

2130 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Magellanic Clouds

Cycle: 1, Proposal Category: GO

INVESTIGATORS

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Dr. Adam G Ginsburg (CoI)	University of Florida
Dr. Mark R. Krumholz (CoI)	Australian National University
Prof. Xiaohui Fan (CoI)	University of Arizona

OBSERVATIONS

Folder	Observation	Label	Observing Template	Science Target
Observa	ation Folder			
	3	NGC0598 MIRI Prime	MIRI Imaging	(2) NGC0598MIRI
	12	NGC0598 MIRI BRIG HT1 Prime	MIRI Imaging	(10) NGC0598MIRI-BRIGHT1
	13	NGC0598 MIRI BRIG HT2 Prime	MIRI Imaging	(11) NGC0598MIRI-BRIGHT2
	5	NGC0300 MIRI Prime	MIRI Imaging	(3) NGC0300MIRI
	1	NGC7793 MIRI Prime	MIRI Imaging	(1) NGC7793MIRI

Folder	Observation	Label	Observing Template	Science Target
	4	NGC0598SKY MIRI P rime	MIRI Imaging	(12) NGC0598SKYMIRI
	16	NGC0300SKY MIRI P rime	MIRI Imaging	(13) NGC0300SKYMIRI
	17	NGC7793SKY MIRI P rime	MIRI Imaging	(14) NGC7793SKYMIRI
Observa	ation Folder			
	11	NGC0300 NIRCam Pri me	NIRCam Imaging	(9) NGC0300NIRCAM
	7	NGC7793 NIRCam Pri me	NIRCam Imaging	(7) NGC7793NIRCAM
	20	NGC0598 NIRCam Pri me Repeat	NIRCam Imaging	(8) NGC0598NIRCAM
<u>Observa</u>	ation Folder			
	14	NGC0598 NIRCam Pri me	NIRCam Imaging	(8) NGC0598NIRCAM

JWST Proposal 2130 (Created: Monday, October 16, 2023 at 12:00:54 PM Eastern Standard Time) - Overview

ABSTRACT

We propose to begin the mid-infrared parsec-scale study of dust-enshrouded stellar populations in galaxies beyond the Magellanic Clouds. Building on methods established by Spitzer observations of the SMC and LMC, we will identify and characterize massive young stellar objects (MYSOs) and embedded star clusters, using NIRCam and MIRI imaging at 2, 4.4, 10, and 21 um. We will observe an area of ~2-3 sq. kpc covering spiral features in each of 3 galaxies (M33, NGC 300, NGC 7793) at distances of ~1, 2, 3 Mpc. In each galaxy, we expect to find >~150 clusters dominated by emission from individual MYSOs. Study of this early embedded phase, which lasts at most 2-3 Myr, hold critical clues to the conditions that ignite and extinguish star formation. Together with existing HST and ALMA CO imaging, we will build a foundational dataset to answer key questions on star formation at parsec scales, including the timescales for progression from molecular cloud to embedded cluster to revealed cluster; the rate and efficiency of star formation; and the form of the star formation law.

This program will serve as a pathfinder for study of the physical properties of MYSOs and embedded stellar clusters out to a few Mpc, and for interpretation of MIR imaging of clusters and clumps at larger distances. New SED modeling techniques are needed to interpret the photometry, which we are developing and will release as part of this program. The data broadly enable studies of all other objects tiny, dusty, and mid-infrared bright, including evolved stars. We thus will waive the proprietary period to facilitate community science and planning for spectroscopic and other follow-up studies.

OBSERVING DESCRIPTION

We will image well-studied spiral features in 3 nearby galaxies (M33, NGC 300, NGC 7793) using deep NIRCAM and MIRI four-band imaging at 2, 4.4, 10, and 21 microns. The target areas to be imaged were chosen to maximize overlap with HST+ALMA archival data.

To adequately sample the spiral features, we require 15, 3, and 1 MIRI pointing(s) in M33, NGC 300, and NGC 7793, respectively. NIRCAM imaging is planned over the same area.

We use F1000W and F2100W filters for MIRI observations of all targets. For NIRCAM imaging, we use F200W and F444W for NGC 300 and NGC 7793. For M33, we substitute F210M and F430M to help mitigate against bright object saturation concerns.

