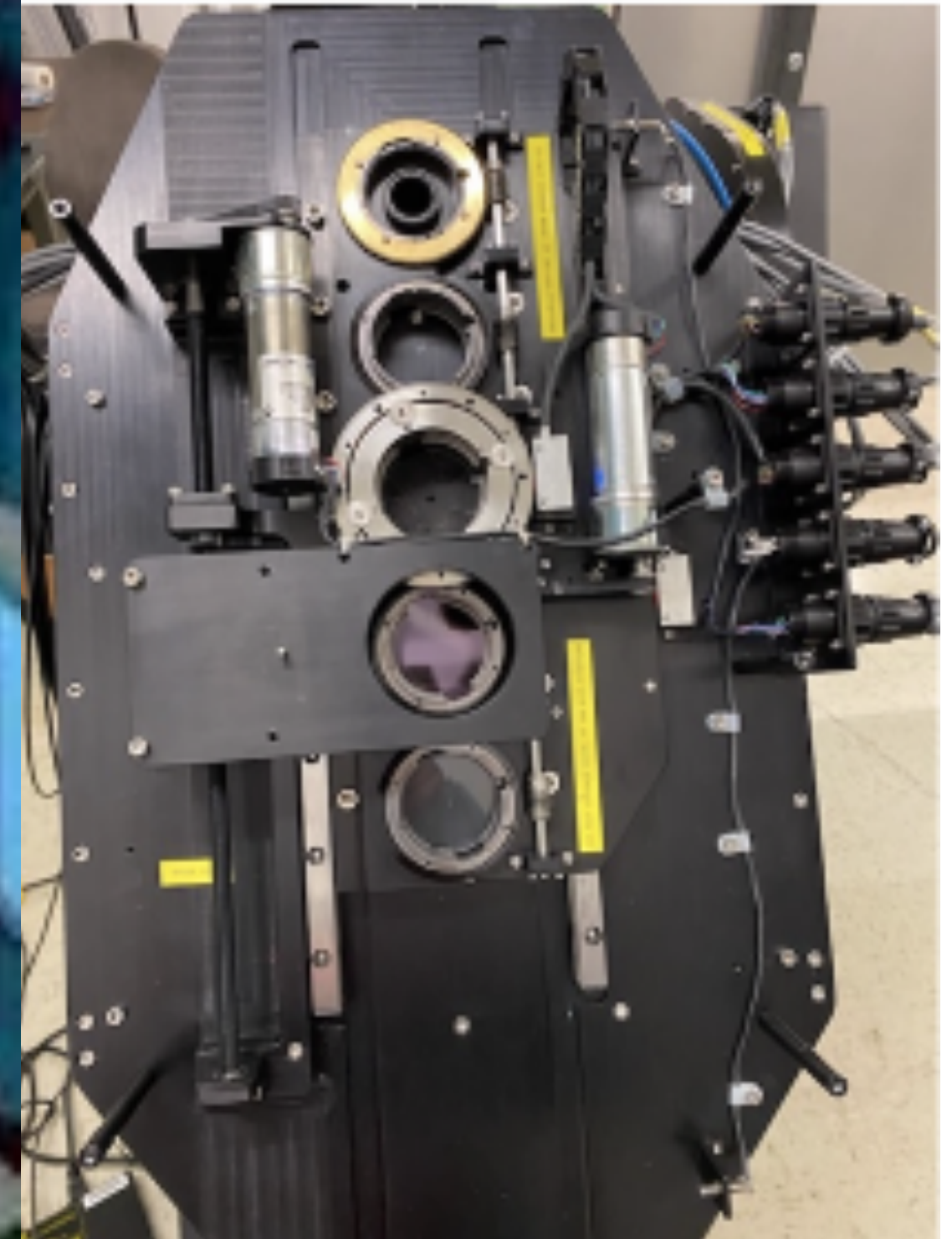


The C

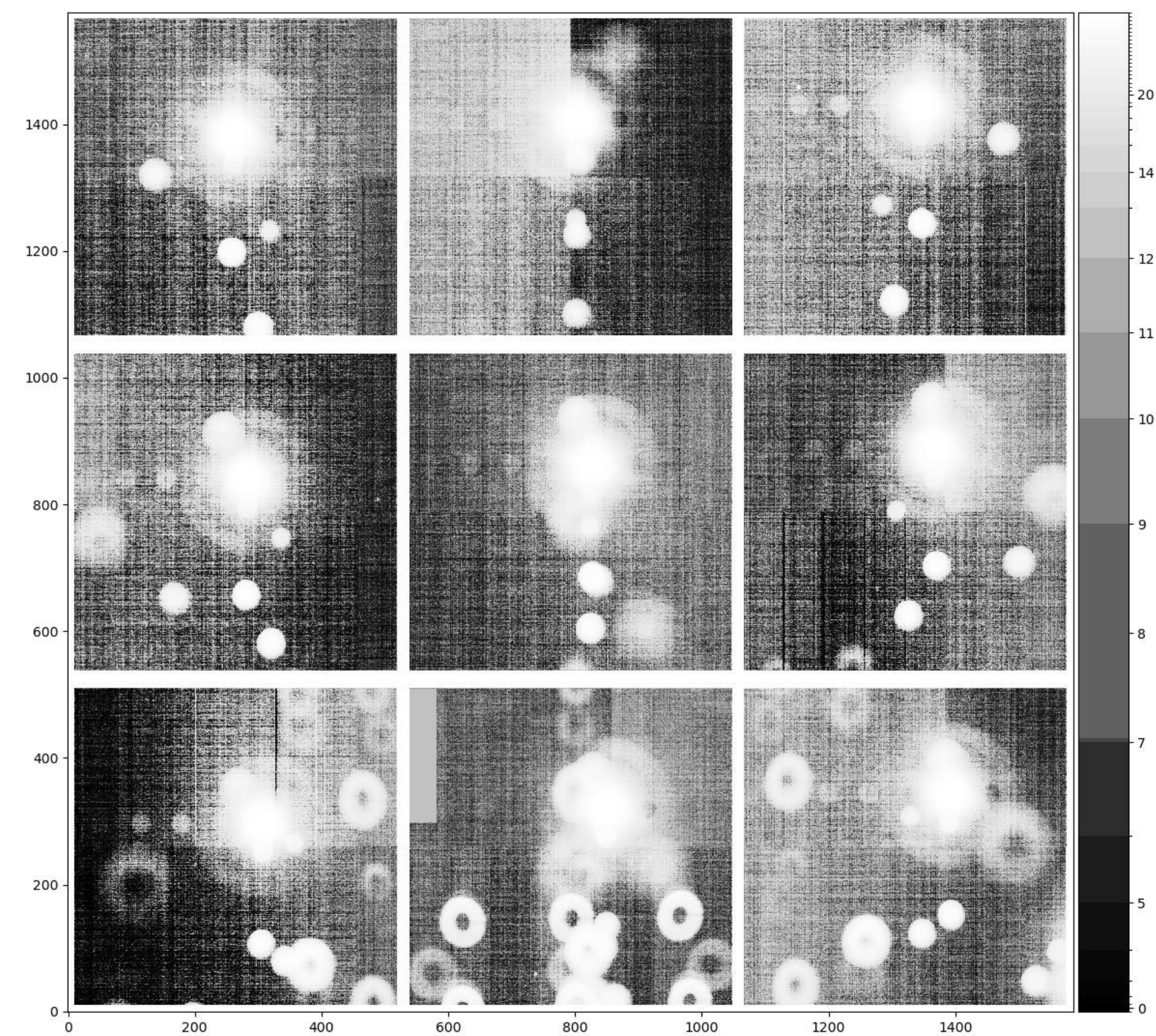
CBP)



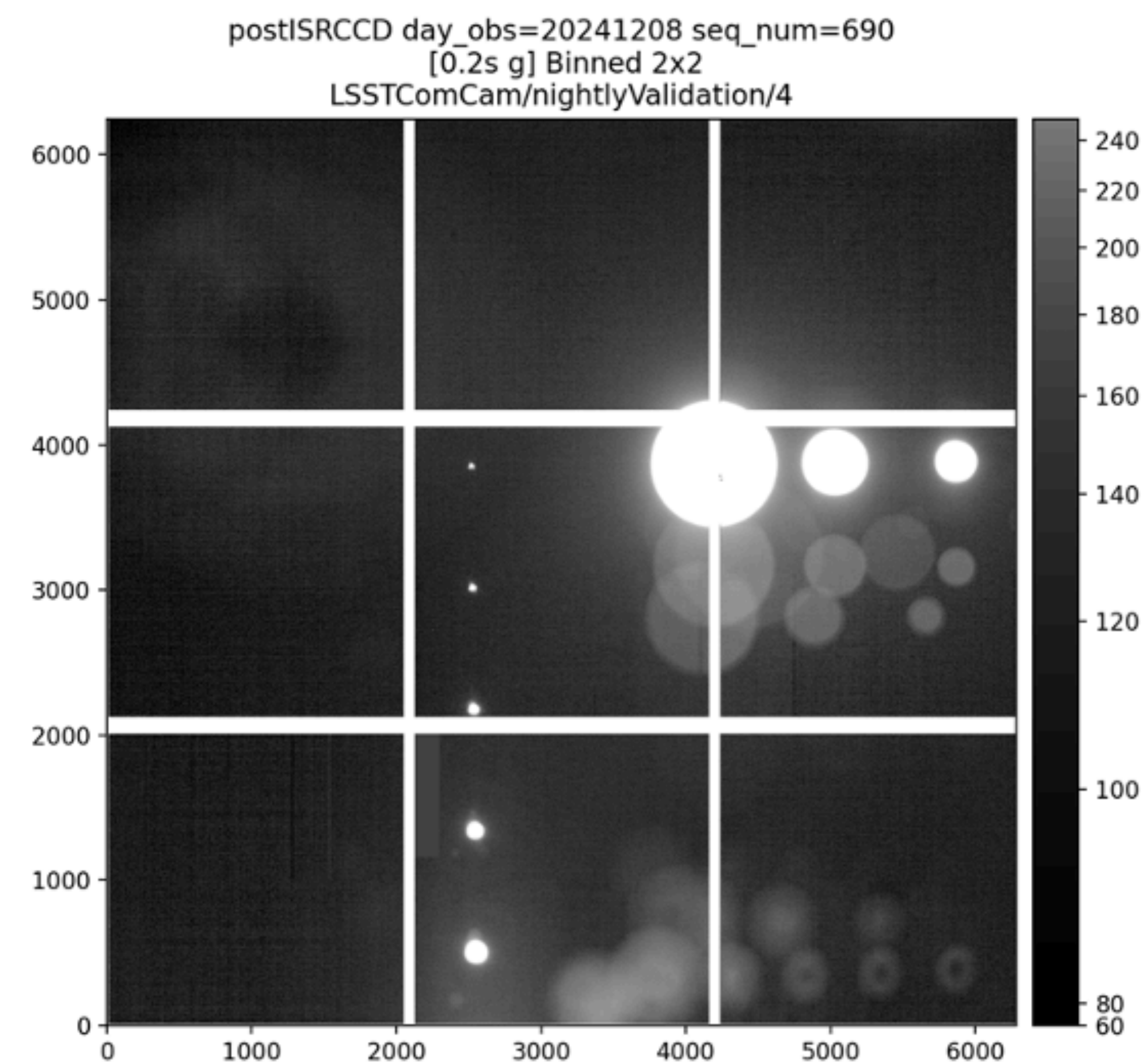
Mask holder (ComCam)



CBP on ComCam



1 spot /CCD



2 lines spots

ComCam campaign

CBP comissioning

ComCam campaign

CBP comissioning

- 4 nights campaign

ComCam campaign

CBP comissioning

- 4 nights campaign
- Copoint CBP - Simonyi Telescope
 - night to night repeatability
 - small movements tests
 - copointing dance

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- Bending modes

ComCam campaign

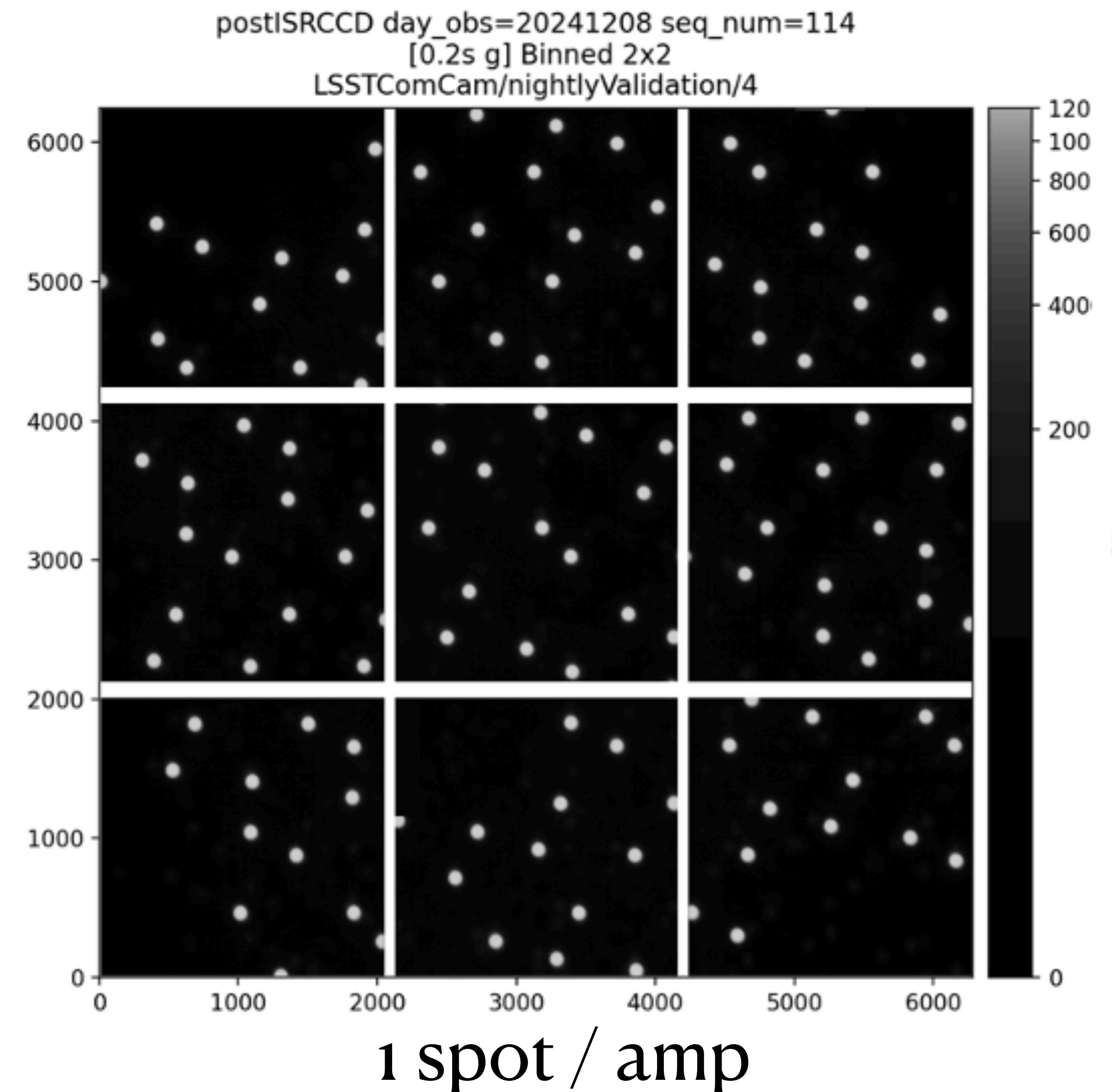
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- Filters Throughput Measurement

