



# 11776 - Mysterious Origins of D-Type Asteroids

Cycle: 5, Proposal Category: GO

## INVESTIGATORS

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

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
Target Observations				
	1	8513	MIRI Medium Resolution Spectroscopy	(2) 8513
	2	14177	MIRI Medium Resolution Spectroscopy	(1) 14177
	3	17906Shapovalov	MIRI Medium Resolution Spectroscopy	(3) 17906Shapovalov
	4	6271Farmer	MIRI Medium Resolution Spectroscopy	(4) 6271Farmer
	5	4423Golden	MIRI Medium Resolution Spectroscopy	(5) 4423Golden
	6	4158 Santini	MIRI Medium Resolution Spectroscopy	(6) 4158Santini
	7	1328Devota	MIRI Medium Resolution Spectroscopy	(7) 1328Devota
	8	3248Farinella	MIRI Medium Resolution Spectroscopy	(8) 3248Farinella

## ABSTRACT

The Solar System's early dynamical evolution was marked by giant planet migration that scattered small bodies to the inner Solar System, including primitive D-type asteroids. The modern distribution of these asteroids informs dynamical models, assuming all the inward-scattered D-types formed in the same place and thus have the same starting regolith composition. Of note, there are three lines of evidence that are inconsistent with this base

assumption: (1) There are inner belt D-types that could not have been dynamically scattered so far inward from the outer Solar System (Levison et al., 2009; DeMeo et al., 2014). (2) A subset of high-albedo D-types are spectroscopically similar to enstatite achondrites, a meteorite type that could not have come from a primitive asteroid (Rider-Stokes et al., 2025). (3) D-types in the Cybele region (the outermost region of the asteroid belt) are more similar to Jupiter's Trojans and Hilda population compared to D-types in the outer and middle main belt (Lagerkvist et al., 2005). We propose to observe eight D-type asteroids with the MIRI/MRS instrument to answer the question: Did all D-Types form together? We plan to identify silicate minerals and determine the Mg# using mid-infrared features in the 10-, 18-, and 24-micron regions, and compare new JWST spectra to the few mid-infrared spectra of D-types that were observed with the Spitzer Space Telescope.

### **OBSERVING DESCRIPTION**

We propose to observe the following D-type asteroids with MIRI MRS: 17906 Shapovalov, 6271 Farmer, 8513 (1991 PK11), 14177 (1998 VU29), 3248 Farinella, 4158 Santini, 1328 Devota, and 4423 Golden. We will detect and measure silicate features in the 10-, 18-, and 24-micron regions. The JWST MTVT shows two observing windows for 1991 PK11, 1998 VU29, Santini, Devota, and Golden and one observing window for Shapovalov, Farmer, and Farinella in Cycle 5. Based on previous detections of relevant spectral features, we require a SNR > 100 for all wavelengths between 8-24 microns. We calculated exposure times of each channel to allow for every wavelength to have a SNR > 100 while ensuring that the detector does not saturate, regardless of observation date. The total APT-estimated exposure time is 21.1 hours, including overhead, making this a small proposal.

We require all 4 MIRI MRS channels to cover the wavelengths of expected spectral features. We will use the FULL subarray and the FASTR1 readout pattern with a 4-point dither pattern. Target acquisition for MRS observations was deemed unnecessary following relevant JWST strategy documentation. We will obtain simultaneous imaging to improve the MRS data astrometry accuracy using the FASTR1 readout mode and the F560W filter and have ensured that no pixels fully saturate, regardless of observation date.

