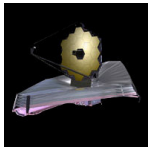

1236 - Protostellar Binaries

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Perseus				
	1	L1448IRS1	MIRI Medium Resolution Spectroscopy	(1) L1448IRS1
	2	Emb 22	MIRI Medium Resolution Spectroscopy	(2) PER-EMB-22
	3	Emb 33	MIRI Medium Resolution Spectroscopy	(3) PER-EMB-33
	4	Background	MIRI Medium Resolution Spectroscopy	(4) PER-BACKGROUND
	5	Emb 35	MIRI Medium Resolution Spectroscopy	(5) PER-EMB-35
	6	ASR 106	MIRI Medium Resolution Spectroscopy	(6) EDJ2009-183
	7	Emb 27	MIRI Medium Resolution Spectroscopy	(7) PER-EMB-27
	8	Emb 12	MIRI Medium Resolution Spectroscopy	(8) PER-EMB-12
	9	Emb 11	MIRI Medium Resolution Spectroscopy	(9) PER-EMB-11
	10	Emb 55	MIRI Medium Resolution Spectroscopy	(10) PER-EMB-55
rho Oph				
	11	WL 20	MIRI Medium Resolution Spectroscopy	(11) WL20

ABSTRACT

We will observe a small sample of protostellar binaries primarily in the Perseus star forming region and one in the rho Oph cloud with the MIRI spectrometer to gain new insights into the formation and composition of these youngest stellar systems. We have selected known binaries with separations from 0.6 to 3.2 arcseconds, wide enough to be resolved over a reasonable wavelength range, but close enough to be observed in a single pointing.

For each source, spectra with all three grating positions will be obtained, with a 2-point dither for each. Spatial reconstruction is not important (thus 4-point dithers is not necessary); our chief concern is filling in bad pixels and CR removal. There is one dedicated background region that will be used to subtract the background from all targets. The simultaneous images are primarily for precisely locating our targets, not for science per se; the image overlap warnings are thus not important.

There is one uninterrupable sequence of objects in Perseus in order in order to make best use of a designated background target. See the Observations comment boxes. Because these sources are binaries where it is not trivial to optimize the position of both on the IFU and because of the significant amount of nebulosity surrounding these sources, we prefer to not do a target acquisition before each source. Current pointing models indicate that the blind pointing capability is 0.1", more than adequate to ensure our binaries are within the MRS FOV.

This program is being done in conjunction with Perseus observations by Ewine van Dishoeck (MIRI EC, PID 1290) and her team.

OBSERVING DESCRIPTION

Recent millimeter surveys of young, Class 0, protostars reveal that nearly 2/3 are in binary/multiple systems (e.g. Chen et al., 2013; Tobin et al., 2016a). This high observed multiplicity frequency suggests that most stars are born as binaries or multiples. The formation of multiple systems is thought to arise from three mechanisms (summarized in Tobin et al.): 1) turbulent fragmentation of the parent molecular cloud; 2) thermal fragmentation of a strongly perturbed, rotating, and infalling core; and 3) fragmentation of a gravitationally unstable circumstellar disk. Processes 1 and 2 will lead to systems with separations of hundreds to thousands of AU, while the third will produce separations of hundreds of AU or less.

We will observe a small sample of protostellar binaries (Class 0 and I young stellar objects) in the Perseus star forming region along with one prototypical triple system in rho Oph with the MIRI spectrometer to gain new insights into the formation and composition of these youngest stellar systems. The sources we have chosen are known binaries (or triples) from the Tobin et al. lists (i.e. Tables 3 and 4), with separations from 0.5" to

3.2" so that they are resolvable by the MIRI MRS yet still fit within a single MRS field-of-view. These object separations also bridge the transition between the first two formation processes and the third, which is of order 1"–2" at the 230 pc distance to Perseus. A spectacular example is the ALMA image of the hierarchical triple system of L1448 IRS3B (Tobin et al. 2016b). While we are unlikely to resolve the closer pair (at 0.27" , 61 AU, separation), we will be able to separate the tertiary, 0.8" (183 AU) away, and perhaps obtain information on the dust spirals intertwining the entire system. Some of the issues we hope to address with these spatially-resolved mid-infrared spectra include: the evolutionary state of each member of the pair; differences in extinction and accretion markers between the members; the composition of the circumbinary disk; the prevalence of ices in these systems; and the energetics of these systems---even though MIRI's formal spectral resolution is of order 100 km s-1 , we should be able to see Doppler shifts that are ~ < 10 km s-1 in isolated lines. While this study stands on its own, it is also being undertaken as a part of a larger, coordinated effort to characterize the protostellar population of the Perseus star forming region.

