



5491 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Cycle: 3, Proposal Category: GO

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Varsha Purushottam Kulkarni (PI)	University of South Carolina
Dr. Viacheslav Klimenko (CoI)	University of South Carolina
Dr. Monique C Aller (CoI)	Georgia Southern University Res. & Svc. Foundation, Inc
Mr. Karthik Gananath Putha (CoI)	University of South Carolina Research Foundation

OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
MIRI MRS				
	1	MIRI MRS J0134-0931	MIRI Medium Resolution Spectroscopy	(1) J0134-0931
	2	MIRI MRS BACKGR OUND- J0134-0931	MIRI Medium Resolution Spectroscopy	(2) BACKGROUND-J0134-0931
	3	MIRI MRS TXS0218+ 357	MIRI Medium Resolution Spectroscopy	(3) TXS0218+357
	4	MIRI MRS BACKGR OUND-TXS0218+357	MIRI Medium Resolution Spectroscopy	(4) BACKGROUND-TXS0218+357
	5	MIRI MRS PKS1413+ 135	MIRI Medium Resolution Spectroscopy	(5) PKS1413+135
	6	MIRI MRS BACKGR OUND-PKS1413+135	MIRI Medium Resolution Spectroscopy	(6) BACKGROUND-PKS1413+135
	7	MIRI MRS PKS1504+ 377	MIRI Medium Resolution Spectroscopy	(7) PKS1504+377
	8	MIRI MRS BACKGR OUND-PKS1504+377	MIRI Medium Resolution Spectroscopy	(8) BACKGROUND-PKS1504+377

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	9	MIRI MRS B0122-2843	MIRI Medium Resolution Spectroscopy	(9) B0122-2843
	10	MIRI MRS BACKGROUN D-B0122-2843	MIRI Medium Resolution Spectroscopy	(10) BACKGROUND-B0122-2843

ABSTRACT

Interstellar dust grains vitally affect the cooling and heating of the ISM and molecule formation. Understanding grain composition and structure in distant galaxies is therefore crucial for understanding the cosmic star formation history. A robust understanding of dust in distant galaxies is also needed to accurately correct for dust extinction effects on background objects. Unfortunately, grain properties in distant galaxies are poorly constrained. We propose to measure grain composition and structure in dense molecular clouds in galaxies at $z < 1$ with MIRI MRS spectroscopy of background quasars (including several gravitationally lensed quasars) whose UV/radio/sub-mm spectra show strong molecular absorption and strong reddening, indicating large amounts of dust. The proposed MRS spectra will target redshifted features of silicates (10, 18 micron), hydrocarbons (3.4 micron), PAHs (3.3-11.3 micron), and ices (e.g., CO, CO₂, CH₃OH). Our main science goals are to investigate: (1) the silicate mineralogy and grain structure; (2) how materials in grain cores (carbonaceous/silicate) and mantles (ices) correlate in dense ISM in these distant galaxies; (3) how dust and ice are spatially distributed within and around the galaxies, and (4) how dust properties are related to other galaxy properties. Additionally, our observations will cover gas-phase CO rovibrational features and provide constraints on the ¹²C/¹³C and ¹⁶O/¹⁸O isotopic ratios. Only JWST MIRI has the powerful combination of the wavelength coverage, high sensitivity, and high spectral resolution crucial for measuring the mid-IR features of interest in the distant galaxies.

OBSERVING DESCRIPTION

We will obtain MIRI MRS spectra spanning 4.9-27.9 microns for our targets. We will also obtain dedicated background observations for each field. Further details are provided in the technical justification in the pdf attachment.

