



11148 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Cycle: 5, Proposal Category: GO

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JWST Proposal 11148 (Created: Wednesday, July 29, 2026, 12:00:13PM Eastern Standard Time) - Overview

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OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
Observation Folder				
	5	MRS-leftarm	MIRI Medium Resolution Spectroscopy	(9) NGC-1566-leftarm-mrs
	4	MRS-center	MIRI Medium Resolution Spectroscopy	(10) NGC-1566-center-mrs
	6	MRS-barend	MIRI Medium Resolution Spectroscopy	(11) NGC-1566-barend-mrs
	1	MRS-BG-barend	MIRI Medium Resolution Spectroscopy	(6) NGC-1566-BG-barend
	3	MRS-BG-center	MIRI Medium Resolution Spectroscopy	(8) NGC-1566-BG-center
	2	MRS-BG-leftarm	MIRI Medium Resolution Spectroscopy	(2) NGC-1566-BG-leftarm
	7	NIRspec-leftarm	NIRSpec IFU Spectroscopy	(1) NGC-1566-leftarm
	8	NIRspec-center	NIRSpec IFU Spectroscopy	(7) NGC-1566-center
	9	NIRspec-barend	NIRSpec IFU Spectroscopy	(5) NGC-1566-barend

ABSTRACT

Recent JWST mid-infrared imaging reveals a tight correlation between CO and PAH emission on ~ 100 pc to a few kpc-scales. Yet we identify extreme outliers with more than 10 times higher CO emission than expected from the $7.7\ \mu\text{m}$ PAH emission, common across the PHANGS sample (21/70 galaxies, $\sim 30\%$). Given the growing use of PAH emission as a cold-gas tracer, targeted spectroscopic follow-up is essential to understand where and why the CO–PAH relation breaks down and to calibrate the reliability of PAH-based gas estimates. These outliers are localized in dynamically complex zones (spiral arms, bar dust lanes, and galaxy centers) and likely reflect either suppressed PAH emission (via dissociation or coagulation) or enhanced CO emissivity. We therefore propose JWST NIRSpec and MIRI/MRS mapping of three prototype CO/PAH outlier ridges

in NGC 1566 plus matched control fields, located in diverse environments. We will isolate PAH bands, H₂ rotational and ro-vibrational lines, [Fe II] shock tracers, and hydrogen recombination lines. These diagnostics will test four hypotheses: (1) PAH dissociation by shocks, (2) PAH growth via coagulation/accretion, (3) extreme shielding that suppresses PAH emission, and (4) enhanced CO emissivity in excited gas. The results will identify the local environments of the outliers, isolate the processes driving the departures from the global CO–PAH relation, and define the limits of PAH emission as a tracer of the cold ISM.

OBSERVING DESCRIPTION

We propose to use NIRSpec and MIRI/MRS IFU to map high CO/PAH ratio regions in NGC1566, obtaining H₂ rotational and rovibrational lines, shock tracers ([Fe II]), hydrogen recombination lines, and PAH features. We will distinguish whether PAH emission is suppressed or CO emissivity is elevated due to large-scale streaming motions, probing the relationship between PAHs, molecular gas, and galactic dynamics. We request total of six tiles to cover 3 CO ridges (in galaxy bar, arm and center) as well as their null-test regions, resulting in a total of 6 tiles and 49 hrs of total observing time.

Proposal 11148 - Targets - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	NGC-1566-leftarm	RA: 04 20 3.9675 (65.0165312d) Dec: -54 57 1.09 (-54.95030d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES				
	(2)	NGC-1566-BG-leftarm	RA: 04 20 47.3231 (65.1971796d) Dec: -54 56 57.71 (-54.94936d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES				
Fixed Targets	(5)	NGC-1566-barend	RA: 04 19 59.7378 (64.9989075d) Dec: -54 56 40.23 (-54.94451d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES				
	(6)	NGC-1566-BG-barend	RA: 04 19 18.8264 (64.8284433d) Dec: -55 02 10.06 (-55.03613d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000	
Fixed Targets	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES				