Total integration times for M33/NGC 300/NGC 7793 are NIRCAM 387/344/600 sec MIRI 278/666/1998 sec (F1000W) and 222/1332/3996 sec (F2100W)

To enable detection of faint sources without exceeding bright limits, we adopt a hybrid approach for both NIRCAM and MIRI imaging. For NIRCAM we will combine short exposures (with the fastest readout, RAPID) and longer observations (with slower readouts, BRIGHT2) to maximize recovered dynamic range in final drizzled image products. For MIRI we use a FULL/FAST/Ngroups=5 strategy, but in addition specifically target problematic bright areas (only two, both in M33) with devoted short/fast readout subarray (SUB256) observations in addition to our general mosaic.

The MIRI 4-point dither pattern, optimized for analysis of point sources, is used. For NIRCAM, INTRAMODULEBOX4 primary dither is used to maximize the area observed at full depth in NGC 300 and NGC 7793. Since the target region is much larger in M33, we use FULL/3TIGHT for the primary dither pattern, with 2 subpixel positions to build depth. In general, subpixel dithering is unnecessary because the PSF is well-sampled at F200W and F444W.

Mosaicing in M33 employs a MIRI 6x4 grid, for which we have only retained 15 tiles that probe our target area. For NGC 300 we require a 3x1 MIRI mosaic to cover the arm. Ample area in NGC 7793 is obtained in a single MIRI pointing. For MIRI mosaics, we use 10% tile overlap, and a 14% row shift (in the case of NGC 300). NIRCAM mosaicing is needed in M33 (5x1 grid) and NGC 300 (1x2 grid). In M33, row overlap is 8%; in

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NGC 300, column overlap is 58%. The later provides contiguous coverage in NGC 300 along the mosaic column-oriented extent.

To map the spiral arm features, we impose orientation constraints. Each orientation constraint provides at least 20-day-wide observing windows. Our requirements are as follows:

M33: MIRI FULL mosaic = 242-246 aperture PA, NIRCAM mosaic = 239-240 aperture PA

M33: MIRI SUB256 observations of two bright areas = unconstrained in PA

NGC 300: MIRI mosaic = 292-298 aperture PA, NIRCAM mosaic = 22-27 aperture PA

NGC 7793: MIRI 271-279.5 aperture PA, NIRCAM = 34-40 aperture PA

Mosaics tiles in each galaxy are constrained to be in a non-interuptable sequence, as are the two MIRI subarray pointings for bright regions in M33.

	#	Name	Target Coordinates	Targ. Coord. Corrections	ec Scale Studies beyond the Mage Miscellaneous	
	(1)	NGC7793MIRI	RA: 23 57 51.2702 (359.4636258d)			
			Dec: -32 35 56.82 (-32.59912d)			
			Equinox: J2000			
	Comments:	,				
	Category=Ge Description=	alaxy [Field galaxies, Galaxy nuclei]				
	(2)	NGC0598MIRI	RA: 01 33 45.2000 (23.4383333d)			
			Dec: +30 33 0.00 (30.55000d)			
			Equinox: J2000			
	Comments:					
	Category=Ge	alaxy [Field galaxies, Galaxy nuclei]				
	(3)	NGC0300MIRI	RA: 00 54 57.8285 (13.7409521d)			
	(5)	10000000000000000000000000000000000000	Dec: -37 39 19.78 (-37.65549d)			
			Equinox: J2000			
	Comments:		1			
	Category=G	alaxy				
	<i>Description=</i> (7)	[Field galaxies, Galaxy nuclei] NGC7793NIRCAM	RA: 23 57 44.7364 (359.4364017d)			
	(7)	NGC//95INIKCAM	Dec: -32 34 57.54 (-32.58265d)			
			Equinox: J2000			
its	Comments:		Equilox. J2000			
ğ	Category=G	alaxy				
Tal		[Field galaxies, Galaxy nuclei]				
Fixed Targets	(8)	NGC0598NIRCAM	RA: 01 33 44.3362 (23.4347342d)			
Ĭ.			Dec: +30 32 57.00 (30.54917d)			
ш	<u> </u>		Equinox: J2000			
	Comments: Category=Ge	alaxy				
	Description=	[Field galaxies, Galaxy nuclei]				
	(9)	NGC0300NIRCAM	RA: 00 54 54.3968 (13.7266533d)			
			Dec: -37 39 3.19 (-37.65089d)			
			Equinox: J2000			
	Comments: Category=Ge	alary				
	Description=	[Field galaxies, Galaxy nuclei]				
	(10)	NGC0598MIRI-BRIGHT1	RA: 01 33 59.3122 (23.4971342d)			
			Dec: +30 35 52.55 (30.59793d)			
			Equinox: J2000			
	Comments:					
	Category=Ge Description=	alaxy [Field galaxies, Galaxy nuclei]				
	(11)	NGC0598MIRI-BRIGHT2	RA: 01 33 29.8106 (23.3742108d)			
			Dec: +30 31 49.81 (30.53050d)			
			Equinox: J2000			
	Comments:		-			
	Category=Ge	alaxy [Field galaxies, Galaxy nuclei]				
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Proposal 2130 - Targets - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Magellanic ...