References

Chen, X., Arce, H. G., Zhang, Q., et al. 2013, ApJ, 768, 110
Tobin, J. J., Looney, L. W., Li, Z.-Y., et al. 2016a, ApJ, 818, 73
Tobin, J. J., Kratter, K. M., Persson, M. V., et al. 2016b, Nature, 538, 483

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	L1448IRS1	RA: 03 25 9.4310 (51.2892958d) Dec: +30 46 21.27 (30.77257d) Equinox: J2000		
Comments: 1.424 arcsec, Class 1 *Category=Star* *Description=[Protostars]* *Extended=YES*				
(2)	PER-EMB-22	RA: 03 25 22.3810 (51.3432542d) Dec: +30 45 13.20 (30.75367d) Equinox: J2000		
Comments: 0.751 arcsec, L1448-IRS2, Class 0 *Category=Star* *Description=[Protostars]* *Extended=YES*				
(3)	PER-EMB-33	RA: 03 25 36.3460 (51.4014417d) Dec: +30 45 14.94 (30.75415d) Equinox: J2000		
Comments: 0.795 arcsec, L1448IRS3B L1448N, Class 0 *Category=Star* *Description=[Protostars]* *Extended=YES*				
(4)	PER-BACKGROUND	RA: 03 27 54.9600 (51.9790000d) Dec: +30 45 48.32 (30.76342d) Equinox: J2000		
Comments: *Category=Unidentified* *Description=[Blank field]*				
(5)	PER-EMB-35	RA: 03 28 37.1550 (52.1548125d) Dec: +31 13 31.27 (31.22535d) Equinox: J2000		
Comments: 1.908 arcsec, NGC 1333 IRAS1, Class 1 *Category=Star* *Description=[Protostars]* *Extended=YES*				
(6)	EDJ2009-183	RA: 03 28 59.3350 (52.2472292d) Dec: +31 15 48.40 (31.26344d) Equinox: J2000		
Comments: 1.025 arcsec, ASR 106, Class 1 *Category=Star* *Description=[Protostars]* *Extended=YES*				
(7)	PER-EMB-27	RA: 03 28 55.5660 (52.2315250d) Dec: +31 14 36.72 (31.24353d) Equinox: J2000		
Comments: 0.620 arcsec, NGC 1333 IRAS2A, Class 0 *Category=Star* *Description=[Protostars]* *Extended=YES*				

(8)	PER-EMB-12	RA: 03 29 10.4820 (52.2936750d) Dec: +31 13 31.51 (31.22542d) Equinox: J2000
Comments: 1.830 arcsec, NGC 1333 IRAS4A, Class 0 *Category=Star* *Description=[Protostars]* *Extended=YES*		
(9)	PER-EMB-11	RA: 03 43 56.9730 (55.9873875d) Dec: +32 03 3.88 (32.05108d) Equinox: J2000
Comments: 2.951 arcsec, IC348MMS, Class 0 *Category=Star* *Description=[Protostars]* *Extended=YES*		
(10)	PER-EMB-55	RA: 03 44 43.3160 (56.1804833d) Dec: +32 01 31.43 (32.02540d) Equinox: J2000
Comments: 0.618 arcsec, IRAS 03415+3152, Class 1 *Category=Star* *Description=[Protostars]* *Extended=YES*		
(11)	WL20	RA: 16 27 15.7666 (246.8156942d) Dec: -24 38 44.27 (-24.64563d) Equinox: J2000
Comments: 3.66, 3.17, 2.26 arcsec, Class 1 + 2 Class 2 *Category=Star* *Description=[Multiple stars, Young stellar objects]*		

Observation

Proposal 1236, Observation 1: L1448IRS1 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(L1448IRS1 (Obs 1)) Warning (Form): Imager Filter overlap.

(L1448IRS1 (Obs 1)) Warning (Form): Imager Filter overlap.

