



# 2826 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Cycle: 2, Proposal Category: GO

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>
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## OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
IC348				
	2		MIRI Medium Resolution Spectroscopy	(10) LRL-40
	10		MIRI Medium Resolution Spectroscopy	(11) LRL-41
	3		MIRI Medium Resolution Spectroscopy	(14) LRL-55
	4		MIRI Medium Resolution Spectroscopy	(9) LRL-37
	5		MIRI Medium Resolution Spectroscopy	(17) LRL-63
	6		MIRI Medium Resolution Spectroscopy	(89) LRL-9060
	11		MIRI Medium Resolution Spectroscopy	(8) LRL-36
	1		MIRI Medium Resolution Spectroscopy	(15) LRL-58
	7		MIRI Medium Resolution Spectroscopy	(7) LRL-32
	8		MIRI Medium Resolution Spectroscopy	(91) LRL-10352
	9		MIRI Medium Resolution Spectroscopy	(4) LRL-15
	12		MIRI Medium Resolution Spectroscopy	(126) LRL-1933

## ABSTRACT

The inner regions of protoplanetary disks around T Tauri stars display remarkable diversity in their infrared molecular line emission, as discovered in surveys with Spitzer, suggesting that inner disks (inside the water snowline  $\sim 1$  au) have diverse C/O ratios at  $\sim 1$  Myr of age. Chemical diversity of this kind is expected to result from planet formation and disk evolution. Core accretion is expected to efficiently convert icy solids into planetesimals and protoplanets (a process that dehydrates the inner disk), while pebble inflow (a process that superhydrates the inner disk) is expected to dominate at early times or in disks that fail to convert most of their icy solids into planetesimals. By surveying molecular line emission from inner disks as a function of age, we can infer the roles these processes play (their timescale, prevalence, and extent) in the evolution of disk populations. We therefore propose to study an older population of disks in the IC 348 cluster ( $\sim 3$  Myr). With the high sensitivity of MIRI-MRS, it is now possible to study disks beyond the nearest star forming regions ( $> 140$  pc) and probe such populations. Our study will complement earlier Spitzer and current JWST studies of young disks ( $\sim 1$  Myr), provide valuable constraints on theories of disk evolution, and inform our understanding of planet formation in disk populations.

### **OBSERVING DESCRIPTION**

This program aims to obtain mid-infrared spectra of molecular emission in 12 Class II disks in the young cluster IC 348. All observations use the MIRI-MRS with exposures at all three grating settings to give coverage of the full wavelength range. Exposures are set to provide  $S/N \geq 250$  at 14 microns. The targets are expected to be unresolved. Target acquisitions are done for each star in order to ensure a systematic placement on the array.

# Proposal 2826 - Targets - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
Fixed Targets	(4)	LRL-15	RA: 03 44 44.7148 (56.1863117d) Dec: +32 04 2.41 (32.06734d) Equinox: J2000	Proper Motion RA: -1.334238451521157E-4 sec of time/yr Proper Motion Dec: -0.007337000101870217 arcsec/yr Epoch of Position: 2015.5
	<i>Comments: 97 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>			
	(7)	LRL-32	RA: 03 44 37.8807 (56.1578363d) Dec: +32 08 4.09 (32.13447d) Equinox: J2000	Proper Motion RA: 2.9522837239702E-4 sec of time/yr Proper Motion Dec: -0.006719000089105975 arcsec/yr Epoch of Position: 2015.5
	<i>Comments: 60 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>			
	(8)	LRL-36	RA: 03 44 38.4550 (56.1602292d) Dec: +32 07 35.62 (32.12656d) Equinox: J2000	Proper Motion RA: 3.505434669491954E-4 sec of time/yr Proper Motion Dec: -0.008533000072930008 arcsec/yr Epoch of Position: 2015.5
	<i>Comments: 57 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>			
	(9)	LRL-37	RA: 03 44 37.9787 (56.1582446d) Dec: +32 03 29.61 (32.05823d) Equinox: J2000	Proper Motion RA: 3.862298490717852E-4 sec of time/yr Proper Motion Dec: -0.007307000009859621 arcsec/yr Epoch of Position: 2015.5
<i>Comments: 43 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>				
(10)	LRL-40	RA: 03 44 29.7282 (56.1238675d) Dec: +32 10 39.75 (32.17771d) Equinox: J2000	Proper Motion RA: 3.944547477637384E-4 sec of time/yr Proper Motion Dec: -0.006626000049436698 arcsec/yr Epoch of Position: 2015.5	
<i>Comments: 34 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>				
(11)	LRL-41	RA: 03 44 21.6167 (56.0900696d) Dec: +32 10 37.58 (32.17711d) Equinox: J2000	Proper Motion RA: 3.487687868665139E-4 sec of time/yr Proper Motion Dec: -0.005914999997003179 arcsec/yr Epoch of Position: 2015.5	
<i>Comments: 35 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>				
(14)	LRL-55	RA: 03 44 31.3733 (56.1307221d) Dec: +32 00 14.05 (32.00390d) Equinox: J2000	Epoch of Position: 2015.5	
<i>Comments: 36 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>				

