



# 3166 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Galaxy

Cycle: 2, Proposal Category: GO

## INVESTIGATORS

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## OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
H2 in GC				
	1	CND	MIRI Medium Resolution Spectroscopy	(2) CND
	2	CND BKG	MIRI Medium Resolution Spectroscopy	(3) SKY
	3	CC	MIRI Medium Resolution Spectroscopy	(1) CC
	4	CC BKG	MIRI Medium Resolution Spectroscopy	(3) SKY
H2 in GC				
	5	CND	MIRI Medium Resolution Spectroscopy	(2) CND

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	6	CND BKG	MIRI Medium Resolution Spectroscopy	(3) SKY
	7	CC	MIRI Medium Resolution Spectroscopy	(1) CC
	8	CC BKG	MIRI Medium Resolution Spectroscopy	(3) SKY
	9	CC	MIRI Medium Resolution Spectroscopy	(1) CC
	10	CC BKG	MIRI Medium Resolution Spectroscopy	(3) SKY
	11	CC - Repeat Obs 9	MIRI Medium Resolution Spectroscopy	(1) CC
	12	CC BKG - Repeat Obs 10	MIRI Medium Resolution Spectroscopy	(3) SKY

## ABSTRACT

We propose to investigate the distribution, origin, and excitation of molecular hydrogen in the central parsec of our Galaxy. At this scale, the largest reservoir of matter close to the central supermassive black hole is the Circumnuclear Disk (CND). This torus of molecular material has an inner cavity which is UV-irradiated by a cluster of massive young stars surrounding the Galactic black hole. In such an extreme environment, molecular hydrogen is expected to be photodissociated or ionized, but copious H<sub>2</sub> has been detected inside the inner cavity of the CND. The origin and excitation mechanism of this molecular hydrogen is unknown. Previous work was done with ro-vibrational lines, which are a limited probe as they only trace the hottest gas. We propose to observe several purely rotational emission lines of H<sub>2</sub> with MIRS-MRS. These lines trace a larger fraction of H<sub>2</sub> at warm temperatures. We plan to observe H<sub>2</sub> both in the inner cavity and in the CND itself, in order to elucidate the excitation mechanism of H<sub>2</sub> in both environments, investigate its origin, and compare the internal structure of the CND with existing models. This will allow us to understand the conditions of the gas (in the CND) that will eventually trigger a massive accretion event, and the region (the central cavity) where neutral gas is further along its way toward the black hole. Furthermore, star formation in this extreme environment occurred in the past but whether it is presently occurring is debated. We will be able to better constraint whether the conditions of the gas are suitable for star formation.

## OBSERVING DESCRIPTION

We propose to observe the circumnuclear disk (CND) and its central cavity with MIRI-MRS, to investigate the state of the gas by observing its dominant neutral component (through purely rotational H<sub>2</sub> lines) and the dust (through PAH features). This will allow us to understand the conditions of the gas in the largest reservoir of matter to the Galactic black hole (the CND) and in the region (the central cavity) where neutral gas can join the accretion flow and/or form stars under extreme circumstances.

We propose to observe two fields: one centered 3" South of Sgr A\* (to characterize the central cavity), the other centered 17" North-East of Sgr A\* (to characterize the CND). We request the use of MRS full band (i.e. both the MRSLONG and MRSSHORT detectors and all three wavelength ranges) to cover as many H<sub>2</sub> and PAHs lines as possible. In order to map enough Each observation will consist of a 4-point dither and requires a

separate sky observation to be taken in an uninterrupted sequence. We request a 2 by 2 mosaic and a 2 by 3 mosaic with a 10% overlap. We don't have any position angle requirement.

