

# Indonesian 3.8m telescope and Instruments

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# Telescope



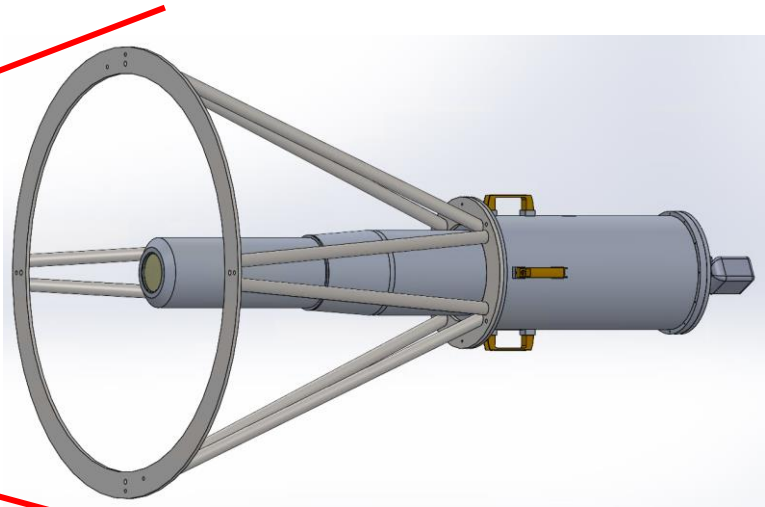
Seimei as Sister telescope

<b>Aperture:</b>	<b>3.8 m</b>
<b>Focus:</b>	<b>Nasmyth <math>\times 2 F/6</math></b>
<b>Field of view:</b>	<b>10'</b>
<b>Observational</b>	
<b>Wavelength:</b>	<b>0.4 to 4.2 <math>\mu\text{m}</math></b>
<b>Adaptive Optics:</b>	<b>Near-infrared</b>
<b>Pointing speed</b>	<b>&lt; 1 min (whole sky)</b>
<b>Elevation speed:</b>	<b>3° /s</b>
<b>Azimuth speed:</b>	<b>4° /s</b>

# NIRCA



Seimei Telescope



Near Infrared Wide Field Camera  
NIRKA(CAD model)

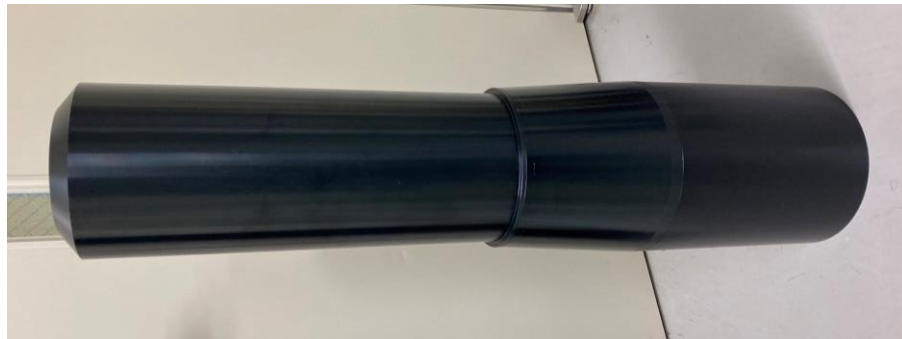
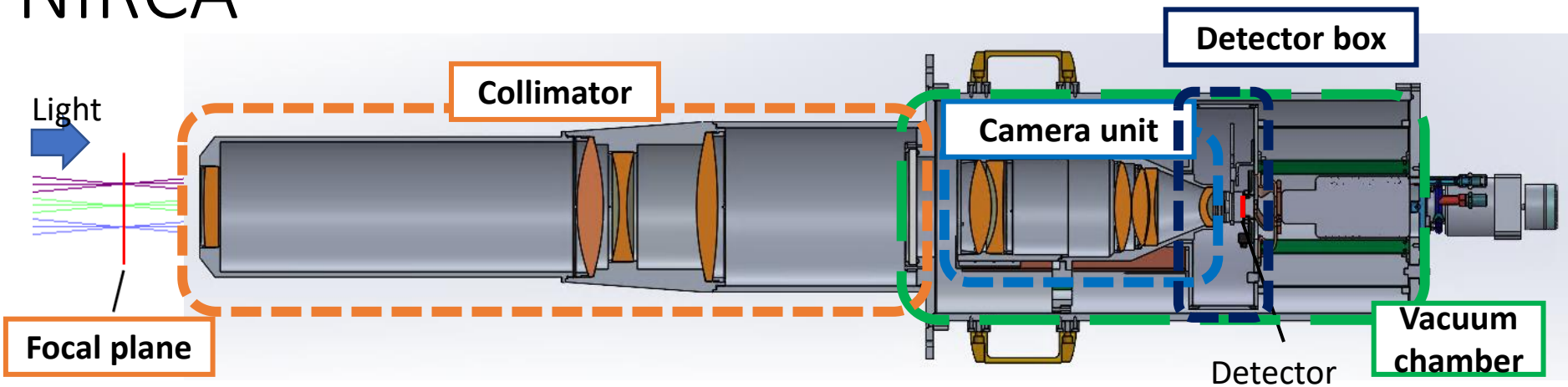
	Specifications
Band	Y ( $\lambda=1020$ , $\Delta\lambda=120$ ), J ( $\lambda=1220$ , $\Delta\lambda=213$ ), H ( $\lambda=1630$ , $\Delta\lambda=307$ ),
F	2
FoV	$9 \times 9$ arcmin <sup>2</sup>
Pixel scale	0.4 arcsec/pixel
Image quality	0.8 arcsec (EE>73%)
Detector Temp.	120 K

