



# 3189 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

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>
Observation Folder				
	1	MRS-RZPSC	MIRI Medium Resolution Spectroscopy	(1) RZPSC
	2	MRS-J0605	MIRI Medium Resolution Spectroscopy	(2) J0605
	3	MRS-J0609	MIRI Medium Resolution Spectroscopy	(3) J0609
	4	MRS-J0611	MIRI Medium Resolution Spectroscopy	(4) J0611
	12	MRS-J0611 - Repeat of Observation 4	MIRI Medium Resolution Spectroscopy	(4) J0611
	5	MRS-J2043	MIRI Medium Resolution Spectroscopy	(5) J2043
	6	MRS-J0925	MIRI Medium Resolution Spectroscopy	(6) J0925
	7	MRS-J2301	MIRI Medium Resolution Spectroscopy	(7) J2301
	8	MRS-J1213	MIRI Medium Resolution Spectroscopy	(8) J1213
	9	MRS-J0712	MIRI Medium Resolution Spectroscopy	(9) J0712
	10	MRS-J1044	MIRI Medium Resolution Spectroscopy	(10) J1044
	11	MRS-HD166	MIRI Medium Resolution Spectroscopy	(11) HD166

## **ABSTRACT**

The variable emission of young, extreme debris disks (EDDs), as monitored by warm Spitzer, provides a unique window to explore large-scale collisions in the terrestrial planet zone during the oligarchic and chaotic phases of planet formation. Some of these systems where Spitzer mid-infrared spectroscopy was obtained reveal an intriguing dichotomy in the dust mineralogy of impact-produced debris -- one third of them show silica-rich fine dust, likely created from the evaporating bodies in a hyper-velocity giant collision, while the others show forsterite-rich fine dust, evidence for high-temperature thermal alteration, a condition commonly expected in major collisions of large asteroid-size bodies. The nature of this apparent mineralogical dichotomy is unknown. In this program, we will conduct a detailed mineralogical investigation for 11 newly identified EDDs that exhibit various degrees of infrared variability (indications of collisions between large bodies) revealed by WISE. The all-sky WISE data has substantially expanded the sample of EDDs over those found with Spitzer, and make possible for the first time meaningful comparative studies of their properties. Using MIRI/MRS mode, we will quantify the presence of silica dust in different polymorph forms that trace different levels of formation pressure, and directly connect the resulting impact conditions with the sizes of impact bodies (planetary embryos or large asteroids).

## **OBSERVING DESCRIPTION**

MIRI/MRS observations of 11 newly identified extreme debris disks to investigate the mineralogical dichotomy in the impact-produced debris. These high-quality spectra will be used to search for the presence of silica dust in different types of polymorphs condensed at different high temperature and pressure conditions. This new sample will more than double the current sample in studying impact-produced dust mineralogy in a statistically meaningful way, and make a giant leap in connecting infrared variability (proxies for the sizes of impacting bodies) to dust mineralogy.

# Proposal 3189 - Targets - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	RZPSC	RA: 01 09 42.0844 (17.4253517d) Dec: +27 57 1.72 (27.95048d) Equinox: J2000	Proper Motion RA: 27.544 mas/yr Proper Motion Dec: -12.520999916887376 mas/yr Parallax: 0.0053661" Epoch of Position: 2000	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				
(2)	J0605	RA: 06 05 13.5985 (91.3066604d) Dec: -19 13 8.52 (-19.21903d) Equinox: J2000	Proper Motion RA: 0.011 mas/yr Proper Motion Dec: -11.718999940057984 mas/yr Epoch of Position: 2000	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				
(3)	J0609	RA: 06 09 17.0041 (92.3208504d) Dec: -15 08 8.57 (-15.13571d) Equinox: J2000	Proper Motion RA: -6.270703668344231 mas/yr Proper Motion Dec: 0.8824806099088862 mas/yr Epoch of Position: 2000	
<p><i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				
(4)	J0611	RA: 06 11 3.5539 (92.7648079d) Dec: -47 11 29.24 (-47.19146d) Equinox: J2000	Proper Motion RA: 6.276532898537342 mas/yr Proper Motion Dec: 12.577380919514138 mas/yr Epoch of Position: 2000	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				
(5)	J2043	RA: 20 43 15.2374 (310.8134892d) Dec: +10 43 35.35 (10.72649d) Equinox: J2000	Proper Motion RA: 12.99552496690651 mas/yr Proper Motion Dec: -15.933602486643666 mas/yr Epoch of Position: 2000.	
<p><i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				
(6)	J0925	RA: 09 25 21.9233 (141.3413471d) Dec: -67 32 24.65 (-67.54018d) Equinox: J2000	Proper Motion RA: -17.79380345160917 mas/yr Proper Motion Dec: 25.94950942445982 mas/yr Epoch of Position: 2000	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				
(7)	J2301	RA: 23 01 12.6936 (345.3028900d) Dec: -58 58 21.97 (-58.97277d) Equinox: J2000	Proper Motion RA: 27.01354411970877 mas/yr Proper Motion Dec: -14.245056001820528 mas/yr Epoch of Position: 2000	
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>				

