



1227 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Cycle: 1, Proposal Category: GTO

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OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
NIRSpec MOS - Observation Epoch 1 and 2				

JWST Proposal 1227 (Created: Tuesday, March 5, 2024 at 6:00:48 PM Eastern Standard Time) - Overview

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	14	MSA Visit 1	NIRSpec MultiObject Spectroscopy	(25) NGC-346-SHORT
	26	MSA Visit 2	NIRSpec MultiObject Spectroscopy	(253) Combined_Final_Catalog
NIRCam Imaging - Observation Epoch 1				
	25	NIRCam Imaging - Split off Tile-4 - Epoch 1	NIRCam Imaging	(5) NGC-346
	2	NIRcam imaging	NIRCam Imaging	(5) NGC-346
MIRI MRS - Observation Epoch 2				
	19	MYSO #1 (Visit 2)	MIRI Medium Resolution Spectroscopy	(20) Y535
	20	MYSO #2 (Visit 2)	MIRI Medium Resolution Spectroscopy	(21) Y544
	21	MYSO #3 (Visit 2)	MIRI Medium Resolution Spectroscopy	(22) Y532
	28	MYSO #4 (Visit 2)	MIRI Medium Resolution Spectroscopy	(23) Y533
MIRI imaging Mosaic Group - Observation Epoch 1				
	1	MIRI imaging	MIRI Imaging	(5) NGC-346
	17	MIRI imaging Split off Tile-6	MIRI Imaging	(18) NGC-346-TILE-6

ABSTRACT

Observations of galaxies across cosmic time show that the star formation rate peaked at a redshift of ~ 1.5 , meaning star formation in the Universe occurred predominantly at lower than solar metallicity for which an active burst mode may be more prevalent. However, the overwhelming majority of observational studies have been conducted on solar metallicity Milky Way star formation regions. The question is: Are there substantial differences in the star formation process at lower metallicity? Studies of star forming clouds in reduced metallicity galaxies have been inhibited by the lack of observatories with sufficient resolution and sensitivity. With JWST, we will be able to study star formation in the Magellanic Clouds like we can in the Milky Way with Spitzer. Our Spitzer SAGE and Herschel HERITAGE surveys of the LMC and SMC have revealed where to point JWST to study active star formation from the discovery of thousands of young stellar objects (e.g., Whitney et al. 2008; Gruendl and Chu 2009; Sewio et al. 2013; Carlson et al. 2012; Seale et al. 2014). In the SMC, we have selected the target NGC 346 for a comprehensive imaging and spectroscopic study with NIRCam, MIRI Imager, MIRI MRS spectroscopy and NIRSpec MSA spectroscopy. This target has prior HST images in which thousands of pre-main sequence stars were identified (Nota et al. 2006), Spitzer IRS spectral studies of the region and also young stellar objects in the region (e.g., Ruffle et al. 2015), and planned ALMA observations of the molecular gas (PI: Muller).

These observations are taken at two epochs separated by at least 6 months. The first epoch includes NIRCam imaging mosaics with MIRI in parallel; MIRI imaging mosaics with NIRCam in parallel and NIRSpec MOS spectroscopy with NIRCam in parallel. The imaging mosaics have been set up

so that the main NGC 346 region is covered no matter when the observation is taken. For the NIRSpec MOS spectroscopy in the G235M grating, the final target list will be drawn from H-alpha excess pre-main sequence stars identified with HST ACS imaging and also Spitzer and K-spec observations that have positions bootstrapped from HST/ACS. The targets for the first NIRSpec must have high precision positions. The second epoch is linked to the first epoch such that they are separated by at least 6 months but not more than one year to allow identification of sources for the second epoch. The second epoch includes NIRSpec MOS spectroscopy with NIRCам in parallel and MIRI MRS spectroscopy with simultaneous MIRI imaging. The NIRSpec MOS spectroscopy uses three gratings: G235M, G395M and G235H. The MIRI MRS spectroscopy gets full spectra of the targets. The second epoch targets will all be based on the results of the NIRCам and MIRI imaging from the first epoch. The NIRSpec MOS targets will identify embedded targets of all evolutionary stages including targets with potential ice features and background stars with which to probe the ice features of the ISM. The current MIRI MRS targets are place holders for the future targets to be selected from the NIRCам and MIRI imaging and will sample objects of different evolutionary stages.

From the MIRI and NIRCам imaging study we plan to characterize the spectral energy distributions of over a thousand young stellar objects and pre main sequence stars to understand the evolution of the circumstellar disks and envelopes of forming stars over a wide range in mass (1 to 50+ M_{sun}) and evolutionary stage (0 to III). In particular, the greater clarity of JWST will enable us to detect for the first time the planet-forming dust disks around these solar-mass stars at the distance of the SMC and allow us to address questions such as: Can planet formation occur at low metallicity when dust disk masses may be smaller than Galactic counterparts? The MIRI imaging of the PAH bands will also probe the PAH physics of the gaseous regions.