Proposal 11148 - Targets - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

(7)	NGC-1566-center	RA: 04 20 0.6615 (65.0027562d) Dec: -54 56 5.32 (-54.93481d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES			
(8)	NGC-1566-BG-center	RA: 04 20 15.4914 (65.0645475d) Dec: -54 48 28.85 (-54.80801d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES			
(9)	NGC-1566-leftarm-mrs	RA: 04 20 3.9675 (65.0165312d) Dec: -54 57 1.09 (-54.95030d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES			
(10)	NGC-1566-center-mrs	RA: 04 20 0.6615 (65.0027562d) Dec: -54 56 5.32 (-54.93481d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES			
(11)	NGC-1566-barend-mrs	RA: 04 19 59.7378 (64.9989075d) Dec: -54 56 40.23 (-54.94451d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES			

Proposal 11148 - Observation 5 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 5: MRS-leftarm					Wed Jul 29 17:00:13 GMT 2026
	Diagnostic Status: Warning					
	Observing Template: MIRI Medium Resolution Spectroscopy					
	Background Observations:[MRS-BG-leftarm (Obs 2)]					
Diagnostics	(MRS-leftarm (Obs 5)) Warning (Form): Imager Filter overlap.					
	(MRS-leftarm (Obs 5)) Warning (Form): Imager Filter overlap.					
	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.					
	(MRS-leftarm (Obs 5)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	
	(9)	NGC-1566-leftarm-mrs	RA: 04 20 3.9675 (65.0165312d)	Proper Motion RA: -1.251 mas/yr		
			Dec: -54 57 1.09 (-54.95030d)	Proper Motion Dec: 0.681 mas/yr		
			Equinox: J2000	Parallax: 1.385E-4"		
				Epoch of Position: 2000		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					
SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.						
Category=Galaxy						
Description=[Spiral arms, Spiral galaxies]						
Extended=YES						
Acquisition	#	Target				
	1	NONE				
Template	AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction	
		All MRS	YES	FULL	Allow Auto Reorder	
Mosaic	Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)
	2	1	10.0	10.0	0.0	0.0
Dithers	Tile Order					
	DEFAULT					
Dithers	#	Dither Type	Optimized For	Direction		
	1	4-Point	EXTENDED SOURCE	NEGATIVE		

Proposal 11148 - Observation 5 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

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	5	1	Dither 1	4	20	2264.433	271713.28
	1	SHORT(A)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.15
	1	SHORT(A)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.3
	2		IMAGER	F1500W	FASTR1	40	5	1	Dither 1	4	20	2264.433	271713.29
	2	MEDIUM(B)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.16
	2	MEDIUM(B)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.2
	3		IMAGER	F1800W	FASTR1	40	5	1	Dither 1	4	20	2264.433	271713.30
	3	LONG(C)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.17
	3	LONG(C)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.1
Special Requirements	Aperture PA Range 270.0 to 350.0 Degrees (V3 270.0 to 350.0)												
	Sequence Observations 2, 5, Non-interruptible V3 PA Offset 7 from 5 by 48 to 51 Degrees (Aperture -173.02835083 to -170.02835083)												

Proposal 11148 - Observation 4 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 4: MRS-center					Wed Jul 29 17:00:13 GMT 2026	
	Diagnostic Status: Warning						
	Observing Template: MIRI Medium Resolution Spectroscopy						
	Background Observations:[MRS-BG-center (Obs 3)]						
Diagnostics	(MRS-center (Obs 4)) Warning (Form): Imager Filter overlap.						
	(MRS-center (Obs 4)) Warning (Form): Imager Filter overlap.						
	(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.						
	(MRS-center (Obs 4)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous		
	(10)	NGC-1566-center-mrs	RA: 04 20 0.6615 (65.0027562d) Dec: -54 56 5.32 (-54.93481d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000			
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.						
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.						
	Category=Galaxy						
	Description=[Spiral arms, Spiral galaxies] Extended=YES						
Acquisition	#	Target					
	1	NONE					
Template	AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction		
		All MRS	YES	FULL	Allow Auto Reorder		
Mosaic	Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
	2	1	10.0	10.0	0.0	0.0	DEFAULT
Dithers	#	Dither Type	Optimized For	Direction			
	1	4-Point	EXTENDED SOURCE	NEGATIVE			