EE : Encircled Energy

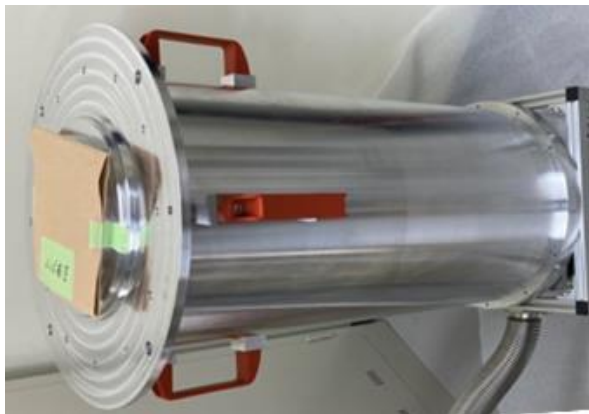


Field of View (FoV)

# NIRCA



Collimator Unit



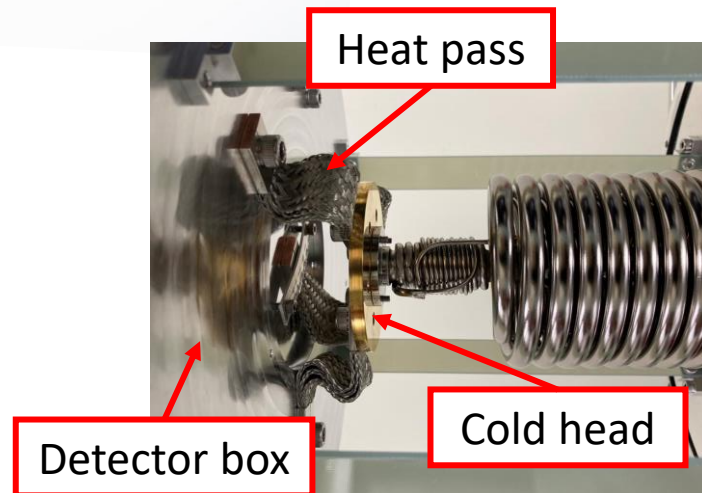
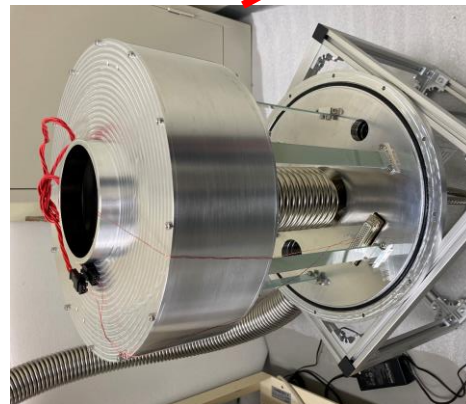
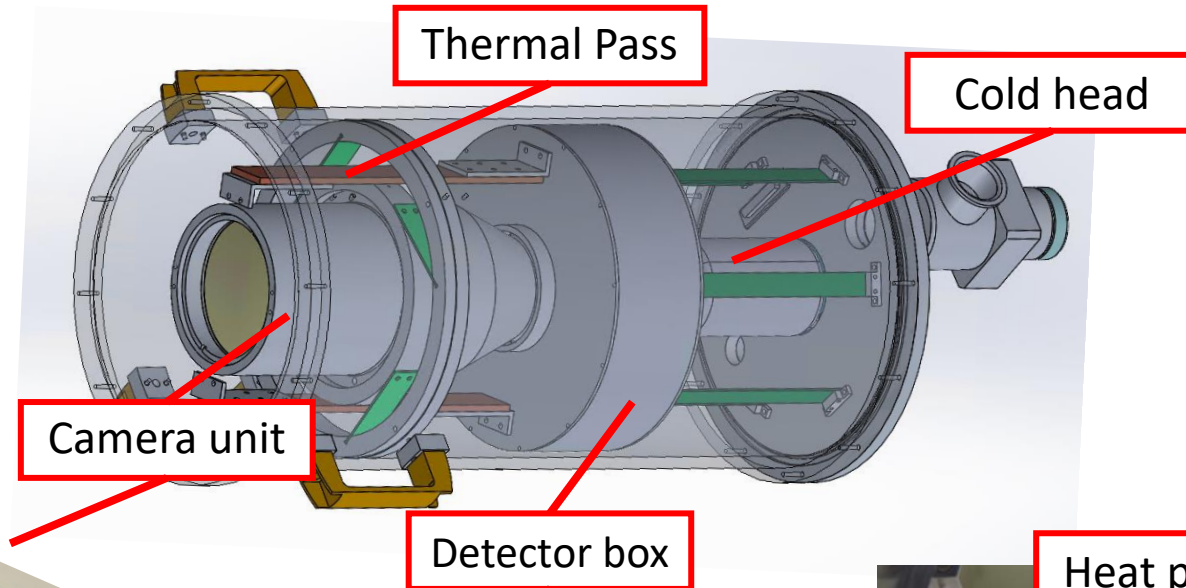
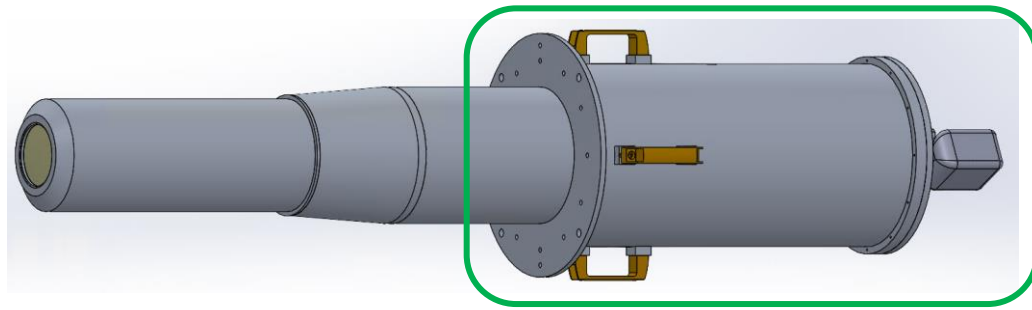
Vacuum Chamber

The collimator and camera units convert the F-ratio from 6 to 2.