(L1448IRS1 (Obs 1)) Warning (Form): Imager Filter overlap.

(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	L1448IRS1	RA: 03 25 9.4310 (51.2892958d) Dec: +30 46 21.27 (30.77257d) Equinox: J2000		

Comments: 1.424 arcsec, Class 1
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
1	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	39206
1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
2		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
3		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 2: Emb 22 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 22 (Obs 2)) Warning (Form): Imager Filter overlap.

(Emb 22 (Obs 2)) Warning (Form): Imager Filter overlap.

(Emb 22 (Obs 2)) Warning (Form): Imager Filter overlap.

(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	PER-EMB-22	RA: 03 25 22.3810 (51.3432542d) Dec: +30 45 13.20 (30.75367d) Equinox: J2000		

Comments: 0.751 arcsec, L1448-IRS2, Class 0
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	24	2	1	Dither 1	2	4	271.954	
1	SHORT(A)	MRSLONG		FASTR1	50	1	1	Dither 1	2	2	277.504	39207
1	SHORT(A)	MRSSHORT		FASTR1	50	1	1	Dither 1	2	2	277.504	
2		IMAGER	F1500W	FASTR1	24	2	1	Dither 1	2	4	271.954	
2	MEDIUM(B)	MRSLONG		FASTR1	50	1	1	Dither 1	2	2	277.504	
2	MEDIUM(B)	MRSSHORT		FASTR1	50	1	1	Dither 1	2	2	277.504	
3		IMAGER	F1500W	FASTR1	24	2	1	Dither 1	2	4	271.954	
3	LONG(C)	MRSLONG		FASTR1	50	1	1	Dither 1	2	2	277.504	
3	LONG(C)	MRSSHORT		FASTR1	50	1	1	Dither 1	2	2	277.504	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 3: Emb 33 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 33 (Obs 3)) Warning (Form): Imager Filter overlap.

(Emb 33 (Obs 3)) Warning (Form): Imager Filter overlap.

(Emb 33 (Obs 3)) Warning (Form): Imager Filter overlap.

(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	PER-EMB-33	RA: 03 25 36.3460 (51.4014417d) Dec: +30 45 14.94 (30.75415d) Equinox: J2000		

Comments: 0.795 arcsec, L1448IRS3B L1448N, Class 0
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	29	4	1	Dither 1	2	8	660.46	
1	SHORT(A)	MRSLONG		FASTR1	119	1	1	Dither 1	2	2	660.46	39208
1	SHORT(A)	MRSSHORT		FASTR1	119	1	1	Dither 1	2	2	660.46	
2		IMAGER	F1500W	FASTR1	29	4	1	Dither 1	2	8	660.46	
2	MEDIUM(B)	MRSLONG		FASTR1	119	1	1	Dither 1	2	2	660.46	
2	MEDIUM(B)	MRSSHORT		FASTR1	119	1	1	Dither 1	2	2	660.46	
3		IMAGER	F1500W	FASTR1	29	4	1	Dither 1	2	8	660.46	
3	LONG(C)	MRSLONG		FASTR1	119	1	1	Dither 1	2	2	660.46	
3	LONG(C)	MRSSHORT		FASTR1	119	1	1	Dither 1	2	2	660.46	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 4: Background Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [L1448IRS1 (Obs 1), Emb 22 (Obs 2), Emb 33 (Obs 3), Emb 35 (Obs 5), ASR 106 (Obs 6), Emb 27 (Obs 7), Emb 12 (Obs 8), Emb 11 (Obs 9), Emb 55 (Obs 10)]

Diagnostics

(Background (Obs 4)) Warning (Form): Imager Filter overlap.

(Background (Obs 4)) Warning (Form): Imager Filter overlap.

(Background (Obs 4)) Warning (Form): Imager Filter overlap.