From the MIRI spectroscopic study, we will characterize the circumstellar and interstellar environment of select massive star formation regions from the most (silicate in absorption and ice features) to least embedded (optically detected protoclusters). The NIRSpec MSA measurements will target both the pre-main sequence stars detected by H with HST and embedded targets detected as highly reddened by the NIRCам and MIRI imaging study. Full spectral coverage of both instruments will provide a wealth of information on the physical conditions of the ionized gas (atomic lines), and molecular gas (H_2 lines) and the nature of the dust (PAHs, ice features) of the planet-forming YSOs at lower metallicities. The ionized atomic line emissions will provide excitation of the YSO and also the surrounding ISM. Molecular hydrogen quadra-pole vibrational and rotational lines trace the highly excited molecular gas in the region. The spectral resolution is high enough to detect ionized or molecular jets of gas at velocities $>100 \text{ km s}^{-1}$ allowing us to constrain outflow velocities. The NIRCам and MIRI imaging and prior work on YSO spectroscopy with Spitzer IRS will be used to identify appropriate MRS targets for epoch 2 followup in the NGC 346 region (Oliveira et al. 2009, 2013; and Seale et al. 2009). We will observe 3 targets in the imaged region with MIRI/MRS with different luminosities and/or evolutionary states.

OBSERVING DESCRIPTION

DESCRIPTION of visit one:

The program is split into two visits with the first visit including NIRCcam and MIRI imaging done in parallel, and NIRSpec MSA medium resolution spectroscopy in the F200LP grating with NIRCcam imaging in parallel. The second visit will include MIRI MRS spectroscopy, NIRSpec MSA high resolution and medium resolution spectroscopy of targets identified in the first visit with NIRCcam imaging in parallel.

We request that the first visit be carried out early in the Cycle 1 time frame and the second visit not less than 4 months later in Cycle 1 so there is time to identify and plan the MSA observations.

This APT file describes the first visit.

MIRI/NIRCcam IMAGING PRIME/PARALLEL FILTER SELECTION:

When MIRI is prime, the filter selection for MIRI is F770W and F1130W to study the PAH emission of the region, F1000W for silicate absorption, F1500W to estimate the mid-IR continuum, and F2500W to constrain the long wavelength end of the YSO spectral energy distributions. For the NIRCcam parallel observations, we select 4 possible filter sets for NIRCcam, 3 of which will be the NIRCcam prime filter sets (F115/F277M, F187N/F335M, F200W/F444W). The F187N/F335M is selected twice to obtain a similar depth as the prime observations. We select one other combination: F140M/F356W. The F140M will provide an extra wavelength measurement that will help identify background galaxy contaminants (the most significant contaminant expected). The F356W will provide a measurement of the PAH emission in the off field and overlaps with our previous Spitzer 3.3 micron observations.

When NIRCcam is prime, we use F115W/F277W, F200W/F444W, F187N/F335M, which sample the spectral energy distribution of the YSOs (all the wide filters), image the field in the PAH 3.3 band (F335M), and image the Pa-alpha band (F187N) which will be used to estimate contamination by the Br-alpha in our F444W observations. For the MIRI parallel observations, we can choose only three of our MIRI filters to measure the background and we choose F770W, F1000W and F1500W which provide the best separation of YSOs and evolved stars (Jones et al. 2017).

MSA NIRSPEC WITH NIRCAM IN PARALLEL:

We will use the NIRSpec MSA on NGC346. In this first visit, we will only use the medium resolution G235M/F170LP grating setting. We use the NRSIRS2RAPID readout mode to account for bright stars which will be present in this rich star cluster.

For the NIRCAM parallel filter selection there are two combinations. First we use F187N and F405N + F444W to estimate Pa-alpha and Br-alpha, respectively. For the second combination, we use F182M and F444W to get continuum levels for the hydrogen recombination lines.

DESCRIPTION of visit 2 for the future APT file to be crafted after the delivery of the NIRCAM and MIRI imaging data:

MSA NIRSPEC WITH NIRCAM IN PARALLEL:

For the MSA observations, we will first obtain medium resolution observations with the G235M/F170LP and G395M/F290LP settings to get full coverage from ~1.66 - 5.27 micron for up to 100 PMS and YSO targets. Integration times are tailored to reach 1-2 solar mass targets. Since the integration times are rather deep, we use the NRSIRS2RAPID readout mode to account for bright stars which will be present in this rich star cluster. In addition, we will acquire deep high-resolution G235H/F170LP observations to resolve and obtain the kinematics of the Paschen alpha line to trace accretion on the PMS stars.

For the NIRCAM parallel observations: the regions surrounding NGC346 contains additional lower level star formation activity. The integrations in these NIRCAM parallel fields will be much deeper than our NIRCAM mapping of the prime field because the NIRSPEC integrations will be longer. We plan to go deep in two sets of NIRCAM filters: F115W/F277W and F150W/F444W. These filters were chosen to be sensitive to sub-solar stars and the ~1 hour of integration for each set of filters will enable us to reach sub-solar masses on the stars and forming stars. In addition, we use F187N and F405N + F444W to estimate Pa-alpha and Br-alpha, respectively. For the second combination, we use F182M and F444W to get continuum levels for the hydrogen recombination lines (similar to the first visit).

MIRI MRS OBSERVATIONS:

When we use the MIRI MRS, we will be getting full spectral coverage (3 grating settings). Acquisition targets have been identified as point sources in previous Spitzer 5.8 image.