# Proposal 11776 - Targets - Mysterious Origins of D-Type Asteroids

#	Name	Level 1	Level 2	Level 3
(1)	14177	TYPE=ASTEROID,A=2.804860716884173,E=0.1477597197267227,I=9.12418955953731,O=260.0900356138534,W=169.3407178409707,M=10.15914779941677,EQUINOX=J2000,EPOCH=06-DEC-2017:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(2)	8513	TYPE=ASTEROID,A=2.744703392576452,E=0.1770105954095312,I=6.829857082413858,O=313.2408239569808,W=132.0412302811731,M=279.4088910038564,EQUINOX=J2000,EPOCH=08-NOV-2018:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(3)	17906Shapovalov	TYPE=ASTEROID,A=2.471733686556086,E=0.1718513122591428,I=10.70529115991824,O=46.80629208200978,W=305.6152234812004,M=80.4729064436729,EQUINOX=J2000,EPOCH=11-APR-2017:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(4)	6271Farmer	TYPE=ASTEROID,A=1.968192518287398,E=0.05237104167779481,I=23.55790022792872,O=285.8373461553365,W=342.977901712203,M=265.7939250133742,EQUINOX=J2000,EPOCH=24-MAR-2018:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(5)	4423Golden	TYPE=ASTEROID,A=3.396089382237943,E=0.08725513781048437,I=19.28221085485959,O=193.6268466653149,W=106.0288451779085,M=303.3774775652091,EQUINOX=J2000,EPOCH=12-MAY-2018:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(6)	4158Santini	TYPE=ASTEROID,A=3.402793886991565,E=0.01960204184377304,I=6.167863769417482,O=4.105111653045088,W=271.5127166711473,M=120.9944808119234,EQUINOX=J2000,EPOCH=27-SEP-2018:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(7)	1328Devota	TYPE=ASTEROID,A=3.503705469507924,E=0.1345382664832259,I=5.766000419542486,O=222.6879124062312,W=174.4096927657131,M=89.4880403013498,EQUINOX=J2000,EPOCH=19-JAN-2019:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				
(8)	3248Farinella	TYPE=ASTEROID,A=3.203528667385403,E=0.1513001274870131,I=10.90042117408377,O=12.07749101540899,W=316.7953872531145,M=5.235776527244346,EQUINOX=J2000,EPOCH=29-AUG-2018:00:00:00,EpochTimeScale=TDB		
<i>Comments: Extended=NO</i>				

Solar System Targets

Proposal 11776 - Observation 1 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:46 GMT 2026

<b>Observation</b>	<b>Proposal 11776, Observation 1: 8513</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. (8513 (Obs 1)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>				<b>Level 2</b>				<b>Level 3</b>		
	(2)	8513	TYPE=ASTEROID,A=2.744703392576452,E=0.1770 105954095312,I=6.829857082413858 ,O=313.2408239569808,W=132.0412302811731,M=2 79.4088910038564,EQUINOX=J2000,EPOCH=08- NOV-2018:00:00:00,EpochTimeScale=TDB  <i>Comments: Extended=NO</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>		
		All MRS				YES			FULL		Allow Auto Reorder		
<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/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>Optional ETC ID</b>
	1		IMAGER	F560W	FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	1	SHORT(A)	MRSLONG		FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	1	SHORT(A)	MRSSHORT		FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	2		IMAGER	F560W	FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	2	MEDIUM(B)	MRSLONG		FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	2	MEDIUM(B)	MRSSHORT		FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	3		IMAGER	F560W	FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	3	LONG(C)	MRSLONG		FASTR1	45	2	1	Dither 1	4	8	1010.115	276199
	3	LONG(C)	MRSSHORT		FASTR1	45	2	1	Dither 1	4	8	1010.115	276199

Proposal 11776 - Observation 1 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 8513 FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 2 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:46 GMT 2026

<b>Observation</b>	Proposal 11776, Observation 2: 14177 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (14177 (Obs 2)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	#	Name	Level 1				Level 2				Level 3		
	(1)	14177	TYPE=ASTEROID,A=2.804860716884173,E=0.1477 597197267227,I=9.12418955953731 ,O=260.0900356138534,W=169.3407178409707,M=1 0.15914779941677,EQUINOX=J2000,EPOCH=06- DEC-2017:00:00:00,EpochTimeScale=TDB Comments: Extended=NO										
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
<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	Optional ETC ID
	1		IMAGER	F560W	FASTR1	59	1	1	Dither 1	4	4	654.909	276185
	1	SHORT(A)	MRSLONG		FASTR1	59	6	1	Dither 1	4	24	3984.957	276185
	1	SHORT(A)	MRSSSHORT		FASTR1	59	6	1	Dither 1	4	24	3984.957	276185
	2		IMAGER	F560W	FASTR1	59	1	1	Dither 1	4	4	654.909	276185
	2	MEDIUM(B)	MRSLONG		FASTR1	59	3	1	Dither 1	4	12	1986.929	276185
	2	MEDIUM(B)	MRSSSHORT		FASTR1	59	3	1	Dither 1	4	12	1986.929	276185
	3		IMAGER	F560W	FASTR1	59	1	1	Dither 1	4	4	654.909	276185
	3	LONG(C)	MRSLONG		FASTR1	59	1	1	Dither 1	4	4	654.909	276185
	3	LONG(C)	MRSSSHORT		FASTR1	59	1	1	Dither 1	4	4	654.909	276185

