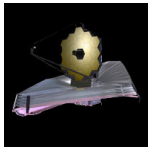

2730 - JWST Early Release Observation 4

Cycle: 0, Proposal Category: COM/ERO

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Imaging				
	1	WR124 NIRCam Imaging	NIRCam Imaging	(13) HEN-2-427
	2	WR124 MIRI Imaging	MIRI Imaging	(13) HEN-2-427
Spectroscopy				
	3	WR124 Core MIRI MRS	MIRI Medium Resolution Spectroscopy	(15) HEN-2-427-MRS
	4	WR124 BG MIRI MRS	MIRI Medium Resolution Spectroscopy	(14) HEN-2-427-BG

ABSTRACT

ERO observations of the WR124 Wolf Rayet star nebula. This proposal contains a MIRI and NIRCam image, and MIRI MRS spectroscopy of the bright core.

OBSERVING DESCRIPTION

ERO observation of the type 1 Wolf-Rayet nebula WR124. The target consists of a compact central (maybe point source, but good chance it will be extended), and a large, extended nebula. The main imaging target is the larger nebula, and the central compact source will saturate in all imaging bands. Added to the NIRCam and MIRI imaging is a central MIRI MRS IFU pointing on the central source. We do not target the central source with NIRSpec IFU, as it will likely be saturated even at high-resolution.

NIRCam imaging

The object is well-contained with NIRCam module B, so we are limiting the FOV to that. We use the INTRAMODULEBOX dither pattern with 8 dither points to optimize the uniformity of the depth coverage, while mitigating persistence from the bright central source. 6 filters are obtained: F090W+F150W will image the background stellar field and any scattered light from new dust formed in the nebula. The F335M filter will image any extended PAH emission, while F444W will provide a long-wave continuum image. Finally, the F210M filter will image a trio of very bright He lines known to be strong in the spectrum, and F470N will image any H2 emission. The line emission bands require longer exposure times to get good S/N on faint nebular structure.

MIRI Imaging

MIRI imaging to roughly match the NIRCam FOV. This requires a 2-tile mosaic. The seam between the two tiles include the bright core, which we do not expect to be able to image because of saturation. We use the large cycling dither pattern with 8 points, enough to handle any persistence from the bright central source. We use 4 different filters: F770W/F1130W for PAHs (not clear that there are any, but the continuum is strong at this wavelength too), F1280W, which contains the [NeII] line known to be very strong, and F1800W for a long-wave cooler dust channel.

MIRI MRS

MIRI MRS of the central core. This is 0.2-0.3 Jy throughout the MRS range, with a number of bright ~1 Jy peak lines, including various ionized species. It is not known if the central core is going to be extended or not, but based on other WR stars, this is a good possibility. We use the 4-point extended source dither, with ngroups set to not saturate a 1 Jy peak-flux density line. A background observation is obtained on an apparently empty area of the sky to the eaat of the nebula.

Updates:
- Change INTRAMODULE --> INTRAMODULEBOX for more uniform depth coverage.
- Increase MIRI imaging overlap to 20%
- Updated NIRCam readout to BRIGHT1
- Decreased MIRI ramps to 20 or 30 to limit effect from saturating the central source.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(13)	HEN-2-427	RA: 19 11 30.8224 (287.8784267d) Dec: +16 51 47.84 (16.86329d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Wolf-Rayet stars]*				
(14)	HEN-2-427-BG	RA: 19 11 35.9220 (287.8996750d) Dec: +16 52 12.44 (16.87012d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Wolf-Rayet stars]*				
(15)	HEN-2-427-MRS	RA: 19 11 30.8642 (287.8786008d) Dec: +16 51 38.24 (16.86062d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[Wolf-Rayet stars]*				

Observation

Proposal 2730, Observation 1: WR124 NIRCam Imaging

Thu Jun 09 22:00:42 GMT 2022

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(13)	HEN-2-427	RA: 19 11 30.8224 (287.8784267d) Dec: +16 51 47.84 (16.86329d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Wolf-Rayet stars]

Template

Module	Subarray
B	FULL

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	8	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F210M	F470N+F444W	BRIGHT1	8	2	16	8	2662.719	
2	F090W	F335M	BRIGHT1	9	1	8	8	1460.201	
3	F150W	F444W	BRIGHT1	9	1	8	8	1460.201	