Proposal 5491 - Targets - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	J0134-0931	RA: 01 34 35.6658 (23.6486075d) Dec: -09 31 2.90 (-9.51747d) Equinox: J2000	Epoch of Position: 2000.0	
<i>Comments:</i> Category=Galaxy Description=[Active galactic nuclei, Quasars] Extended=YES				
(2)	BACKGROUND-J0134-0931	RA: 01 34 35.6658 (23.6486075d) Dec: -09 31 12.90 (-9.52025d) Equinox: J2000	Epoch of Position: 2000.0	
<i>Comments:</i> Category=Calibration Description=[Telescope/sky background] Extended=NO				
(3)	TXS0218+357	RA: 02 21 5.4937 (35.2728904d) Dec: +35 56 13.86 (35.93718d) Equinox: J2000	Proper Motion RA: -1.794 mas/yr Proper Motion Dec: -2.417 mas/yr Epoch of Position: 2015.5	
<i>Comments:</i> Category=Galaxy Description=[Active galactic nuclei, Quasars] Extended=YES				
(4)	BACKGROUND-TXS0218+357	RA: 02 21 5.0937 (35.2712237d) Dec: +35 56 3.86 (35.93441d) Equinox: J2000	Epoch of Position: 2015.5	
<i>Comments:</i> Category=Calibration Description=[Telescope/sky background] Extended=NO				
(5)	PKS1413+135	RA: 14 15 58.8175 (213.9950729d) Dec: +13 20 23.71 (13.33992d) Equinox: J2000	Proper Motion RA: 0.00449 mas/yr Proper Motion Dec: 0.00921 mas/yr Epoch of Position: 2000.0	
<i>Comments:</i> Category=Galaxy Description=[Active galactic nuclei, Quasars] Extended=YES				
(6)	BACKGROUND-PKS1413+135	RA: 14 15 58.8175 (213.9950729d) Dec: +13 20 8.71 (13.33575d) Equinox: J2000		
<i>Comments:</i> Category=Calibration Description=[Telescope/sky background]				
(7)	PKS1504+377	RA: 15 06 9.5300 (226.5397083d) Dec: +37 30 51.13 (37.51420d) Equinox: J2000	Proper Motion RA: 0.00741 mas/yr Proper Motion Dec: 0.00266 mas/yr Epoch of Position: 2000.0	
<i>Comments:</i> Category=Galaxy Description=[Active galactic nuclei, Quasars] Extended=YES				

Fixed Targets

Proposal 5491 - Targets - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

(8)	BACKGROUND- PKS1504+377	RA: 15 06 8.5300 (226.5355417d) Dec: +37 31 11.13 (37.51976d) Equinox: J2000	
<p>Comments: Category=Calibration Description=[Telescope/sky background]</p>			
(9)	B0122-2843	RA: 01 22 36.7682 (20.6532008d) Dec: -28 43 21.54 (-28.72265d) Equinox: J2000	Proper Motion RA: -0.138 mas/yr Proper Motion Dec: -0.034 mas/yr Epoch of Position: 2000.0
<p>Comments: Category=Galaxy Description=[Active galactic nuclei, Quasars]</p>			
(10)	BACKGROUND-B0122-2843	RA: 01 22 36.0682 (20.6502842d) Dec: -28 43 9.54 (-28.71932d) Equinox: J2000	
<p>Comments: Category=Calibration Description=[Telescope/sky background] Extended=YES</p>			

Proposal 5491 - Observation 1 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 1: MIRI MRS J0134-0931 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[MIRI MRS BACKGROUND- J0134-0931 (Obs 2)]												
	(Visit 1:1) Warning (Form): Data Excess over lower threshold (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)	J0134-0931	RA: 01 34 35.6658 (23.6486075d) Dec: -09 31 2.90 (-9.51747d) Equinox: J2000			Epoch of Position: 2000.0							
Comments: Category=Galaxy Description=[Active galactic nuclei, Quasars] Extended=YES													
Acquisition	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	10	1	1	27.75	146197				
Template	Primary Channel		Simultaneous Imaging			Imager Subarray			Grating Wheel Direction				
	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	90	3	1	Dither 1	4	12	3019.244	177373
	1	SHORT(A)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	3	LONG(C)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	3	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373

Proposal 5491 - Observation 1 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 1, 2, Non-interruptible

Proposal 5491 - Observation 2 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 2: MIRI MRS BACKGROUND- J0134-0931 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [MIRI MRS J0134-0931 (Obs 1)]												
	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Diagnostics													
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(2)	BACKGROUND-J0134-0931	RA: 01 34 35.6658 (23.6486075d) Dec: -09 31 12.90 (-9.52025d) Equinox: J2000			Epoch of Position: 2000.0							
Comments: Category=Calibration Description=[Telescope/sky background] Extended=NO													
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	2-Point			EXTENDED SOURCE			NEGATIVE					
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	SHORT(A)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	1	SHORT(A)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	3	LONG(C)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	3	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	3	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373

Proposal 5491 - Observation 2 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 1, 2, Non-interruptible

Proposal 5491 - Observation 3 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 3: MIRI MRS TXS0218+357 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[MIRI MRS BACKGROUND-TXS0218+357 (Obs 4)]												
	(Visit 3:1) Warning (Form): Data Excess over lower threshold (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)	TXS0218+357	RA: 02 21 5.4937 (35.2728904d) Dec: +35 56 13.86 (35.93718d) Equinox: J2000			Proper Motion RA: -1.794 mas/yr Proper Motion Dec: -2.417 mas/yr Epoch of Position: 2015.5							
<i>Comments:</i> <i>Category=Galaxy</i> <i>Description=[Active galactic nuclei, Quasars]</i> <i>Extended=YES</i>													
Acquisition	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	10	1	1	27.75	146197				
Template	Primary Channel		Simultaneous Imaging			Imager Subarray			Grating Wheel Direction				
	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	LONG(C)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	1	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	3	SHORT(A)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	3	SHORT(A)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373