ComCam campaign

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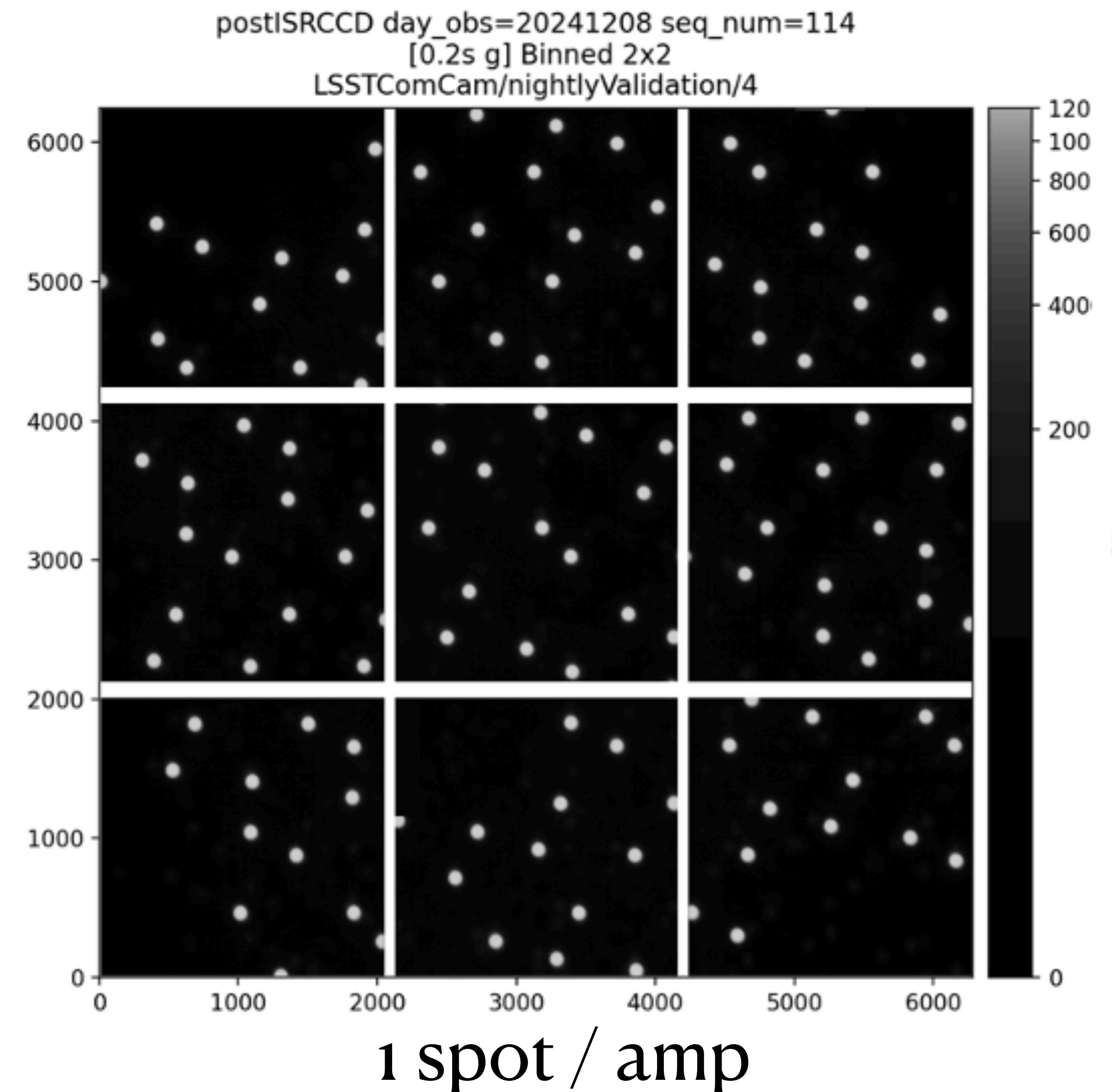
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ComCam campaign

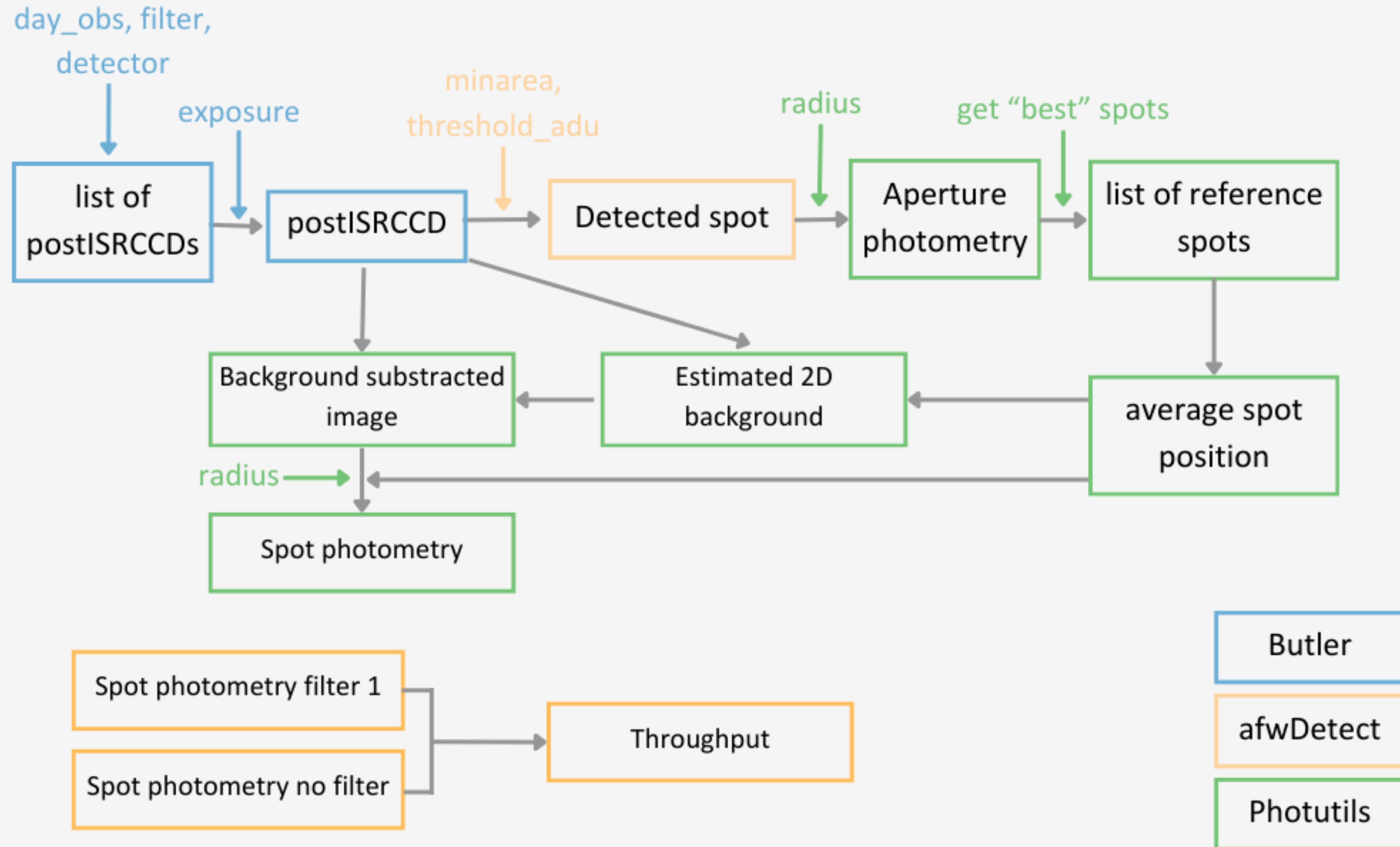
CBP comissioning

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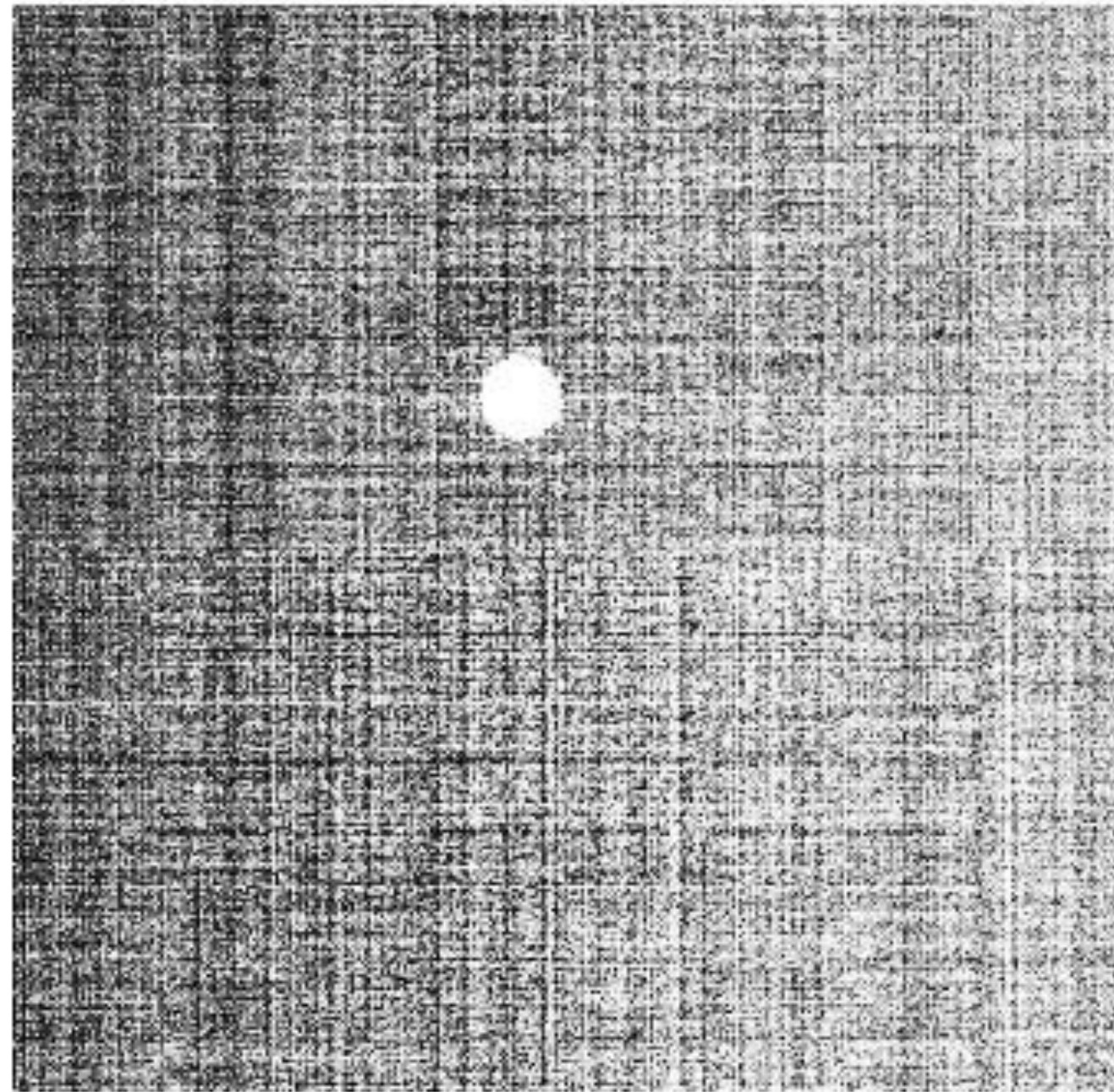
► Technote : sitcomtn-152.lsst.io

Workflow filter throughput measurement



ComCam campaign

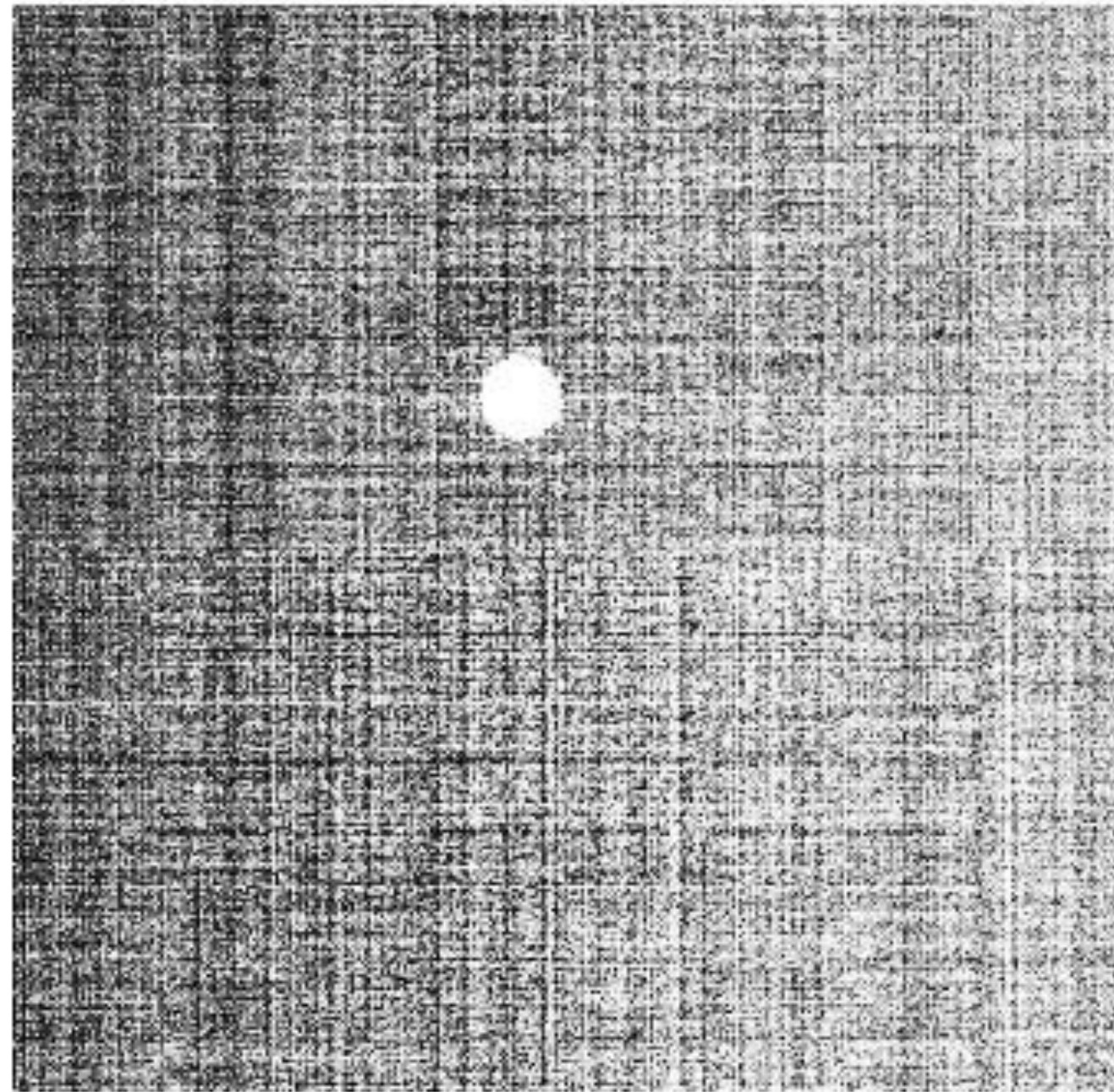
Throughput measurement - Aperture photometry