Fixed Targets

## Proposal 3189 - Targets - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

(8)	J1213	RA: 12 13 34.1343 (183.3922263d) Dec: -05 35 43.49 (-5.59541d) Equinox: J2000	Proper Motion RA: -27.754174488387097 mas/yr Proper Motion Dec: -4.047107386096352 mas/yr Epoch of Position: 2000
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>			
(9)	J0712	RA: 07 12 6.5301 (108.0272087d) Dec: -47 52 42.40 (-47.87844d) Equinox: J2000	Proper Motion RA: -8.606143230674473 mas/yr Proper Motion Dec: -2.0962473611415495 mas/yr Epoch of Position: 2000
<p><i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>			
(10)	J1044	RA: 10 44 16.6629 (161.0694287d) Dec: -45 16 13.88 (-45.27052d) Equinox: J2000	Proper Motion RA: -89.29087195574068 mas/yr Proper Motion Dec: 29.753760143318267 mas/yr Epoch of Position: 2000
<p><i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>			
(11)	HD166	RA: 18 10 30.3389 (272.6264121d) Dec: -23 34 0.27 (-23.56674d) Equinox: J2000	Proper Motion RA: -4.931 mas/yr Proper Motion Dec: -39.34899996238528 mas/yr Epoch of Position: 2000
<p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>            Category=Star            Description=[Circumstellar disks]            Extended=NO</p>			
(12)	S9SD061017TAHD166	RA: 18 10 30.3331 (272.6263879d) Dec: -23 34 0.90 (-23.56692d) Equinox: J2000	Proper Motion RA: -4.930694968543566 mas/yr Proper Motion Dec: -39.348955164486895 mas/yr Epoch of Position: 2000
<p><i>Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database.</i>            Category=Star            Description=[A giants]            Extended=NO</p>			

# Proposal 3189 - Observation 1 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 1: MRS-RZPSC</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>				
	(1)	RZPSC	RA: 01 09 42.0844 (17.4253517d) Dec: +27 57 1.72 (27.95048d) Equinox: J2000			Proper Motion RA: 27.544 mas/yr Proper Motion Dec: -12.520999916887376 mas/yr Parallax: 0.0053661" Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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</b>	<b>Wkbk.Calc ID</b>			
	1	SAME	FND	FAST	6	1	1	16.65		140324			
<b>Template</b>	<b>Primary Channel</b>			<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>			
	All MRS			NO			FULL			NEUTRAL			
<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	20	1	1	Dither 1	4	4	222.003	
	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	

Proposal 3189 - Observation 2 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 2: MRS-J0605</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>				
	(2)	J0605	RA: 06 05 13.5985 (91.3066604d) Dec: -19 13 8.52 (-19.21903d) Equinox: J2000			Proper Motion RA: 0.011 mas/yr Proper Motion Dec: -11.718999940057984 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	40	1	1	Dither 1	4	4	444.006	
	1	SHORT(A)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	
	2	MEDIUM(B)	MRSLONG		FASTR1	40	1	1	Dither 1	4	4	444.006	
	2	MEDIUM(B)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	
	3	LONG(C)	MRSLONG		FASTR1	40	1	1	Dither 1	4	4	444.006	
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	