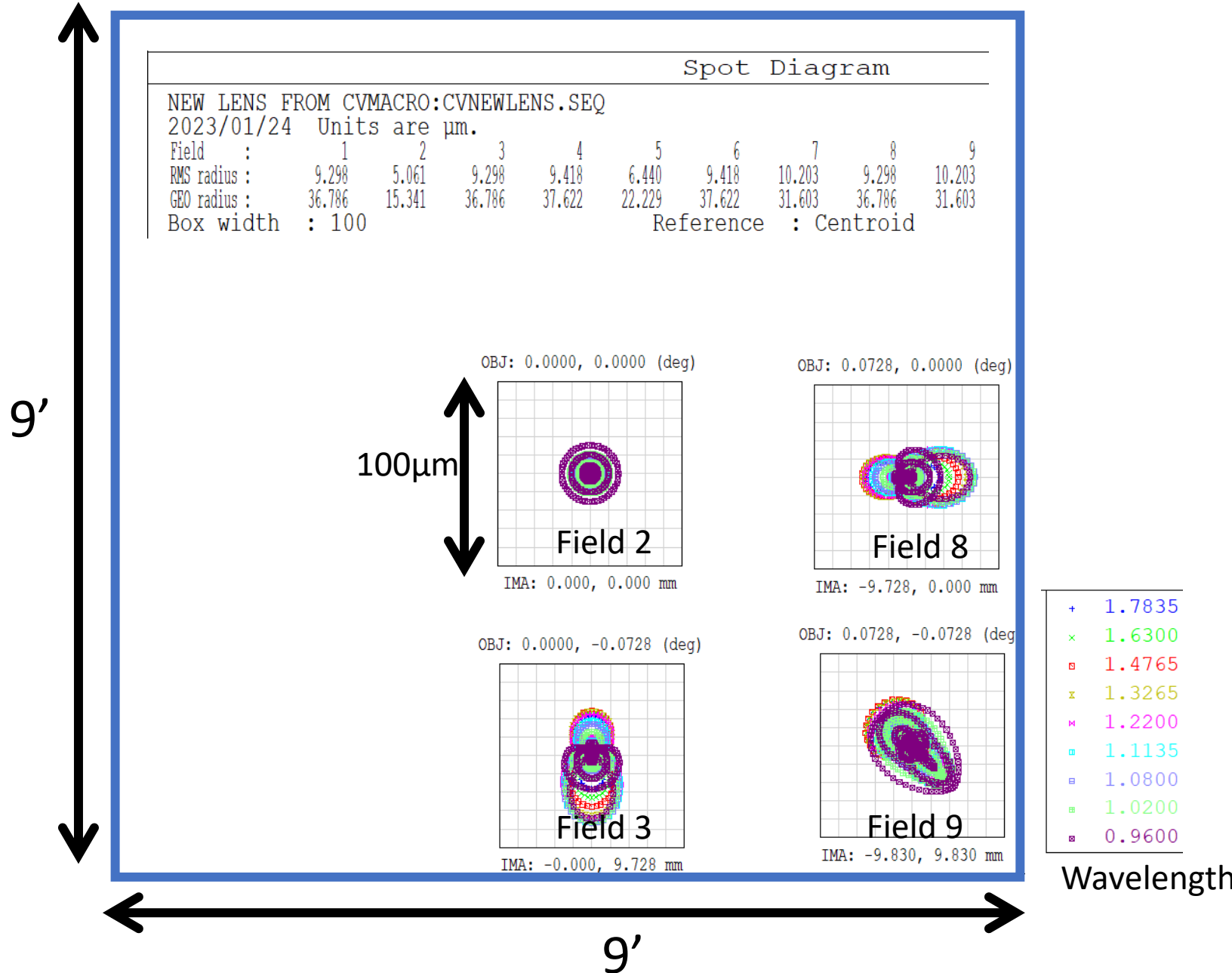
	Detector
Observable wavelength	950 nm ~ 1700 nm
Format size	1280 × 1280 pixel <sup>2</sup>
Pixel size	15 μm
Effective area	19.2 × 19.2 mm <sup>2</sup>