Proposal 1227 - Targets - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	NGC-346	RA: 00 59 4.9451 (14.7706046d) Dec: -72 10 9.15 (-72.16921d) Equinox: J2000		
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Stellar Cluster</i> <i>Description=[OB associations, Young star clusters]</i>				
(18)	NGC-346-TILE-6	RA: 00 59 21.2389 (14.8384954d) Dec: -72 09 21.49 (-72.15597d) Equinox: J2000		
<i>Comments:</i> <i>Category=Stellar Cluster</i> <i>Description=[OB associations, Stellar associations, Young star clusters]</i>				
(20)	Y535	RA: 00 59 5.4337 (14.7726404d) Dec: -72 10 35.51 (-72.17653d) Equinox: J2000		
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>				
(21)	Y544	RA: 00 59 12.2270 (14.8009458d) Dec: -72 09 58.51 (-72.16625d) Equinox: J2000		
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>				
(22)	Y532	RA: 00 59 2.5826 (14.7607608d) Dec: -72 10 7.11 (-72.16864d) Equinox: J2000		
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>				
(23)	Y533	RA: 00 59 3.0637 (14.7627654d) Dec: -72 10 35.61 (-72.17656d) Equinox: J2000		
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>				
(25)	NGC-346-SHORT	RA: 00 59 13.6133 (14.8067221d) Dec: -72 10 0.81 (-72.16689d) Equinox: J2000		
<i>Comments:</i> <i>Description=[]</i>				
(253)	Combined_Final_Catalog	RA: 00 59 6.2493 (14.7760387d) Dec: -72 10 47.36 (-72.17982d) Equinox: J2000		
<i>Comments:</i> <i>Description=[]</i>				

Fixed Targets

Proposal 1227 - Observation 14 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:48 GMT 2024