Proposal 3189 - Observation 3 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 3: MRS-J0609</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>				
	(3)	J0609	RA: 06 09 17.0041 (92.3208504d) Dec: -15 08 8.57 (-15.13571d) Equinox: J2000			Proper Motion RA: -6.270703668344231 mas/yr Proper Motion Dec: 0.8824806099088862 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	20	1	1	Dither 1	4	4	222.003	
	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	

Proposal 3189 - Observation 4 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 4: MRS-J0611</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>				
	(4)	J0611	RA: 06 11 3.5539 (92.7648079d) Dec: -47 11 29.24 (-47.19146d) Equinox: J2000			Proper Motion RA: 6.276532898537342 mas/yr Proper Motion Dec: 12.577380919514138 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	20	1	1	Dither 1	4	4	222.003	
	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	

Proposal 3189 - Observation 12 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 12: MRS-J0611 - Repeat of Observation 4</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>				
	(4)	J0611	RA: 06 11 3.5539 (92.7648079d) Dec: -47 11 29.24 (-47.19146d) Equinox: J2000			Proper Motion RA: 6.276532898537342 mas/yr Proper Motion Dec: 12.577380919514138 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	20	1	1	Dither 1	4	4	222.003	
	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	

Proposal 3189 - Observation 5 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 5: MRS-J2043</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>			
	(5)	J2043	RA: 20 43 15.2374 (310.8134892d) Dec: +10 43 35.35 (10.72649d) Equinox: J2000				Proper Motion RA: 12.99552496690651 mas/yr Proper Motion Dec: -15.933602486643666 mas/yr Epoch of Position: 2000.						
<i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>			<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>			
	All MRS			NO			FULL			NEUTRAL			
<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	40	1	1	Dither 1	4	4	444.006	
	1	SHORT(A)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	
	2	MEDIUM(B)	MRSLONG		FASTR1	40	1	1	Dither 1	4	4	444.006	
	2	MEDIUM(B)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	
	3	LONG(C)	MRSLONG		FASTR1	40	1	1	Dither 1	4	4	444.006	
	3	LONG(C)	MRSSHORT		FASTR1	40	1	1	Dither 1	4	4	444.006	

Proposal 3189 - Observation 6 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 6: MRS-J0925</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>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(6)	J0925	RA: 09 25 21.9233 (141.3413471d) Dec: -67 32 24.65 (-67.54018d) Equinox: J2000			Proper Motion RA: -17.79380345160917 mas/yr Proper Motion Dec: 25.94950942445982 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<b>Acquisition</b>	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	6	1	1	16.65	140324				
<b>Template</b>	Primary Channel		Simultaneous Imaging			Imager Subarray			Grating Wheel Direction				
	All MRS		NO			FULL			NEUTRAL				
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			POINT 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	20	1	1	Dither 1	4	4	222.003	
	1	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
	3	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	

Proposal 3189 - Observation 7 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 7: MRS-J2301</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)	J2301	RA: 23 01 12.6936 (345.3028900d) Dec: -58 58 21.97 (-58.97277d) Equinox: J2000			Proper Motion RA: 27.01354411970877 mas/yr Proper Motion Dec: -14.245056001820528 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	80	1	1	Dither 1	4	4	888.013	
	1	SHORT(A)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	

Proposal 3189 - Observation 8 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 8: MRS-J1213</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.												
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>				<b>Targ. Coord. Corrections</b>			<b>Miscellaneous</b>			
	(8)	J1213	RA: 12 13 34.1343 (183.3922263d) Dec: -05 35 43.49 (-5.59541d) Equinox: J2000				Proper Motion RA: -27.754174488387097 mas/yr Proper Motion Dec: -4.047107386096352 mas/yr Epoch of Position: 2000						
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	80	1	1	Dither 1	4	4	888.013	
	1	SHORT(A)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	