Special Requirements

Aperture PA Range 220.02984889 to 221.02984889 Degrees (V3 220.00412617 to 221.00412617)

Observation

Proposal 2730, Observation 2: WR124 MIRI Imaging Thu Jun 09 22:00:42 GMT 2022

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(13)	HEN-2-427	RA: 19 11 30.8224 (287.8784267d) Dec: +16 51 47.84 (16.86329d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Wolf-Rayet stars]

Template

Subarray
FULL

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift	Column shift	Tile Order
1	2	10.0	20.0	0.0	0.0	DEFAULT

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	8		1	1			LARGE

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F770W	FASTR1	30	2	1	Dither 1	8	16	1354.22	
2	F1130W	FASTR1	30	2	1	Dither 1	8	16	1354.22	
3	F1280W	FASTR1	30	2	1	Dither 1	8	16	1354.22	
4	F1800W	FASTR1	20	3	1	Dither 1	8	24	1376.42	

Special Requirements	
	Aperture PA Range 219.83425324 to 220.83425324 Degrees (V3 214.99880427 to 215.99880427) Offset -7.2452806314228 arcsec, -5.861713076108087 arcsec

Observation

Proposal 2730, Observation 3: WR124 Core MIRI MRS Thu Jun 09 22:00:42 GMT 2022

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[WR124 BG MIRI MRS (Obs 4)]

Diagnostics

(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(15)	HEN-2-427-MRS	RA: 19 11 30.8642 (287.8786008d) Dec: +16 51 38.24 (16.86062d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Wolf-Rayet stars]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

Spectral Elements

#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1		IMAGER	F770W	FASTR1	10	5	1	Dither 1	4	20	599.409	
1	SHORT(A)	MRSLONG		FASTR1	20	3	1	Dither 1	4	12	688.21	
1	SHORT(A)	MRSSHORT		FASTR1	20	3	1	Dither 1	4	12	688.21	
2		IMAGER	F770W	FASTR1	10	5	1	Dither 1	4	20	599.409	
2	MEDIUM(B)	MRSLONG		FASTR1	20	3	1	Dither 1	4	12	688.21	
2	MEDIUM(B)	MRSSHORT		FASTR1	20	3	1	Dither 1	4	12	688.21	
3		IMAGER	F770W	FASTR1	10	5	1	Dither 1	4	20	599.409	
3	LONG(C)	MRSLONG		FASTR1	20	3	1	Dither 1	4	12	688.21	
3	LONG(C)	MRSSHORT		FASTR1	20	3	1	Dither 1	4	12	688.21	

Special Requirements	Sequence Observations 3, 4, Non-interruptible

Observation

Proposal 2730, Observation 4: WR124 BG MIRI MRS Thu Jun 09 22:00:42 GMT 2022

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [WR124 Core MIRI MRS (Obs 3)]

Diagnostics

(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(14)	HEN-2-427-BG	RA: 19 11 35.9220 (287.8996750d) Dec: +16 52 12.44 (16.87012d) Equinox: J2000	Proper Motion RA: -1.842537906385257E-4 sec of time/yr Proper Motion Dec: -0.005533999933504674 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Wolf-Rayet stars]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED SOURCE	NEGATIVE

Spectral Elements

#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1		IMAGER	F770W	FASTR1	10	5	1	Dither 1	2	10	299.704	
1	SHORT(A)	MRSLONG		FASTR1	20	3	1	Dither 1	2	6	344.105	
1	SHORT(A)	MRSSHORT		FASTR1	20	3	1	Dither 1	2	6	344.105	
2		IMAGER	F770W	FASTR1	10	5	1	Dither 1	2	10	299.704	
2	MEDIUM(B)	MRSLONG		FASTR1	20	3	1	Dither 1	2	6	344.105	
2	MEDIUM(B)	MRSSHORT		FASTR1	20	3	1	Dither 1	2	6	344.105	
3		IMAGER	F770W	FASTR1	10	5	1	Dither 1	2	10	299.704	
3	LONG(C)	MRSLONG		FASTR1	20	3	1	Dither 1	2	6	344.105	
3	LONG(C)	MRSSHORT		FASTR1	20	3	1	Dither 1	2	6	344.105	

Special Requirements	Sequence Observations 3, 4, Non-interruptible