Observation	Proposal 1227, Observation 14: MSA Visit 1 Diagnostic Status: Error Observing Template: NIRSpec MultiObject Spectroscopy Coordinated Parallel Template(s): NIRCam Imaging																																																												
	(MSA Visit 1 (Obs 14)) Error (Form): This observation was created with an Aperture PA of 59.2098 but it has been assigned an Aperture PA of 59.2180 (Aperture PA) Error (Form): This observation was created with an Aperture PA of 59.2098 but it has been assigned an Aperture PA of 59.2180 (MSA Visit 1 (Obs 14)) Warning (Form): Config c1 (#1) has 4 primary slit traces affected by failed open shutters. (MSA Visit 1 (Obs 14)) Warning (Form): Config c1 (#2) has 4 primary slit traces affected by failed open shutters. (MSA Visit 1 (Obs 14)) Warning (Form): Config c1 (#3) has 4 primary slit traces affected by failed open shutters. (MSA Visit 1 (Obs 14)) Warning (Form): Config c1 (#4) has 4 primary slit traces affected by failed open shutters. (Visit 14:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.																																																												
Diagnostics	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(25)</td> <td>NGC-346-SHORT</td> <td>RA: 00 59 13.6133 (14.8067221d) Dec: -72 10 0.81 (-72.16689d) Equinox: J2000</td> <td></td> <td></td> </tr> </tbody> </table> Comments: Description=[]											#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	(25)	NGC-346-SHORT	RA: 00 59 13.6133 (14.8067221d) Dec: -72 10 0.81 (-72.16689d) Equinox: J2000																																										
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Acquisition	<table border="1"> <thead> <tr> <th>NIRSpec MultiObject Spectroscopy</th> <th>Reference Star Bin</th> <th>Target</th> <th>Filter</th> <th>MSA Configuration</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Filter: F110W; Readout: NRSRAPID; 8 sources in 4 quads; [Optimal TA Accuracy]</td> <td>SAME</td> <td>F110W</td> <td>Auto Acq MSA Config</td> <td>NRSRAPID</td> <td>3</td> <td>1</td> <td>4</td> <td>171.788</td> <td></td> </tr> </tbody> </table>											NIRSpec MultiObject Spectroscopy	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	Filter: F110W; Readout: NRSRAPID; 8 sources in 4 quads; [Optimal TA Accuracy]	SAME	F110W	Auto Acq MSA Config	NRSRAPID	3	1	4	171.788																													
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Template	<table border="1"> <thead> <tr> <th>NIRSpec MultiObject Spectroscopy</th> <th>NIRCam Imaging</th> </tr> </thead> <tbody> <tr> <td>TA Method: MSATA</td> <td>Module: ALL</td> </tr> <tr> <td>Obtain Confirmation Images: No</td> <td>Subarray: FULL</td> </tr> <tr> <td>Science Aperture: MSA Center</td> <td>Target Placement: Module Gap</td> </tr> <tr> <td>Primary Candidate List: 40-eMPTselected (40 sources)</td> <td></td> </tr> <tr> <td>Filler Candidate List: null</td> <td></td> </tr> <tr> <td>Spectral Overlap Map: jwst-nirspec-mr</td> <td></td> </tr> <tr> <td>Spectral Overlap Threshold: 1.5</td> <td></td> </tr> </tbody> </table>											NIRSpec MultiObject Spectroscopy	NIRCam Imaging	TA Method: MSATA	Module: ALL	Obtain Confirmation Images: No	Subarray: FULL	Science Aperture: MSA Center	Target Placement: Module Gap	Primary Candidate List: 40-eMPTselected (40 sources)		Filler Candidate List: null		Spectral Overlap Map: jwst-nirspec-mr		Spectral Overlap Threshold: 1.5																																			
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Reference Stars	<table border="1"> <thead> <tr> <th>Visit</th> <th>ID</th> <th>RA</th> <th>Dec</th> <th>Magnitude</th> <th>Visit</th> <th>ID</th> <th>RA</th> <th>Dec</th> <th>Magnitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>464</td> <td>14.753530</td> <td>-72.190292</td> <td>19.59</td> <td>1</td> <td>2162</td> <td>14.774470</td> <td>-72.200395</td> <td>19.55</td> </tr> <tr> <td>1</td> <td>501</td> <td>14.757706</td> <td>-72.184583</td> <td>19.58</td> <td>1</td> <td>2443</td> <td>14.837595</td> <td>-72.134581</td> <td>19.63</td> </tr> <tr> <td>1</td> <td>536</td> <td>14.792188</td> <td>-72.182055</td> <td>19.83</td> <td>1</td> <td>70343</td> <td>14.711988</td> <td>-72.156658</td> <td>19.78</td> </tr> <tr> <td>1</td> <td>603</td> <td>14.898616</td> <td>-72.164943</td> <td>19.83</td> <td>1</td> <td>70441</td> <td>14.715184</td> <td>-72.156062</td> <td>19.67</td> </tr> </tbody> </table>											Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude	1	464	14.753530	-72.190292	19.59	1	2162	14.774470	-72.200395	19.55	1	501	14.757706	-72.184583	19.58	1	2443	14.837595	-72.134581	19.63	1	536	14.792188	-72.182055	19.83	1	70343	14.711988	-72.156658	19.78	1	603	14.898616	-72.164943	19.83	1	70441	14.715184	-72.156062	19.67
	Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude																																																			
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Dithers	<table border="1"> <thead> <tr> <th>#</th> <th>Dither Type</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>NONE</td> </tr> </tbody> </table>											#	Dither Type	1	NONE																																														
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Proposal 1227 - Observation 14 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Spectral Elements	NIRSpec MultiObject Spectroscopy	Exposure Specification	MSA Configuration	Nod Pattern	Pointing	Aperture PA	Dispersion Offset (Shutters)	Cross-Dispersion Offset (Shutters)	Total Dithers	Total Integrations	Total Exposure Time
	1	1 (G235M/F170LP)	c1	3 Shutter Slitlet	14.798144166666 665 Degrees - 72.164005555555 55 Degrees	59.217940761046 435			3	3	1444.3
	2	2 (G235M/F170LP)	c1	3 Shutter Slitlet	14.798144166666 665 Degrees - 72.164005555555 55 Degrees	59.217940761046 435			3	3	393.9
	3	3 (G235M/F170LP)	c1	3 Shutter Slitlet	14.798144166666 665 Degrees - 72.164005555555 55 Degrees	59.217940761046 435			3	3	393.9
	4	4 (G235M/F170LP)	c1	3 Shutter Slitlet	14.798144166666 665 Degrees - 72.164005555555 55 Degrees	59.217940761046 435			3	3	393.9
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	F187N	F405N+F444W	SHALLOW2	9	1	3	3	1352.833		
	2	F182M	F430M	SHALLOW4	2	1	3	3	289.893		
	3	F115W	F277W	SHALLOW4	2	1	3	3	289.893		
	4	F090W	F356W	SHALLOW4	2	1	3	3	289.893		
Special Requirements	No Parallel Attachments MSA Scheduled Aperture PA 59.2180 to 59.2180 Degrees (V3 280.64343 to 280.64343)										

Proposal 1227 - Observation 26 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:48 GMT 2024

Observation	Proposal 1227, Observation 26: MSA Visit 2 Diagnostic Status: Warning Observing Template: NIRSpec MultiObject Spectroscopy Coordinated Parallel Template(s): NIRCам Imaging <i>Comments: Warnings about primary slit traces being affected by failed open shutters are a result of opening empty shutters for background characterization and so not impacting our primary observations.</i>											
	Diagnostics	(MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_pms1_with_11fillers (#5) has 1 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_pms1_with_11fillers (#6) has 1 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_pms2_with_13fillers (#7) has 2 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_pms2_with_13fillers (#8) has 2 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_ys0_with_6fillers (#1) has 2 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_ys0_with_6fillers (#2) has 2 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_ys0_with_6fillers (#3) has 2 primary slit traces affected by failed open shutters. (MSA Visit 2 (Obs 26)) Warning (Form): Config shutter_mask_visit2_ys0_with_6fillers (#4) has 2 primary slit traces affected by failed open shutters. (Visit 26:1) Warning (Form): Data Excess over lower threshold (Visit 26:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.										
Fixed Targets		#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous		
		(253)	Combined_Final_Catalog	RA: 00 59 6.2493 (14.7760387d) Dec: -72 10 47.36 (-72.17982d) Equinox: J2000								
Acquisition		<i>Comments: Description=[]</i>										
		NIRSpec MultiObject Spectroscopy	Reference Star Bin	Target	Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1		Filter: F110W; Readout: NRSRAPID; 8 sources in 3 quads; [Optimal TA Accuracy]	SAME	F110W	Auto Acq MSA Config	NRSRAPID	3	1	4	171.788		
Template		NIRSpec MultiObject Spectroscopy					NIRCам Imaging					
		TA Method: MSATA Obtain Confirmation Images: No Science Aperture: MSA Center Primary Candidate List: Combined_Final_Catalog (320 sources) Filler Candidate List: null Spectral Overlap Map: jwst-nirspec-mr Spectral Overlap Threshold: 1.5					Module: ALL Subarray: FULL Target Placement: Module Gap					
Reference Stars		Visit	ID	RA	Dec	Magnitude	Visit	ID	RA	Dec	Magnitude	
		1	607	14.712541	-72.167819	20.00	1	2847	14.836004	-72.180196	20.03	
	1	760	14.824422	-72.175212	20.01	1	70339	14.850415	-72.191330	19.87		
	1	1314	14.779415	-72.186827	20.03	1	70343	14.711988	-72.156658	19.78		
	1	2644	14.687221	-72.170065	19.77	1	70447	14.842151	-72.190701	19.80		