Proposal 3166 - Targets - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Galaxy

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	CC	RA: 17 45 39.9720 (266.4165500d) Dec: -29 00 31.23 (-29.00867d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>  <i>Category=ISM</i>  <i>Description=[H II regions]</i>  <i>Extended=YES</i></p>				
(2)	CND	RA: 17 45 39.1147 (266.4129779d) Dec: -29 00 16.28 (-29.00452d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>  <i>Category=ISM</i>  <i>Description=[H II regions]</i>  <i>Extended=YES</i></p>				
(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>  <i>Category=Unidentified</i>  <i>Description=[Blank field]</i></p>				

Fixed Targets

Proposal 3166 - Observation 1 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:12 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 1: CND</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[CND BKG (Obs 2)]												
<b>Diagnostics</b>	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(2)	CND	RA: 17 45 39.1147 (266.4129779d) Dec: -29 00 16.28 (-29.00452d) Equinox: J2000			Epoch of Position: 2015.5							
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=ISM Description=[H II regions] Extended=YES												
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging		Imager Subarray		Grating Wheel Direction				
	FND	All MRS			NO		FULL		Allow Auto Reorder				
<b>Mosaic</b>	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order		
	2	2	10.0		10.0		0.0		0.0		DEFAULT		
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			EXTENDED SOURCE			NEGATIVE					
<b>Spectral Elements</b>	#	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	27	2	1	Dither 1	4	8	610.509	145065.35
		1	SHORT(A)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	145065.1
		2	MEDIUM(B)	MRSLONG	FASTR1	54	1	1	Dither 1	4	4	599.409	145065.36
		2	MEDIUM(B)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	145065.30
		3	LONG(C)	MRSLONG	FASTR1	54	1	1	Dither 1	4	4	599.409	145065.37
		3	LONG(C)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	145065.31

Special Requirements

Sequence Observations 1, 2, Non-interruptible

Proposal 3166 - Observation 2 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 2: CND BKG</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [CND (Obs 1)]												
<b>Diagnostics</b>	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000				Epoch of Position: 2015.5						
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Unidentified Description=[Blank field]												
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray			Grating Wheel Direction		
	FND	All MRS			NO			FULL			Allow Auto Reorder		
<b>Dithers</b>	#	Dither Type				Optimized For				Direction			
	1	4-Point				EXTENDED SOURCE				NEGATIVE			
<b>Spectral Elements</b>	#	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	27	2	1	Dither 1	4	8	610.509	
		1	SHORT(A)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	
		2	MEDIUM(B)	MRSLONG	FASTR1	54	1	1	Dither 1	4	4	599.409	
		2	MEDIUM(B)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	
		3	LONG(C)	MRSLONG	FASTR1	54	1	1	Dither 1	4	4	599.409	
		3	LONG(C)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	

Special Requirements

Sequence Observations 1, 2, Non-interruptible

Proposal 3166 - Observation 3 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 3: CC</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[CC BKG (Obs 4)]												
	(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>			
	(1)	CC	RA: 17 45 39.9720 (266.4165500d) Dec: -29 00 31.23 (-29.00867d) Equinox: J2000				Epoch of Position: 2015.5						
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=ISM Description=[H II regions] Extended=YES													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>											
	1	NONE											
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>			<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>		<b>Grating Wheel Direction</b>			
	FND	All MRS			NO			FULL		Allow Auto Reorder			
<b>Mosaic</b>	<b>Rows</b>	<b>Columns</b>	<b>Row Overlap %</b>	<b>Column Overlap %</b>	<b>Row shift (deg)</b>	<b>Column shift (deg)</b>	<b>Tile Order</b>						
	2	3	10.0	10.0	0.0	0.0	DEFAULT						
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>			<b>Direction</b>				
	1	4-Point				EXTENDED 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/E xp</b>	<b>Exposures/Dit h</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	5	9	1	Dither 1	4	36	588.308	145109.35
	1	SHORT(A)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.32
	2	MEDIUM(B)	MRSLONG		FASTR1	12	4	1	Dither 1	4	16	566.108	145109.36
	2	MEDIUM(B)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.33
	3	LONG(C)	MRSLONG		FASTR1	8	5	1	Dither 1	4	20	488.407	145109.37
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	145109.31