r filter

ComCam campaign

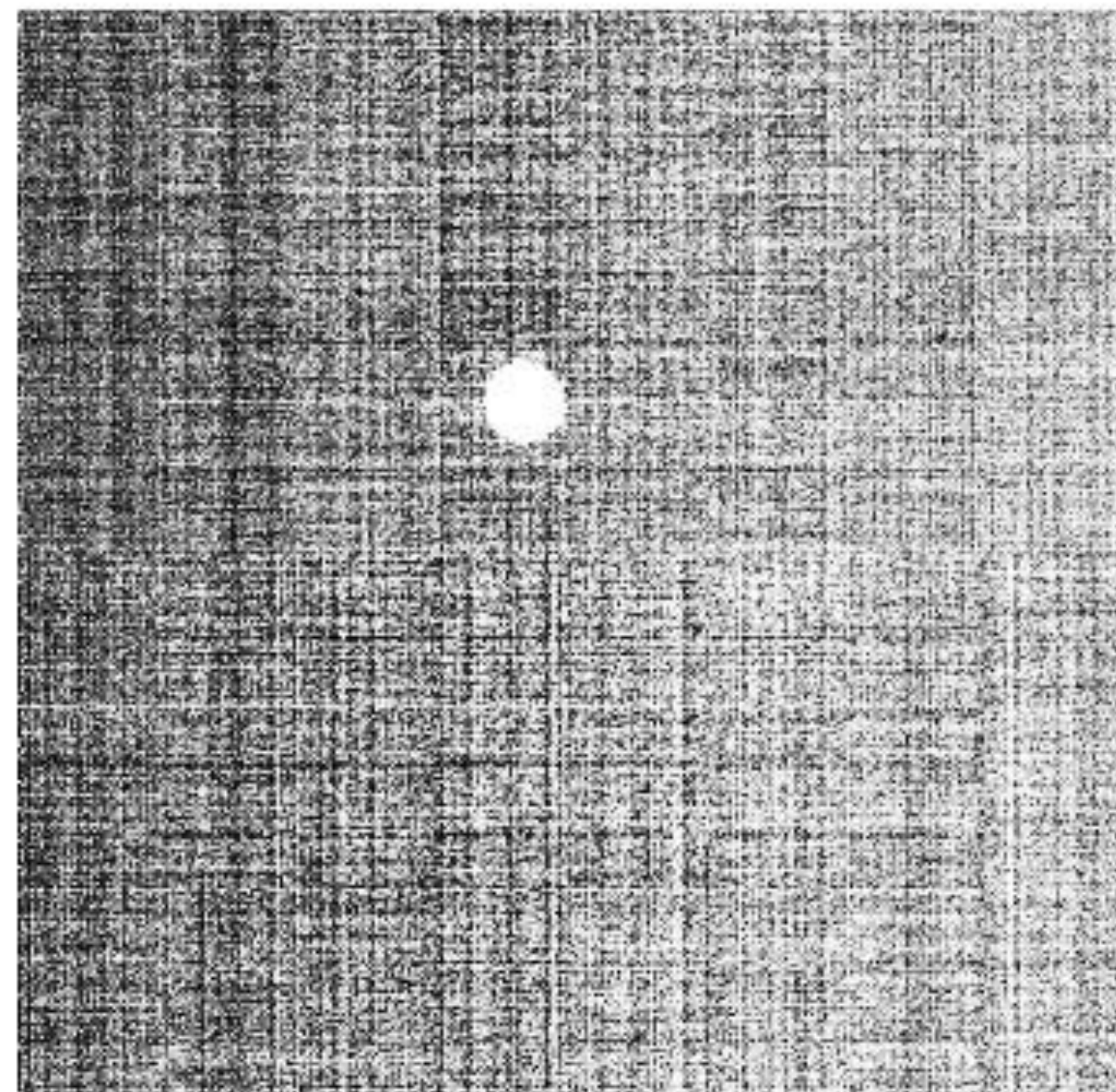
Throughput measurement - Aperture photometry



