



# 3445 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Cycle: 2, Proposal Category: GO

## INVESTIGATORS

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Dr. William Reach (CoI)	Universities Space Research Association
Dr. George Helou (CoI)	California Institute of Technology

## OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
SQ_MIRI_MRS				

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	1	SQ-MRS-COS-P1-SHOCK-CENTER	MIRI Medium Resolution Spectroscopy	(1) SQ-MRS-COS-P1-SHOCK-CENTER
	2	SQ-MRS-COS-P2-SHOCK-SOUTH	MIRI Medium Resolution Spectroscopy	(2) SQ-MRS-COS-P2-SHOCK-SOUTH
	3	SQ-MRS-COS-P3-SHOCK-NORTH	MIRI Medium Resolution Spectroscopy	(3) SQ-MRS-COS-P3-SHOCK-NORTH
	7	SQ-MRS-SKY-BACKGROUND	MIRI Medium Resolution Spectroscopy	(7) SQ-MRS-SKY-BACKGROUND
	4	SQ-MRS-COS-P7-SQA	MIRI Medium Resolution Spectroscopy	(4) SQ-MRS-COS-P7-SQA
	5	SQ-MRS-COS-P5-BRIDGE	MIRI Medium Resolution Spectroscopy	(5) SQ-MRS-COS-P5-BRIDGE
	6	SQ-MRS-BRIDGE-ALMAFIELD5	MIRI Medium Resolution Spectroscopy	(6) SQ-MRS-BRIDGE-ALMAFIELD5

## ABSTRACT

We propose MIRI MRS spectroscopy of six diverse turbulent regions in the giant molecular shock structure in the Stephan's Quintet group. The 45 kpc shock structure is likely formed ahead of an high-speed intruder galaxy as it collides with an old tidal filament within the main group. Previous Spitzer observations had shown that the dominant emission from the filament is from fragile warm pure-rotational molecular H<sub>2</sub> which somehow coexists with million-degree hot X-ray emitting gas. We propose MRS IFU spectroscopy to, a) answer the question about why such strong molecular hydrogen can exist in such a hostile environment in the wake of the 1000 km/s shock wave. We will measure at sub-arcsec resolution, velocity dispersion, bulk kinetic energy, and total luminous power of the clumps of warm H<sub>2</sub> revealed in recent ERO JWST MIRI images. We will compare these properties to that of gas in other phases, especially cold H<sub>2</sub> mapped on the same resolution by ALMA., b) explore how the dissipation of kinetic energy and mixing of gas phases effects the formation of stars, and c) we will try to understand how the properties of the warm H<sub>2</sub> may tie in with the (1500 km/s) extremely broad Ly-alpha shocked gas in the halo of this group. The large extent of the shock, combined with its clean, uncluttered environment (away from major starburst or AGN), make Stephan's Quintet an idea environment to understand how mechanical energy dissipates in multi-phase gas, and how gas cools to form stars. The results will have general significance to many other known (and soon to be discovered by JWST) regions where shock waves pass through large tracts of multi-phase gas.

## OBSERVING DESCRIPTION

We propose to perform MIRI MRS Spectroscopy of 6 regions in the Stephan's Quintet group-wide shock.

The structures will be extended in the MRS fields, so we used 4pt dithers for each of the six ON observations, and a dedicated sky background

JWST Proposal 3445 (Created: Wednesday, May 10, 2023 at 8:05:54 PM Eastern Standard Time) - Overview

observation (Obs 7), with the same number of groups and dithers as all observations, and as deep as the deepest pointing (obs5).

We require a non-interruptible sequence to ensure that the OFF is made in the middle of the sequence of ON observations.

For reasons of data volume, because the full sequence must be executed in a non-interruptible sequence, we use the SLOWR1 readout pattern to minimize the data volume.

# Proposal 3445 - Targets - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	SQ-MRS-COS-P1-SHOCK-CENTER	RA: 22 35 59.8092 (338.9992050d) Dec: +33 58 22.32 (33.97287d) Equinox: J2000	Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000	
<p><i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image COS position 1 from Guillard et al. 2021 Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>				
(2)	SQ-MRS-COS-P2-SHOCK-SOUTH	RA: 22 36 0.0336 (339.0001400d) Dec: +33 58 6.70 (33.96853d) Equinox: J2000	Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000	
<p><i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image COS position 2 from Guillard et al. 2021 Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>				
(3)	SQ-MRS-COS-P3-SHOCK-NORTH	RA: 22 35 59.4921 (338.9978837d) Dec: +33 58 28.97 (33.97471d) Equinox: J2000	Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000	
<p><i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image COS position 3 from Guillard et al. 2021 Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>				
(4)	SQ-MRS-COS-P7-SQA	RA: 22 35 58.9346 (338.9955608d) Dec: +33 58 50.28 (33.98063d) Equinox: J2000	Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000	
<p><i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image COS position 7 from Guillard et al. 2021 in the SQ-A star-forming region in the North Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>				
(5)	SQ-MRS-COS-P5-BRIDGE	RA: 22 36 1.2200 (339.0050833d) Dec: +33 58 22.61 (33.97295d) Equinox: J2000	Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000	
<p><i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image COS position 5 from Guillard et al. 2021 in the bridge structure that connects the main shock to NGC 7319 Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>				