Special Requirements

Sequence Observations 3, 4, Non-interruptible

Proposal 3166 - Observation 4 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 4: CC BKG</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [CC (Obs 3)]												
<b>Diagnostics</b>	(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>			
	(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000				Epoch of Position: 2015.5						
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>												
	<i>Category=Unidentified</i>												
	<i>Description=[Blank field]</i>												
<b>Acquisition</b>	<b>#</b>	<b>Target</b>											
	1	NONE											
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>			<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>		<b>Grating Wheel Direction</b>			
	FND	All MRS			NO			FULL		Allow Auto Reorder			
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				EXTENDED 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/E xp</b>	<b>Exposures/Dit h</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	5	9	1	Dither 1	4	36	588.308	
		1	SHORT(A)	MRSSHORT	FASTR1	48	1	1	Dither 1	4	4	532.808	
		2	MEDIUM(B)	MRSLONG	FASTR1	12	4	1	Dither 1	4	16	566.108	
		2	MEDIUM(B)	MRSSHORT	FASTR1	48	1	1	Dither 1	4	4	532.808	
		3	LONG(C)	MRSLONG	FASTR1	8	5	1	Dither 1	4	20	488.407	
		3	LONG(C)	MRSSHORT	FASTR1	40	1	1	Dither 1	4	4	444.006	

Special Requirements

Sequence Observations 3, 4, Non-interruptible

Proposal 3166 - Observation 5 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 5: CND</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[CND BKG (Obs 6)]												
<b>Diagnostics</b>	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(2)	CND	RA: 17 45 39.1147 (266.4129779d) Dec: -29 00 16.28 (-29.00452d) Equinox: J2000			Epoch of Position: 2015.5							
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=ISM Description=[H II regions] Extended=YES												
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging		Imager Subarray		Grating Wheel Direction				
	FND	All MRS			NO		FULL		Allow Auto Reorder				
<b>Mosaic</b>	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order		
	2	2	10.0		10.0		0.0		0.0		DEFAULT		
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			EXTENDED SOURCE			NEGATIVE					
<b>Spectral Elements</b>	#	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	LONG(C)	MRSLONG		FASTR1	54	1	1	Dither 1	4	4	599.409	145065.37
	1	LONG(C)	MRSSHORT		FASTR1	54	1	1	Dither 1	4	4	599.409	145065.31
	2	MEDIUM(B)	MRSLONG		FASTR1	54	1	1	Dither 1	4	4	599.409	145065.36
	2	MEDIUM(B)	MRSSHORT		FASTR1	54	1	1	Dither 1	4	4	599.409	145065.30
	3	SHORT(A)	MRSLONG		FASTR1	27	2	1	Dither 1	4	8	610.509	145065.35
	3	SHORT(A)	MRSSHORT		FASTR1	54	1	1	Dither 1	4	4	599.409	145065.1

Special Requirements

Sequence Observations 5, 6, Non-interruptible

Proposal 3166 - Observation 6 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 6: CND BKG</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [CND (Obs 5)]												
<b>Diagnostics</b>	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000				Epoch of Position: 2015.5						
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Unidentified</i> <i>Description=[Blank field]</i>												
<b>Acquisition</b>	#											Target	
	1											NONE	
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray			Grating Wheel Direction		
	FND	All MRS			NO			FULL			Allow Auto Reorder		
<b>Dithers</b>	#	Dither Type				Optimized For				Direction			
	1	4-Point				EXTENDED SOURCE				NEGATIVE			
<b>Spectral Elements</b>	#	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	LONG(C)	MRSLONG	FASTR1	54	1	1	Dither 1	4	4	599.409	
		1	LONG(C)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	
		2	MEDIUM(B)	MRSLONG	FASTR1	54	1	1	Dither 1	4	4	599.409	
		2	MEDIUM(B)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	
		3	SHORT(A)	MRSLONG	FASTR1	27	2	1	Dither 1	4	8	610.509	
		3	SHORT(A)	MRSSHORT	FASTR1	54	1	1	Dither 1	4	4	599.409	