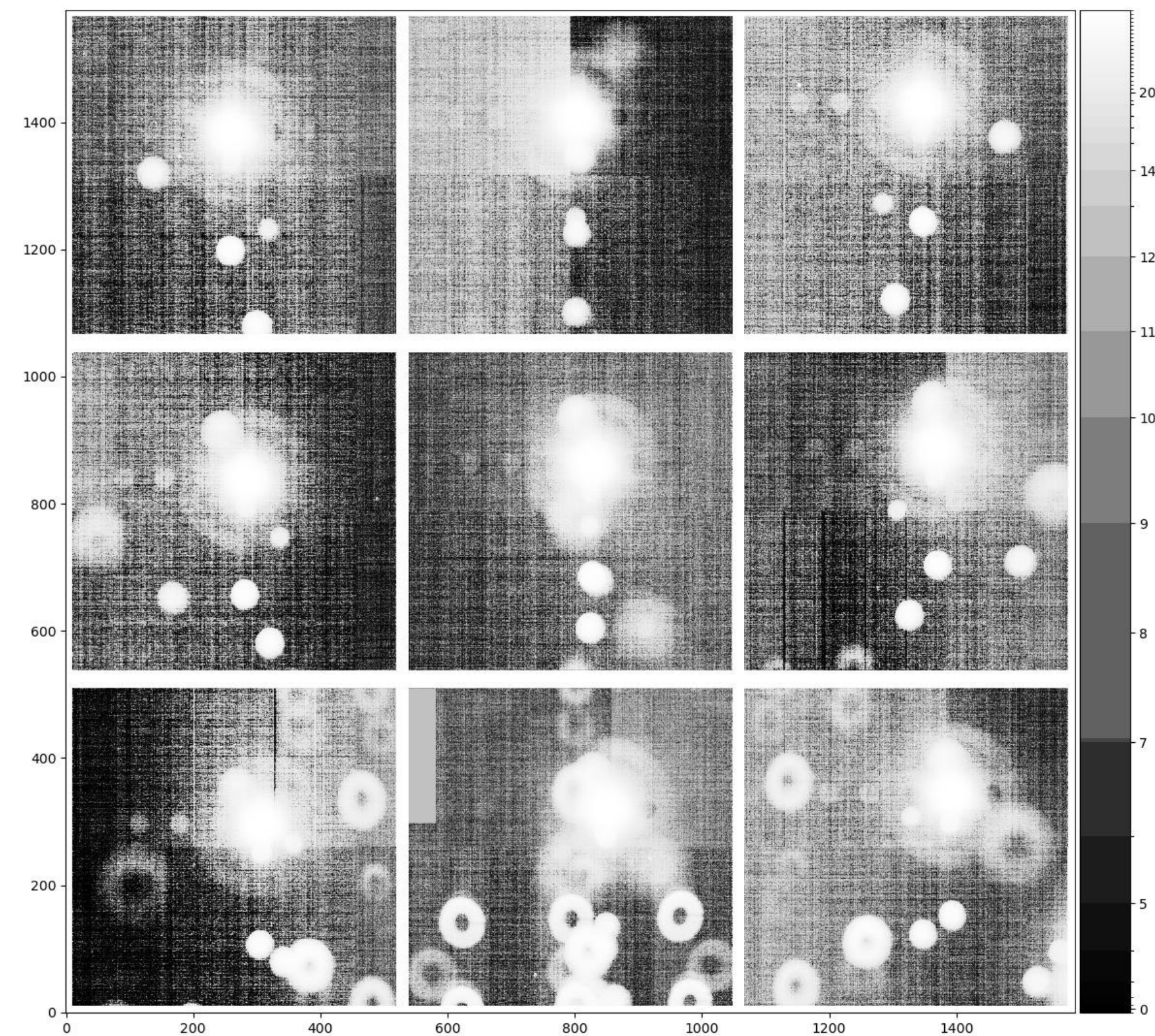
r filter

ComCam campaign

Throughput measurement - Aperture photometry

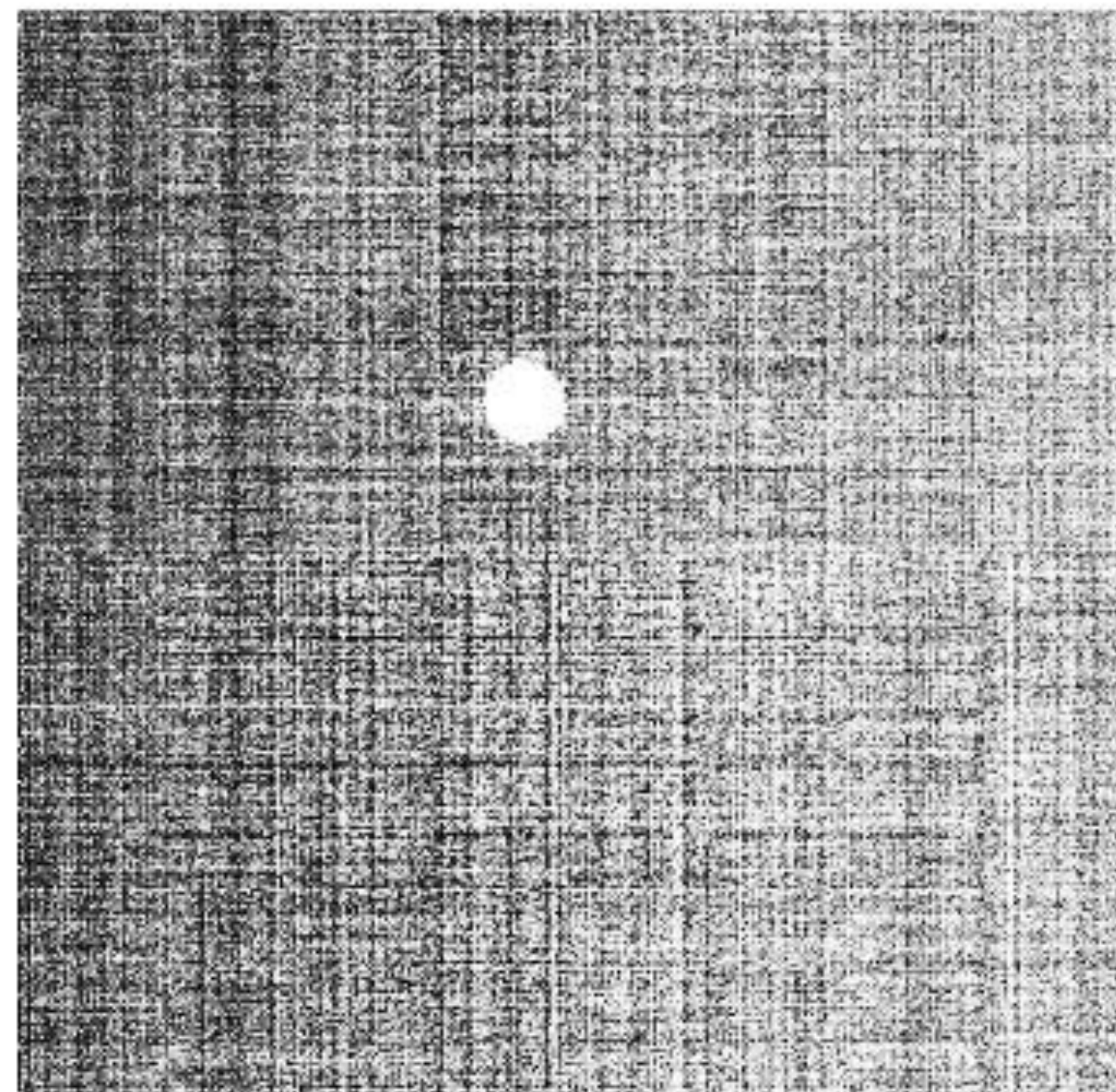


r filter

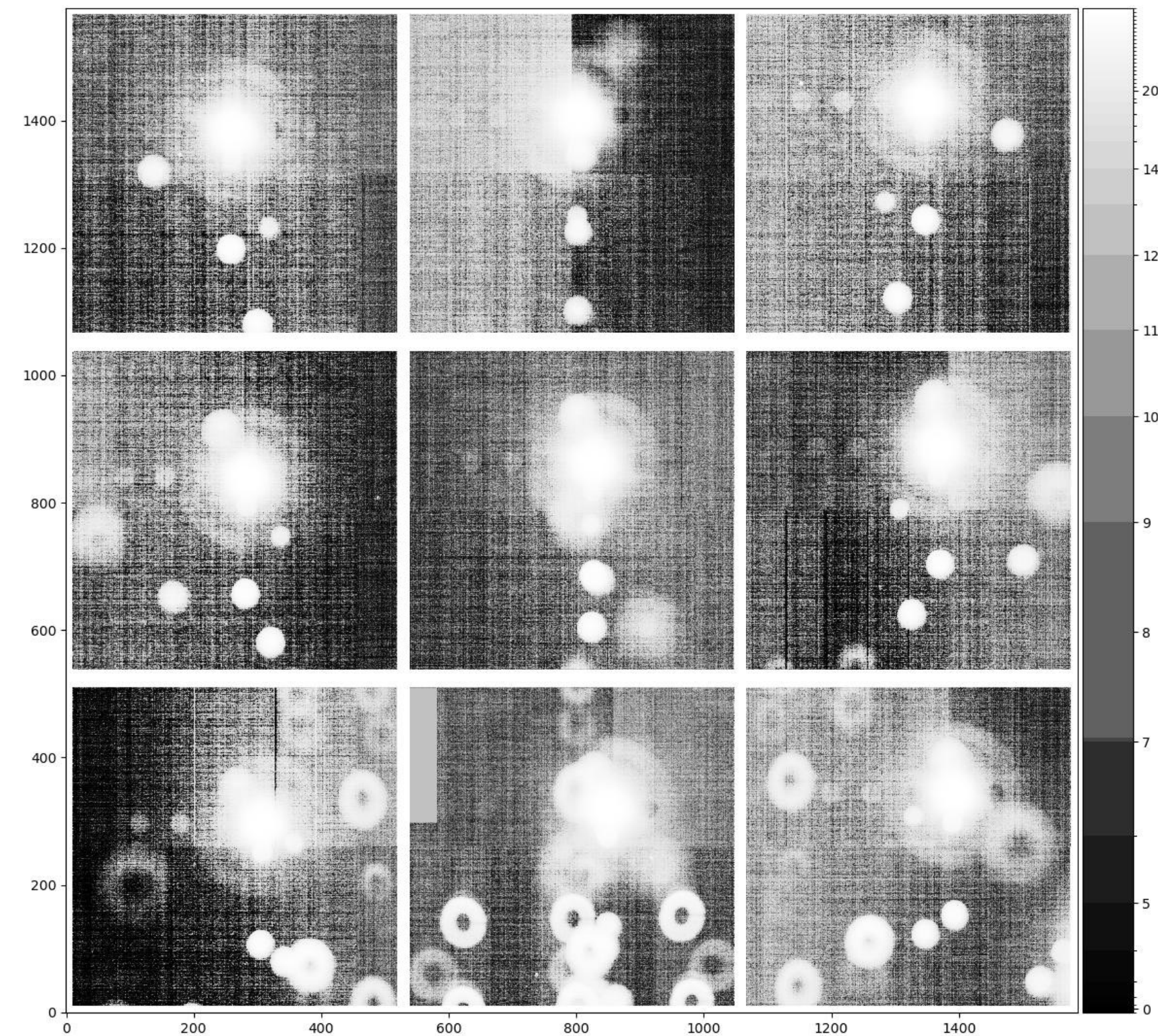


ComCam campaign

Throughput measurement - Aperture photometry

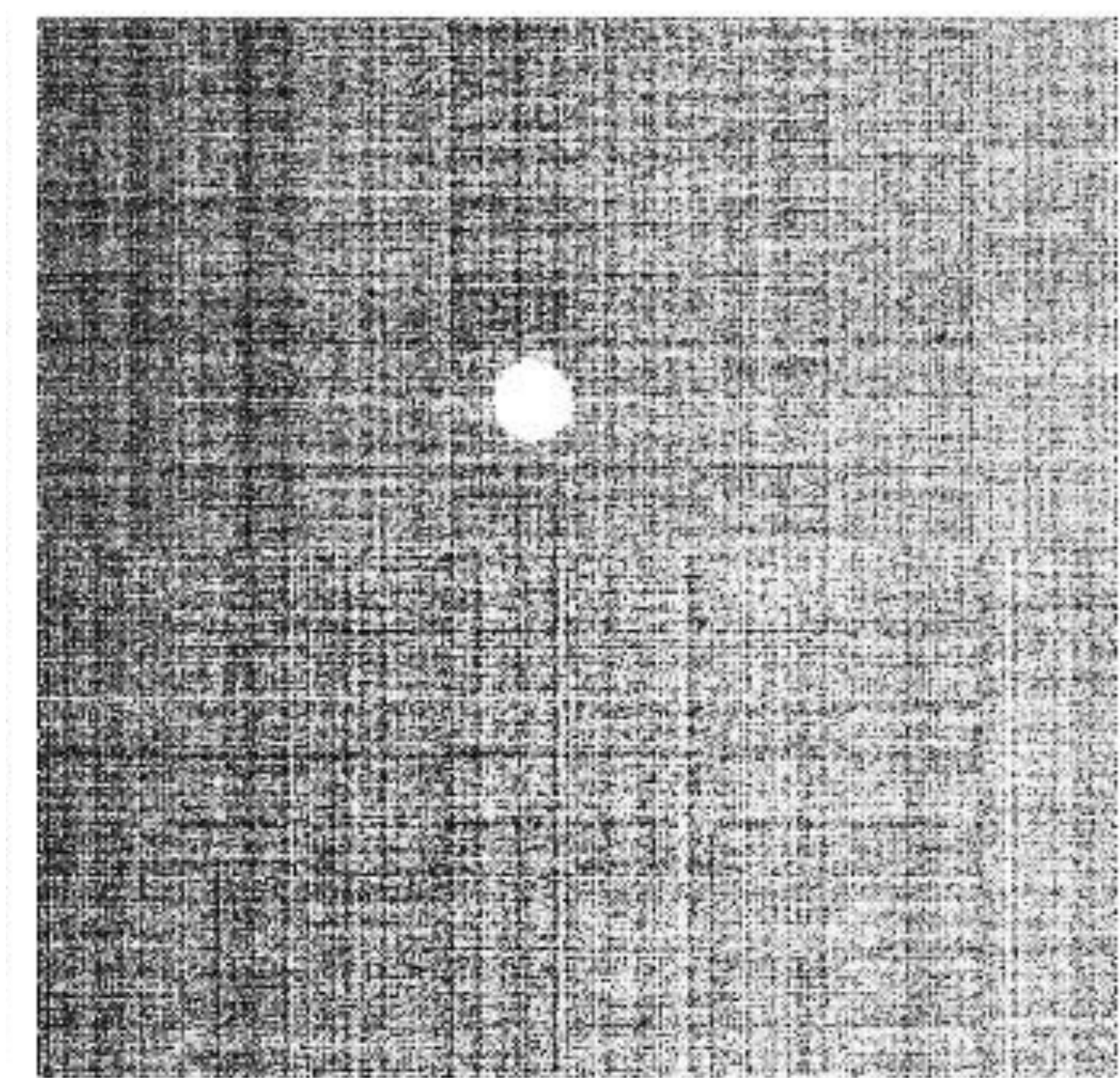


r filter

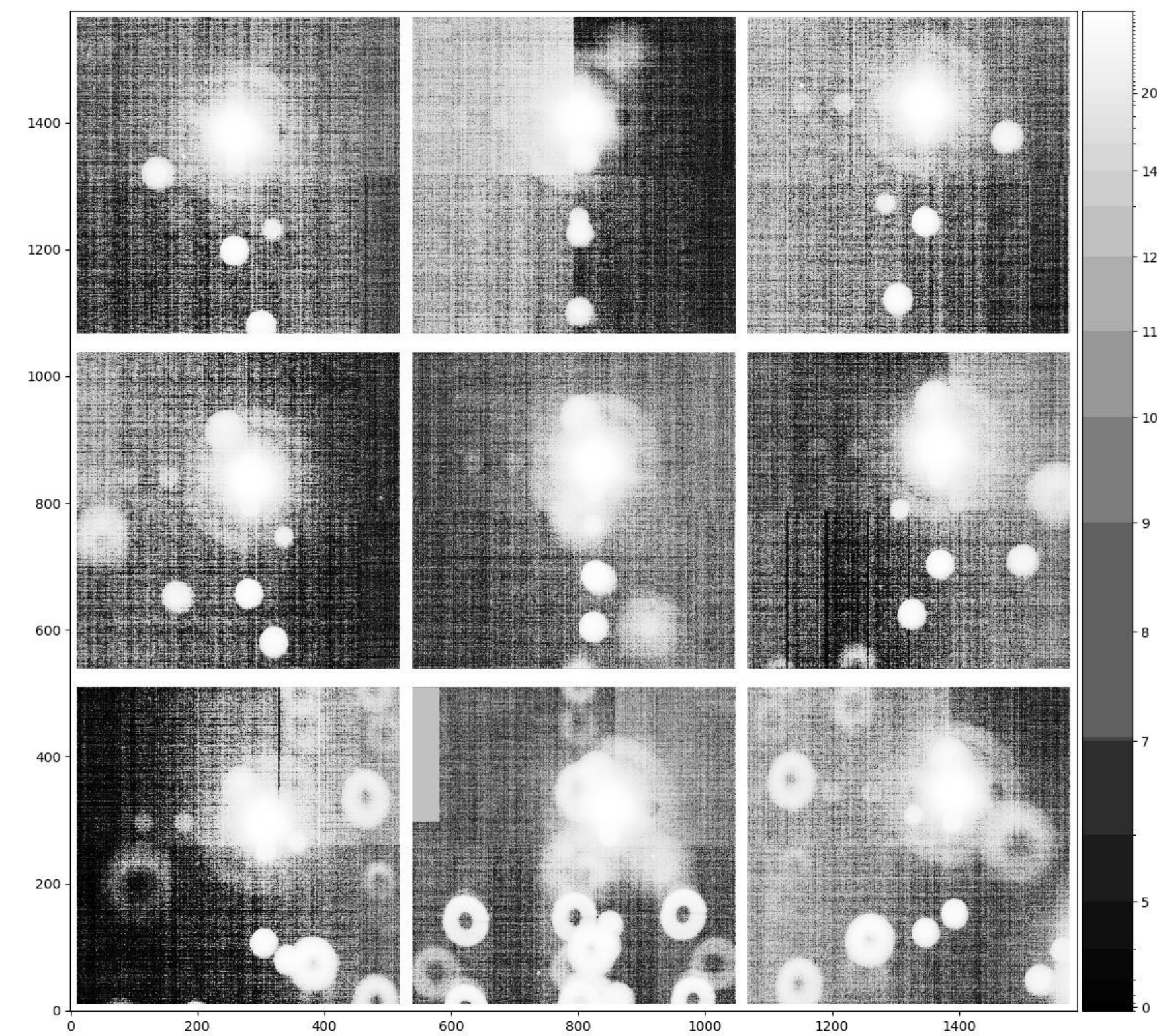


ComCam campaign

Throughput measurement - Aperture photometry

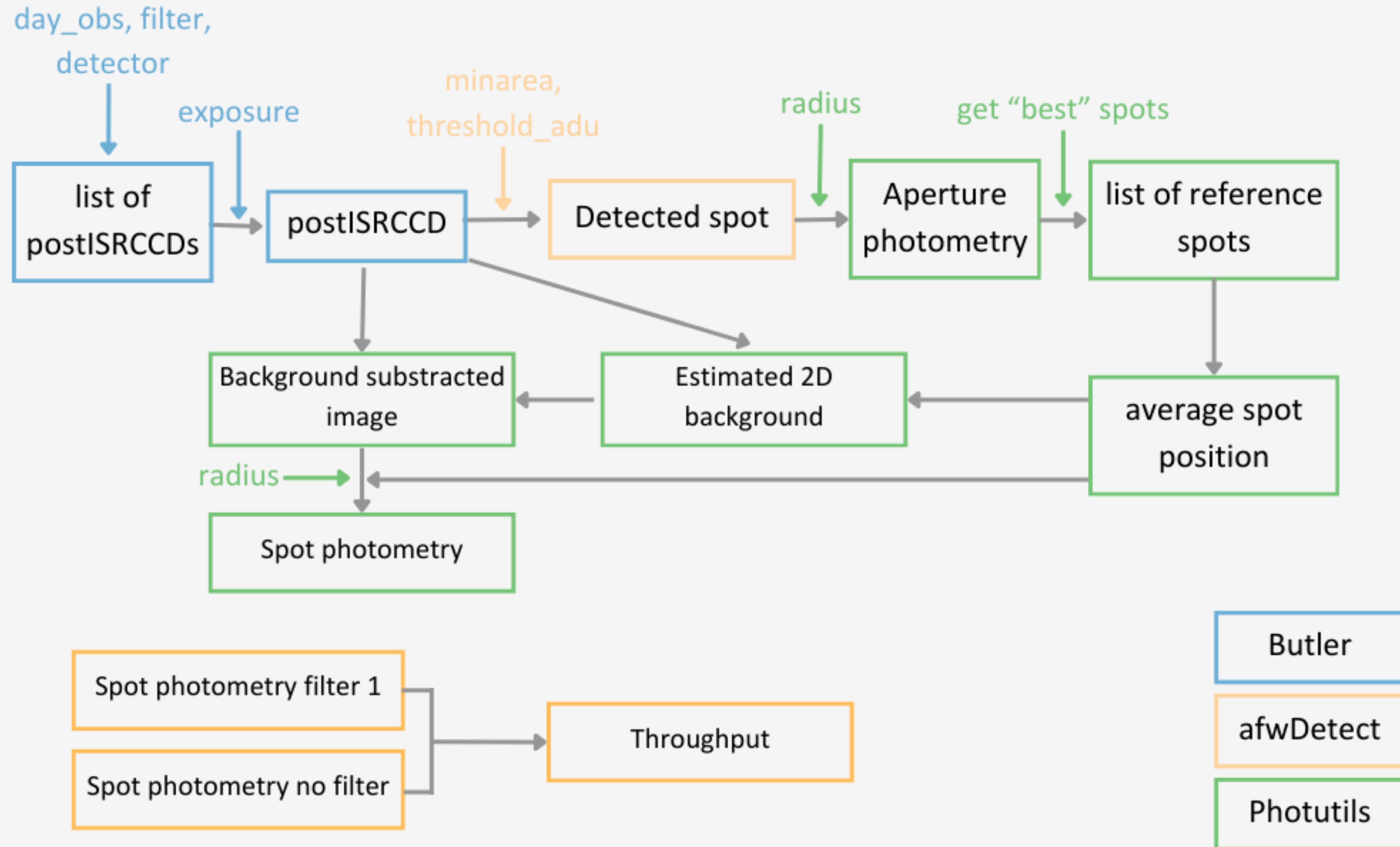


r filter



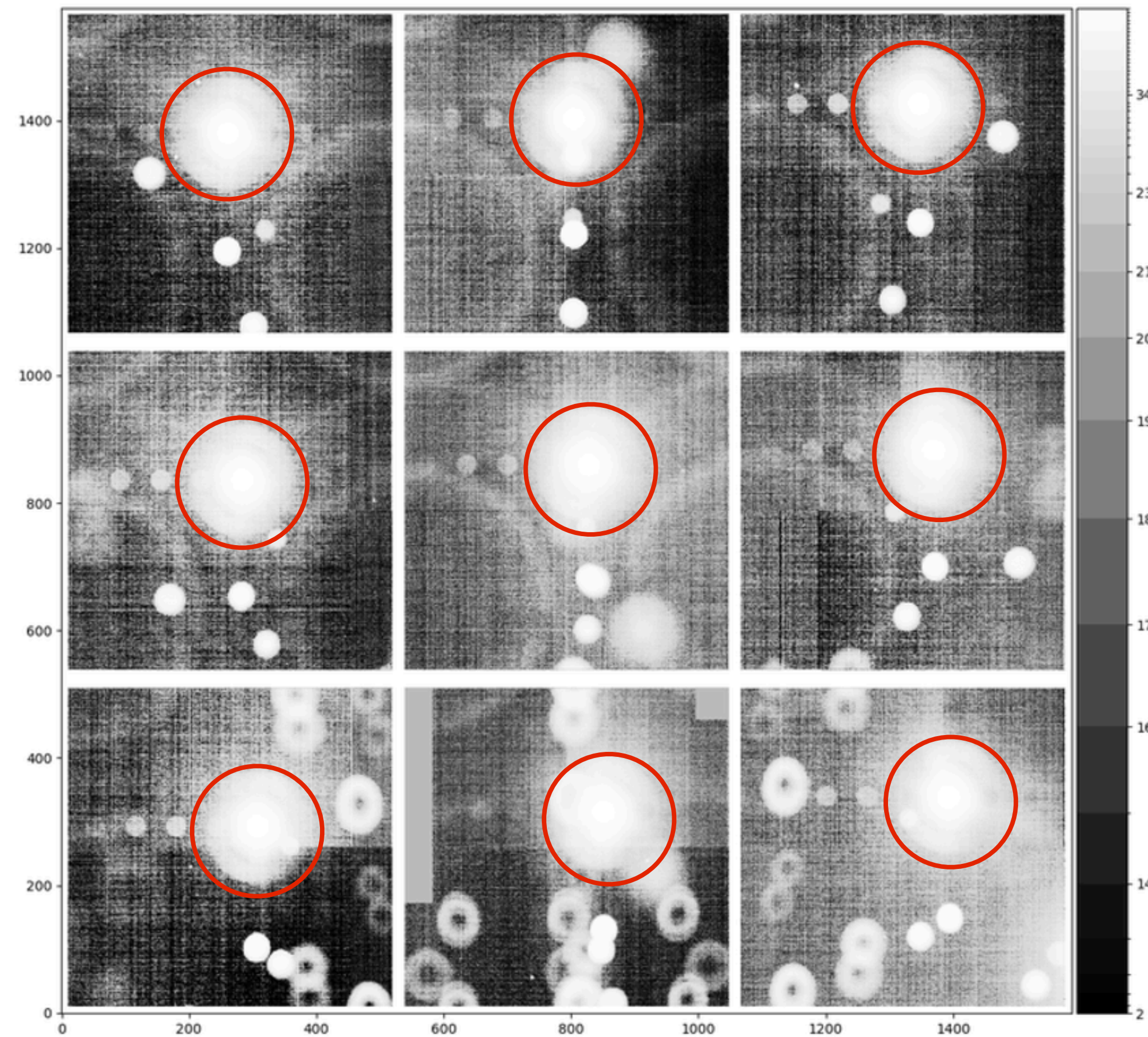
69										0.50		acq		2024-12-11T22:37:59.432	55.38	545	none
68										0.50		acq		2024-12-11T22:37:31.486	11.38	545	r_03
67										0.50		acq		2024-12-11T22:36:45.078	12.44	545	g_01

Workflow filter throughput measurement

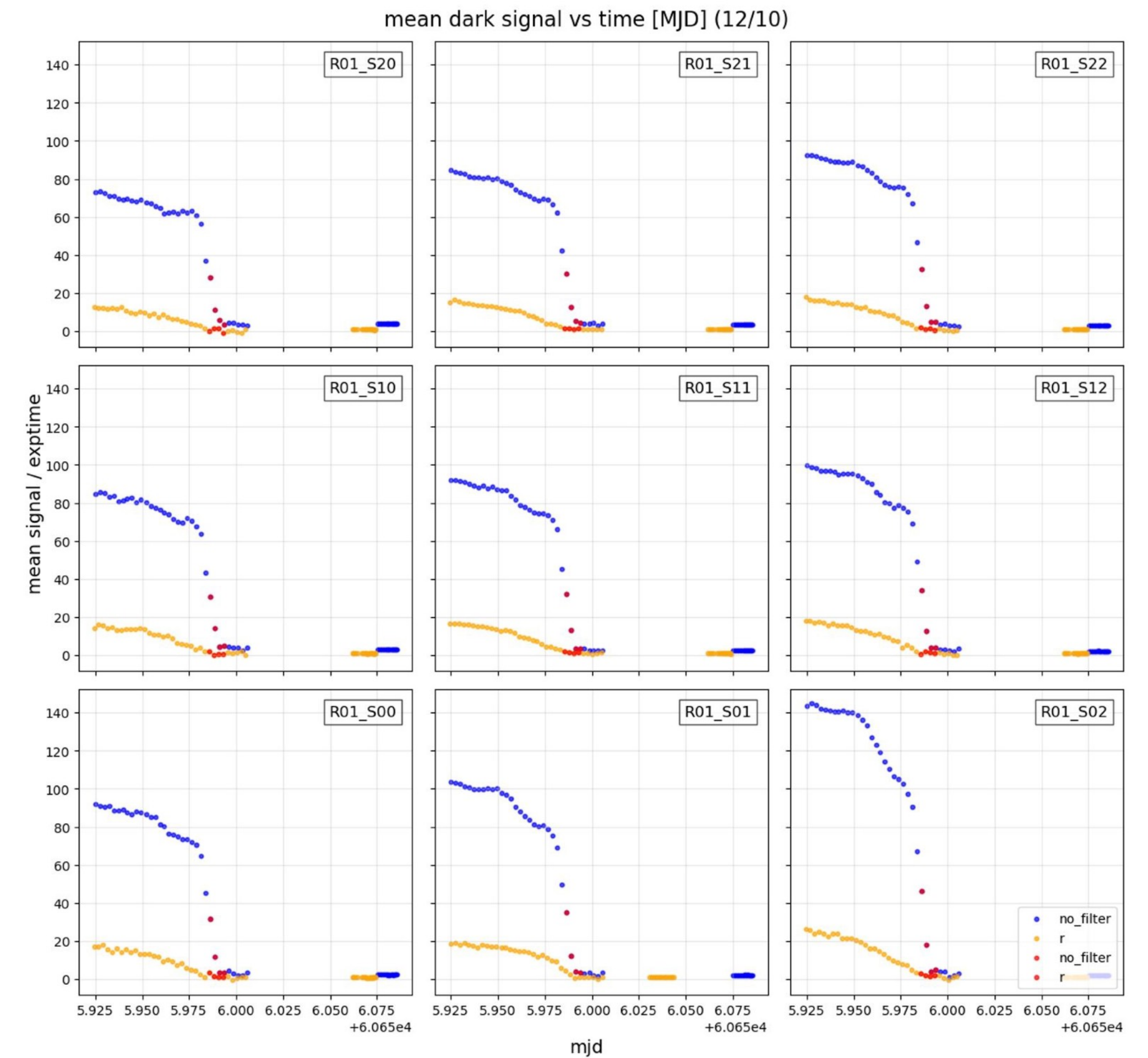


Filters throughput measurement

ComCam example



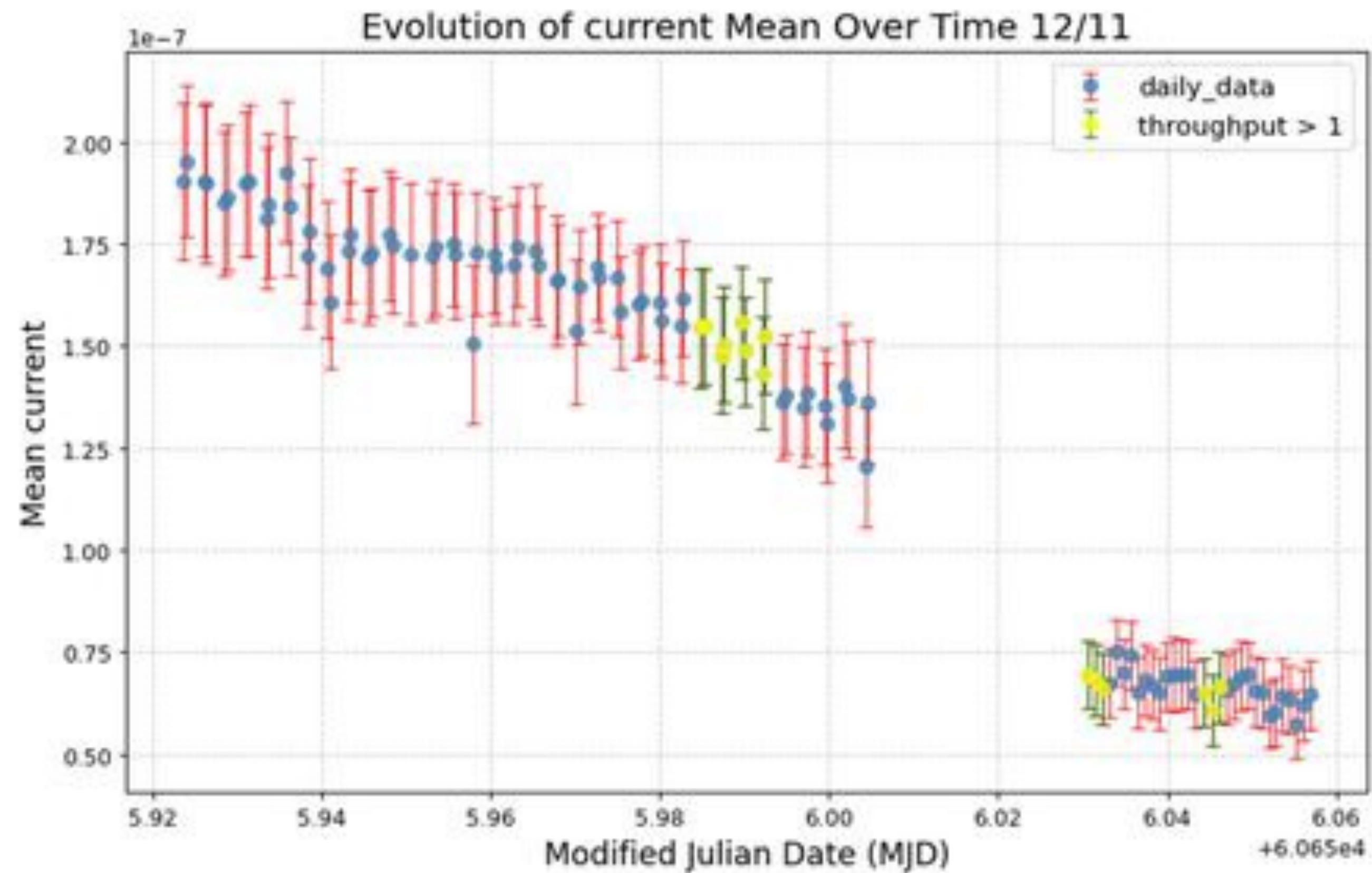
Aperture photometry



Background

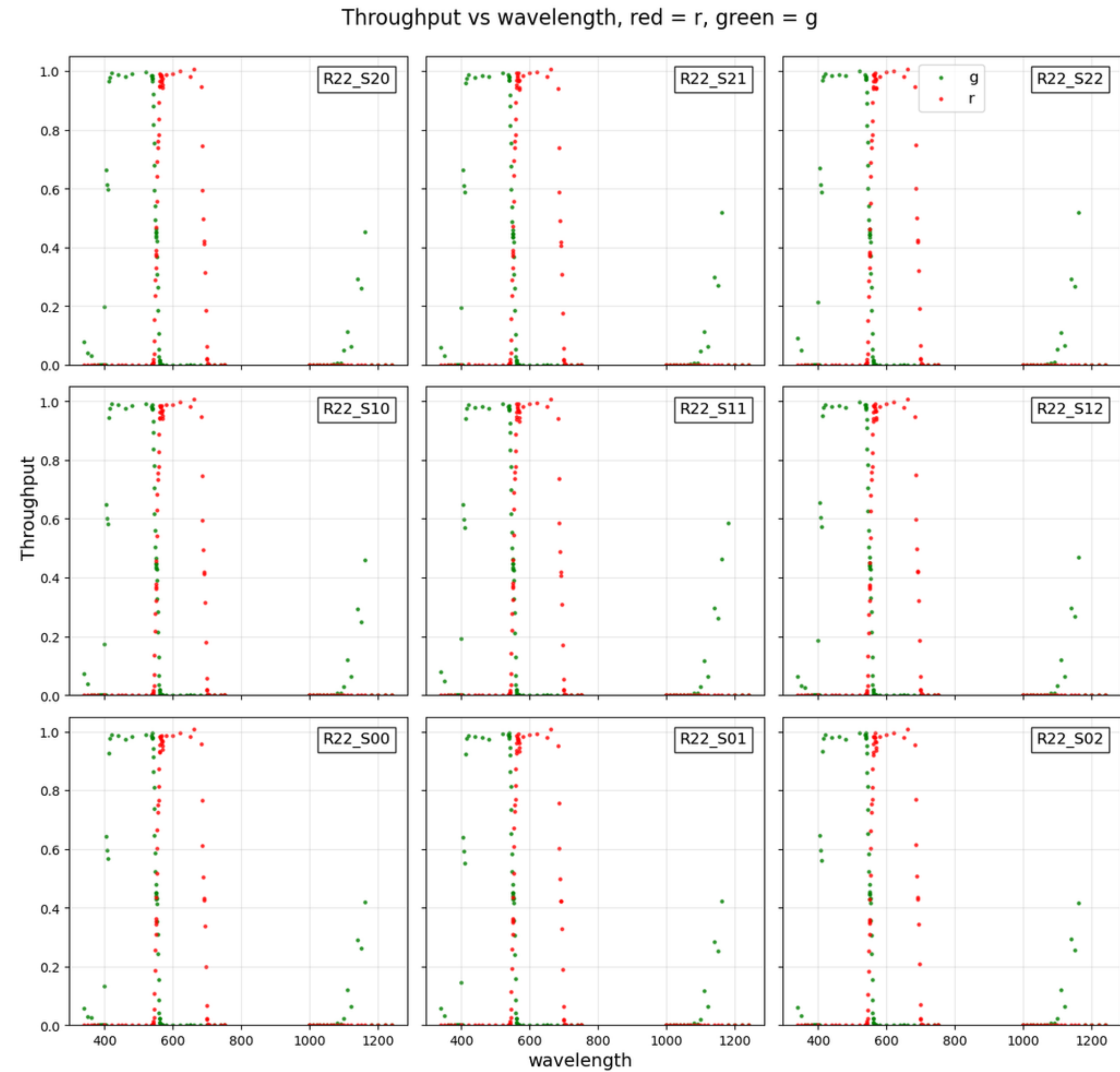
Filters throughput measurement

ComCam example



Photodiode data

ComCam filters throughput



CBPSpotMeasurement task

Files

u/amouroux/cbp_sp... + 🔍

Go to file t

pipelines

eoBFAnalysis.yaml

eoBiasShifts.yaml

eoBiasStability.yaml