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(12)	NGC0598SKYMIRI	RA: 01 31 11.4804 (22.7978350d)
		Dec: +30 53 37.31 (30.89370d)
		Equinox: J2000
	Unidentified n=[Blank field]	
(13)	NGC0300SKYMIRI	RA: 00 53 34.4288 (13.3934533d)
		Dec: -37 21 44.74 (-37.36243d)
		Equinox: J2000
Comments: Category= Description	Unidentified n=[Blank field]	
(14)	NGC7793SKYMIRI	RA: 23 57 17.9846 (359.3249358d)
		Dec: -32 29 19.53 (-32.48876d)
		Equinox: J2000
	Unidentified n=[Blank field]	
(15)	NGC0598NIRCAM-Tile-3	RA: 01 33 44.3362 (23.4347342d)
		Dec: +30 32 57.00 (30.54917d)
		Equinox: J2000
Comments: Category= Description		
(16)	NGC0598NIRCAM-Tile-4	RA: 01 33 52.4266 (23.4684442d)
		Dec: +30 33 57.63 (30.56601d)
		Equinox: J2000
Comments:		
Category= Description	Galaxy n=[Field galaxies, Galaxy nuclei]	
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Proposal 2130 - Observation 3 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Mag. Proposal 2130, Observation 3: NGC0598 MIRI Prime Observation Mon Oct 16 17:00:54 GMT 2023 **Diagnostic Status: Warning** Observing Template: MIRI Imaging Background Observations: [NGC0598SKY MIRI Prime (Obs 4)] (NGC0598 MIRI Prime (Obs 3)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:2) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:3) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:4) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:5) Warning (Form): Overheads are provisional until the Visit Planner has been run. Diagnostics (Visit 3:6) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:7) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:8) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:9) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:10) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:11) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:12) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:13) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:14) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 3:15) Warning (Form): Overheads are provisional until the Visit Planner has been run. (NGC0598 MIRI Prime (Obs 3)) Informational (Form): The Visit Planner and Spike may produce different schedulability results. **Targ. Coord. Corrections** Miscellaneous **Target Coordinates** Name **Fixed Targets** (2) NGC0598MIRI RA: 01 33 45.2000 (23.4383333d) Dec: +30 33 0.00 (30.55000d) Equinox: J2000 Comments: Category=Galaxy Description=[Field galaxies, Galaxy nuclei] Template Subarrav FULL Mosaic Rows Columns **Row Overlap % Column Overlap %** Row shift (deg) Column shift (deg) **Tile Order** 4 HILBERT_CURVE 6 10.0 10.0 0.0 0.0 Dithers **Dither Type Starting Point** Number of Points Points **Starting Set** Number of Sets **Optimized For** Direction Pattern Size 1 POINT SOURCE 4-Point-Sets 1 POSITIVE DEFAULT

Elements	#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
l a	1	F1000W	FASTR1	16	2	1	Dither 1	4	8	366.305	
Ше	2	F2100W	FASTR1	8	2	1	Dither 1	4	8	188.703	
Spectral											
ments	Group Visits withi Aperture PA Rang Visits Same PA		es (V3 237.1645510	3 to 241.16455103))						
Requirements	Sequence Observa Same Aperture PA	tions 3, 4, 12, 13, N . 3, 4	on-interruptible								
Special											