Proposal 1227 - Observation 26 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Dithers	#	Dither Type									
	1	NONE									
Spectral Elements	NIRSpec MultiObject Spectroscopy	Exposure Specification	MSA Configuration	Nod Pattern	Pointing	Aperture PA	Dispersion Offset (Shutters)	Cross-Dispersion Offset (Shutters)	Total Dithers	Total Integrations	Total Exposure Time
	1	1 (G235M/F170LP)	shutter_mask_vis t2_ysowith_6fillers	3 Shutter Slitlet	14.77658125 Degrees - 72.174661111111 1 Degrees	339.36508708907 42			3	6	3588.867
	2	2 (G235M/F170LP)	shutter_mask_vis t2_ysowith_6fillers	3 Shutter Slitlet	14.77658125 Degrees - 72.174661111111 1 Degrees	339.36508708907 42			3	3	1794.433
	3	3 (G395M/F290LP)	shutter_mask_vis t2_ysowith_6fillers	3 Shutter Slitlet	14.77658125 Degrees - 72.174661111111 1 Degrees	339.36508708907 42			3	6	3588.867
	4	4 (G395M/F290LP)	shutter_mask_vis t2_ysowith_6fillers	3 Shutter Slitlet	14.77658125 Degrees - 72.174661111111 1 Degrees	339.36508708907 42			3	3	1794.433
	5	5 (G235M/F170LP)	shutter_mask_vis t2_pms1_with_11 fillers	3 Shutter Slitlet	14.763869166666 666 Degrees - 72.183158333333 32 Degrees	339.37719081718 905			3	3	1531.833
	6	6 (G235M/F170LP)	shutter_mask_vis t2_pms1_with_11 fillers	3 Shutter Slitlet	14.763869166666 666 Degrees - 72.183158333333 32 Degrees	339.37719081718 905			3	3	1531.833
	7	7 (G235M/F170LP)	shutter_mask_vis t2_pms2_with_13 fillers	3 Shutter Slitlet	14.758311666666 666 Degrees - 72.170380555555 54 Degrees	339.38249325506 206			3	3	1531.833
	8	8 (G235M/F170LP)	shutter_mask_vis t2_pms2_with_13 fillers	3 Shutter Slitlet	14.758311666666 666 Degrees - 72.170380555555 54 Degrees	339.38249325506 206			3	3	1531.833
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	F187N	F405N+F444W	MEDIUM8	5	2	6	3	3124.4		
	2	F187N	F405N+F444W	MEDIUM8	5	1	3	3	1546.095		
	3	F212N	F470N+F444W	MEDIUM8	5	2	6	3	3124.4		
	4	F212N	F335M	MEDIUM8	5	1	3	3	1546.095		
	5	F182M	F430M	SHALLOW4	9	1	3	3	1417.254		
	6	F090W	F277W	SHALLOW4	9	1	3	3	1417.254		
	7	F150W	F356W	SHALLOW4	9	1	3	3	1417.254		
	8	F200W	F444W	SHALLOW4	9	1	3	3	1417.254		

Proposal 1227 - Observation 26 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Special Requirements

No Parallel Attachments
MSA Scheduled Aperture PA 339.3656 to 339.3656 Degrees (V3 200.79099 to 200.79099)

Proposal 1227 - Observation 25 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:48 GMT 2024

