



3429 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Cycle: 2, Proposal Category: GO

INVESTIGATORS

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Dr. Matthew Smith (CoI) (ESA Member)	Cardiff University
Dr. Emmanuel Xilouris (CoI) (ESA Member)	National Observatory of Athens
Cory Whitcomb (CoI)	University of Toledo
Prof. JD Smith (CoI)	University of Toledo

OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
MIRI				
	3	MIRI Nucleus+H602	MIRI Imaging	(1) M101-NUCLEUS+H602
	4	MIRI NGC4562	MIRI Imaging	(2) M101-NGC5462
	5	MIRI NGC5455	MIRI Imaging	(3) M101-NGC5455
	6	MIRI NGC5471	MIRI Imaging	(4) M101-NGC5471
	7	MIRI H27+H67	MIRI Imaging	(5) M101-H27+H67
	2	MIRI H681	MIRI Imaging	(6) M101-H681
	1	MIRI Background	MIRI Imaging	(7) M101-BACKGROUND
NIRCam				
	9	NIRCam Nucleus+H602	NIRCam Imaging	(1) M101-NUCLEUS+H602
	109	NIRCam Nucleus+H602	NIRCam Imaging	(1) M101-NUCLEUS+H602
	10	NIRCam NGC4562	NIRCam Imaging	(2) M101-NGC5462
	110	NIRCam NGC4562	NIRCam Imaging	(2) M101-NGC5462
	11	NIRCam NGC5455	NIRCam Imaging	(3) M101-NGC5455
	12	NIRCam NGC5471	NIRCam Imaging	(4) M101-NGC5471
	13	NIRCam H26+H67	NIRCam Imaging	(5) M101-H27+H67
	14	NIRCam H681	NIRCam Imaging	(6) M101-H681

ABSTRACT

We propose using 23 hours of JWST time to pin down the factors driving PAH variation, especially with respect to metallicity, via a comprehensive multi-parameter benchmarking M101. We will use MIRI and NIRCam imaging to map the strengths of the 3.3, 7.7, and 11.3 um PAH emission features across 6 fields in M101. M101 provides an unparalleled ‘controlled laboratory’ for this investigation, and has exquisite ancillary data. Our fields sample 0.93 dex in metallicity, 1.6 dex in neutral gas surface density, 2.6 dex in ionized gas surface density, and 3.0 dex in UV radiation field strength. Our selection of 11 filters will provide > 3500 measurements of each feature strength at S/N > 10, with 2 resolution, giving us the statistical power to disentangle the phenomena driving PAH evolution. With this data, will be able to tackle open questions about the formation, evolution, and destruction of PAHs; and test existing models in a uniquely wide range of environments.

OBSERVING DESCRIPTION

We plan to observe 6 primary target fields in M101, and one background field beyond its disc. We plan to use 11 NIRCам and MIRI filters: F090W, F187N, F200W, F300M, F335M, F360M, F444W, F770W, F1000W, F1130W, and F1500W. Our objective is to detect PAH feature emission in the F335M, F770W, and F1130W filters. The other filters will be used for continuum measurements (except F187N, which is to detect Paschen-alpha ionized gas emission).

In two of our fields, existing archival JWST data means that we do not need to observe 300M, F335M, or F360M (and hence do not observe F090W and F200W either).

Each field has single MIRI footprint centered on the target region. NIRCам module B is centered on the same target region. The NGC5271 and NGC 5462 MIRI fields also employ NIRCам parallels, as the locations of the primary fields mean the parallels are guaranteed to lie in M101, close to our primary fields. We also ask for NIRCам parallels for our MIRI background, to assist with background estimation.

For MIRI, we use 4-point CYCLING-LARGE dithers. For NIRCам, we use 4-point INTERMODULEX primary dithers; As our analysis will be conducted at 2" resolution, this will provide ample sampling of the NIRCам PSF.