Proposal 11148 - Observation 4 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

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	5	1	Dither 1	4	20	2264.433	271713.28
	1	SHORT(A)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.15
	1	SHORT(A)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.3
	2		IMAGER	F1500W	FASTR1	40	5	1	Dither 1	4	20	2264.433	271713.29
	2	MEDIUM(B)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.16
	2	MEDIUM(B)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.2
	3		IMAGER	F1800W	FASTR1	40	5	1	Dither 1	4	20	2264.433	271713.30
	3	LONG(C)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.17
	3	LONG(C)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.1
Special Requirements	Aperture PA Range 240.0 to 290.0 Degrees (V3 240.0 to 290.0)												
	Sequence Observations 3, 4, Non-interruptible V3 PA Offset 8 from 4 by 46.8 to 50.1 Degrees (Aperture -174.22835083 to -170.92835083)												

Proposal 11148 - Observation 6 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 6: MRS-barend					Wed Jul 29 17:00:13 GMT 2026	
	Diagnostic Status: Warning						
	Observing Template: MIRI Medium Resolution Spectroscopy						
	Background Observations:[MRS-BG-barend (Obs 1)]						
Diagnostics	(MRS-barend (Obs 6)) Warning (Form): Imager Filter overlap.						
	(MRS-barend (Obs 6)) Warning (Form): Imager Filter overlap.						
	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.						
	(MRS-barend (Obs 6)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous		
	(11)	NGC-1566-barend-mrs	RA: 04 19 59.7378 (64.9989075d) Dec: -54 56 40.23 (-54.94451d) Equinox: J2000	Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000			
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.						
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.						
	Category=Galaxy						
	Description=[Spiral arms, Spiral galaxies] Extended=YES						
Acquisition	#	Target					
	1	NONE					
Template	AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction		
		All MRS	YES	FULL	Allow Auto Reorder		
Mosaic	Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
	1	2	10.0	10.0	0.0	0.0	DEFAULT
Dithers	#	Dither Type		Optimized For		Direction	
	1	4-Point		EXTENDED SOURCE		NEGATIVE	

Proposal 11148 - Observation 6 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

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	5	1	Dither 1	4	20	2264.433	271713.28
	1	SHORT(A)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.15
	1	SHORT(A)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.3
	2		IMAGER	F1500W	FASTR1	40	5	1	Dither 1	4	20	2264.433	271713.29
	2	MEDIUM(B)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.16
	2	MEDIUM(B)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.2
	3		IMAGER	F1800W	FASTR1	40	5	1	Dither 1	4	20	2264.433	271713.30
	3	LONG(C)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.17
	3	LONG(C)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992	271713.1
Special Requirements	Aperture PA Range 30.0 to 75.0 Degrees (V3 30.0 to 75.0)												
	Sequence Observations 1, 6, Non-interruptible V3 PA Offset 9 from 6 by -42.6 to -38 Degrees (Aperture 96.37164917 to 100.97164917)												

Proposal 11148 - Observation 1 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 1: MRS-BG-barend													Wed Jul 29 17:00:13 GMT 2026
	Diagnostic Status: Warning													
	Observing Template: MIRI Medium Resolution Spectroscopy													
	Background Observation For: [MRS-barend (Obs 6)]													
Diagnostics	(MRS-BG-barend (Obs 1)) Warning (Form): Imager Filter overlap.													
	(MRS-BG-barend (Obs 1)) Warning (Form): Imager Filter overlap.													
	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.													
Fixed Targets	#	Name	Target Coordinates					Targ. Coord. Corrections			Miscellaneous			
	(6)	NGC-1566-BG-barend	RA: 04 19 18.8264 (64.8284433d) Dec: -55 02 10.06 (-55.03613d) Equinox: J2000					Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000						
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.													
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.													
	Category=Galaxy													
	Description=[Spiral arms, Spiral galaxies] Extended=YES													
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					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	Optional ETC ID	
	1		IMAGER	F560W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	1	SHORT(A)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	1	SHORT(A)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	2		IMAGER	F1500W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	2	MEDIUM(B)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	2	MEDIUM(B)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	3		IMAGER	F1800W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	3	LONG(C)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	3	LONG(C)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		