Proposal 2130 - Observation 12 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Ma.. Proposal 2130, Observation 12: NGC0598 MIRI BRIGHT1 Prime Observation Mon Oct 16 17:00:54 GMT 2023 **Diagnostic Status: Warning** Observing Template: MIRI Imaging Diagnostics Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. **Target Coordinates** Targ. Coord. Corrections Miscellaneous **Fixed Targets** Name (10)NGC0598MIRI-BRIGHT1 RA: 01 33 59.3122 (23.4971342d) Dec: +30 35 52.55 (30.59793d) Equinox: J2000 Comments: Category=Galaxy Description=[Field galaxies, Galaxy nuclei] Template Subarray SUB256 Dithers **Dither Type Starting Point** Number of Points Points **Starting Set** Number of Sets **Optimized For** Direction Pattern Size 4-Point-Sets POINT SOURCE POSITIVE DEFAULT 1 1 **Spectral Elements** ETC Wkbk.Calc ID # Filter Readout Pattern Groups/Int Integrations/Exp Exposures/Dith Dither **Total Dithers** Total Total Exposure Integrations Time 5 5 F1000W FASTR1 1 Dither 1 4 20 34.744 F2100W FASTR1 5 5 1 Dither 1 4 20 34.744 **Special Requirements** Sequence Observations 3, 4, 12, 13, Non-interruptible

Proposal 2130 - Observation 13 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Ma... Proposal 2130, Observation 13: NGC0598 MIRI BRIGHT2 Prime Observation Mon Oct 16 17:00:54 GMT 2023 **Diagnostic Status: Warning** Observing Template: MIRI Imaging Diagnostics Visit 13:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. **Target Coordinates** Targ. Coord. Corrections Miscellaneous **Fixed Targets** Name RA: 01 33 29.8106 (23.3742108d) (11)NGC0598MIRI-BRIGHT2 Dec: +30 31 49.81 (30.53050d) Equinox: J2000 Comments: Category=Galaxy Description=[Field galaxies, Galaxy nuclei] Template Subarray SUB256 Dithers **Dither Type Starting Point** Number of Points Points **Starting Set** Number of Sets **Optimized For** Direction Pattern Size 4-Point-Sets POINT SOURCE POSITIVE DEFAULT 1 1 **Spectral Elements** ETC Wkbk.Calc ID # Filter Readout Pattern Groups/Int Integrations/Exp Exposures/Dith Dither **Total Dithers** Total Total Exposure Integrations Time 5 5 F1000W FASTR1 1 Dither 1 4 20 34.744 F2100W FASTR1 5 5 1 Dither 1 4 20 34.744 **Special Requirements** Sequence Observations 3, 4, 12, 13, Non-interruptible

Proposal 2130 - Observation 5 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Mag. Proposal 2130, Observation 5: NGC0300 MIRI Prime Mon Oct 16 17:00:54 GMT 2023 Observation **Diagnostic Status: Warning** Observing Template: MIRI Imaging Background Observations: [NGC0300SKY MIRI Prime (Obs 16)] stics (NGC0300 MIRI Prime (Obs 5)) Warning (Form): Target requiring background exposure selected for template that doesn't require background exposure (Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. Diagnos (Visit 5:2) Warning (Form): Overheads are provisional until the Visit Planner has been run. (Visit 5:3) Warning (Form): Overheads are provisional until the Visit Planner has been run. (NGC0300 MIRI Prime (Obs 5)) Informational (Form): The Visit Planner and Spike may produce different schedulability results. Name Targ. Coord. Corrections **Target Coordinates** Miscellaneous **Fixed Targets** NGC0300MIRI (3) RA: 00 54 57.8285 (13.7409521d) Dec: -37 39 19.78 (-37.65549d) Equinox: J2000 Comments: Category=Galaxy Description=[Field galaxies, Galaxy nuclei] Template Subarray FULL Mosaic Rows Columns **Row Overlap % Column Overlap %** Row shift (deg) Column shift (deg) **Tile Order** 0.0 ROW_ORDER 10.0 10.0 14.0 1 Dithers **Dither Type Starting Point** Number of Points Points Starting Set Number of Sets **Optimized For** Direction Pattern Size 2 4-Point-Sets 1 POINT SOURCE POSITIVE DEFAULT Spectral Elements Total ETC Wkbk.Calc Filter Readout Pattern Groups/Int Integrations/Exp Exposures/Dith Dither **Total Dithers** Total Exposure Integrations Time ID F1000W FASTR1 16 2 1 Dither 1 8 16 732.611 F2100W FASTR1 32 2 Dither 1 8 1443.021 1 16 **Special Requirements** Sequence Visits within 1 Days Aperture PA Range 292 to 298 Degrees (V3 287.16455103 to 293.16455103) Visits Same PA Sequence Observations 5, 16, Non-interruptible Same Aperture PA 5, 16