Observation	Proposal 1227, Observation 25: NIRCam Imaging - Split off Tile-4 - Epoch 1 Diagnostic Status: Warning Observing Template: NIRCam Imaging Coordinated Parallel Template(s): MIRI Imaging <i>Comments: The imaging mosaicks have been set up so that the main NGC 346 region is covered no matter when the observation is taken. Both sets of NIRCam data should be taken at the same position angle to ensure mosaic coverage is optimized.</i>																																																					
	(Visit 25:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (NIRCam Imaging - Split off Tile-4 - Epoch 1 (Obs 25)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.																																																					
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(5)</td> <td>NGC-346</td> <td>RA: 00 59 4.9451 (14.7706046d) Dec: -72 10 9.15 (-72.16921d) Equinox: J2000</td> <td></td> <td></td> </tr> </tbody> </table> <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=Stellar Cluster Description=[OB associations, Young star clusters]</i>										#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	(5)	NGC-346	RA: 00 59 4.9451 (14.7706046d) Dec: -72 10 9.15 (-72.16921d) Equinox: J2000																																				
	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous																																																	
(5)	NGC-346	RA: 00 59 4.9451 (14.7706046d) Dec: -72 10 9.15 (-72.16921d) Equinox: J2000																																																				
NIRCam Imaging Module: ALL Subarray: FULL Target Placement: Module Gap					MIRI Imaging Subarray: FULL																																																	
Mosaic	<table border="1"> <thead> <tr> <th>Rows</th> <th>Columns</th> <th>Row Overlap %</th> <th>Column Overlap %</th> <th>Row shift (deg)</th> <th>Column shift (deg)</th> <th>Tile Order</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2</td> <td>5.0</td> <td>60.0</td> <td>0.0</td> <td>0.0</td> <td>HILBERT_CURVE</td> </tr> </tbody> </table>										Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order	2	2	5.0	60.0	0.0	0.0	HILBERT_CURVE																														
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	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID																																												
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	2	F1000W	SLOWR1	5	1	1		4	4	477.798																																												
3	F1500W	SLOWR1	5	1	1		4	4	477.798																																													

Proposal 1227 - Observation 25 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Special Requirements

No Parallel Attachments

Group Observations 2, 25, Non-interruptible
Same Aperture PA 2, 25

Proposal 1227 - Observation 2 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	Proposal 1227, Observation 2: NIRcam imaging Diagnostic Status: Warning Observing Template: NIRCam Imaging <i>Comments: The imaging mosaicks have been set up so that the main NGC 346 region is covered no matter when the observation is taken. Both sets of NIRCam data should be taken at the same position angle to ensure mosaic coverage is optimized.</i>																																																
Diagnostics	(NIRcam imaging (Obs 2)) Warning (Form): This observation is split across multiple visits using multiple filters. Not selecting the sequence option may result in execution of the visits in a non-numerical order and is not recommended. (Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 2:2) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 2:3) Warning (Form): Overheads are provisional until the Visit Planner has been run. (NIRcam imaging (Obs 2)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.																																																
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#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID																																								
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3	F200W	F444W	BRIGHT2	2	1	4	4	171.788																																									

Proposal 1227 - Observation 2 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Special Requirements

Group Visits within 53.0 Days
Visits Same PA
No Parallel Attachments

Group Observations 2, 25, Non-interruptible
Same Aperture PA 2, 25

Proposal 1227 - Observation 19 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	Proposal 1227, Observation 19: MYSO #1 (Visit 2) Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(MYSO #1 (Visit 2) (Obs 19)) Warning (Form): Imager Filter overlap. (Visit 19:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Diagnosics													
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(20)	Y535	RA: 00 59 5.4337 (14.7726404d) Dec: -72 10 35.51 (-72.17653d) Equinox: J2000										
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray		Grating Wheel Direction			
	F560W	All MRS			YES			FULL		NEUTRAL			
Dithers	#	Dither Type				Optimized For				Direction			
	1	4-Point				EXTENDED SOURCE				NEGATIVE			
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1		IMAGER	F1280W	FASTR1	7	1	1	Dither 1	4	4	77.701	
	1	LONG(C)	MRSLONG		FASTR1	7	1	1	Dither 1	4	4	77.701	
	1	LONG(C)	MRSSHORT		FASTR1	7	1	1	Dither 1	4	4	77.701	
	2		IMAGER	F770W	FASTR1	7	1	1	Dither 1	4	4	77.701	
	2	MEDIUM(B)	MRSLONG		FASTR1	7	1	1	Dither 1	4	4	77.701	
	2	MEDIUM(B)	MRSSHORT		FASTR1	7	1	1	Dither 1	4	4	77.701	
	3		IMAGER	F560W	FASTR1	7	1	1	Dither 1	4	4	77.701	
	3	SHORT(A)	MRSLONG		FASTR1	7	1	1	Dither 1	4	4	77.701	
	3	SHORT(A)	MRSSHORT		FASTR1	7	1	1	Dither 1	4	4	77.701	

Proposal 1227 - Observation 20 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	Proposal 1227, Observation 20: MYSO #2 (Visit 2) Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(MYSO #2 (Visit 2) (Obs 20)) Warning (Form): Imager Filter overlap. (Visit 20:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Diagnosics													
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(21)	Y544	RA: 00 59 12.2270 (14.8009458d) Dec: -72 09 58.51 (-72.16625d) Equinox: J2000										
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
	F560W	All MRS				YES			FULL		NEUTRAL		
Dithers	#	Dither Type				Optimized For				Direction			
	1	4-Point				EXTENDED SOURCE				NEGATIVE			
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1		IMAGER	F1280W	FASTR1	14	1	1	Dither 1	4	4	155.402	
	1	LONG(C)	MRSLONG		FASTR1	14	1	1	Dither 1	4	4	155.402	
	1	LONG(C)	MRSSHORT		FASTR1	14	1	1	Dither 1	4	4	155.402	
	2		IMAGER	F770W	FASTR1	14	1	1	Dither 1	4	4	155.402	
	2	MEDIUM(B)	MRSLONG		FASTR1	14	1	1	Dither 1	4	4	155.402	
	2	MEDIUM(B)	MRSSHORT		FASTR1	14	1	1	Dither 1	4	4	155.402	
	3		IMAGER	F560W	FASTR1	14	1	1	Dither 1	4	4	155.402	
	3	SHORT(A)	MRSLONG		FASTR1	14	1	1	Dither 1	4	4	155.402	
	3	SHORT(A)	MRSSHORT		FASTR1	14	1	1	Dither 1	4	4	155.402	