(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	PER-BACKGROUND	RA: 03 27 54.9600 (51.9790000d) Dec: +30 45 48.32 (30.76342d) Equinox: J2000		

Comments:
Category=Unidentified
Description=[Blank field]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
1	SHORT(A)	MRSLONG		FASTR1	188	1	1	Dither 1	2	2	1043.415	
1	SHORT(A)	MRSSHORT		FASTR1	188	1	1	Dither 1	2	2	1043.415	
2		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
2	MEDIUM(B)	MRSLONG		FASTR1	188	1	1	Dither 1	2	2	1043.415	
2	MEDIUM(B)	MRSSHORT		FASTR1	188	1	1	Dither 1	2	2	1043.415	
3		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
3	LONG(C)	MRSLONG		FASTR1	188	1	1	Dither 1	2	2	1043.415	
3	LONG(C)	MRSSHORT		FASTR1	188	1	1	Dither 1	2	2	1043.415	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 5: Emb 35 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 35 (Obs 5)) Warning (Form): Imager Filter overlap.

(Emb 35 (Obs 5)) Warning (Form): Imager Filter overlap.

(Emb 35 (Obs 5)) Warning (Form): Imager Filter overlap.

(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	PER-EMB-35	RA: 03 28 37.1550 (52.1548125d) Dec: +31 13 31.27 (31.22535d) Equinox: J2000		

Comments: 1.908 arcsec, NGC 1333 IRAS1, Class 1
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	16	1	1	Dither 1	2	2	88.801	
1	SHORT(A)	MRSLONG		FASTR1	16	1	1	Dither 1	2	2	88.801	39209
1	SHORT(A)	MRSSHORT		FASTR1	16	1	1	Dither 1	2	2	88.801	
2		IMAGER	F1500W	FASTR1	16	1	1	Dither 1	2	2	88.801	
2	MEDIUM(B)	MRSLONG		FASTR1	16	1	1	Dither 1	2	2	88.801	
2	MEDIUM(B)	MRSSHORT		FASTR1	16	1	1	Dither 1	2	2	88.801	
3		IMAGER	F1500W	FASTR1	16	1	1	Dither 1	2	2	88.801	
3	LONG(C)	MRSLONG		FASTR1	16	1	1	Dither 1	2	2	88.801	
3	LONG(C)	MRSSHORT		FASTR1	16	1	1	Dither 1	2	2	88.801	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 6: ASR 106 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(ASR 106 (Obs 6)) Warning (Form): Imager Filter overlap.

(ASR 106 (Obs 6)) Warning (Form): Imager Filter overlap.

(ASR 106 (Obs 6)) Warning (Form): Imager Filter overlap.

(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	EDJ2009-183	RA: 03 28 59.3350 (52.2472292d) Dec: +31 15 48.40 (31.26344d) Equinox: J2000		

Comments: 1.025 arcsec, ASR 106, Class 1
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
1	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	39223
1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
2		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
3		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 7: Emb 27 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 27 (Obs 7)) Warning (Form): Imager Filter overlap.

(Emb 27 (Obs 7)) Warning (Form): Imager Filter overlap.

(Emb 27 (Obs 7)) Warning (Form): Imager Filter overlap.

(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(7)	PER-EMB-27	RA: 03 28 55.5660 (52.2315250d) Dec: +31 14 36.72 (31.24353d) Equinox: J2000		

Comments: 0.620 arcsec, NGC 1333 IRAS2A, Class 0
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
1	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	39210
1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
2		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
3		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 8: Emb 12 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 12 (Obs 8)) Warning (Form): Imager Filter overlap.

(Emb 12 (Obs 8)) Warning (Form): Imager Filter overlap.

(Emb 12 (Obs 8)) Warning (Form): Imager Filter overlap.

(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(8)	PER-EMB-12	RA: 03 29 10.4820 (52.2936750d) Dec: +31 13 31.51 (31.22542d) Equinox: J2000		

Comments: 1.830 arcsec, NGC 1333 IRAS4A, Class 0
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
1	SHORT(A)	MRSLONG		FASTR1	187	1	1	Dither 1	2	2	1037.865	39211
1	SHORT(A)	MRSSHORT		FASTR1	187	1	1	Dither 1	2	2	1037.865	
2		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
2	MEDIUM(B)	MRSLONG		FASTR1	187	1	1	Dither 1	2	2	1037.865	
2	MEDIUM(B)	MRSSHORT		FASTR1	187	1	1	Dither 1	2	2	1037.865	
3		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
3	LONG(C)	MRSLONG		FASTR1	187	1	1	Dither 1	2	2	1037.865	
3	LONG(C)	MRSSHORT		FASTR1	187	1	1	Dither 1	2	2	1037.865	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 9: Emb 11 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 11 (Obs 9)) Warning (Form): Imager Filter overlap.