Proposal 5491 - Observation 3 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 3, 4, Non-interruptible

Proposal 5491 - Observation 4 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Observation	Proposal 5491, Observation 4: MIRI MRS BACKGROUND-TXS0218+357 Thu Oct 24 22:00:38 GMT 2024 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [MIRI MRS TXS0218+357 (Obs 3)]																																																																																																						
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Spectral Elements	<table border="1"> <thead> <tr> <th>#</th> <th>Wavelength Range</th> <th>Detector</th> <th>Filter</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Exposures/Dith</th> <th>Dither</th> <th>Total Dithers</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>LONG(C)</td> <td>MRSLONG</td> <td></td> <td>FASTR1</td> <td>90</td> <td>3</td> <td>1</td> <td>Dither 1</td> <td>2</td> <td>6</td> <td>1509.622</td> <td>177373</td> </tr> <tr> <td>1</td> <td>LONG(C)</td> <td>MRSSHORT</td> <td></td> <td>FASTR1</td> <td>90</td> <td>3</td> <td>1</td> <td>Dither 1</td> <td>2</td> <td>6</td> <td>1509.622</td> <td>177373</td> </tr> <tr> <td>2</td> <td>MEDIUM(B)</td> <td>MRSLONG</td> <td></td> <td>FASTR1</td> <td>90</td> <td>3</td> <td>1</td> <td>Dither 1</td> <td>2</td> <td>6</td> <td>1509.622</td> <td>177373</td> </tr> <tr> <td>2</td> <td>MEDIUM(B)</td> <td>MRSSHORT</td> <td></td> <td>FASTR1</td> <td>90</td> <td>3</td> <td>1</td> <td>Dither 1</td> <td>2</td> <td>6</td> <td>1509.622</td> <td>177373</td> </tr> <tr> <td>3</td> <td>SHORT(A)</td> <td>MRSLONG</td> <td></td> <td>FASTR1</td> <td>90</td> <td>3</td> <td>1</td> <td>Dither 1</td> <td>2</td> <td>6</td> <td>1509.622</td> <td>177373</td> </tr> <tr> <td>3</td> <td>SHORT(A)</td> <td>MRSSHORT</td> <td></td> <td>FASTR1</td> <td>90</td> <td>3</td> <td>1</td> <td>Dither 1</td> <td>2</td> <td>6</td> <td>1509.622</td> <td>177373</td> </tr> </tbody> </table>												#	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	90	3	1	Dither 1	2	6	1509.622	177373	1	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373	2	MEDIUM(B)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373	2	MEDIUM(B)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373	3	SHORT(A)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373	3	SHORT(A)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
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Proposal 5491 - Observation 4 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 3, 4, Non-interruptible

Proposal 5491 - Observation 5 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 5: MIRI MRS PKS1413+135 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[MIRI MRS BACKGROUND-PKS1413+135 (Obs 6)]																																																																																																						
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	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous																																																																																																		
(5)	PKS1413+135	RA: 14 15 58.8175 (213.9950729d) Dec: +13 20 23.71 (13.33992d) Equinox: J2000	Proper Motion RA: 0.00449 mas/yr Proper Motion Dec: 0.00921 mas/yr Epoch of Position: 2000.0																																																																																																				
Acquisition	<table border="1"> <thead> <tr> <th>#</th> <th>Target</th> <th>Filter</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>SAME</td> <td>FND</td> <td>FAST</td> <td>10</td> <td>1</td> <td>1</td> <td>27.75</td> <td>146197</td> </tr> </tbody> </table>	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	SAME	FND	FAST	10	1	1	27.75	146197																																																																																				
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	1	LONG(C)	MRSLONG		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373																																																																																										
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	2	MEDIUM(B)	MRSLONG		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373																																																																																										
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373																																																																																										
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Proposal 5491 - Observation 5 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 5, 6, Non-interruptible

Proposal 5491 - Observation 6 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 6: MIRI MRS BACKGROUND-PKS1413+135 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [MIRI MRS PKS1413+135 (Obs 5)]												
	(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)	BACKGROUND-PKS1413+135	RA: 14 15 58.8175 (213.9950729d) Dec: +13 20 8.71 (13.33575d) Equinox: J2000										
<i>Comments:</i> <i>Category=Calibration</i> <i>Description=[Telescope/sky background]</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	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	LONG(C)	MRSLONG		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	1	LONG(C)	MRSSHORT		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	3	SHORT(A)	MRSLONG		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	3	SHORT(A)	MRSSHORT		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373