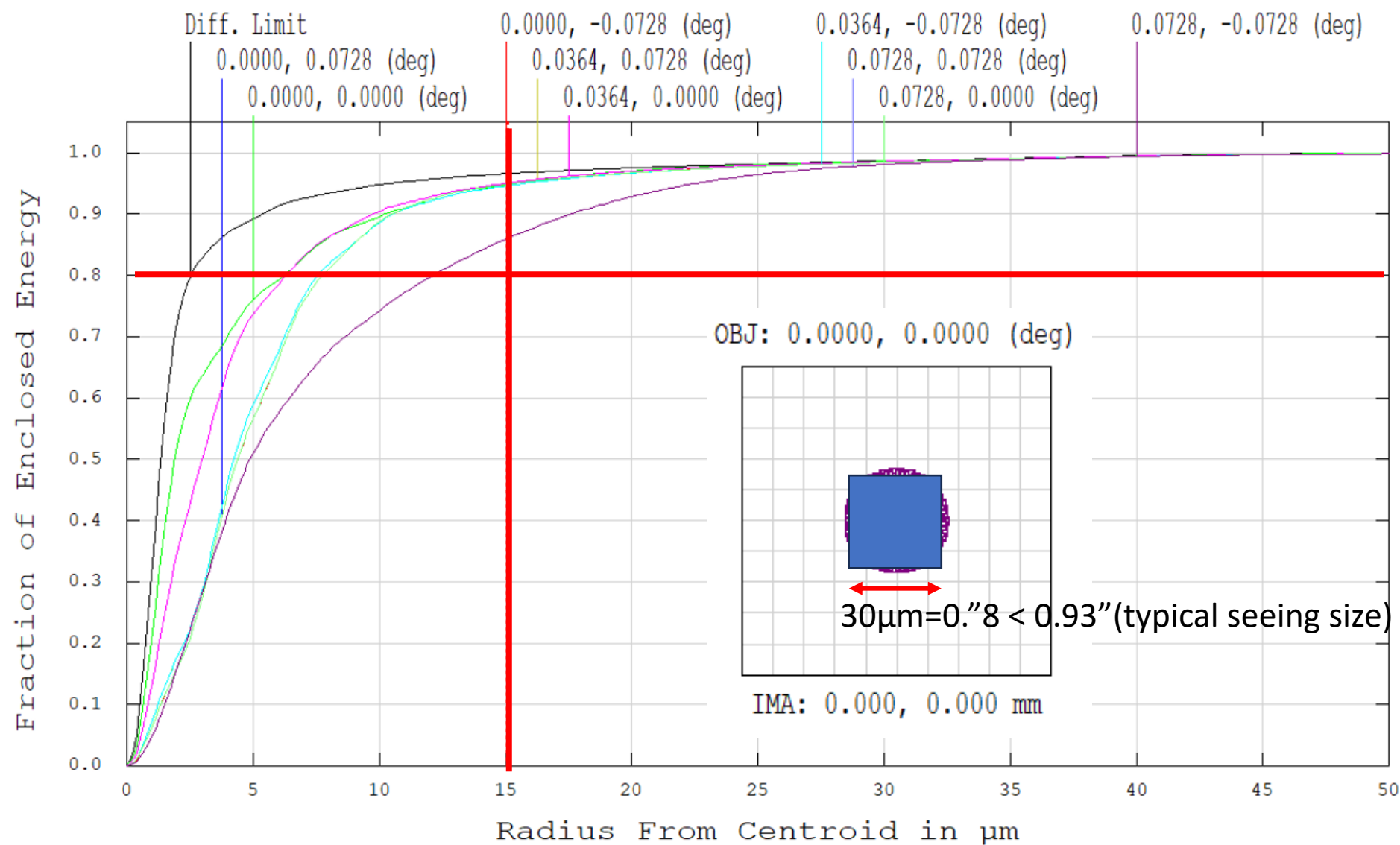
# NIRCA



# Image Quality of NIRCA

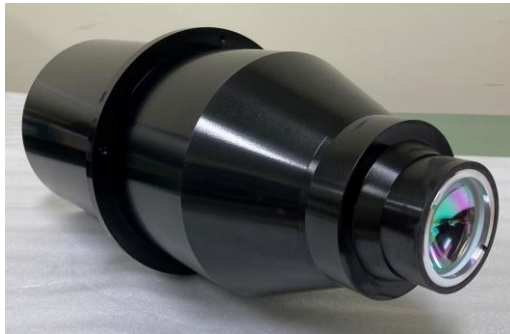


# Image Quality of NIRCA



# NIRCA

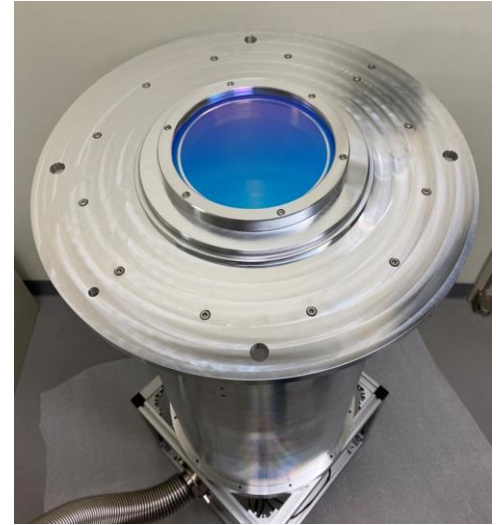
NIRCA is still under developing. The engineering observation is planed in the end of this year.



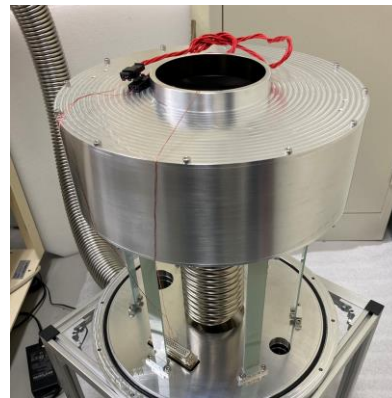
Camera Unit



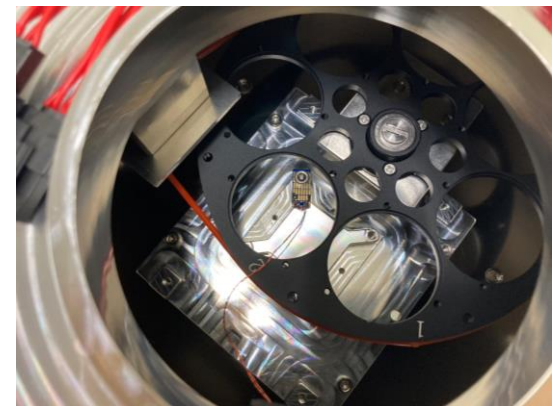
Vacuum and cryogenic test  
of vacuum chamber