(Emb 11 (Obs 9)) Warning (Form): Imager Filter overlap.

(Emb 11 (Obs 9)) Warning (Form): Imager Filter overlap.

(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(9)	PER-EMB-11	RA: 03 43 56.9730 (55.9873875d) Dec: +32 03 3.88 (32.05108d) Equinox: J2000		

Comments: 2.951 arcsec, IC348MMS, Class 0
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
1	SHORT(A)	MRSLONG		FASTR1	188	1	1	Dither 1	2	2	1043.415	39212
1	SHORT(A)	MRSSHORT		FASTR1	188	1	1	Dither 1	2	2	1043.415	
2		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
2	MEDIUM(B)	MRSLONG		FASTR1	188	1	1	Dither 1	2	2	1043.415	
2	MEDIUM(B)	MRSSHORT		FASTR1	188	1	1	Dither 1	2	2	1043.415	
3		IMAGER	F1500W	FASTR1	46	4	1	Dither 1	2	8	1037.865	
3	LONG(C)	MRSLONG		FASTR1	188	1	1	Dither 1	2	2	1043.415	
3	LONG(C)	MRSSHORT		FASTR1	188	1	1	Dither 1	2	2	1043.415	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 10: Emb 55 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Background (Obs 4)]

Diagnostics

(Emb 55 (Obs 10)) Warning (Form): Imager Filter overlap.

(Emb 55 (Obs 10)) Warning (Form): Imager Filter overlap.

(Emb 55 (Obs 10)) Warning (Form): Imager Filter overlap.

(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(10)	PER-EMB-55	RA: 03 44 43.3160 (56.1804833d) Dec: +32 01 31.43 (32.02540d) Equinox: J2000		

Comments: 0.618 arcsec, IRAS 03415+3152, Class 1
Category=Star
Description=[Protostars]
Extended=YES

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
1	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	39213
1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
2		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	
3		IMAGER	F1500W	FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	2	2	111.002	
3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	2	2	111.002	

Special Requirements	
	Background Limited. Background no more than 20th percentile above minimum Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 1236, Observation 11: WL 20 Thu Mar 30 21:03:15 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Diagnostics

(WL 20 (Obs 11)) Warning (Form): Imager Filter overlap.

(WL 20 (Obs 11)) Warning (Form): Imager Filter overlap.

(WL 20 (Obs 11)) Warning (Form): Imager Filter overlap.

(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 11:1) Informational (Form): Visit schedulable, but most scheduling windows are when JWST is pointed in direction of greatest micrometeoroid impact risk. This is likely due to scheduling special requirements.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(11)	WL20	RA: 16 27 15.7666 (246.8156942d) Dec: -24 38 44.27 (-24.64563d) Equinox: J2000		

Comments: 3.66, 3.17, 2.26 arcsec, Class 1 + 2 Class 2
Category=Star
Description=[Multiple stars, Young stellar objects]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F1500W	ALL	YES	FULL

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift	Column shift	Tile Order
1	2	0.0	10.0	0.0	0.0	DEFAULT

Dithers

#	Dither Type	Optimized For	Direction
1	2-Point	EXTENDED 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		IMAGER	F1500W	FASTR1	25	2	1	Dither 1	2	4	283.054	
1	LONG(C)	MRSLONG		FASTR1	25	2	1	Dither 1	2	4	283.054	39216
1	LONG(C)	MRSSHORT		FASTR1	25	2	1	Dither 1	2	4	283.054	
2		IMAGER	F1500W	FASTR1	25	2	1	Dither 1	2	4	283.054	
2	MEDIUM(B)	MRSLONG		FASTR1	25	2	1	Dither 1	2	4	283.054	39215
2	MEDIUM(B)	MRSSHORT		FASTR1	25	2	1	Dither 1	2	4	283.054	
3		IMAGER	F1500W	FASTR1	25	2	1	Dither 1	2	4	283.054	
3	SHORT(A)	MRSLONG		FASTR1	25	2	1	Dither 1	2	4	283.054	39214
3	SHORT(A)	MRSSHORT		FASTR1	25	2	1	Dither 1	2	4	283.054	

Special Requirements	Aperture PA Range 280.0 to 284.0 Degrees (V3 280.0 to 284.0)