## Proposal 2826 - Targets - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

(15)	LRL-58	RA: 03 44 38.5431 (56.1605963d) Dec: +32 08 0.57 (32.13349d) Equinox: J2000	Proper Motion RA: 3.2506263429434495E-4 sec of time/yr Proper Motion Dec: -0.0064340000335505465 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: 60 mJy</i>  <i>Category=Star</i>  <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i></p>			
(17)	LRL-63	RA: 03 43 58.9118 (55.9954658d) Dec: +32 11 27.05 (32.19085d) Equinox: J2000	Proper Motion RA: 4.4091091968722983E-4 sec of time/yr Proper Motion Dec: -0.007535999907304358 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: 47 mJy</i>  <i>Category=Star</i>  <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i></p>			
(89)	LRL-9060	RA: 03 44 25.5857 (56.1066071d) Dec: +32 11 30.43 (32.19179d) Equinox: J2000	Proper Motion RA: 1.3754482970294645E-4 sec of time/yr Proper Motion Dec: -0.007336000044233515 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: 51 mJy</i>  <i>Category=Star</i>  <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i></p>			
(91)	LRL-10352	RA: 03 45 20.4616 (56.3352567d) Dec: +32 06 34.35 (32.10954d) Equinox: J2000	Proper Motion RA: 3.075832966131197E-4 sec of time/yr Proper Motion Dec: -0.005842999939886795 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: 80 mJy</i>  <i>Category=Star</i>  <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i></p>			
(126)	LRL-1933	RA: 03 45 16.3487 (56.3181196d) Dec: +32 06 19.81 (32.10550d) Equinox: J2000	Proper Motion RA: 2.7136651115455753E-4 sec of time/yr Proper Motion Dec: -0.0061739999864585116 arcsec/yr Epoch of Position: 2015.5
<p><i>Comments: 245 mJy</i>  <i>Category=Star</i>  <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i></p>			

Proposal 2826 - Observation 2 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 2</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(10)	LRL-40	RA: 03 44 29.7282 (56.1238675d) Dec: +32 10 39.75 (32.17771d) Equinox: J2000			Proper Motion RA: 3.944547477637384E-4 sec of time/yr Proper Motion Dec: -0.006626000049436698 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 34 mjy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	10	1	1	27.75	62383.1				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 10 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 10</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(11)	LRL-41	RA: 03 44 21.6167 (56.0900696d) Dec: +32 10 37.58 (32.17711d) Equinox: J2000			Proper Motion RA: 3.487687868665139E-4 sec of time/yr Proper Motion Dec: -0.005914999997003179 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 35 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	4	1	1	11.1	62383.6				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 3 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 3</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(14)	LRL-55	RA: 03 44 31.3733 (56.1307221d) Dec: +32 00 14.05 (32.00390d) Equinox: J2000			Epoch of Position: 2015.5							
<i>Comments: 36 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	10	1	1	27.75	62383.1				
<b>Template</b>	<b>Primary Channel</b>			<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>					
	ALL			NO				FULL					
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 4 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 4</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(9)	LRL-37	RA: 03 44 37.9787 (56.1582446d) Dec: +32 03 29.61 (32.05823d) Equinox: J2000			Proper Motion RA: 3.862298490717852E-4 sec of time/yr Proper Motion Dec: -0.007307000009859621 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 43 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	8	1	1	22.2	62383.2				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 5 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 5</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(17)	LRL-63	RA: 03 43 58.9118 (55.9954658d) Dec: +32 11 27.05 (32.19085d) Equinox: J2000			Proper Motion RA: 4.4091091968722983E-4 sec of time/yr Proper Motion Dec: -0.007535999907304358 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 47 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	8	1	1	22.2	62383.2				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 6 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 6</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(89)	LRL-9060	RA: 03 44 25.5857 (56.1066071d) Dec: +32 11 30.43 (32.19179d) Equinox: J2000			Proper Motion RA: 1.3754482970294645E-4 sec of time/yr Proper Motion Dec: -0.007336000044233515 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 51 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	8	1	1	22.2	62383.3				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 11 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 11</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(8)	LRL-36	RA: 03 44 38.4550 (56.1602292d) Dec: +32 07 35.62 (32.12656d) Equinox: J2000			Proper Motion RA: 3.505434669491954E-4 sec of time/yr Proper Motion Dec: -0.008533000072930008 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 57 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	4	1	1	11.1	62383.6				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 1 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 1</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>				<b>Targ. Coord. Corrections</b>				<b>Miscellaneous</b>		
	(15)	LRL-58	RA: 03 44 38.5431 (56.1605963d) Dec: +32 08 0.57 (32.13349d) Equinox: J2000				Proper Motion RA: 3.2506263429434495E-4 sec of time/yr Proper Motion Dec: -0.0064340000335505465 arcsec/yr Epoch of Position: 2015.5						
<i>Comments: 60 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	10	1	1	27.75	62383.1				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				POINT SOURCE				NEGATIVE			
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 7 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 7</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(7)	LRL-32	RA: 03 44 37.8807 (56.1578363d) Dec: +32 08 4.09 (32.13447d) Equinox: J2000			Proper Motion RA: 2.9522837239702E-4 sec of time/yr Proper Motion Dec: -0.006719000089105975 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 60 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	6	1	1	16.65	62383.4				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	1	SHORT(A)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	2	MEDIUM(B)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSLONG		FASTR1	38	2	1	Dither 1	4	8	854.712	
	3	LONG(C)	MRSSHORT		FASTR1	38	2	1	Dither 1	4	8	854.712	