eoBrightDefects.yaml

eoCBPSpotMeasurement.yaml

eoCcobNarrowBeamIsr.yaml

eoCtiPlots.yaml

eoCtiVsFlux.yaml

eoDarkCurrent.yaml

eoDarkDefects.yaml

eoDarkMosaic.yaml

eoDefects.yaml

eoDivisaderoTearing.yaml

eoEper.yaml

eoFlatGainStability.yaml

eo_pipe / pipelines / eoCBPSpotMeasurement.yaml

NathanAmouroux

cbpSpotMeasurement working with bps (with isr only) 7ffe8f5 · last month History

Code

Blame

25 lines (24 loc) · 644 Bytes

Raw

Copy

Download

Edit

More

```
1  description: Analyze spot data for CBP analysis
2  tasks:
3    isr:
4      class: lsst.ip.isr.IsrTaskLSST
5      config:
6        connections.ccdExposure: 'raw'
7        connections.outputExposure: 'post_isr_image'
8        doBrighterFatter: false
9        doFlat: false
10       doAmpOffset: false
11  cbpspotmeasurement_unforced:
12    class: lsst.eo.pipe.CBPSpotMeasurementTask
13    config:
14      doForcedPhotometry: false
15      aperture : 300
16  cbpspotmeasurement_forced:
17    class: lsst.eo.pipe.CBPSpotMeasurementTask
18    config:
19      doForcedPhotometry: true
20      aperture : 300
21
22  subsets:
23    noISR:
24      - cbpspotMeasurement_unforced
25      - cbpspotMeasurement_forced
```