Proposal 1227 - Observation 21 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	Proposal 1227, Observation 21: MYSO #3 (Visit 2) Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(MYSO #3 (Visit 2) (Obs 21)) Warning (Form): Imager Filter overlap. (Visit 21:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Diagnosics													
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(22)	Y532	RA: 00 59 2.5826 (14.7607608d) Dec: -72 10 7.11 (-72.16864d) Equinox: J2000										
<i>Comments:</i> <i>Category=Star</i> <i>Description=[Young stellar objects]</i>													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray		Grating Wheel Direction			
	F560W	All MRS			YES			FULL		NEUTRAL			
Dithers	#	Dither Type				Optimized For				Direction			
	1	4-Point				EXTENDED SOURCE				NEGATIVE			
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1		IMAGER	F1280W	FASTR1	18	1	1	Dither 1	4	4	199.803	
	1	LONG(C)	MRSLONG		FASTR1	18	1	1	Dither 1	4	4	199.803	
	1	LONG(C)	MRSSHORT		FASTR1	18	1	1	Dither 1	4	4	199.803	
	2		IMAGER	F770W	FASTR1	18	1	1	Dither 1	4	4	199.803	
	2	MEDIUM(B)	MRSLONG		FASTR1	18	1	1	Dither 1	4	4	199.803	
	2	MEDIUM(B)	MRSSHORT		FASTR1	18	1	1	Dither 1	4	4	199.803	
	3		IMAGER	F560W	FASTR1	18	1	1	Dither 1	4	4	199.803	
	3	SHORT(A)	MRSLONG		FASTR1	18	1	1	Dither 1	4	4	199.803	
	3	SHORT(A)	MRSSHORT		FASTR1	18	1	1	Dither 1	4	4	199.803	

Proposal 1227 - Observation 28 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	<p>Proposal 1227, Observation 28: MYSO #4 (Visit 2)</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: MIRI Medium Resolution Spectroscopy</p> <p><i>Comments: The MRS field of view for this observation has been adjusted to be slightly offcentered of our primary science target in order to fit an additional field star of interest better into the long channels of the MRS. Our science target remains observable in all channels.</i></p> <p><i>The number of groups per integration for this source gives a desired signal to noise in MRS within time constraints. We have experimented with reducing the groups/int and adding an additional integrations/exposure to keep the groups/int from exceeding the recommended 100. However, because this increases overheads time, the S/N is slightly negatively impacted. We have also experimented with a slow mode detector setup which can be provided and substituted if necessary.</i></p> <p><i>Imager groups/int are chosen to have similar groups/int as previous MIRI imager observations which achieved good S/N and did not saturate backgrounds. Groups/int were chosen to use available time while in parallel with MRS</i></p> <p><i>For this observation, we picked F2550W because the time on target allows for a longer integration time than the first three targets, which is desirable for this filter. Additionally, we have imaging coverage from F1280W from most of this field of view from our other 3 targets, so don't require it again here.</i></p>															
	Diagnostics	<p>(MYSO #4 (Visit 2) (Obs 28)) Warning (Form): Imager Filter overlap.</p> <p>(Visit 28:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>														
		Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(23)</td> <td>Y533</td> <td>RA: 00 59 3.0637 (14.7627654d) Dec: -72 10 35.61 (-72.17656d) Equinox: J2000</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: Category=Star Description=[Young stellar objects]</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	(23)	Y533	RA: 00 59 3.0637 (14.7627654d) Dec: -72 10 35.61 (-72.17656d) Equinox: J2000	
	#		Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous										
(23)	Y533	RA: 00 59 3.0637 (14.7627654d) Dec: -72 10 35.61 (-72.17656d) Equinox: J2000														
Acquisition	<table border="1"> <thead> <tr> <th>#</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>NONE</td> </tr> </tbody> </table>					#	Target	1	NONE							
	#	Target														
1	NONE															
Template	<table border="1"> <thead> <tr> <th>AcqFilter</th> <th>Primary Channel</th> <th>Simultaneous Imaging</th> <th>Imager Subarray</th> <th>Grating Wheel Direction</th> </tr> </thead> <tbody> <tr> <td>F560W</td> <td>All MRS</td> <td>YES</td> <td>FULL</td> <td>NEUTRAL</td> </tr> </tbody> </table>					AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction	F560W	All MRS	YES	FULL	NEUTRAL	
	AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction											
F560W	All MRS	YES	FULL	NEUTRAL												
Dithers	<table border="1"> <thead> <tr> <th>#</th> <th>Dither Type</th> <th>Optimized For</th> <th>Direction</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>4-Point</td> <td>EXTENDED SOURCE</td> <td>NEGATIVE</td> </tr> </tbody> </table>					#	Dither Type	Optimized For	Direction	1	4-Point	EXTENDED SOURCE	NEGATIVE			
	#	Dither Type	Optimized For	Direction												
1	4-Point	EXTENDED SOURCE	NEGATIVE													