Special Requirements

Sequence Observations 5, 6, Non-interruptible

Proposal 3166 - Observation 7 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<p><b>Proposal 3166, Observation 7: CC</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: MIRI Medium Resolution Spectroscopy</p> <p>Background Observations:[CC BKG (Obs 8)]</p>												
<b>Diagnostics</b>	(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(1)	CC	RA: 17 45 39.9720 (266.4165500d) Dec: -29 00 31.23 (-29.00867d) Equinox: J2000			Epoch of Position: 2015.5							
	<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p> <p><i>Category=ISM</i></p> <p><i>Description=[H II regions]</i></p> <p><i>Extended=YES</i></p>												
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging		Imager Subarray		Grating Wheel Direction				
	FND	All MRS			NO		FULL		Allow Auto Reorder				
<b>Mosaic</b>	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order		
	2	3	10.0		10.0		0.0		0.0		DEFAULT		
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			EXTENDED SOURCE			NEGATIVE					
<b>Spectral Elements</b>	#	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	SHORT(A)	MRSLONG		FASTR1	5	9	1	Dither 1	4	36	588.308	145109.35
	1	SHORT(A)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.32
	2	MEDIUM(B)	MRSLONG		FASTR1	12	4	1	Dither 1	4	16	566.108	145109.36
	2	MEDIUM(B)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.33
	3	LONG(C)	MRSLONG		FASTR1	8	5	1	Dither 1	4	20	488.407	145109.37
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	145109.31

Special Requirements

Sequence Observations 7, 8, Non-interruptible

Proposal 3166 - Observation 8 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 8: CC BKG</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [CC (Obs 7)]												
<b>Diagnostics</b>	(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000				Epoch of Position: 2015.5						
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Unidentified</i> <i>Description=[Blank field]</i>												
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray		Grating Wheel Direction			
	FND	All MRS			NO			FULL		Allow Auto Reorder			
<b>Dithers</b>	#	Dither Type				Optimized For				Direction			
	1	4-Point				EXTENDED SOURCE				NEGATIVE			
<b>Spectral Elements</b>	#	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	5	9	1	Dither 1	4	36	588.308	
		1	SHORT(A)	MRSSHORT	FASTR1	48	1	1	Dither 1	4	4	532.808	
		2	MEDIUM(B)	MRSLONG	FASTR1	12	4	1	Dither 1	4	16	566.108	
		2	MEDIUM(B)	MRSSHORT	FASTR1	48	1	1	Dither 1	4	4	532.808	
		3	LONG(C)	MRSLONG	FASTR1	8	5	1	Dither 1	4	20	488.407	
		3	LONG(C)	MRSSHORT	FASTR1	40	1	1	Dither 1	4	4	444.006	

Special Requirements

Sequence Observations 7, 8, Non-interruptible

Proposal 3166 - Observation 9 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Gal...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 9: CC</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[CC BKG (Obs 10)]												
<b>Diagnostics</b>	(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(1)	CC	RA: 17 45 39.9720 (266.4165500d) Dec: -29 00 31.23 (-29.00867d) Equinox: J2000			Epoch of Position: 2015.5							
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=ISM Description=[H II regions] Extended=YES												
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel			Simultaneous Imaging		Imager Subarray		Grating Wheel Direction				
	FND	All MRS			NO		FULL		Allow Auto Reorder				
<b>Mosaic</b>	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order		
	2	3	10.0		10.0		0.0		0.0		DEFAULT		
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			EXTENDED SOURCE			NEGATIVE					
<b>Spectral Elements</b>	#	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	SHORT(A)	MRSLONG		FASTR1	5	9	1	Dither 1	4	36	588.308	145109.35
	1	SHORT(A)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.32
	2	MEDIUM(B)	MRSLONG		FASTR1	12	4	1	Dither 1	4	16	566.108	145109.36
	2	MEDIUM(B)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.33
	3	LONG(C)	MRSLONG		FASTR1	8	5	1	Dither 1	4	20	488.407	145109.37
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	145109.31

Special Requirements

Sequence Observations 9, 10, Non-interruptible

Proposal 3166 - Observation 10 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Ga...