Pro	posal 213	0 - Observatio	on 1 - Embeo	dded Star F	Formation in N	Nearby Gala	xies: T	he Advent of	Parsec Scale	Studies beyo	nd the Mag
L C	Proposal 2130	, Observation 1: NGC	7793 MIRI Prime							Mon Oct 16	5 17:00:54 GMT 2023
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Observation	Observing Ten	plate: MIRI Imaging									
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18											
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Targets		Name	Target Co		(259.4)	Targ. Co	ord. Correc	tions	Miscella	neous	
Ď	(1)	NGC7793MIRI		51.2702 (359.463							
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Dithers	#	Dither Type	Starting Point	Number o	of Points Points	Startin	g Set	Number of Sets	Optimized For	Direction	Pattern Size
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ts	#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithe		Total Exposure	
Spectral Elements						-			Integrations	Time	ID
١ E	1	F1000W	FASTR1	48	2	1	Dither 1	8	16	2153.431	
Ξ	2	F2100W	FASTR1	32	6	1	Dither 1	8	48	4373.463	
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1 to											
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Special Requirements	Aperture PA R	ange 271 to 279.5 Degr	rees (V3 266.164551	03 to 274.664551	03)						
le l	Sequence Obse	rvations 1, 17, Non-int	erruptible								
en	Same Aperture	PA 1, 17	1								
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Proposal 2130 - Observation 4 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Mag. Proposal 2130, Observation 4: NGC0598SKY MIRI Prime Observation Mon Oct 16 17:00:54 GMT 2023 **Diagnostic Status: Warning** Observing Template: MIRI Imaging Background Observation For: [NGC0598 MIRI Prime (Obs 3)] Diagnostics (Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (NGC0598SKY MIRI Prime (Obs 4)) Informational (Form): The Visit Planner and Spike may produce different schedulability results. **Target Coordinates** Targ. Coord. Corrections Miscellaneous Name **Fixed Targets** (12) NGC0598SKYMIRI RA: 01 31 11.4804 (22.7978350d) Dec: +30 53 37.31 (30.89370d) Equinox: J2000 Comments: Category = UnidentifiedDescription=[Blank field] Template Subarray FULL Dithers **Dither Type Starting Point** Number of Points Points **Starting Set** Number of Sets **Optimized For** Direction Pattern Size EXTENDED SOURCE 2 POSITIVE 4-Point-Sets 1 DEFAULT ETC Wkbk.Calc ID Spectral Elements # Filter Readout Pattern Groups/Int Integrations/Exp Exposures/Dith Dither **Total Dithers** Total Total Exposure Integrations Time 12 1 F1000W FASTR1 1 Dither 1 8 8 266.404 F2100W FASTR1 12 1 1 Dither 1 8 8 266.404 **Special Requirements** Sequence Observations 3, 4, 12, 13, Non-interruptible Same Aperture PA 3, 4

Proposal 2130 - Observation 16 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Ma...