Fixed Targets

## Proposal 3445 - Targets - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

(6)	SQ-MRS-BRIDGE- ALMAFIELD5	RA: 22 36 2.1067 (339.0087779d) Dec: +33 58 25.94 (33.97387d) Equinox: J2000	Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000
<p><i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image Center of ALMA Field 5 in the bridge structure that connects the main shock to NGC 7319, towards the AGN (see Appleton et al. 2023) Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>			
(7)	SQ-MRS-SKY- BACKGROUND	RA: 22 35 51.8300 (338.9659583d) Dec: +33 58 2.40 (33.96733d) Equinox: J2000	
<p><i>Comments: Off Position for Stephan's Quintet target observations Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES</i></p>			

# Proposal 3445 - Observation 1 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

<b>Observation</b>	<b>Proposal 3445, Observation 1: SQ-MRS-COS-P1-SHOCK-CENTER</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[SQ-MRS-SKY-BACKGROUND (Obs 7)]																																																																																																																																													
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Proposal 3445 - Observation 1 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

# Proposal 3445 - Observation 2 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

<b>Observation</b>	<b>Proposal 3445, Observation 2: SQ-MRS-COS-P2-SHOCK-SOUTH</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[SQ-MRS-SKY-BACKGROUND (Obs 7)]												
	(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			
	(2)	SQ-MRS-COS-P2-SHOCK-SOUTH	RA: 22 36 0.0336 (339.0001400d) Dec: +33 58 6.70 (33.96853d) Equinox: J2000				Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000						
<i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image                  COS position 2 from Guillard et al. 2021                  Category=Galaxy                  Description=[Galaxy halos, Interacting galaxies]                  Extended=YES</i>													
<b>Acquisition</b>	#	Target											
	1	NONE											
<b>Template</b>	AcqFilter	Primary Channel				Simultaneous Imaging			Imager Subarray				
	F560W	ALL				YES			FULL				
<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		IMAGER	F560W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2		IMAGER	F1000W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3		IMAGER	F1130W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	

Proposal 3445 - Observation 2 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

# Proposal 3445 - Observation 3 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

<b>Observation</b>	<b>Proposal 3445, Observation 3: SQ-MRS-COS-P3-SHOCK-NORTH</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[SQ-MRS-SKY-BACKGROUND (Obs 7)]												
	(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)	SQ-MRS-COS-P3-SHOCK-NORTH	RA: 22 35 59.4921 (338.9978837d) Dec: +33 58 28.97 (33.97471d) Equinox: J2000				Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000						
<i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image                  COS position 3 from Guillard et al. 2021                  Category=Galaxy                  Description=[Galaxy halos, Interacting galaxies]                  Extended=YES</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>				
	F560W	ALL				YES			FULL				
<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/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		IMAGER	F560W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2		IMAGER	F1000W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3		IMAGER	F1130W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	

Proposal 3445 - Observation 3 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3445 - Observation 7 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

<b>Observation</b>	<b>Proposal 3445, Observation 7: SQ-MRS-SKY-BACKGROUND</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observation For: [SQ-MRS-COS-P1-SHOCK-CENTER (Obs 1), SQ-MRS-COS-P2-SHOCK-SOUTH (Obs 2), SQ-MRS-COS-P3-SHOCK-NORTH (Obs 3), SQ-MRS-COS-P7-SQA (Obs 4), SQ-MRS-COS-P5-BRIDGE (Obs 5), SQ-MRS-BRIDGE-ALMAFIELD5 (Obs 6)]												
	(Visit 7:1) 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>			
	(7)	SQ-MRS-SKY-BACKGROUND	RA: 22 35 51.8300 (338.9659583d) Dec: +33 58 2.40 (33.96733d) Equinox: J2000  <i>Comments: Off Position for Stephan's Quintet target observations</i> <i>Category=Galaxy</i> <i>Description=[Galaxy halos, Interacting galaxies]</i> <i>Extended=YES</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>				
	F560W	ALL				YES			FULL				
<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		IMAGER	F560W	SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	1	SHORT(A)	MRSLONG		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	1	SHORT(A)	MRSSHORT		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	2		IMAGER	F1000W	SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	2	MEDIUM(B)	MRSLONG		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	2	MEDIUM(B)	MRSSHORT		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	3		IMAGER	F1130W	SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	3	LONG(C)	MRSLONG		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	3	LONG(C)	MRSSHORT		SLOWR1	33	1	1	Dither 1	4	4	3153.469	