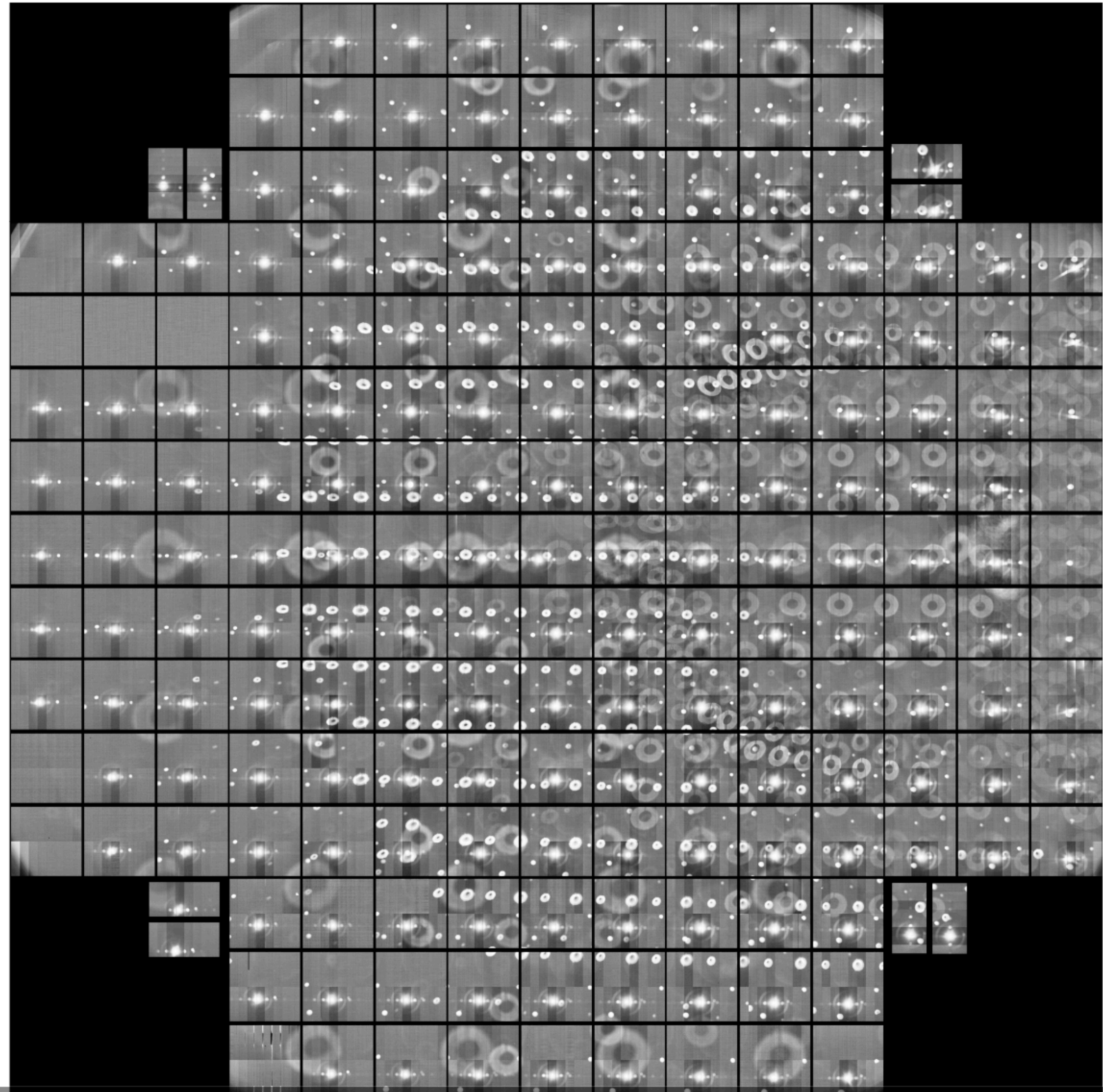

CBPSpotMeasurement task

The screenshot displays a code editor interface with a file explorer on the left and a code editor on the right. The file explorer shows a directory structure with a 'pipelines' folder containing various YAML files. The 'eoCBPSpotMeasurement.yaml' file is selected. The code editor shows the content of this file, which is a YAML configuration for a task. The file is titled 'eo_pipe / pipelines / eoCBPSpotMeasurement.yaml' and is attributed to 'NathanAmouroux'. The code is as follows:

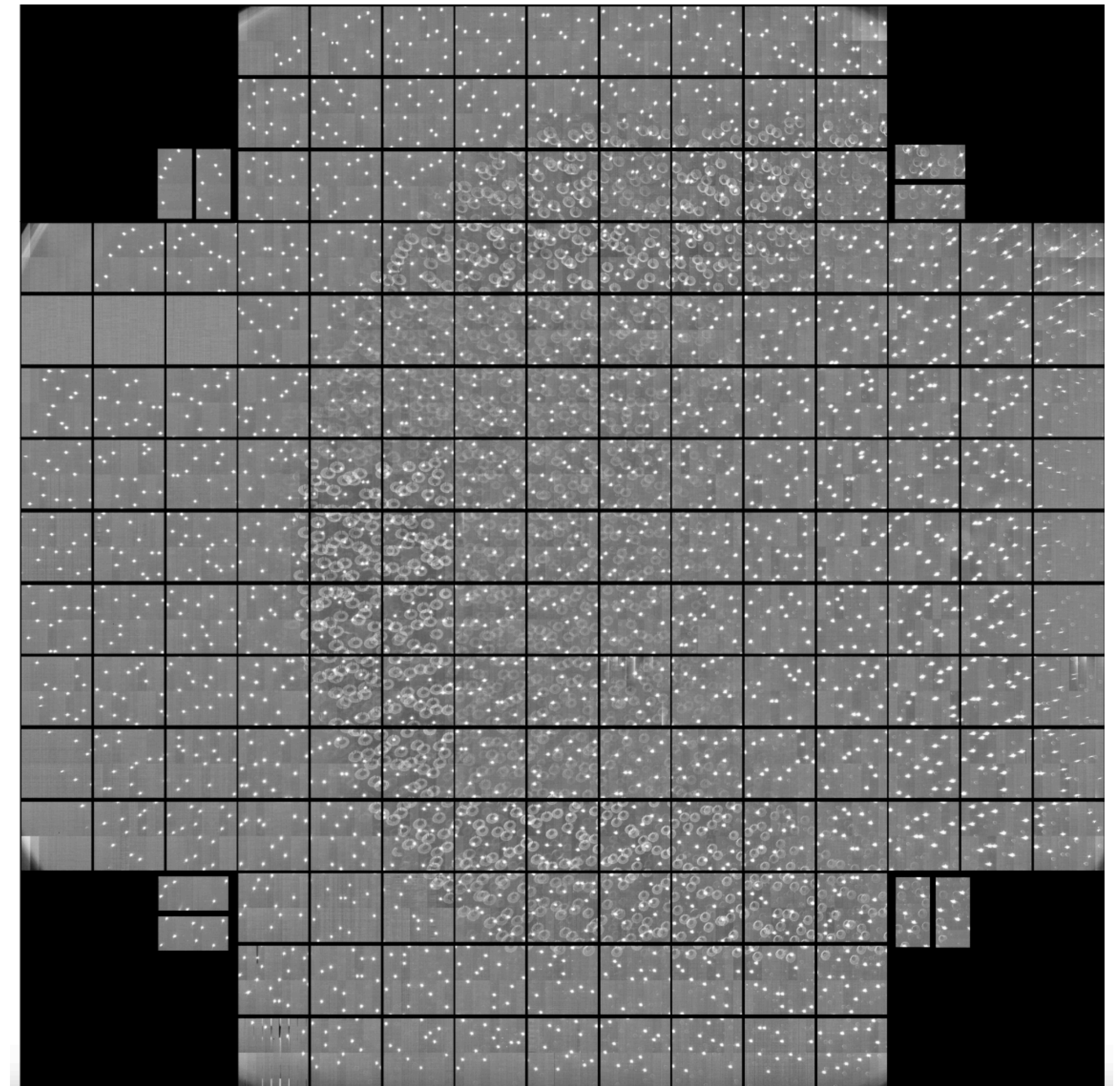
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20        aperture : 300
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24      - cbpspotMeasurement_unforced
25      - cbpspotMeasurement_forced
```

eo_pipe branch —> cbp_analysis —> cp_pipe fork ?

CBP Current status - LSSTCam campaign



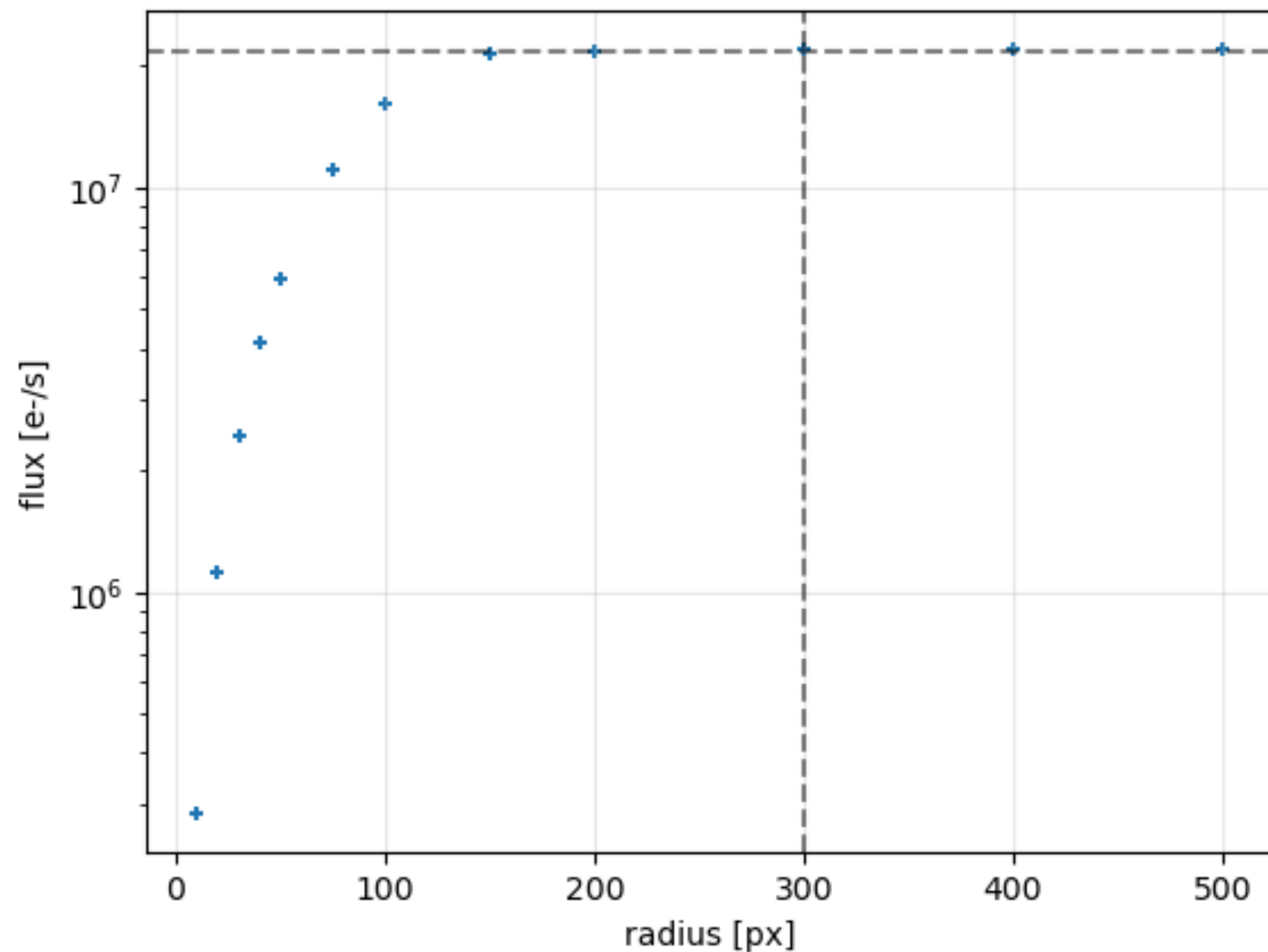
1 spot/CCD - No filter scan



16 spots/CCD - Motion test

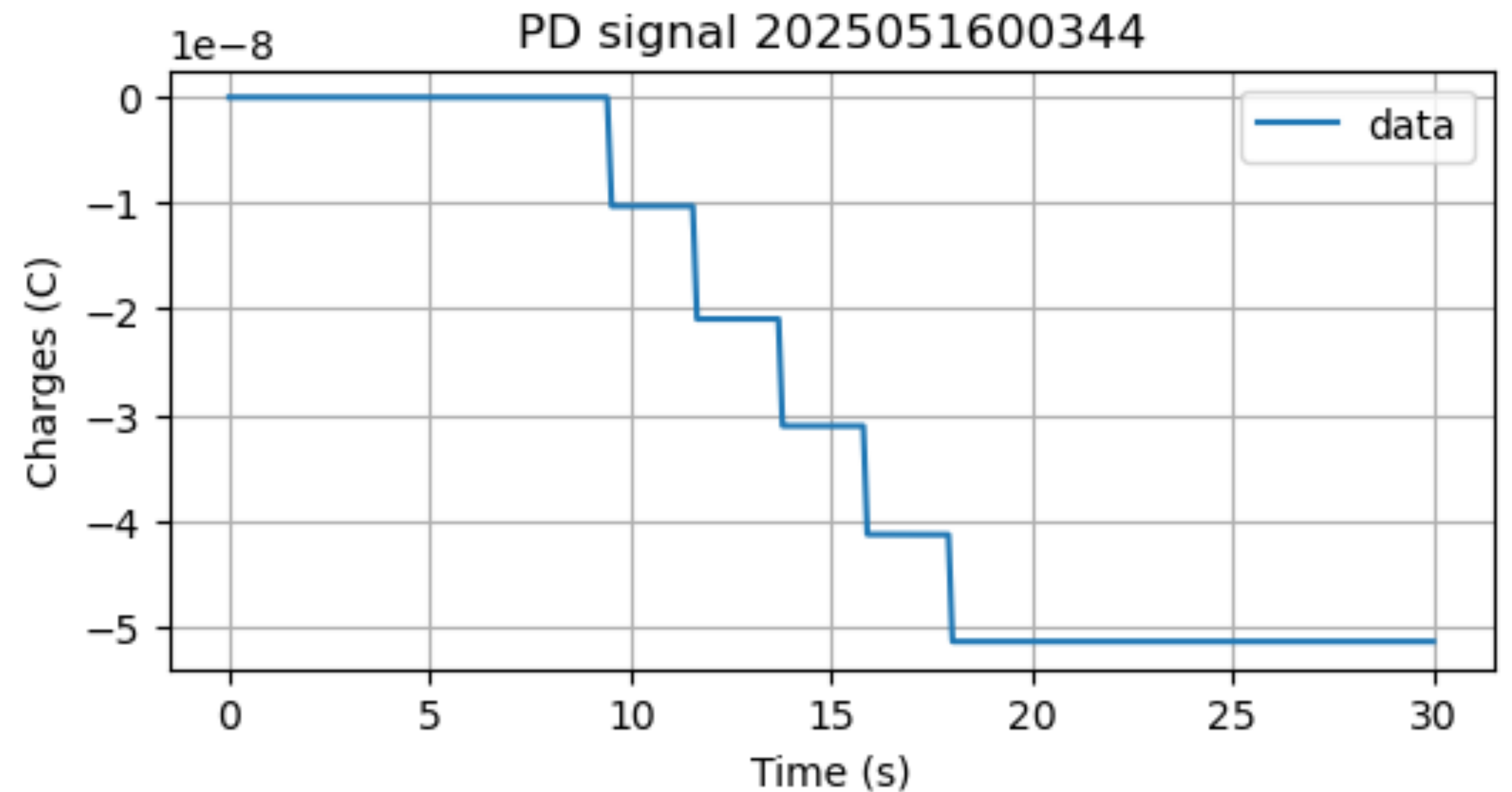
Ingredients for the QE scan

CBP spots growth curve - g filter



► Aperture photometry

Photodiode data (charge mode)

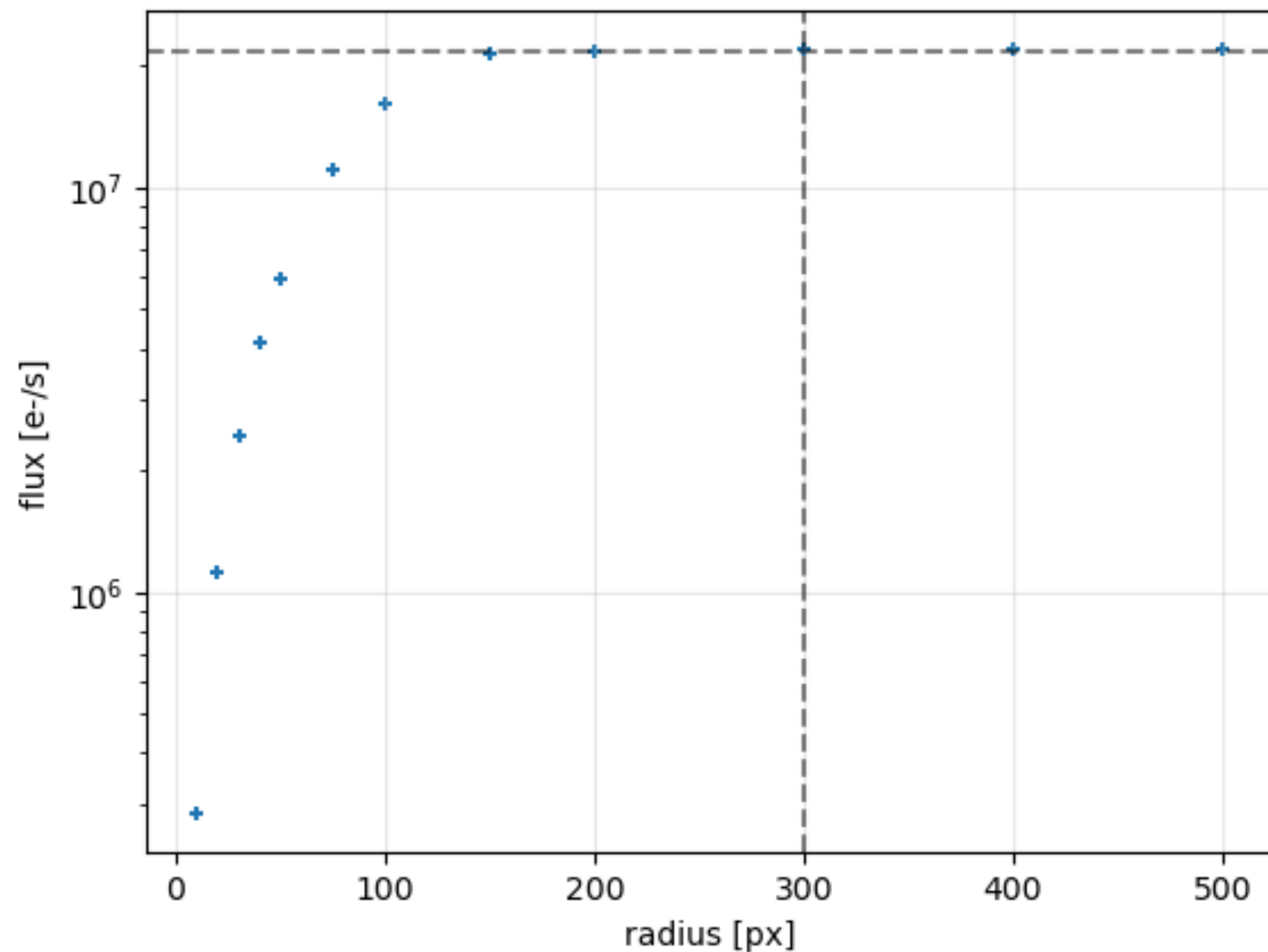


Package developed by Jeremy to analyze those data

► charge = max - min

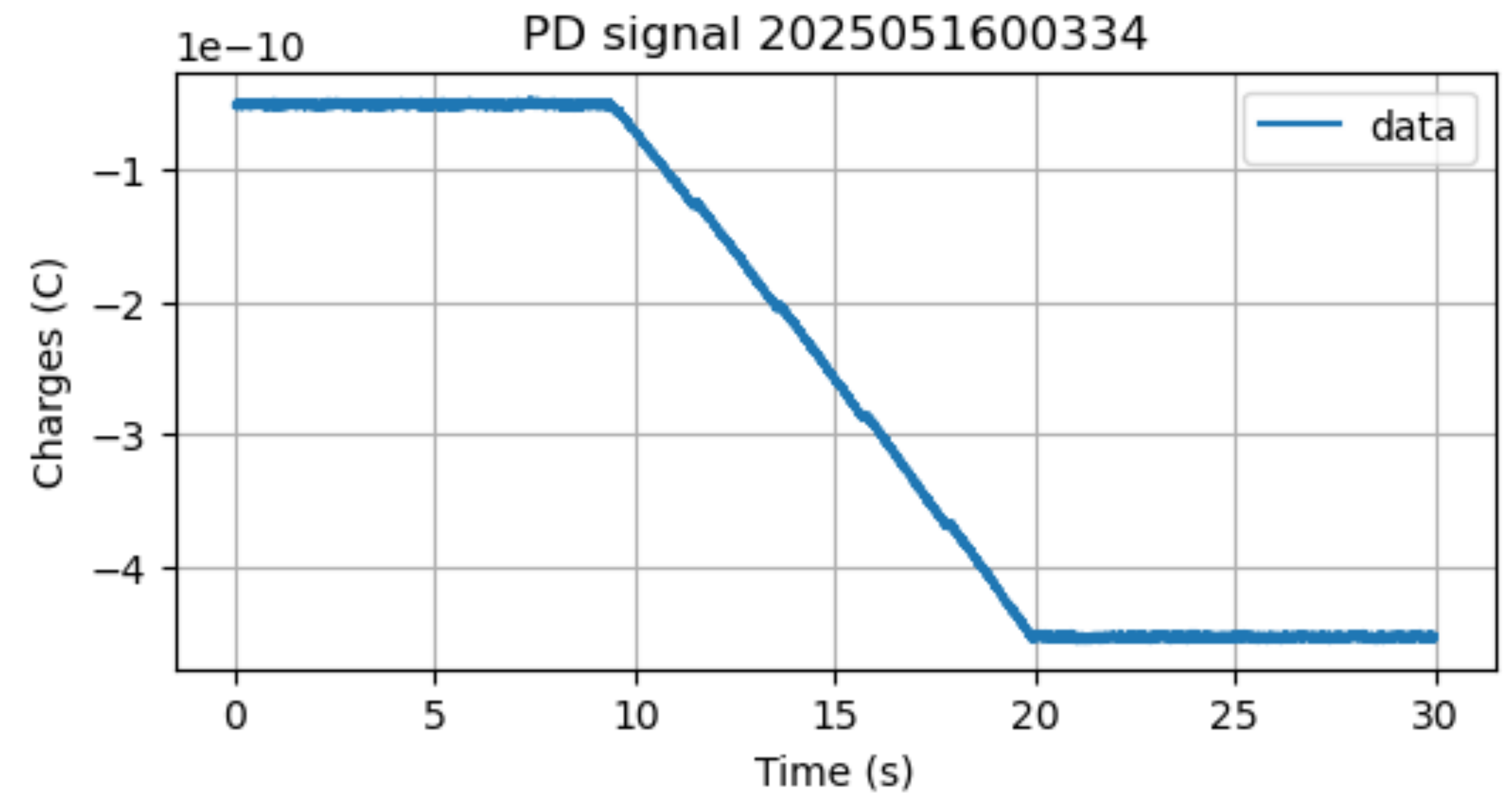