Wed Aug 28 17:00:13 GMT 2024

Observation	<b>Proposal 3166, Observation 10: CC BKG</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [CC (Obs 9)]												
	(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000				Epoch of Position: 2015.5						
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Unidentified</i> <i>Description=[Blank field]</i>													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray		Grating Wheel Direction			
	FND	All MRS			NO			FULL		Allow Auto Reorder			
Dithers	#	Dither Type				Optimized For				Direction			
	1	4-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	SHORT(A)	MRSLONG		FASTR1	5	9	1	Dither 1	4	36	588.308	
	1	SHORT(A)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	
	2	MEDIUM(B)	MRSLONG		FASTR1	12	4	1	Dither 1	4	16	566.108	
	2	MEDIUM(B)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	
	3	LONG(C)	MRSLONG		FASTR1	8	5	1	Dither 1	4	20	488.407	
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	

Special Requirements

Sequence Observations 9, 10, Non-interruptible

Proposal 3166 - Observation 11 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Ga...

Wed Aug 28 17:00:13 GMT 2024

Observation	<b>Proposal 3166, Observation 11: CC - Repeat Obs 9</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[CC BKG - Repeat Obs 10 (Obs 12)]												
	(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(1)	CC	RA: 17 45 39.9720 (266.4165500d) Dec: -29 00 31.23 (-29.00867d) Equinox: J2000  <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=ISM Description=[H II regions] Extended=YES				Epoch of Position: 2015.5						
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging		Imager Subarray		Grating Wheel Direction				
	FND	All MRS			NO		FULL		Allow Auto Reorder				
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		DEFAULT		
Dithers	#	Dither Type				Optimized For			Direction				
	1	4-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	SHORT(A)	MRSLONG		FASTR1	5	9	1	Dither 1	4	36	588.308	145109.35
	1	SHORT(A)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.32
	2	MEDIUM(B)	MRSLONG		FASTR1	12	4	1	Dither 1	4	16	566.108	145109.36
	2	MEDIUM(B)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	145109.33
	3	LONG(C)	MRSLONG		FASTR1	8	5	1	Dither 1	4	20	488.407	145109.37
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	145109.31

Special Requirements

Sequence Observations 11, 12, Non-interruptible

Proposal 3166 - Observation 12 - Investigating the Role and the Physical State of Molecular Hydrogen in the Central Parsec of the Ga...

Wed Aug 28 17:00:13 GMT 2024

<b>Observation</b>	<b>Proposal 3166, Observation 12: CC BKG - Repeat Obs 10</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [CC - Repeat Obs 9 (Obs 11)]												
	(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Diagnosics</b>													
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>				<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>			
	(3)	SKY	RA: 17 44 46.6475 (266.1943646d) Dec: -28 53 44.41 (-28.89567d) Equinox: J2000				Epoch of Position: 2015.5						
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>Category=Unidentified</i> <i>Description=[Blank field]</i>													
<b>Acquisition</b>	<b>#</b>	<b>Target</b>											
	1	NONE											
<b>Template</b>	<b>AcqFilter</b>	<b>Primary Channel</b>				<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>		<b>Grating Wheel Direction</b>		
	FND	All MRS				NO			FULL		Allow Auto Reorder		
<b>Dithers</b>	<b>#</b>	<b>Dither Type</b>				<b>Optimized For</b>				<b>Direction</b>			
	1	4-Point				EXTENDED 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/E xp</b>	<b>Exposures/Dit h</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	5	9	1	Dither 1	4	36	588.308	
	1	SHORT(A)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	
	2	MEDIUM(B)	MRSLONG		FASTR1	12	4	1	Dither 1	4	16	566.108	
	2	MEDIUM(B)	MRSSHORT		FASTR1	48	1	1	Dither 1	4	4	532.808	
	3	LONG(C)	MRSLONG		FASTR1	8	5	1	Dither 1	4	20	488.407	
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	

Special Requirements

Sequence Observations 11, 12, Non-interruptible