Proposal 3445 - Observation 7 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3445 - Observation 4 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

Observation	<b>Proposal 3445, Observation 4: SQ-MRS-COS-P7-SQA</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[SQ-MRS-SKY-BACKGROUND (Obs 7)]												
	(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(4)	SQ-MRS-COS-P7-SQA	RA: 22 35 58.9346 (338.9955608d) Dec: +33 58 50.28 (33.98063d) Equinox: J2000			Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000							
<i>Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image                      COS position 7 from Guillard et al. 2021 in the SQ-A star-forming region in the North                      Category=Galaxy                      Description=[Galaxy halos, Interacting galaxies]                      Extended=YES</i>													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray					
	F560W	ALL			YES			FULL					
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		IMAGER	F560W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2		IMAGER	F1000W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3		IMAGER	F1130W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	

Proposal 3445 - Observation 4 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3445 - Observation 5 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

Observation	<b>Proposal 3445, Observation 5: SQ-MRS-COS-P5-BRIDGE</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[SQ-MRS-SKY-BACKGROUND (Obs 7)]												
	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(5)	SQ-MRS-COS-P5-BRIDGE	RA: 22 36 1.2200 (339.0050833d) Dec: +33 58 22.61 (33.97295d) Equinox: J2000			Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000							
Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image COS position 5 from Guillard et al. 2021 in the bridge structure that connects the main shock to NGC 7319 Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray					
	F560W	ALL			YES			FULL					
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		IMAGER	F560W	SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	1	SHORT(A)	MRSLONG		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	1	SHORT(A)	MRSSHORT		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	2		IMAGER	F1000W	SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	2	MEDIUM(B)	MRSLONG		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	2	MEDIUM(B)	MRSSHORT		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	3		IMAGER	F1130W	SLOWR1	33	1	1	Dither 1	4	4	3153.469	
	3	LONG(C)	MRSLONG		SLOWR1	33	1	1	Dither 1	4	4	3153.469	
3	LONG(C)	MRSSHORT		SLOWR1	33	1	1	Dither 1	4	4	3153.469		

Proposal 3445 - Observation 5 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible

Proposal 3445 - Observation 6 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Thu May 11 01:05:54 GMT 2023

Observation	<b>Proposal 3445, Observation 6: SQ-MRS-BRIDGE-ALMAFIELD5</b> <b>Diagnostic Status: Warning</b> Observing Template: MIRI Medium Resolution Spectroscopy Background Observations:[SQ-MRS-SKY-BACKGROUND (Obs 7)]												
	(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)	SQ-MRS-BRIDGE-ALMAFIELD5	RA: 22 36 2.1067 (339.0087779d) Dec: +33 58 25.94 (33.97387d) Equinox: J2000			Proper Motion RA: 0.0 Proper Motion Dec: 0.0 Parallax: 0.0" Epoch of Position: 2000							
Comments: Target selected from HST Narrow-band continuum subtracted image F665N-F657N WFC3 image Center of ALMA Field 5 in the bridge structure that connects the main shock to NGC 7319, towards the AGN (see Appleton et al. 2023) Category=Galaxy Description=[Galaxy halos, Interacting galaxies] Extended=YES													
Acquisition	#	Target											
	1	NONE											
Template	AcqFilter	Primary Channel			Simultaneous Imaging			Imager Subarray					
	F560W	ALL			YES			FULL					
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		IMAGER	F560W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	1	SHORT(A)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2		IMAGER	F1000W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	2	MEDIUM(B)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3		IMAGER	F1130W	SLOWR1	22	1	1	Dither 1	4	4	2102.313	
	3	LONG(C)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
3	LONG(C)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313		

Proposal 3445 - Observation 6 - Shaken and Stirred: Shocks and Turbulence in the Stephan's Quintet Warm Molecular Filament

Special Requirements

Sequence Observations 1, 2, 3, 4, 5, 6, 7, Non-interruptible