The predicted emission in each filter for each of our target fields varies considerably. Our S/N requirements are dictated by the need to distinguish the PAH contribution to the overall emission. Our integration times therefore vary considerable, as do our readout modes.

We have a PA requirement of 135-180 for our MIRI observations, to ensure that all targets of interest fall in the H27+H67 field. As we ask all MIRI observations be conducted in the same visit as the background field, to maximize the usefulness of the MIRI background in extracting very faint diffuse emission.

Proposal 3429 - Targets - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	M101-NUCLEUS+H602	RA: 14 03 12.4921 (210.8020504d) Dec: +54 20 54.89 (54.34858d) Equinox: J2000		
<i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i> <i>Extended=YES</i>				
(2)	M101-NGC5462	RA: 14 03 54.9884 (210.9791183d) Dec: +54 21 31.39 (54.35872d) Equinox: J2000		
<i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i> <i>Extended=YES</i>				
(3)	M101-NGC5455	RA: 14 02 59.7642 (210.7490175d) Dec: +54 14 52.03 (54.24779d) Equinox: J2000		
<i>Comments: Target position is slightly offset from NGC5455 itself, to maximise the fraction of the MIRI footprint that will lie within the NIRCcam footprint of program 2452.</i> <i>Category=ISM</i> <i>Description=[H II regions]</i> <i>Extended=YES</i>				
(4)	M101-NGC5471	RA: 14 04 28.1513 (211.1172971d) Dec: +54 24 6.39 (54.40178d) Equinox: J2000		
<i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i>				
(5)	M101-H27+H67	RA: 14 02 19.1374 (210.5797392d) Dec: +54 20 25.80 (54.34050d) Equinox: J2000		
<i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i>				
(6)	M101-H681	RA: 14 03 15.3333 (210.8138888d) Dec: +54 35 9.59 (54.58600d) Equinox: J2000		
<i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i>				
(7)	M101-BACKGROUND	RA: 14 01 54.5548 (210.4773117d) Dec: +54 28 57.67 (54.48269d) Equinox: J2000		
<i>Comments:</i> <i>Category=Calibration</i> <i>Description=[Telescope/sky background]</i>				

Fixed Targets

Proposal 3429 - Observation 3 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	<p>Proposal 3429, Observation 3: MIRI Nucleus+H602</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: MIRI Imaging</p> <p>Background Observations:[MIRI Background (Obs 1)]</p>										
Diagnostics	<p>(MIRI Nucleus+H602 (Obs 3)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure</p> <p>(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>										
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	<p><i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i> <i>Extended=YES</i></p>										
Template	<p>Subarray</p> <p>FULL</p>										
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
	1	CYCLING	21	4						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	10	1	1	Dither 1	4	4	111.002	140387
	2	F1000W	FASTR1	10	1	1	Dither 1	4	4	111.002	140387
	3	F1130W	FASTR1	10	1	1	Dither 1	4	4	111.002	140387
	4	F2100W	FASTR1	10	1	1	Dither 1	4	4	111.002	140387
Special Requirements	<p>Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)</p> <p>Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible</p>										

Proposal 3429 - Observation 4 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 4: MIRI NGC4562 Diagnostic Status: Warning Observing Template: MIRI Imaging Background Observations:[MIRI Background (Obs 1)] Coordinated Parallel Template(s): NIRCam Imaging																																																																
Diagnostics	(MIRI NGC4562 (Obs 4)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.																																																																
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Proposal 3429 - Observation 4 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Special Requirements

Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)
No Parallel Attachments

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3429 - Observation 5 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	<p>Proposal 3429, Observation 5: MIRI NGC5455</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: MIRI Imaging</p> <p>Background Observations:[MIRI Background (Obs 1)]</p>																																																																
Diagnostics	<p>(MIRI NGC5455 (Obs 5)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure</p> <p>(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>																																																																
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Special Requirements	<p>Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)</p> <p>Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible</p>																																																																