Vacuum chamber and  
its window



Detector box

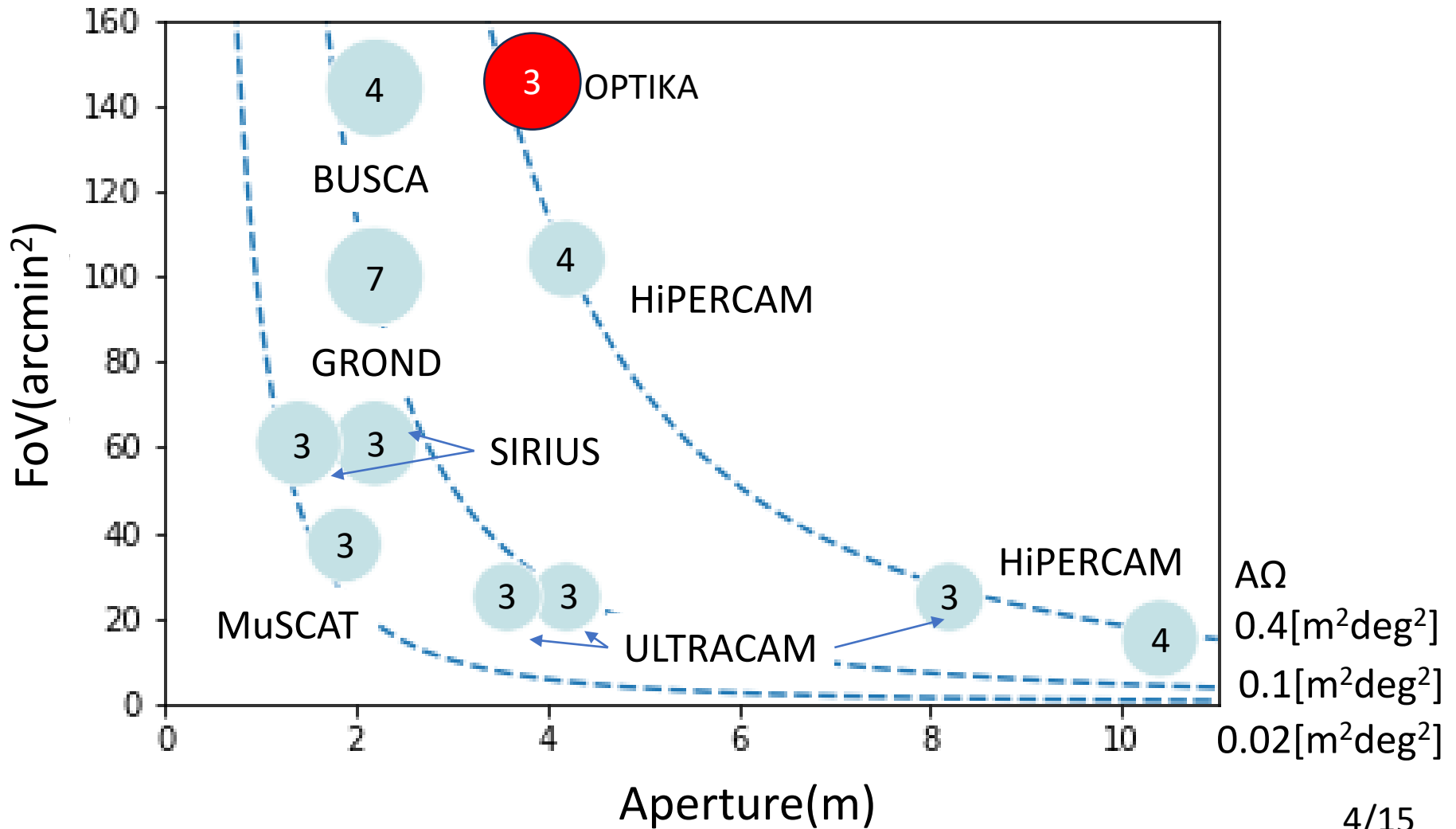


Filter wheel inside the box

<http://www.kusastro.kyoto-u.ac.jp/~mikio/indonesia/NIRcamera.html>



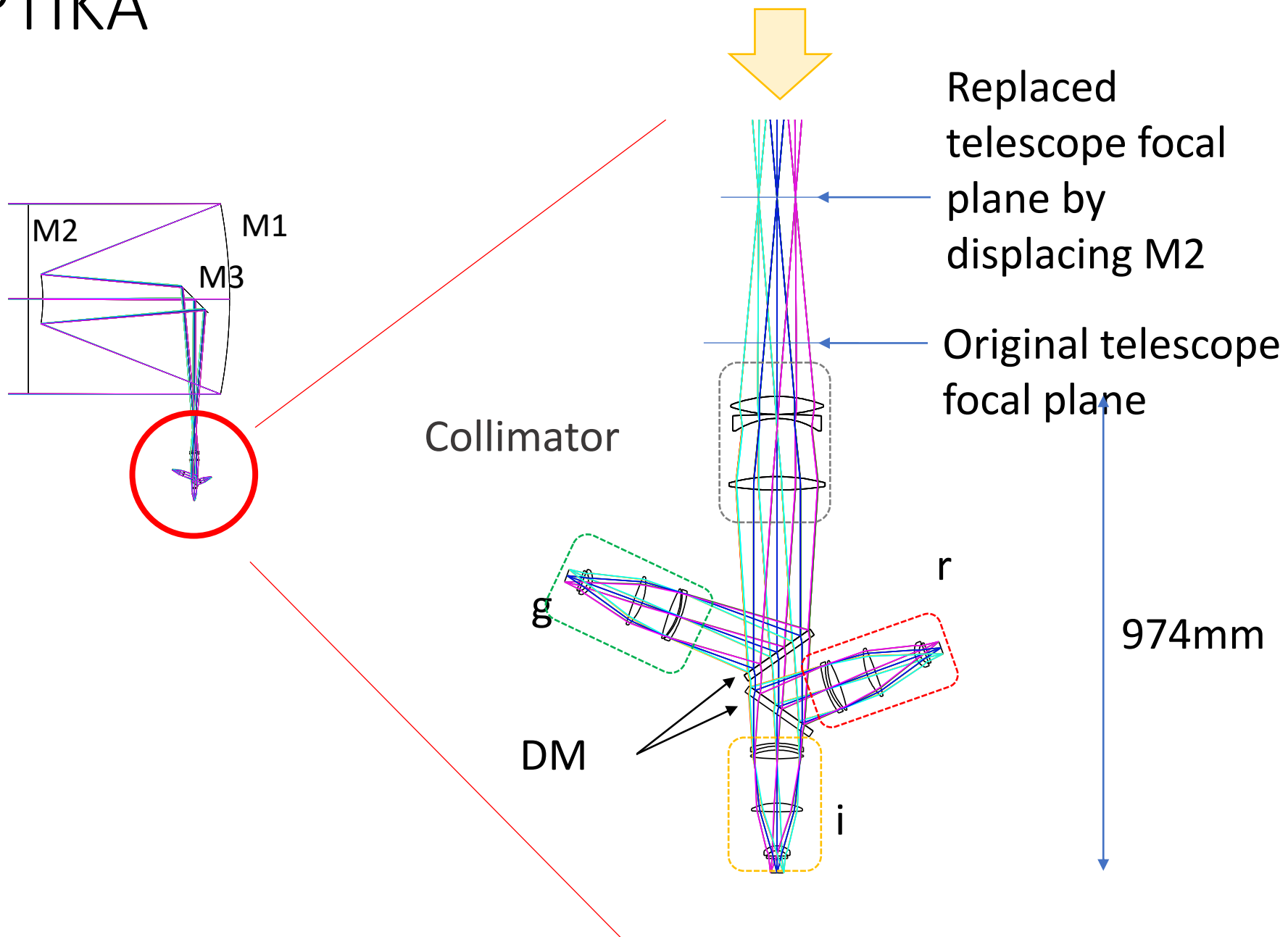
# OPTIKA



# OPTIKA

	Features
Band	g, r, i (Pan-STARRS)
Image quality	0.8 arcsec (EE > 80%)
FoV	12.5 x 12.5 arcmin <sup>2</sup>
Throuput	>73%
CCD	E2V 42-40 X 3
Pixel size	13.5 μm
Format size	2048 × 2048 pixel <sup>2</sup>
F	F/2.0
Pixel scale	0.37 arcsec/pix