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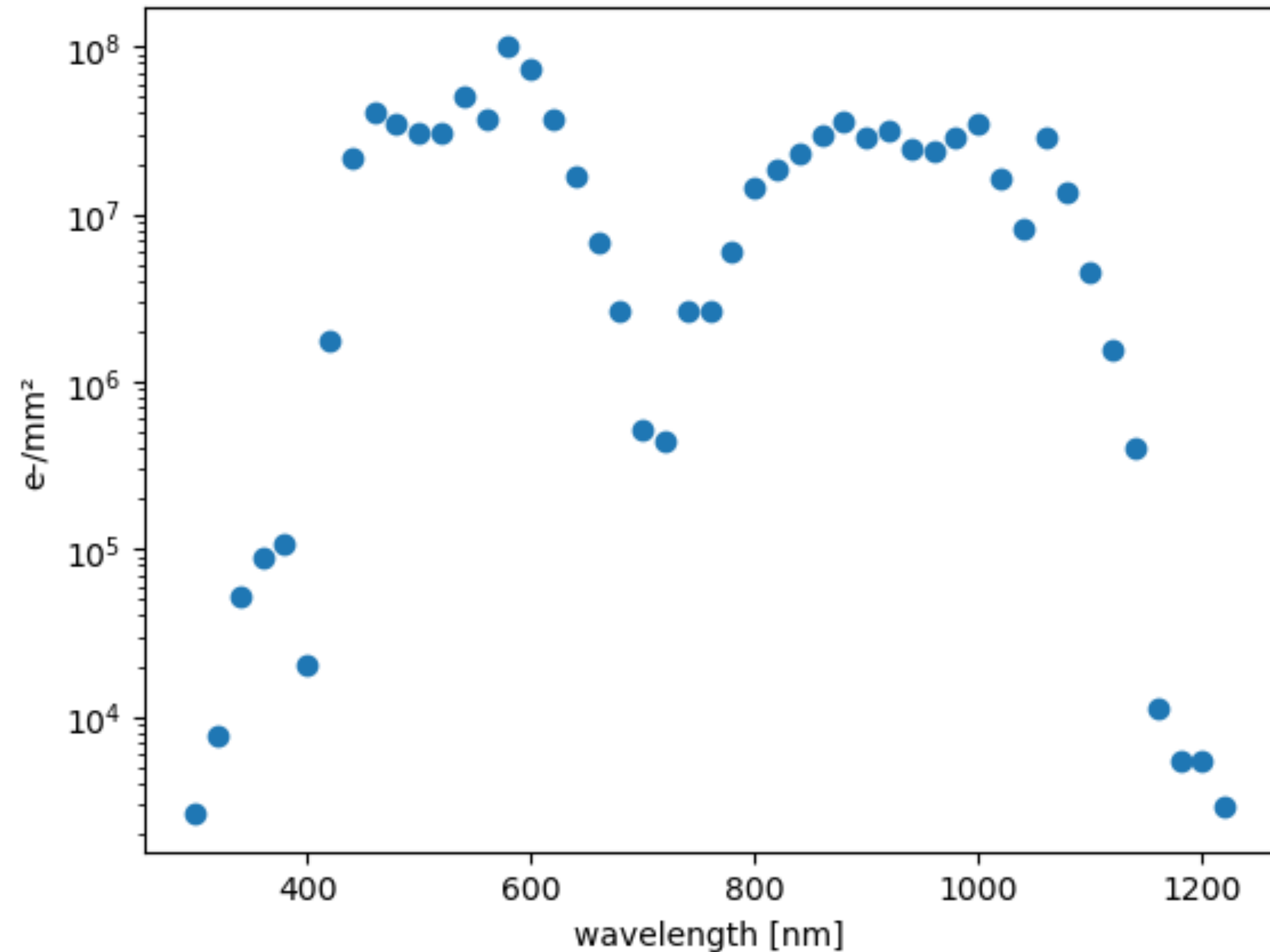


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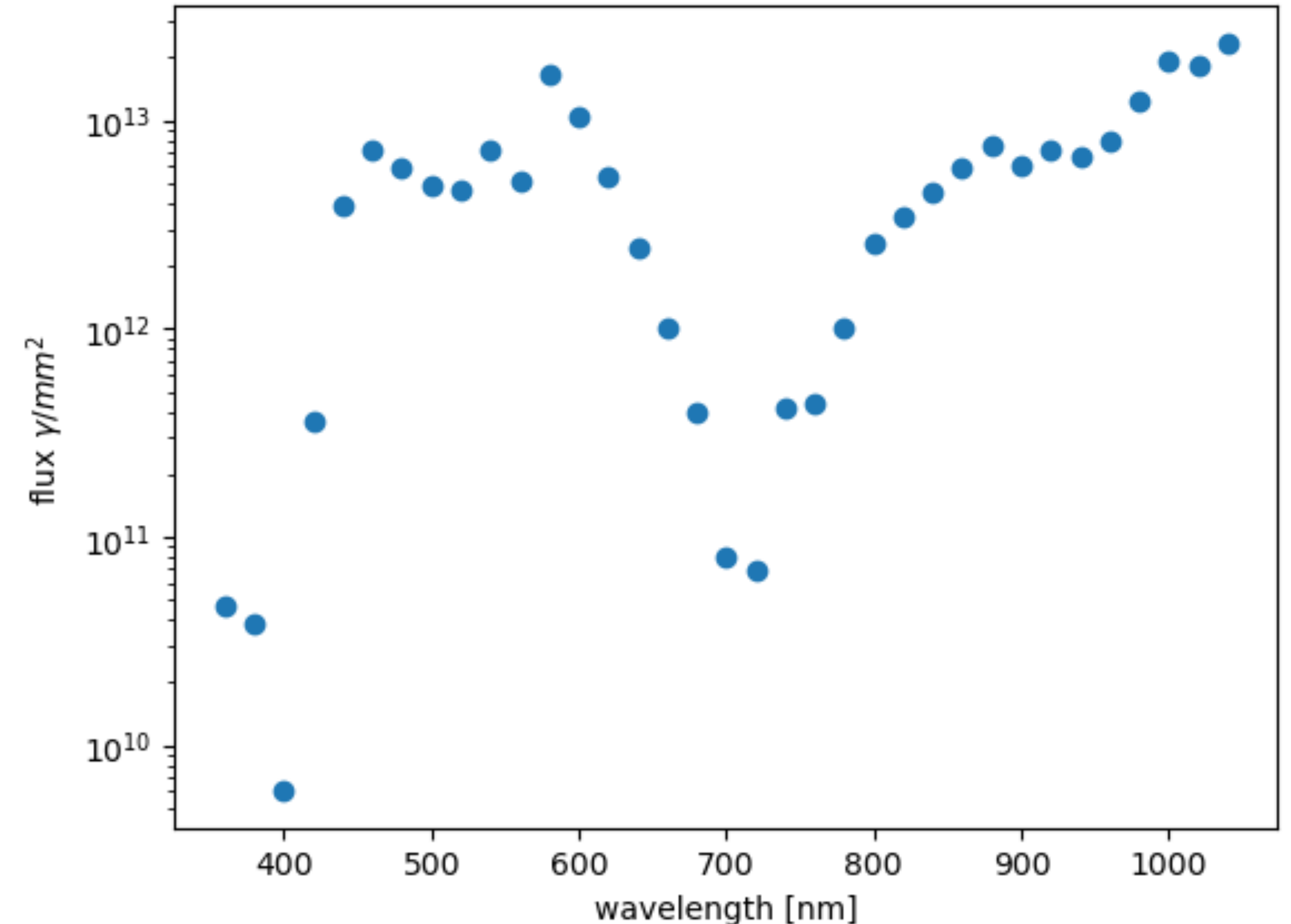
► charge = max - min

Ingredients for the QE scan

Signal from aperture photometry 'R22_Soo'



Signal from photodiode data

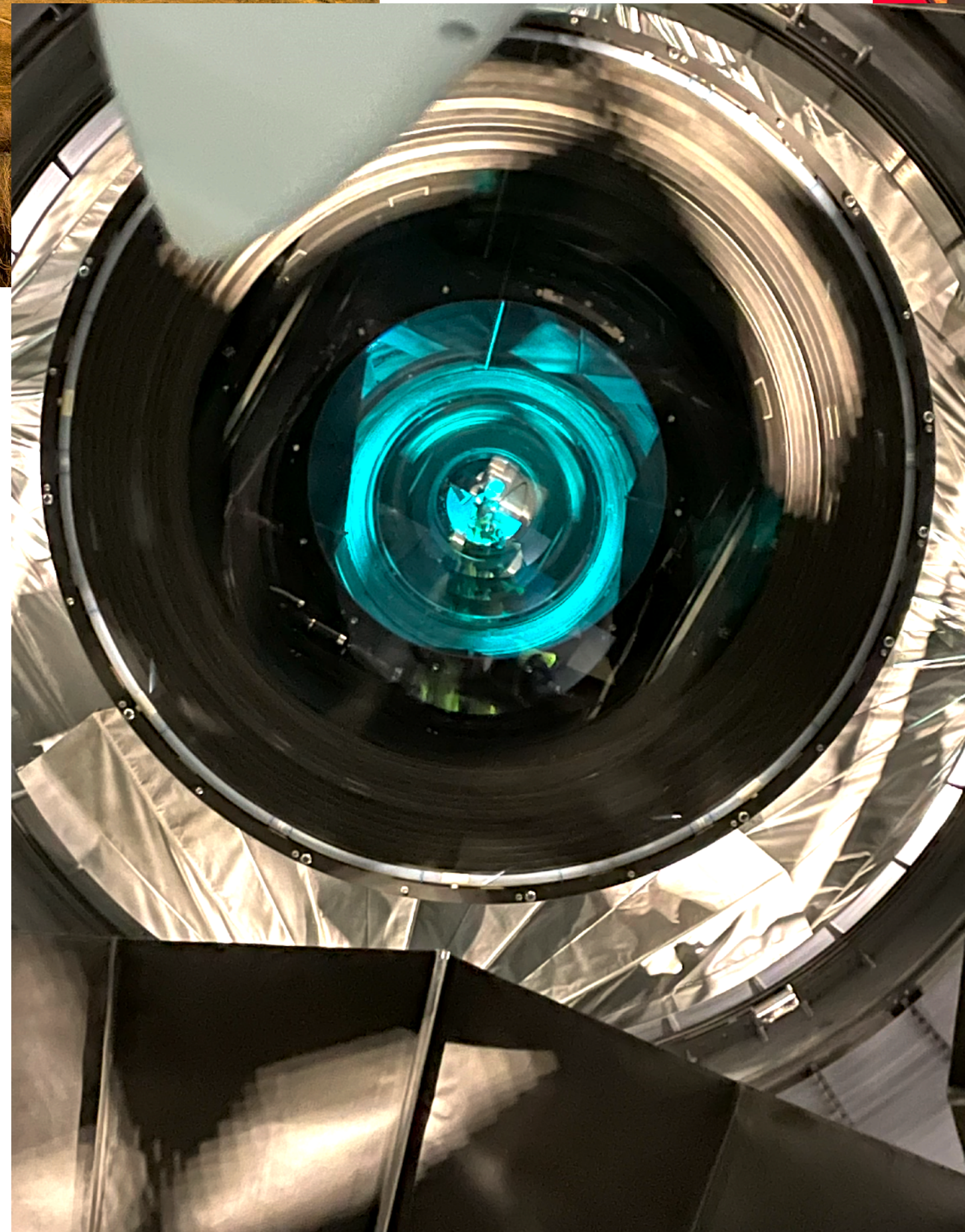
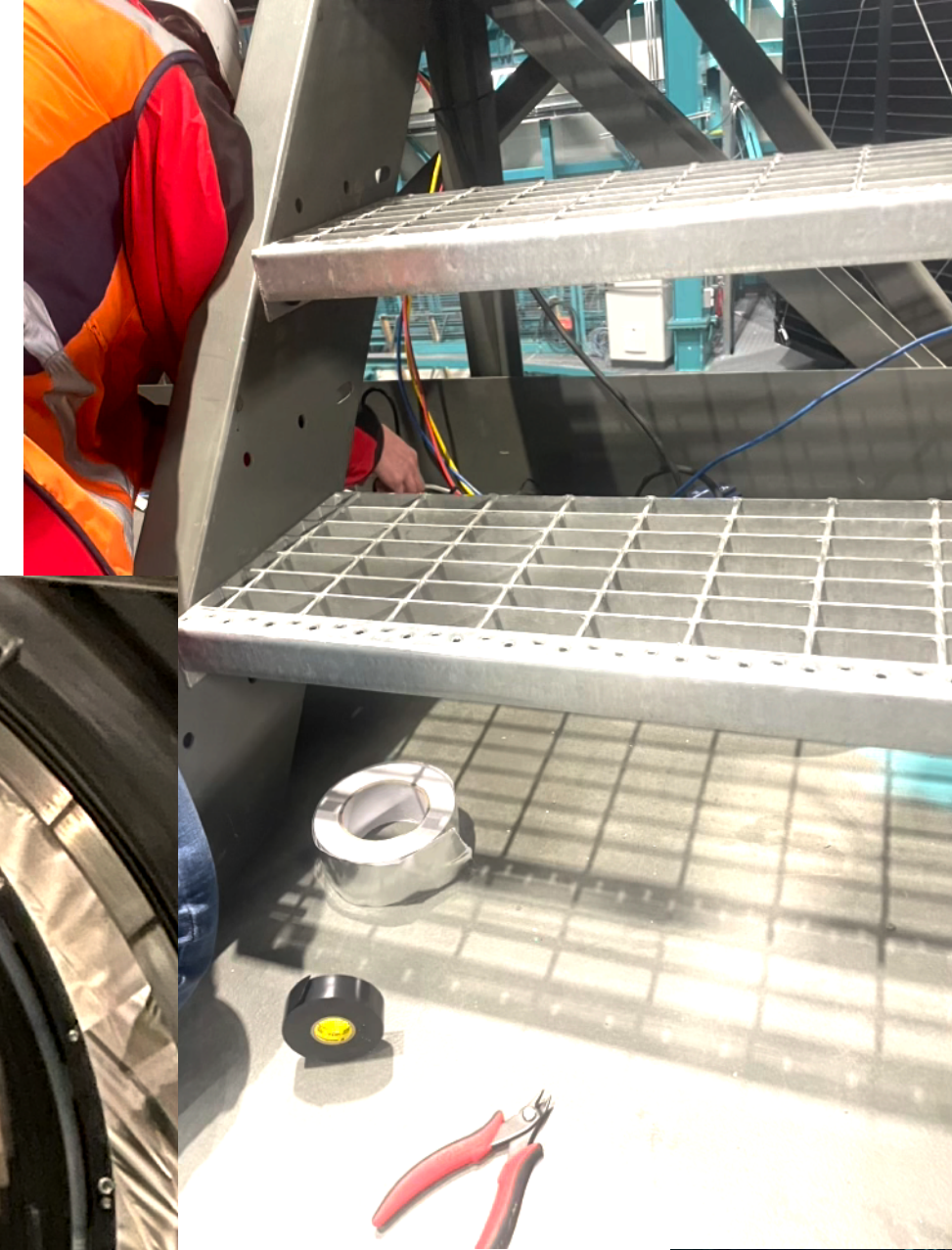
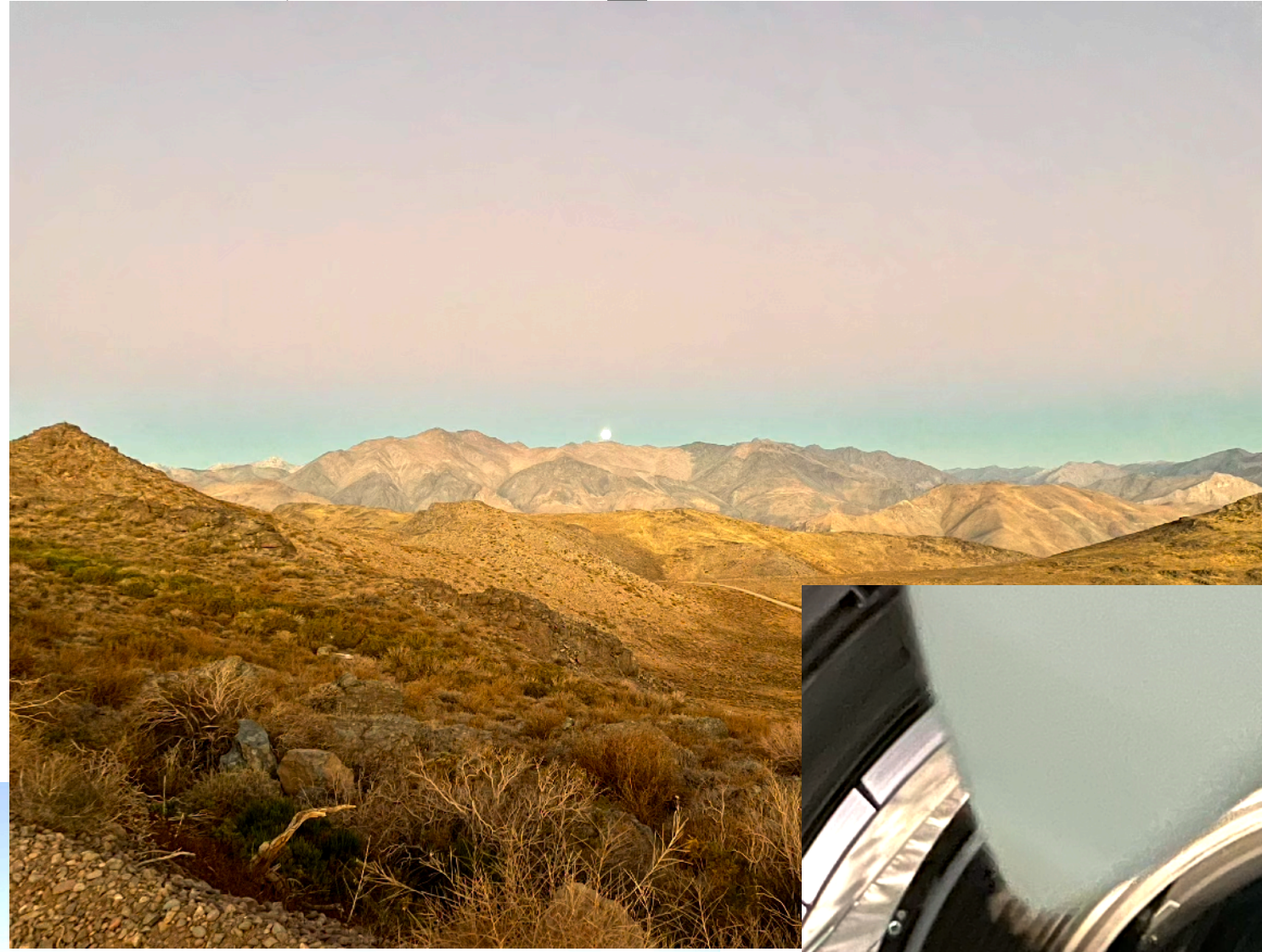


QE = ratio of these two plots : We're almost there !

Conclusion

- ComCam campaign was a success
- CBP comissioning during ComCam
- ComCam g and r filters throughput measured
- New masks installed for LSSTCam
- LSSTCam detectors QE
- u,g,r,z,y bandpass measured on LSSTCam : analysis ongoing
- Different pointings for incidence angle investigation

My trip to the observatory



L'odyssée cosmique de Pénélope