Proposal 3429 - Observation 6 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 6: MIRI NGC5471 Diagnostic Status: Warning Observing Template: MIRI Imaging Background Observations:[MIRI Background (Obs 1)] Coordinated Parallel Template(s): NIRCam Imaging										
Diagnostics	(MIRI NGC5471 (Obs 6)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections			Miscellaneous			
	(4)	M101-NGC5471	RA: 14 04 28.1513 (211.1172971d) Dec: +54 24 6.39 (54.40178d) Equinox: J2000								
	<i>Comments:</i> <i>Category=ISM</i> <i>Description=/H II regions/</i>										
Template	MIRI Imaging					NIRCam Imaging					
	Subarray: FULL					Module: B Subarray: FULL Target Placement: Module Gap					
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
	1	CYCLING	21	4						LARGE	
Spectral Elements	MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	F770W	FASTR1	45	1	1	Dither 1	4	4	499.507	140381
	2	F1000W	FASTR1	65	1	1	Dither 1	4	4	721.51	140381
	3	F1130W	FASTR1	150	1	1	Dither 1	4	4	1665.024	140381
	4	F2100W	FASTR1	45	1	1	Dither 1	4	4	499.507	140381
Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID	
	1	F200W	F300M	BRIGHT2	5	1	4	4	429.471		
	2	F187N	F444W	BRIGHT2	8	1	4	4	687.153		
	3	F187N	F335M	SHALLOW4	7	1	4	4	1460.201		
	4	F090W	F360M	BRIGHT2	5	1	4	4	429.471		

Proposal 3429 - Observation 6 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Special Requirements

Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)
No Parallel Attachments

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3429 - Observation 7 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	<p>Proposal 3429, Observation 7: MIRI H27+H67</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: MIRI Imaging</p> <p>Background Observations:[MIRI Background (Obs 1)]</p>										
Diagnostics	<p>(MIRI H27+H67 (Obs 7)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure</p> <p>(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Miscellaneous			
	(5)	M101-H27+H67	RA: 14 02 19.1374 (210.5797392d) Dec: +54 20 25.80 (54.34050d) Equinox: J2000								
	<p><i>Comments:</i></p> <p><i>Category=ISM</i></p> <p><i>Description=/H II regions/</i></p>										
Template	<p>Subarray</p> <p>FULL</p>										
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
	1	CYCLING	21	4						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	75	1	1	Dither 1	4	4	832.512	140319
	2	F1000W	FASTR1	105	1	1	Dither 1	4	4	1165.517	140319
	3	F1130W	FASTR1	235	1	1	Dither 1	4	4	2608.538	140319
	4	F2100W	FASTR1	55	1	1	Dither 1	4	4	610.509	140319
Special Requirements	<p>Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)</p> <p>Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible</p>										

Proposal 3429 - Observation 2 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	<p>Proposal 3429, Observation 2: MIRI H681</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: MIRI Imaging</p> <p>Background Observations:[MIRI Background (Obs 1)]</p>										
Diagnostics	<p>(MIRI H681 (Obs 2)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure</p> <p>(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Miscellaneous			
	(6)	M101-H681	RA: 14 03 15.3333 (210.8138888d) Dec: +54 35 9.59 (54.58600d) Equinox: J2000								
	<p><i>Comments:</i> <i>Category=ISM</i> <i>Description=[H II regions]</i></p>										
Template	<p>Subarray</p> <p>FULL</p>										
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
	1	CYCLING	21	4						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	70	1	1	Dither 1	4	4	777.011	139014
	2	F1000W	FASTR1	110	1	1	Dither 1	4	4	1221.018	139014
	3	F1130W	FASTR1	270	1	1	Dither 1	4	4	2997.043	139014
	4	F2100W	FASTR1	65	1	1	Dither 1	4	4	721.51	139014
Special Requirements	<p>Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)</p> <p>Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible</p>										