Proposal 11776 - Observation 2 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 14177 FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 3 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:47 GMT 2026

<b>Observation</b>	Proposal 11776, Observation 3: 17906Shapovalov Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (17906Shapovalov (Obs 3)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	#	Name	Level 1				Level 2				Level 3		
	(3)	17906Shapovalov	TYPE=ASTEROID,A=2.471733686556086,E=0.1718 513122591428,I=10.70529115991824 ,O=46.80629208200978,W=305.6152234812004,M=8 0.4729064436729,EQUINOX=J2000,EPOCH=11- APR-2017:00:00:00,EpochTimeScale=TDB  Comments: Extended=NO										
<b>Acquisition</b>	#											Target	
	1											NONE	
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
<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	Optional ETC ID
	1		IMAGER	F560W	FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	1	SHORT(A)	MRSLONG		FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	1	SHORT(A)	MRSSHORT		FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	2		IMAGER	F560W	FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	2	MEDIUM(B)	MRSLONG		FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	2	MEDIUM(B)	MRSSHORT		FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	3		IMAGER	F560W	FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	3	LONG(C)	MRSLONG		FASTR1	28	2	1	Dither 1	4	8	632.709	276200
	3	LONG(C)	MRSSHORT		FASTR1	28	2	1	Dither 1	4	8	632.709	276200

Proposal 11776 - Observation 3 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 17906Shapovalov FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 4 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:47 GMT 2026

<b>Observation</b>	Proposal 11776, Observation 4: 6271Farmer Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (6271Farmer (Obs 4)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	#	Name	Level 1				Level 2				Level 3		
	(4)	6271Farmer	TYPE=ASTEROID,A=1.968192518287398,E=0.0523 7104167779481,I=23.55790022792872 ,O=285.8373461553365,W=342.977901712203,M=26 5.7939250133742,EQUINOX=J2000,EPOCH=24- MAR-2018:00:00:00,EpochTimeScale=TDB Comments: Extended=NO										
<b>Acquisition</b>	#											Target	
	1											NONE	
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
<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	Optional ETC ID
	1		IMAGER	F560W	FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	1	SHORT(A)	MRSLONG		FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	1	SHORT(A)	MRSSSHORT		FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	2		IMAGER	F560W	FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	2	MEDIUM(B)	MRSLONG		FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	2	MEDIUM(B)	MRSSSHORT		FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	3		IMAGER	F560W	FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	3	LONG(C)	MRSLONG		FASTR1	16	2	1	Dither 1	4	8	366.305	276201
	3	LONG(C)	MRSSSHORT		FASTR1	16	2	1	Dither 1	4	8	366.305	276201

Proposal 11776 - Observation 4 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 6271Farmer FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 5 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:47 GMT 2026

<b>Observation</b>	Proposal 11776, Observation 5: 4423Golden Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (4423Golden (Obs 5)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	#	Name	Level 1				Level 2				Level 3		
	(5)	4423Golden	TYPE=ASTEROID,A=3.396089382237943,E=0.0872 5513781048437,I=19.28221085485959 ,O=193.6268466653149,W=106.0288451779085,M=3 03.3774775652091,EQUINOX=J2000,EPOCH=12- MAY-2018:00:00:00,EpochTimeScale=TDB  Comments: Extended=NO										
<b>Acquisition</b>	#											Target	
	1											NONE	
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
<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	Optional ETC ID
	1		IMAGER	F560W	FASTR1	63	1	1	Dither 1	4	4	699.31	276202
	1	SHORT(A)	MRSLONG		FASTR1	63	5	1	Dither 1	4	20	3540.951	276202
	1	SHORT(A)	MRSSHORT		FASTR1	63	5	1	Dither 1	4	20	3540.951	276202
	2		IMAGER	F560W	FASTR1	63	1	1	Dither 1	4	4	699.31	276202
	2	MEDIUM(B)	MRSLONG		FASTR1	63	3	1	Dither 1	4	12	2120.131	276202
	2	MEDIUM(B)	MRSSHORT		FASTR1	63	3	1	Dither 1	4	12	2120.131	276202
	3		IMAGER	F560W	FASTR1	63	1	1	Dither 1	4	4	699.31	276202
	3	LONG(C)	MRSLONG		FASTR1	63	1	1	Dither 1	4	4	699.31	276202
	3	LONG(C)	MRSSHORT		FASTR1	63	1	1	Dither 1	4	4	699.31	276202