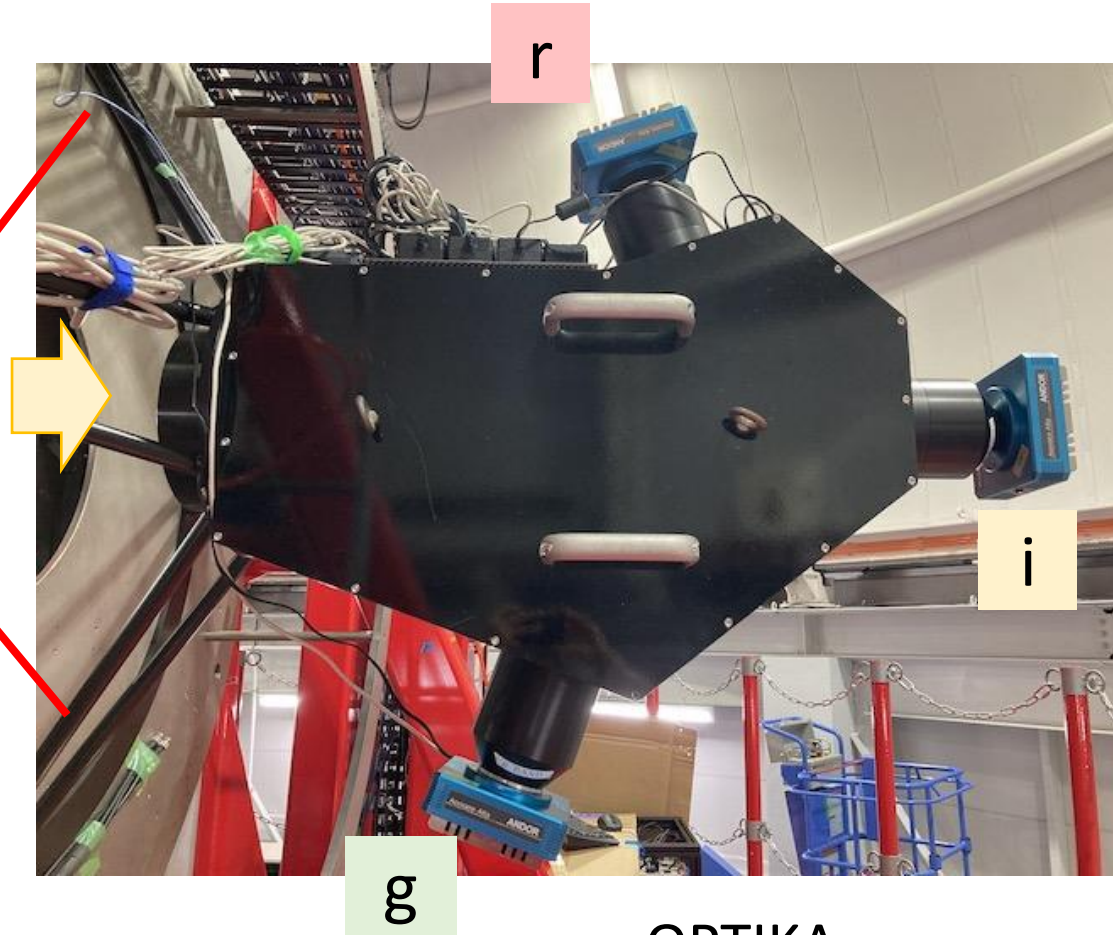
# OPTIKA



# Engineering Observation by OPTIKA



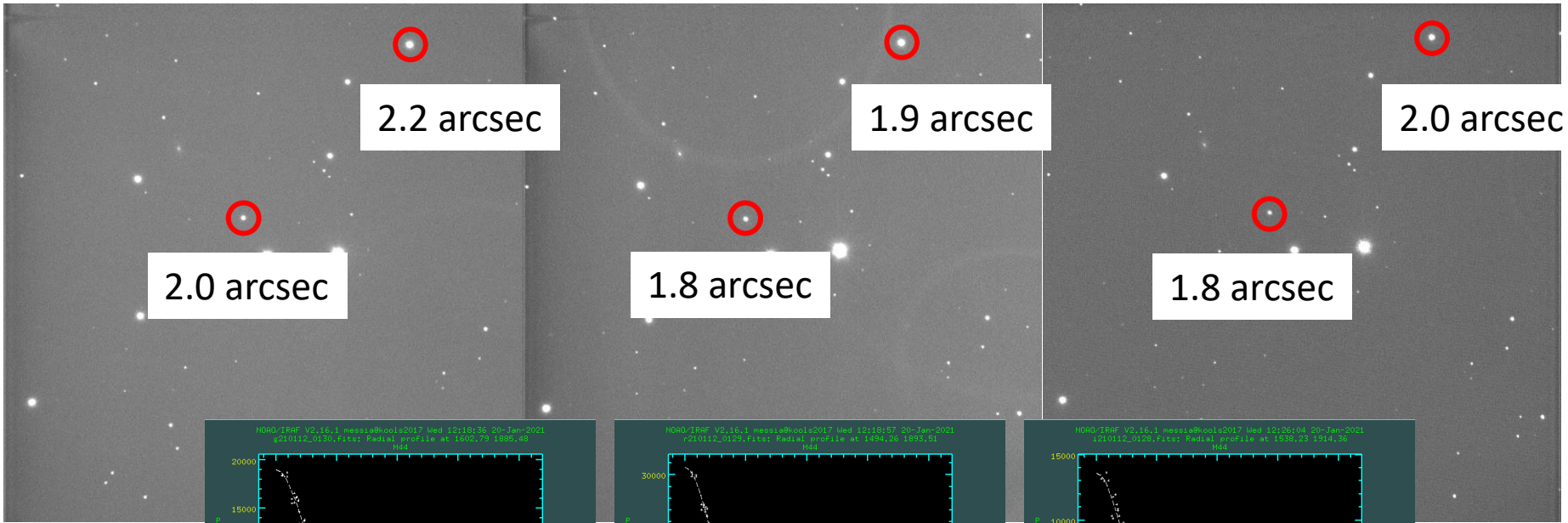
Seimei



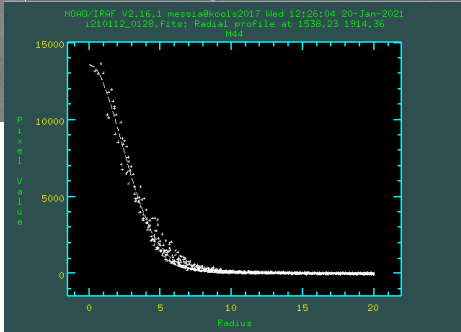
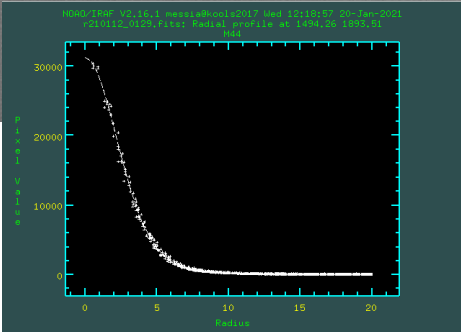