Proposal 3189 - Observation 9 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	Proposal 3189, Observation 9: MRS-J0712 Diagnostic Status: Warning 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>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(9)	J0712	RA: 07 12 6.5301 (108.0272087d) Dec: -47 52 42.40 (-47.87844d) Equinox: J2000			Proper Motion RA: -8.606143230674473 mas/yr Proper Motion Dec: -2.0962473611415495 mas/yr Epoch of Position: 2000							
Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog Category=Star Description=[Circumstellar disks] Extended=NO													
<b>Acquisition</b>	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	8	1	1	22.2	140324				
<b>Template</b>	Primary Channel		Simultaneous Imaging			Imager Subarray			Grating Wheel Direction				
	All MRS		NO			FULL			NEUTRAL				
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			POINT 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	80	1	1	Dither 1	4	4	888.013	
	1	SHORT(A)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	

Proposal 3189 - Observation 10 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<p><b>Proposal 3189, Observation 10: MRS-J1044</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: MIRI Medium Resolution Spectroscopy</p>												
<b>Diagnostics</b>	(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
<b>Fixed Targets</b>	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(10)	J1044	RA: 10 44 16.6629 (161.0694287d) Dec: -45 16 13.88 (-45.27052d) Equinox: J2000			Proper Motion RA: -89.29087195574068 mas/yr Proper Motion Dec: 29.753760143318267 mas/yr Epoch of Position: 2000							
	<p><i>Comments: This object was generated by the targetselector and retrieved from the Gaia DR3 catalog.</i></p> <p><i>Category=Star</i></p> <p><i>Description=[Circumstellar disks]</i></p> <p><i>Extended=NO</i></p>												
<b>Acquisition</b>	#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID				
	1	SAME	FND	FAST	8	1	1	22.2	140324				
<b>Template</b>	Primary Channel		Simultaneous Imaging			Imager Subarray			Grating Wheel Direction				
	All MRS		NO			FULL			NEUTRAL				
<b>Dithers</b>	#	Dither Type			Optimized For			Direction					
	1	4-Point			POINT 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	80	1	1	Dither 1	4	4	888.013	
	1	SHORT(A)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	2	MEDIUM(B)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSLONG		FASTR1	80	1	1	Dither 1	4	4	888.013	
	3	LONG(C)	MRSSHORT		FASTR1	80	1	1	Dither 1	4	4	888.013	

Proposal 3189 - Observation 11 - The Nature of Mineralogical Dichotomy in Extreme Debris Disks

Mon Mar 11 15:00:44 GMT 2024

<b>Observation</b>	<b>Proposal 3189, Observation 11: MRS-HD166</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>				
	(11)	HD166	RA: 18 10 30.3389 (272.6264121d) Dec: -23 34 0.27 (-23.56674d) Equinox: J2000			Proper Motion RA: -4.931 mas/yr Proper Motion Dec: -39.34899996238528 mas/yr Epoch of Position: 2000							
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=Star Description=[Circumstellar disks] Extended=NO													
<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	12 S9SD061017TAHD16 6	F560W	FAST	6	1	1	16.65	140324				
<b>Template</b>	<b>Primary Channel</b>		<b>Simultaneous Imaging</b>			<b>Imager Subarray</b>			<b>Grating Wheel Direction</b>				
	All MRS		NO			FULL			NEUTRAL				
<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	LONG(C)	MRSLONG		FASTR1	9	1	1	Dither 1	4	4	99.901	140324
	1	LONG(C)	MRSSHORT		FASTR1	9	1	1	Dither 1	4	4	99.901	140324
	2	MEDIUM(B)	MRSLONG		FASTR1	9	1	1	Dither 1	4	4	99.901	140324
	2	MEDIUM(B)	MRSSHORT		FASTR1	9	1	1	Dither 1	4	4	99.901	140324
	3	SHORT(A)	MRSLONG		FASTR1	9	1	1	Dither 1	4	4	99.901	140324
	3	SHORT(A)	MRSSHORT		FASTR1	9	1	1	Dither 1	4	4	99.901	140324