Proposal 11776 - Observation 5 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 4423Golden FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 6 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:47 GMT 2026

Observation	Proposal 11776, Observation 6: 4158 Santini Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (4158 Santini (Obs 6)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
Solar System Targets	#	Name	Level 1				Level 2				Level 3		
	(6)	4158Santini	TYPE=ASTEROID,A=3.402793886991565,E=0.0196 0204184377304,I=6.167863769417482 ,O=4.105111653045088,W=271.5127166711473,M=1 20.9944808119234,EQUINOX=J2000,EPOCH=27- SEP-2018:00:00:00,EpochTimeScale=TDB Comments: Extended=NO										
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
Dithers	#	Dither Type				Optimized For				Direction			
	1	4-Point				POINT SOURCE				NEGATIVE			
Spectral Elements	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
	1		IMAGER	F560W	FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	1	SHORT(A)	MRSLONG		FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	1	SHORT(A)	MRSSHORT		FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	2		IMAGER	F560W	FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	2	MEDIUM(B)	MRSLONG		FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	2	MEDIUM(B)	MRSSHORT		FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	3		IMAGER	F560W	FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	3	LONG(C)	MRSLONG		FASTR1	40	2	1	Dither 1	4	8	899.113	276261
	3	LONG(C)	MRSSHORT		FASTR1	40	2	1	Dither 1	4	8	899.113	276261

Proposal 11776 - Observation 6 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 4158Santini FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 7 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:47 GMT 2026

<b>Observation</b>	Proposal 11776, Observation 7: 1328Devota Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (1328Devota (Obs 7)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	#	Name	Level 1				Level 2				Level 3		
	(7)	1328Devota	TYPE=ASTEROID,A=3.503705469507924,E=0.1345 382664832259,I=5.766000419542486 ,O=222.6879124062312,W=174.4096927657131,M=8 9.4880403013498,EQUINOX=J2000,EPOCH=19- JAN-2019:00:00:00,EpochTimeScale=TDB  Comments: Extended=NO										
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
<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	Optional ETC ID
	1		IMAGER	F560W	FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	1	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	2		IMAGER	F560W	FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	3		IMAGER	F560W	FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	3	LONG(C)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	276271
	3	LONG(C)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	276271

Proposal 11776 - Observation 7 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 1328Devota FROM JWST LESS THAN 0.075

Proposal 11776 - Observation 8 - Mysterious Origins of D-Type Asteroids

Wed May 20 20:00:47 GMT 2026

<b>Observation</b>	Proposal 11776, Observation 8: 3248Farinella Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy												
	(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run. (3248Farinella (Obs 8)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.												
<b>Diagnosics</b>													
<b>Solar System Targets</b>	#	Name	Level 1				Level 2				Level 3		
	(8)	3248Farinella	TYPE=ASTEROID,A=3.203528667385403,E=0.1513 001274870131,I=10.90042117408377 ,O=12.07749101540899,W=316.7953872531145,M=5. 235776527244346,EQUINOX=J2000,EPOCH=29- AUG-2018:00:00:00,EpochTimeScale=TDB Comments: Extended=NO										
<b>Acquisition</b>	#											Target	
	1											NONE	
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray		Grating Wheel Direction		
		All MRS				YES			FULL		Allow Auto Reorder		
<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	Optional ETC ID
	1		IMAGER	F560W	FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	1	SHORT(A)	MRSLONG		FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	1	SHORT(A)	MRSSHORT		FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	2		IMAGER	F560W	FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	2	MEDIUM(B)	MRSLONG		FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	2	MEDIUM(B)	MRSSHORT		FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	3		IMAGER	F560W	FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	3	LONG(C)	MRSLONG		FASTR1	25	1	1	Dither 1	4	4	277.504	276272
	3	LONG(C)	MRSSHORT		FASTR1	25	1	1	Dither 1	4	4	277.504	276272

Proposal 11776 - Observation 8 - Mysterious Origins of D-Type Asteroids

Special Requirements

DEFAULT WINDOW: ANGULAR RATE 3248Farinella FROM JWST LESS THAN 0.075