



## 6554 - Infrared imaging of bipolar features in planetary nebula

Cycle: 2, Proposal Category: DD

### INVESTIGATORS

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### OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
PN-CTR				
	1	PN-CTR NIRCam	NIRCam Imaging	(25) PN-CTR
	2	PN-CTR MIRI	MIRI Imaging	(25) PN-CTR

### ABSTRACT

This is a planetary nebula created as an old low-mass star is shedding its outer layers. Spitzer images show interesting structures in the surrounding material are visible, including an equatorial ring and several bi-polar lobes. We expect the NIRCam and MIRI images to reveal fine structure in the infrared, never before seen.

### OBSERVING DESCRIPTION

This proposal will use NIRCam and MIRI imaging to obtain broad and narrow-band imaging of a planetary nebula to be released in 2024. The images must be sufficiently deep to allow for the creation of low-noise color-composite images. The dither patterns are optimized for uniform depth,

## JWST Proposal 6554 (Created: Friday, December 22, 2023 at 6:00:18 PM Eastern Standard Time) - Overview

efficient removal of cosmic rays and other artifacts. The selected MIRI filters produce Nyquist sampled or oversampled PSFs. These criteria will also produce very high-quality, science-ready data products for use by the community. This proposal does not include spectroscopic observations. The observations of the planetary nebula uses narrowband NIRCam imaging in 4 filters to develop a rich color palette and 2 broadband filters to allow proper white-balance of the star field. F187N and F405N will highlight the strong recombination lines and will contrast with F212N and F470N highlighting cooler H<sub>2</sub> gas. The nebula is small enough on the sky to fit in a single NIRCam module, and can be covered with a 1 × 2 MIRI mosaic. The MIRI filters used will include F770W, F1130W, F1280W, and F1800W.

## Proposal 6554 - Targets - Infrared imaging of bipolar features in planetary nebula

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(25)	PN-CTR	RA: 16 12 58.4082 (243.2433675d) Dec: -36 13 49.35 (-36.23037d) Equinox: J2000	Proper Motion RA: 3.025 mas/yr Proper Motion Dec: 0.443 mas/yr Epoch of Position: 2000	
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Star</i> <i>Description=[Planetary nebulae nuclei]</i>					

Proposal 6554 - Observation 1 - Infrared imaging of bipolar features in planetary nebula

Fri Dec 22 23:00:18 GMT 2023

<b>Observation</b>	<p><b>Proposal 6554, Observation 1: PN-CTR NIRCam</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRCam Imaging</p>									
<b>Diagnostics</b>	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>		
	(25)	PN-CTR	RA: 16 12 58.4082 (243.2433675d) Dec: -36 13 49.35 (-36.23037d) Equinox: J2000		Proper Motion RA: 3.025 mas/yr Proper Motion Dec: 0.443 mas/yr Epoch of Position: 2000					
	<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p> <p><i>Category=Star</i></p> <p><i>Description=[Planetary nebulae nuclei]</i></p>									
<b>Template</b>	<b>Module</b>		<b>Subarray</b>			<b>Target Placement</b>				
	ALL		FULL			A Short (on A3)				
<b>Dithers</b>	<b>#</b>	<b>Primary Dither Type</b>		<b>Primary Dithers</b>	<b>Subpixel Dither Type</b>		<b>Dither Size</b>	<b>Subpixel Positions</b>		
	1	INTRAMODULEX		5	STANDARD			1		
<b>Spectral Elements</b>	<b>#</b>	<b>Short Filter</b>	<b>Long Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Dithers</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	F070W	F356W	SHALLOW2	5	1	5	5	1181.045	
	2	F187N	F405N+F444W	SHALLOW2	5	2	10	5	2415.773	
	3	F212N	F470N+F444W	SHALLOW2	5	2	10	5	2415.773	
<b>Special Requirements</b>	<p>Before Date 31-JUL-2024:00:00:00</p> <p>Fiducial Point Override NRCAS_FULLL</p>									

Proposal 6554 - Observation 2 - Infrared imaging of bipolar features in planetary nebula

Fri Dec 22 23:00:18 GMT 2023

<b>Observation</b>	<p><b>Proposal 6554, Observation 2: PN-CTR MIRI</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: MIRI Imaging</p>										
<b>Diagnostics</b>	<p>(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(Visit 2:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>		<b>Miscellaneous</b>			
	(25)	PN-CTR	RA: 16 12 58.4082 (243.2433675d) Dec: -36 13 49.35 (-36.23037d) Equinox: J2000			Proper Motion RA: 3.025 mas/yr Proper Motion Dec: 0.443 mas/yr Epoch of Position: 2000					
	<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p> <p><i>Category=Star</i></p> <p><i>Description=[Planetary nebulae nuclei]</i></p>										
<b>Template</b>	<p><b>Subarray</b></p> <p>FULL</p>										
<b>Mosaic</b>	<b>Rows</b>	<b>Columns</b>	<b>Row Overlap %</b>	<b>Column Overlap %</b>	<b>Row shift (deg)</b>	<b>Column shift (deg)</b>	<b>Tile Order</b>				
	1	2	10.0	10.0	0.0	0.0	DEFAULT				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>	<b>Starting Point</b>	<b>Number of Points</b>	<b>Points</b>	<b>Starting Set</b>	<b>Number of Sets</b>	<b>Optimized For</b>	<b>Direction</b>	<b>Pattern Size</b>	
	1	CYCLING	1	6						DEFAULT	
<b>Spectral Elements</b>	<b>#</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	F770W	FASTR1	10	8	1	Dither 1	6	48	1448.571	
	2	F1130W	FASTR1	10	6	1	Dither 1	6	36	1082.266	
	3	F1280W	FASTR1	10	4	1	Dither 1	6	24	715.96	
	4	F1800W	FASTR1	10	4	1	Dither 1	6	24	715.96	
<b>Special Requirements</b>	<p>Before Date 31-JUL-2024:00:00:00</p> <p>Group Visits within 53.0 Days</p> <p>Visits Same PA</p>										