Proposal 2826 - Observation 8 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

Observation	<b>Proposal 2826, Observation 8</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(91)	LRL-10352	RA: 03 45 20.4616 (56.3352567d) Dec: +32 06 34.35 (32.10954d) Equinox: J2000			Proper Motion RA: 3.075832966131197E-4 sec of time/yr Proper Motion Dec: -0.005842999939886795 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 80 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
Acquisition	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	4	1	1	11.1	62383.5				
Template	Primary Channel				Simultaneous Imaging				Imager Subarray				
	ALL				NO				FULL				
Dithers	#	Dither Type			Optimized For			Direction					
	1	4-Point			POINT SOURCE			NEGATIVE					
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	SHORT(A)	MRSLONG		FASTR1	30	2	1	Dither 1	4	8	677.11	
	1	SHORT(A)	MRSSHORT		FASTR1	30	2	1	Dither 1	4	8	677.11	
	2	MEDIUM(B)	MRSLONG		FASTR1	30	2	1	Dither 1	4	8	677.11	
	2	MEDIUM(B)	MRSSHORT		FASTR1	30	2	1	Dither 1	4	8	677.11	
	3	LONG(C)	MRSLONG		FASTR1	30	2	1	Dither 1	4	8	677.11	
	3	LONG(C)	MRSSHORT		FASTR1	30	2	1	Dither 1	4	8	677.11	

Proposal 2826 - Observation 9 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 9</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(4)	LRL-15	RA: 03 44 44.7148 (56.1863117d) Dec: +32 04 2.41 (32.06734d) Equinox: J2000			Proper Motion RA: -1.334238451521157E-4 sec of time/yr Proper Motion Dec: -0.007337000101870217 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 97 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	4	1	1	11.1	62383.6				
<b>Template</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>				
	ALL				NO				FULL				
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>			<b>Direction</b>					
	1	4-Point			POINT SOURCE			NEGATIVE					
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	26	2	1	Dither 1	4	8	588.308	
	1	SHORT(A)	MRSSHORT		FASTR1	26	2	1	Dither 1	4	8	588.308	
	2	MEDIUM(B)	MRSLONG		FASTR1	26	2	1	Dither 1	4	8	588.308	
	2	MEDIUM(B)	MRSSHORT		FASTR1	26	2	1	Dither 1	4	8	588.308	
	3	LONG(C)	MRSLONG		FASTR1	26	2	1	Dither 1	4	8	588.308	
	3	LONG(C)	MRSSHORT		FASTR1	26	2	1	Dither 1	4	8	588.308	

Proposal 2826 - Observation 12 - Evolution of Chemical Diversity in Inner Disks: Core Accretion and Pebble Inflow

Wed May 10 23:00:29 GMT 2023

<b>Observation</b>	<b>Proposal 2826, Observation 12</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>				
	(126)	LRL-1933	RA: 03 45 16.3487 (56.3181196d) Dec: +32 06 19.81 (32.10550d) Equinox: J2000			Proper Motion RA: 2.7136651115455753E-4 sec of time/yr Proper Motion Dec: -0.0061739999864585116 arcsec/yr Epoch of Position: 2015.5							
<i>Comments: 245 mJy</i> <i>Category=Star</i> <i>Description=[Pre-main sequence stars, Protoplanetary disks]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>				
	1	SAME	FND	FAST	4	1	1	11.1	62383.7				
<b>Template</b>	<b>Primary Channel</b>			<b>Simultaneous Imaging</b>				<b>Imager Subarray</b>					
	ALL			NO				FULL					
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>			<b>Optimized For</b>				<b>Direction</b>				
	1	4-Point			POINT SOURCE				NEGATIVE				
<b>Spectral Elements</b>	<b>#</b>	<b>Wavelength Range</b>	<b>Detector</b>	<b>Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Dither</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	SHORT(A)	MRSLONG		FASTR1	13	4	1	Dither 1	4	16	610.509	
	1	SHORT(A)	MRSSHORT		FASTR1	13	4	1	Dither 1	4	16	610.509	
	2	MEDIUM(B)	MRSLONG		FASTR1	13	4	1	Dither 1	4	16	610.509	
	2	MEDIUM(B)	MRSSHORT		FASTR1	13	4	1	Dither 1	4	16	610.509	
	3	LONG(C)	MRSLONG		FASTR1	13	4	1	Dither 1	4	16	610.509	
	3	LONG(C)	MRSSHORT		FASTR1	13	4	1	Dither 1	4	16	610.509	