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15	Proposal 21	30, Observation 16: NG	C0300SKY MIRI P	rime						Mon Oct 16	17:00:54 GMT 2023
Į₩	Diagnostic S	Status: Warning									
Š	Observing T	emplate: MIRI Imaging									
l ë	-	Observation For: [NGC03	300 MIRI Prime (Ob	s 5)]							
Observation	Duenground		(00								
Diagnostics	(Visit 16:1)	Warning (Form): Overhea	*								
s l	(NGC0300S	KY MIRI Prime (Obs 16)) Informational (For	m): The Visit P	lanner and Spike may	produce different sch	edulability i	results.			
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ß	#	Name	Target Co	ordinates		Targ. Co	ord. Correc	ctions	Miscella	neous	
Targets	(13)	NGC0300SKYMIRI	RA: 00 53	34.4288 (13.39)	34533d)						
ar			Dec: -37 2	1 44.74 (-37.362	243d)						
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Template	Subarray										
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Dithers	#	Dither Type	Starting Point	t Number	of Points Points	Startin	g Set	Number of Sets	Optimized For	Direction	Pattern Size
l e	1	4-Point-Sets				1		2	EXTENDED	POSITIVE	DEFAULT
Ē									SOURCE		
	#	Filter	Readout Pattern	Groups/Int	Integrations/Ex	p Exposures/Dith	Dither	Total Dith	ers Total	Total Exposure	
	#	Filter		-	-				ers Total Integrations	Time	ETC Wkbk.Calc ID
	# 1	Filter F1000W	FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
	# 1 2	Filter		-	-				ers Total Integrations	Time	ETC Wkbk.Calc ID
	# 1 2	Filter F1000W	FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
	# 1 2	Filter F1000W	FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
	# 1 2	Filter F1000W	FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements Dit	# 1 2	Filter F1000W	FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc ID
Spectral Elements		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc
		Filter F1000W F2100W	FASTR1 FASTR1	12	1	1	Dither 1	8	ers Total Integrations 8	Time 266.404	ETC Wkbk.Calc

Pro	posal 2'	30 - Observatio	<u>on 17 - Embe</u>	edded Star	Formation in	Nearby Ga	laxies:	The Advent o	f Parsec Scale	e Studies bey	ond the Ma
L C	Proposal 21	30, Observation 17: NGO	C7793SKY MIRI P	rime						Mon Oct 16	5 17:00:54 GMT 2023
Ĕ	Diagnostic S	tatus: Warning									
Observation	Observing T	emplate: MIRI Imaging									
se	_										
18											
	(Wigit 17.1)	Warning (Form): Overhea	de ara provisional ur	til the Visit Plann	ar has been run						
Ë		KY MIRI Prime (Obs 17)	-			oduce different sch	adulability	raculte			
Diagnostics	(10077935	(00517)) Informational (1911	ii). The visit Fian	mer and Spike may pr	outee unterent sen		lesuits.			
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) ja											
	ц	N	Tanat Ca			Taur Ca	and Carrier		N4:U-		
Targets	# (14)	Name NGC7793SKYMIRI	Target Co	17.9846 (359.324)	02594)	Targ. Co	ord. Correc	cuons	Miscella	neous	
ğ	(14)	NGC//955K1 MIRI									
Ч				9 19.53 (-32.48876	ou)						
Fixed	C		Equinox: J2	2000							
Ĭ,Ă	Comments: Category=U	nidentified									
	1	[Blank field]									
Template	Subarray										
đ	FULL										
e E											
Dithers	#	Dither Type	Starting Point	Number o	f Points Points	Startin	g Set	Number of Sets	Optimized For	Direction	Pattern Size
Ē	1	4-Point-Sets				1		2	EXTENDED SOURCE	POSITIVE	DEFAULT
ā									SOURCE		
	#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dith		Total Exposure	
Elements				10					Integrations	Time	ID
e l	1	F1000W	FASTR1	12	1	1	Dither 1	8	8	266.404	
	2	F2100W	FASTR1	12	1	1	Dither 1	8	8	266.404	
<u>a</u>											
1 T											
Spectral											
	a		. ** *								
Special Requirements	Sequence Of Same Apertu	servations 1, 17, Non-intere PA 1, 17	erruptible								
ne	Sumeriperit										
l e											
Ţ.											
ĕ											
<u>č</u> i											
be											
S											