Proposal 3429 - Observation 1 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 1: MIRI Background Diagnostic Status: Warning Observing Template: MIRI Imaging Background Observation For: [MIRI H681 (Obs 2), MIRI Nucleus+H602 (Obs 3), MIRI NGC4562 (Obs 4), MIRI NGC5455 (Obs 5), MIRI NGC5471 (Obs 6), MIRI H27+H67 (Obs 7)] Coordinated Parallel Template(s): NIRCам 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			
	(7)	M101-BACKGROUND	RA: 14 01 54.5548 (210.4773117d) Dec: +54 28 57.67 (54.48269d) Equinox: J2000								
	<i>Comments:</i> Category=Calibration Description=[Telescope/sky background]										
Template	MIRI Imaging					NIRCам Imaging					
	Subarray: FULL					Module: B Subarray: FULL Target Placement: Module Gap					
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
	1	CYCLING	21	4						LARGE	
Spectral Elements	MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	F770W	FASTR1	75	1	1	Dither 1	4	4	832.512	139014
	2	F1000W	FASTR1	110	1	1	Dither 1	4	4	1221.018	139014
	3	F1130W	FASTR1	270	1	1	Dither 1	4	4	2997.043	139014
	4	F2100W	FASTR1	65	1	1	Dither 1	4	4	721.51	139014
Spectral Elements	NIRCам Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID	
	1	F187N	F300M	BRIGHT2	9	1	4	4	773.047		
	2	F200W	F335M	SHALLOW4	5	1	4	4	1030.73		
	3	F187N	F444W	SHALLOW4	10	1	4	4	2104.407		
	4	F090W	F360M	BRIGHT2	7	1	4	4	601.259		

Proposal 3429 - Observation 1 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Special Requirements

Aperture PA Range 135 to 180 Degrees (V3 130.16455103 to 175.16455103)
No Parallel Attachments