Proposal 5491 - Observation 6 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 5, 6, Non-interruptible

Proposal 5491 - Observation 7 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 7: MIRI MRS PKS1504+377 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[MIRI MRS BACKGROUND-PKS1504+377 (Obs 8)]												
	(Visit 7:1) Warning (Form): Data Excess over lower threshold (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)	PKS1504+377	RA: 15 06 9.5300 (226.5397083d) Dec: +37 30 51.13 (37.51420d) Equinox: J2000			Proper Motion RA: 0.00741 mas/yr Proper Motion Dec: 0.00266 mas/yr Epoch of Position: 2000.0							
<i>Comments:</i> <i>Category=Galaxy</i> <i>Description=[Active galactic nuclei, Quasars]</i> <i>Extended=YES</i>													
Acquisition	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	F1000W	FAST	4	1	1	11.1	146197				
Template	Primary Channel		Simultaneous Imaging			Imager Subarray			Grating Wheel Direction				
	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	LONG(C)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	1	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	3	SHORT(A)	MRSLONG		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373
	3	SHORT(A)	MRSSHORT		FASTR1	90	3	1	Dither 1	4	12	3019.244	177373

Proposal 5491 - Observation 7 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 7, 8, Non-interruptible

Proposal 5491 - Observation 8 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 8: MIRI MRS BACKGROUND-PKS1504+377 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [MIRI MRS PKS1504+377 (Obs 7)]												
	(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)	BACKGROUND-PKS1504+377	RA: 15 06 8.5300 (226.5355417d) Dec: +37 31 11.13 (37.51976d) Equinox: J2000										
<i>Comments:</i> <i>Category=Calibration</i> <i>Description=[Telescope/sky background]</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	2-Point				EXTENDED SOURCE				NEGATIVE			
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	LONG(C)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	1	LONG(C)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	3	SHORT(A)	MRSLONG		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373
	3	SHORT(A)	MRSSHORT		FASTR1	90	3	1	Dither 1	2	6	1509.622	177373

Proposal 5491 - Observation 8 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 7, 8, Non-interruptible

Proposal 5491 - Observation 9 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 9: MIRI MRS B0122-2843 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[MIRI MRS BACKGROUND-B0122-2843 (Obs 10)]												
	(Visit 9:1) Warning (Form): Data Excess over lower threshold (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)	B0122-2843	RA: 01 22 36.7682 (20.6532008d) Dec: -28 43 21.54 (-28.72265d) Equinox: J2000			Proper Motion RA: -0.138 mas/yr Proper Motion Dec: -0.034 mas/yr Epoch of Position: 2000.0							
<i>Comments:</i> <i>Category=Galaxy</i> <i>Description=[Active galactic nuclei, Quasars]</i>													
Acquisition	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	10	1	1	27.75	146197				
Template	Primary Channel			Simultaneous Imaging			Imager Subarray			Grating Wheel Direction			
	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	LONG(C)	MRSLONG		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373
	1	LONG(C)	MRSSHORT		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373
	3	SHORT(A)	MRSLONG		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373
	3	SHORT(A)	MRSSHORT		FASTR1	80	3	1	Dither 1	4	12	2686.239	177373

Proposal 5491 - Observation 9 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 9, 10, Non-interruptible

Proposal 5491 - Observation 10 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Thu Oct 24 22:00:38 GMT 2024

Observation	Proposal 5491, Observation 10: MIRI MRS BACKGROUND-B0122-2843 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [MIRI MRS B0122-2843 (Obs 9)]												
	(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Diagnosics													
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections				Miscellaneous				
	(10)	BACKGROUND-B0122-2843	RA: 01 22 36.0682 (20.6502842d) Dec: -28 43 9.54 (-28.71932d) Equinox: J2000										
Comments: Category=Calibration Description=[Telescope/sky background] Extended=YES													
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	2-Point			EXTENDED SOURCE				NEGATIVE				
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	LONG(C)	MRSLONG		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	1	LONG(C)	MRSSHORT		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	2	MEDIUM(B)	MRSLONG		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	3	SHORT(A)	MRSLONG		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373
	3	SHORT(A)	MRSSHORT		FASTR1	80	3	1	Dither 1	2	6	1343.119	177373

Proposal 5491 - Observation 10 - Mining for DIAMONDS (Dust, Ice, And MOlecules iN Distant galaxieS) over the Past ~7 Billion Years

Special Requirements

Sequence Observations 9, 10, Non-interruptible