Pro	<u>oposal 2130 - Obse</u>	ervation 11	- Embed	ded Star Form	ation in Nea	arby Galaxies	<u>: The Adv</u>	ent of Pa	arsec Scale	e Studies bev	ond the Ma
	Proposal 2130, Observation										16 17:00:54 GMT 2023
lĕ	Diagnostic Status: Warning	g									
Ž	Observing Template: NIRCa	um Imaging									
se											
Observation											
	(Visit 11:1) Warning (Form)	: Overheads are p	provisional until	he Visit Planner has be	en run.						
l 💥	(Visit 11:2) Warning (Form)	-									
١ğ		1									
چ ا											
Diagnostics											
			Target Coord	inates		Targ. Coord. Cor	rections		Miscella	neous	
Fixed Targets	(9) NGC0300NIF	RCAM		3968 (13.7266533d)							
ar C				19 (-37.65089d)							
ΕË.			Equinox: J200								
) õ	Comments:										
ιÊ	Category=Galaxy Description=[Field galaxies	Calary nucleil									
ø		, Guiaxy nucleif		Subarray				Target Pla	acement		
Template	ALL			FULL				Module Ga			
2									1		
le H											
	Rows	Columns		Row Overlap %	Column (Dverlap % R	ow shift (deg)		Column shift (de	eg) Tile O	rder
sa	1	2		0.0	58.0	0			0.0	DEFA	ULT
Mosaic											
	#	Primary	Dither Type	Primary Di	thers	Subpixel Dither	Туре	Dither Siz	e	Subpixel P	ositions
Per l	1		IODULEBOX	4		STANDARD			-	1	
Dithers											
	# Short	Filter La	ong Filter	Readout Pattern	Groups/Int	Integrations/Ex	o Total Inte	grations Tot	al Dithers	Total Exposure	ETC Wkbk.Calc
ent			ong 1 1101		oroups, m	2000 2000 2000				Time	ID
Ĕ	1 F200W	V F 4	444W	BRIGHT2	6	1	4	4		515.365	
Ш											
<u>a</u>											
t											
Spectral Elements											
	a										
l te	Sequence Visits , Non-interr Aperture PA Range 22 to 27 Visits Same PA	uptible Degrees (V3 22.0	0713531 to 27.0°	/13531)							
l e	Visits Same PA	Ç (,							
Le I											
Ē											
l Å											
a											
ŝ.											
Special Requirement											
L.,											

Pro	posal 21	130 - Observatio	n 7 - Embedde	ed Star Forma	tion in Nea	rby Galaxies: T	he Advent of F	Parsec Scal	e Studies beyo	ond the Mag
Observation	Proposal 21 Diagnostic S	30, Observation 7: NGC7 Status: Warning 'emplate: NIRCam Imaging	793 NIRCam Prime							16 17:00:54 GMT 2023
Diagnostics	(Visit 7:1) W	Varning (Form): Overheads	are provisional until th	e Visit Planner has bee	en run.					
ts	#	Name	Target Coordi	nates		Targ. Coord. Correc	ctions	Misce	llaneous	
Fixed Targets	(7) Comments:	NGC7793NIRCAM		364 (359.4364017d) 54 (-32.58265d))						
١ <u></u>	Category=G	Galaxy	1 1							
<u> </u>	Module	=[Field galaxies, Galaxy ni	uclei]	Subarray			Torg	et Placement		
<u>a</u>	ALL			FULL				le Gap		
Template				1022				i cup		
rs	#	Pri	imary Dither Type	Primary Di	thers	Subpixel Dither Ty	ype Dithe	r Size	Subpixel P	ositions
Dithers	1	IN	TRAMODULEBOX	4		STANDARD			1	
	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
Spectral Elements	1	F200W	F444W	BRIGHT2	8	1	4	4	687.153	
Special Requirements	Aperture PA	A Range 34 to 40 Degrees (V	V3 34.0713531 to 40.07	'13531)						