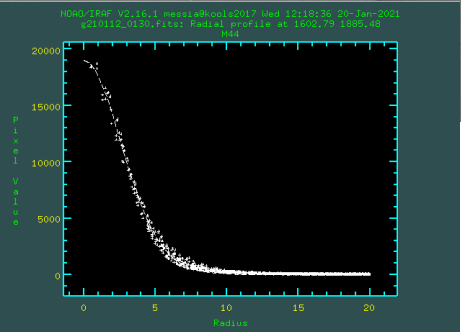
OPTIKA



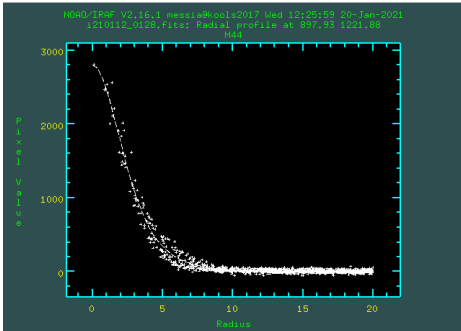
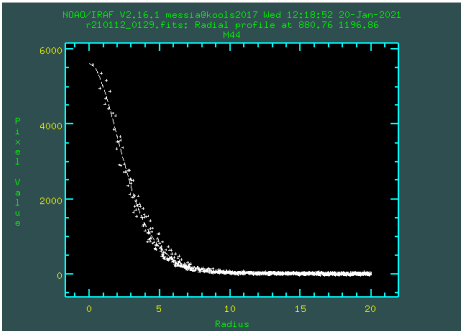
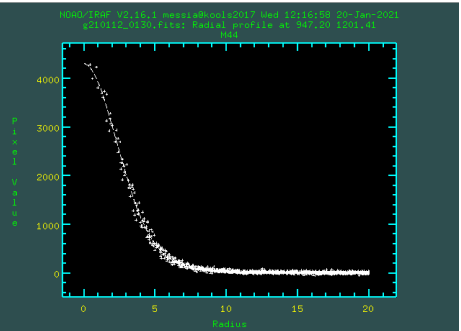
# Engineering Observation by OPTIKA