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3429 - Observation 9 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 9: NIRCam Nucleus+H602 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam Nucleus+H602 (Obs 9)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Miscellaneous		
	(1)	M101-NUCLEUS+H602	RA: 14 03 12.4921 (210.8020504d) Dec: +54 20 54.89 (54.34858d) Equinox: J2000							
<i>Comments: Category=ISM Description=[H II regions] Extended=YES</i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers		Subpixel Dither Type		Dither Size		Subpixel Positions
	1	INTRAMODULEX		4		STANDARD				2
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F187N	F444W	BRIGHT2	5	1	8	8	858.942	140387
Special Requirements	Offset 86.5 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 109 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 109: NIRCam Nucleus+H602 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam Nucleus+H602 (Obs 109)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 109:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous	
	(1)	M101-NUCLEUS+H602	RA: 14 03 12.4921 (210.8020504d) Dec: +54 20 54.89 (54.34858d) Equinox: J2000							
<i>Comments: Category=ISM Description=[H II regions] Extended=YES</i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	STANDARD			2		
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F187N	F444W	BRIGHT2	5	1	8	8	858.942	140387
Special Requirements	Offset 86.5 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 10 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 10: NIRCam NGC4562 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam NGC4562 (Obs 10)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections			Miscellaneous		
	(2)	M101-NGC5462	RA: 14 03 54.9884 (210.9791183d) Dec: +54 21 31.39 (54.35872d) Equinox: J2000							
<i>Comments: Category=ISM Description=[H II regions] Extended=YES</i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	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	F090W	F300M	BRIGHT2	5	1	4	4	429.471	140385
	2	F187N	F335M	BRIGHT2	6	1	4	4	515.365	140385
	3	F200W	F360M	BRIGHT2	5	1	4	4	429.471	140385
	4	F187N	F444W	BRIGHT2	5	1	4	4	429.471	140385
Special Requirements	Offset 86.5 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 110 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 110: NIRCam NGC4562 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam NGC4562 (Obs 110)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 110:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections			Miscellaneous		
	(2)	M101-NGC5462	RA: 14 03 54.9884 (210.9791183d) Dec: +54 21 31.39 (54.35872d) Equinox: J2000							
<i>Comments: Category=ISM Description=[H II regions] Extended=YES</i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	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	F090W	F300M	BRIGHT2	5	1	4	4	429.471	140385
	2	F187N	F335M	BRIGHT2	6	1	4	4	515.365	140385
	3	F200W	F360M	BRIGHT2	5	1	4	4	429.471	140385
	4	F187N	F444W	BRIGHT2	5	1	4	4	429.471	140385
Special Requirements	Offset 86.5 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 11 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 11: NIRCam NGC5455 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam NGC5455 (Obs 11)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Miscellaneous		
	(3)	M101-NGC5455	RA: 14 02 59.7642 (210.7490175d) Dec: +54 14 52.03 (54.24779d) Equinox: J2000							
<i>Comments: Target position is slightly offset from NGC5455 itself, to maximise the fraction of the MIRI footprint that will lie within the NIRCam footprint of program 2452.</i> Category=ISM Description=[H II regions] Extended=YES										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	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	F187N	F444W	BRIGHT2	6	1	4	4	515.365	140383
Special Requirements	Offset 86.5 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 12 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 12: NIRCcam NGC5471 Diagnostic Status: Warning Observing Template: NIRCcam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCcam NGC5471 (Obs 12)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections			Miscellaneous		
	(4)	M101-NGC5471	RA: 14 04 28.1513 (211.1172971d) Dec: +54 24 6.39 (54.40178d) Equinox: J2000							
<i>Comments: Category=ISM Description=/H II regions/</i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	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	F090W	F300M	BRIGHT2	6	1	4	4	515.365	140381
	2	F187N	F335M	SHALLOW4	5	1	4	4	1030.73	140381
	3	F200W	F360M	BRIGHT2	6	1	4	4	515.365	140381
	4	F187N	F444W	SHALLOW4	5	1	4	4	1030.73	140381
Special Requirements	Offset 86.1 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 13 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 13: NIRCam H26+H67 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam H26+H67 (Obs 13)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 13:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections			Miscellaneous		
	(5)	M101-H27+H67	RA: 14 02 19.1374 (210.5797392d) Dec: +54 20 25.80 (54.34050d) Equinox: J2000							
<i>Comments: Category=ISM Description=/H II regions/</i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	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	F090W	F300M	BRIGHT2	5	1	4	4	429.471	140319
	2	F187N	F335M	SHALLOW4	5	1	4	4	1030.73	140319
	3	F200W	F360M	BRIGHT2	5	1	4	4	429.471	140319
	4	F187N	F444W	BRIGHT2	7	1	4	4	601.259	140319
Special Requirements	Offset 86.1 arcsec, 1.5 arcsec									

Proposal 3429 - Observation 14 - One-Stop Shopping: Pan-Metallicity PAH Benchmarking in M101

Tue Apr 02 21:00:43 GMT 2024

Observation	Proposal 3429, Observation 14: NIRCam H681 Diagnostic Status: Warning Observing Template: NIRCam Imaging Background Observations:[] <i>Comments: Offset so that target is always centered in Module B, regardless of observation PA.</i>									
	(NIRCam H681 (Obs 14)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 14:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections			Miscellaneous		
	(6)	M101-H681	RA: 14 03 15.3333 (210.8138888d) Dec: +54 35 9.59 (54.58600d) Equinox: J2000							
<i>Comments: Category=ISM Description= H II regions </i>										
Template	Module		Subarray			Target Placement				
	ALL		FULL			Module Gap				
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	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	F200W	F300M	BRIGHT2	5	1	4	4	429.471	139014
	2	F187N	F335M	SHALLOW4	6	1	4	4	1245.465	139014
	3	F150W	F360M	BRIGHT2	5	1	4	4	429.471	139014
	4	F090W	F444W	SHALLOW4	5	1	4	4	1030.73	139014
Special Requirements	Offset 86.5 arcsec, 1.5 arcsec									