Pro	oposal 2130 - Observatio	n 20 - Embec	<u>lded Star Form</u>	<u>ation in Nea</u>	arby Galaxies:	<u>The Advent o</u>	<u>f Parsec Sca</u>	ale Studies bey	ond the Ma				
									6 17:00:54 GMT 2023				
Observation	Diagnostic Status: Warning												
Ž	Observing Template: NIRCam Imaging												
se													
ð													
S	(Visit 20.1) Warring (Form): Overheads are previsional until the Visit Blanner has been run												
ţi	(Visit 20:2) Warning (Form): Overhead	ds are provisional until	the Visit Planner has be	en run.									
0S	(Visit 20:3) Warning (Form): Overhead	ds are provisional until	the Visit Planner has be	en run.									
gn	(Visit 20:4) Warning (Form): Overhead	t 20:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Diagnostics	(Visit 20:5) Warning (Form): Overhead	ds are provisional until	the Visit Planner has be	en run.									
Ľ	(Visit 20:6) Warning (Form): Overhea	ds are provisional until	the Visit Planner has be	en run.									
ts	# Name	Name Target Coordinates					Misce	Miscellaneous					
ge	(8) NGC0598NIRCAM RA: 01 33 44.3362 (23.4347342d)												
Tai	Dec: +30 32 57.00 (30.54917d)												
Ծ		Equinox: J2000											
Fixed Targets	Comments: Category=Galaxy												
	Description=[Field galaxies, Galaxy r	uclei]											
Template	Module		Subarray				et Placement						
đ	ALL	ALL FULL					Module Gap						
em													
Mosaic	Rows Colum			Column Overlap % Row shift (deg)			Column shift (deg)		Tile Order				
os	1		8.0	10.0	0.0		0.0	ROW_	ROW_ORDER				
Dithers		imary Dither Type	Primary Dithers		Subpixel Dither Type D		er Size		Subpixel Positions				
Ę	FULL		3TIGHT		STANDARD			2					
	1 10												
	# Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID				
			Readout Pattern BRIGHT2	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time 773.047					
	# Short Filter	Long Filter		•				Time					
	# Short Filter	Long Filter		•				Time					
	# Short Filter	Long Filter		•				Time					
Spectral Elements D	# Short Filter	Long Filter		•				Time					

Proposal 2130 - Observation 20 - Embedded Star Formation in Nearby Galaxies: The Advent of Parsec Scale Studies beyond the Ma...

Group Visits within 53.0 Days Aperture PA Range 61.3286469 to 62.1286469 Degrees (V3 61.4 to 62.2) Visits Same PA

Pro			4 - Embedded Star Form	ation in Nea	arby Galaxies:	The Adve	ent of Parsec Scale S	Studies beyond the Ma		
5	Proposal 2130, Observation 14: NGC0598 NIRCam Prime Mon Oct									
Observation	Diagnostic Status: Warning									
Ž	Observing T	Observing Template: NIRCam Imaging								
l s										
ð										
	(Visit 14:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:5) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
cs	(Visit 14:6) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
ŝti	(Visit 14:7) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
Diagnostics	(Visit 14:8)	Warning (Form): Overheads are p	provisional until the Visit Planner has be	en run.						
iag			provisional until the Visit Planner has be							
ā	(Visit 14:10)	(Visit 14:10) Warning (Form): Overheads are provisional until the Visit Planner has been run.								
	(Visit 14:11) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:12) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:13) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:14) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
	(Visit 14:15) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
ţ	#	Name	Target Coordinates		Targ. Coord. Corr	ections	Miscellaneou	15		
Fixed Targets	(8)	NGC0598NIRCAM	RA: 01 33 44.3362 (23.4347342d)							
Ta			Dec: +30 32 57.00 (30.54917d)							
р.	_		Equinox: J2000							
ĭ,≚	Comments: Category=Galaxy									
ш	Description	=[Field galaxies, Galaxy nuclei]								
fe	Module Subarray						Target Placement			
Template	ALL		FULL		Module Gap					
E E										
Ĕ										
iii ii	Rows	Columns	Row Overlap %	Column C	Overlap % Ro	ow shift (deg)	Column shift (deg)	Tile Order		
Mosaic	5	1	8.0	10.0	0.0	0	0.0	DEFAULT		
	#	Primary Dither Type Primary Dithers			Subpixel Dither	Гуре	Dither Size	Subpixel Positions		
Jer	1	FULL 3TIGHT			STANDARD	J F -		2		
Dithers										
Ľ										

ents	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
Spectral Elements	1	F210M	F430M	BRIGHT2	6	1	6	6	773.047	
Special Requirements	Sequence Visits, No Aperture PA Range Visits Same PA Background Limited	239 to 240 Degrees (V3 239.0713531 to 24	,						