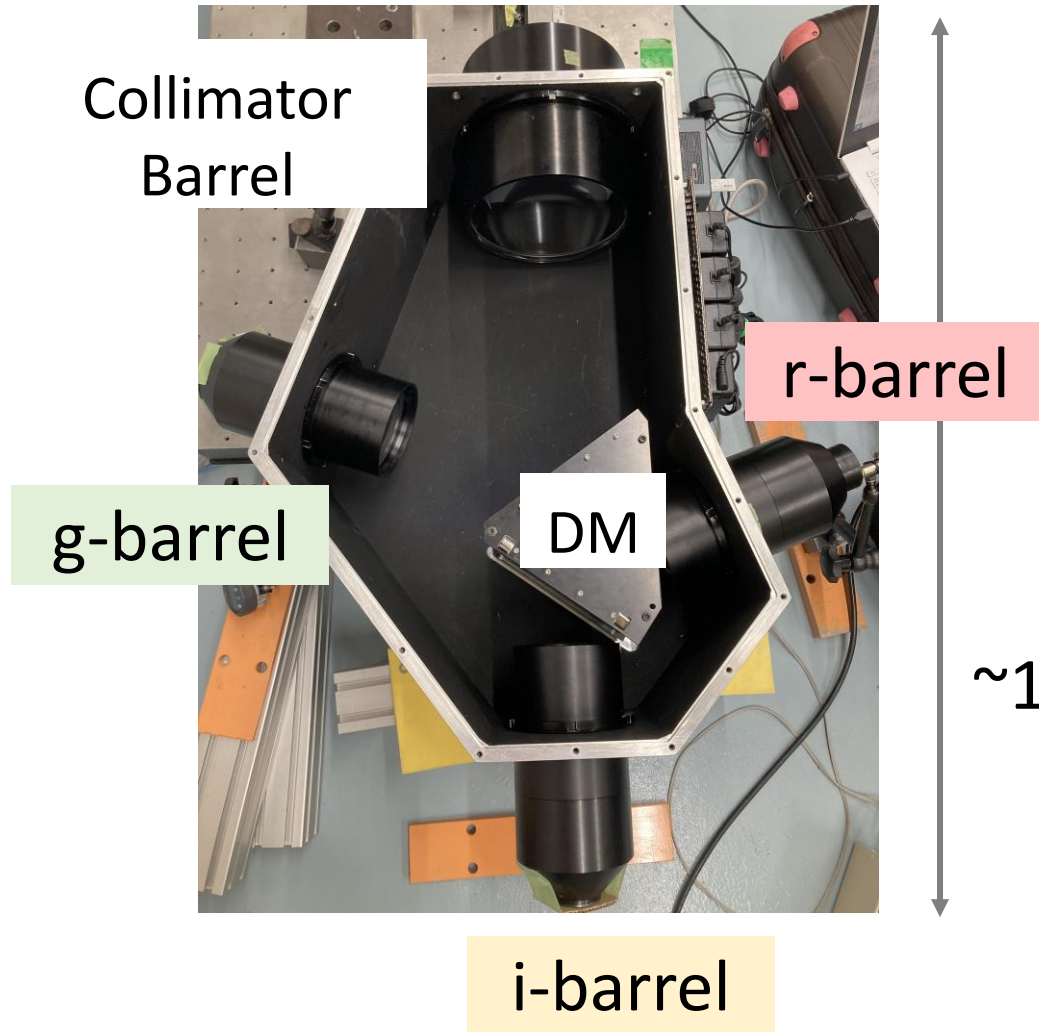
edge



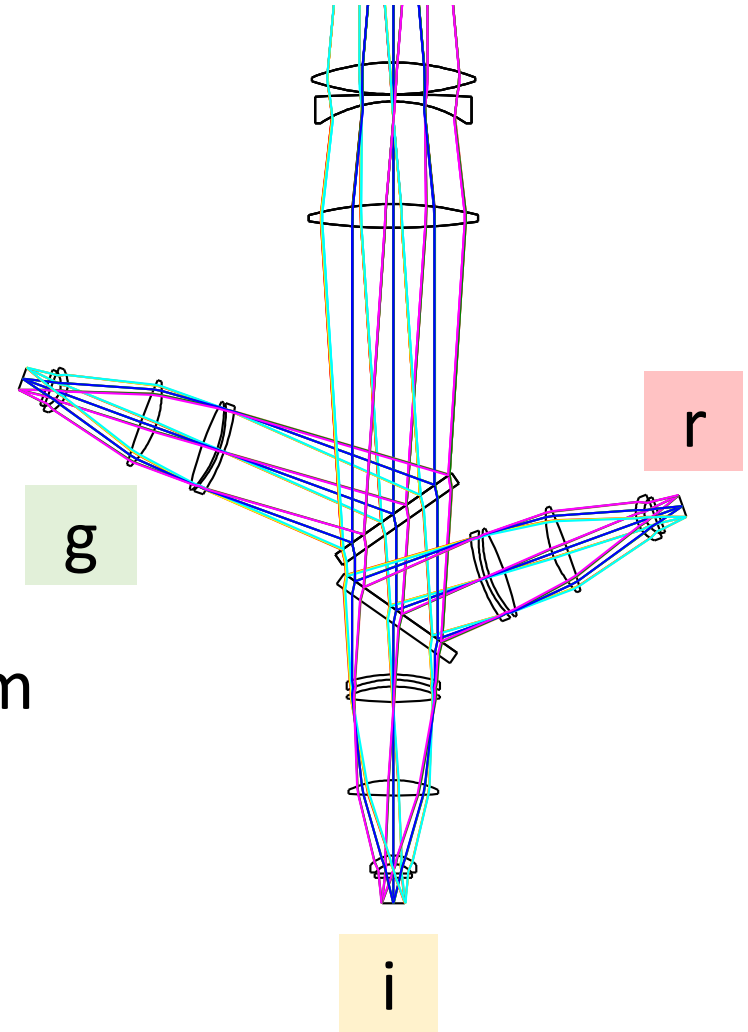
center



# OPTIKA



Inside of OPTIKA



Optical path





# Potential Targets of NIRCA

- ① Galactic center
  - Observable from the southern hemisphere
  - Near infrared can penetrate the galactic center opaque in visible wavelength with interstellar dust. Ex. Follow-up of microlensing monitoring, Star-forming region
- ② Transient objects
  - Impossible to predict the timing and location
  - Wide FoV and quick telescope are beneficial



Location