Proposal 1227 - Observation 28 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

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	F560W	FASTR1	30	4	1	Dither 1	4	16	1365.32	
	1	SHORT(A)	MRSLONG		FASTR1	125	1	1	Dither 1	4	4	1387.52	
	1	SHORT(A)	MRSSHORT		FASTR1	125	1	1	Dither 1	4	4	1387.52	
	2		IMAGER	F770W	FASTR1	30	4	1	Dither 1	4	16	1365.32	
	2	MEDIUM(B)	MRSLONG		FASTR1	125	1	1	Dither 1	4	4	1387.52	
	2	MEDIUM(B)	MRSSHORT		FASTR1	125	1	1	Dither 1	4	4	1387.52	
	3		IMAGER	F2550W	FASTR1	50	2	1	Dither 1	4	8	1121.116	
	3	LONG(C)	MRSLONG		FASTR1	125	1	1	Dither 1	4	4	1387.52	
	3	LONG(C)	MRSSHORT		FASTR1	125	1	1	Dither 1	4	4	1387.52	

Proposal 1227 - Observation 1 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	Proposal 1227, Observation 1: MIRI imaging Diagnostic Status: Warning Observing Template: MIRI Imaging										
Diagnostics	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 1:2) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 1:3) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 1:4) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 1:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Miscellaneous			
(5)	NGC-346	RA: 00 59 4.9451 (14.7706046d) Dec: -72 10 9.15 (-72.16921d) Equinox: J2000									
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Stellar Cluster</i> <i>Description=[OB associations, Young star clusters]</i>											
Template	Subarray FULL										
Mosaic	Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order				
2	3	10.0	10.0	0.0	0.0	HILBERT_CURVE					
Dithers	#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size	
1	CYCLING	1	4						SMALL		
2	CYCLING	1	4						SMALL		
3	CYCLING	1	4						SMALL		
4	CYCLING	1	4						SMALL		
5	CYCLING	1	4						SMALL		
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	28	1	1	Dither 1	4	4	310.804		
2	F1000W	FASTR1	36	1	1	Dither 2	4	4	399.606		
3	F1130W	FASTR1	28	1	1	Dither 3	4	4	310.804		
4	F1500W	FASTR1	32	1	1	Dither 4	4	4	355.205		
5	F2100W	FASTR1	51	1	1	Dither 5	4	4	566.108		

Proposal 1227 - Observation 1 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Special Requirements

Group Visits within 53.0 Days
Aperture PA Range 5 to 5 Degrees (V3 0.16455103 to 0.16455103)
Visits Same PA
No Parallel Attachments
Same Aperture PA 1, 17

Proposal 1227 - Observation 17 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

Tue Mar 05 23:00:49 GMT 2024

Observation	Proposal 1227, Observation 17: MIRI imaging Split off Tile-6 Diagnostic Status: Warning Observing Template: MIRI Imaging Coordinated Parallel Template(s): NIRCam Imaging										
	(Visit 17:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous		
	(18)	NGC-346-TILE-6	RA: 00 59 21.2389 (14.8384954d) Dec: -72 09 21.49 (-72.15597d) Equinox: J2000								
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	4-POINT-MIRI-F770W-WITH-NIRCam	1	4						SMALL	
	2	4-POINT-MIRI-F1000W-WITH-NIRCam	1	4						SMALL	
	3	4-POINT-MIRI-F1000W-WITH-NIRCam	1	4						SMALL	
	4	4-POINT-MIRI-F1500W-WITH-NIRCam	1	4						SMALL	
	5	4-POINT-MIRI-F2550W-WITH-NIRCam	1	4						SMALL	
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	28	1	1	Dither 1	4	4	310.804	
	2	F1000W	FASTR1	36	1	1	Dither 2	4	4	399.606	
	3	F1130W	FASTR1	28	1	1	Dither 3	4	4	310.804	
	4	F1500W	FASTR1	32	1	1	Dither 4	4	4	355.205	
	5	F2100W	FASTR1	51	1	1	Dither 5	4	4	566.108	

Proposal 1227 - Observation 17 - NGC 346: Star Formation at Low Metallicity in the Small Magellanic Cloud

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		F187N	F335M	BRIGHT2	3	1	4	4	257.682	
	2		F115W	F277W	BRIGHT2	4	1	4	4	343.577	
	3		F150W	F356W	BRIGHT2	3	1	4	4	257.682	
	4		F200W	F444W	BRIGHT2	3	1	4	4	257.682	
	5		F090W	F480M	BRIGHT2	6	1	4	4	515.365	
Special Requirements	Aperture PA Range 5 to 5 Degrees (V3 0.16455103 to 0.16455103) No Parallel Attachments Same Aperture PA 1, 17										