Special Requirements	Sequence Observations 1, 6, Non-interruptible
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Proposal 11148 - Observation 3 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 3: MRS-BG-center												Wed Jul 29 17:00:13 GMT 2026	
	Diagnostic Status: Warning													
	Observing Template: MIRI Medium Resolution Spectroscopy													
	Background Observation For: [MRS-center (Obs 4)]													
Diagnostics	(MRS-BG-center (Obs 3)) Warning (Form): Imager Filter overlap.													
	(MRS-BG-center (Obs 3)) Warning (Form): Imager Filter overlap.													
	(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.													
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections				Miscellaneous			
	(8)	NGC-1566-BG-center	RA: 04 20 15.4914 (65.0645475d)				Proper Motion RA: -1.251 mas/yr							
			Dec: -54 48 28.85 (-54.80801d)				Proper Motion Dec: 0.681 mas/yr							
			Equinox: J2000				Parallax: 1.385E-4"							
							Epoch of Position: 2000							
		Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.												
Acquisition	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.													
	Category=Galaxy													
	Description=[Spiral arms, Spiral galaxies]													
	Extended=YES													
Template	#	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				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	Optional ETC ID	
	1		IMAGER	F560W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	1	SHORT(A)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	1	SHORT(A)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	2		IMAGER	F1500W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	2	MEDIUM(B)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	2	MEDIUM(B)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	3		IMAGER	F1800W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	3	LONG(C)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	3	LONG(C)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		

Special Requirements	Sequence Observations 3, 4, Non-interruptible
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Proposal 11148 - Observation 2 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 2: MRS-BG-leftarm													Wed Jul 29 17:00:13 GMT 2026
	Diagnostic Status: Warning													
	Observing Template: MIRI Medium Resolution Spectroscopy													
	Background Observation For: [MRS-leftarm (Obs 5)]													
Diagnostics	(MRS-BG-leftarm (Obs 2)) Warning (Form): Imager Filter overlap.													
	(MRS-BG-leftarm (Obs 2)) Warning (Form): Imager Filter overlap.													
	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.													
Fixed Targets	#	Name	Target Coordinates					Targ. Coord. Corrections			Miscellaneous			
	(2)	NGC-1566-BG-leftarm	RA: 04 20 47.3231 (65.1971796d)					Proper Motion RA: -1.251 mas/yr						
			Dec: -54 56 57.71 (-54.94936d)					Proper Motion Dec: 0.681 mas/yr						
			Equinox: J2000					Parallax: 1.385E-4"						
								Epoch of Position: 2000						
			Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.											
Acquisition	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.													
	Category=Galaxy													
	Description=[Spiral arms, Spiral galaxies]													
	Extended=YES													
	#	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					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	Optional ETC ID	
	1		IMAGER	F560W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	1	SHORT(A)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	1	SHORT(A)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	2		IMAGER	F1500W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	2	MEDIUM(B)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	2	MEDIUM(B)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	3		IMAGER	F1800W	FASTR1	40	5	1	Dither 1	4	20	2264.433		
	3	LONG(C)	MRSLONG		SLOWR1	25	1	1	Dither 1	4	4	2388.992		
	3	LONG(C)	MRSSHORT		SLOWR1	25	1	1	Dither 1	4	4	2388.992		

Special Requirements	Sequence Observations 2, 5, Non-interruptible
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Proposal 11148 - Observation 7 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 7: NIRSpec-leftarm											Wed Jul 29 17:00:13 GMT 2026
	Diagnostic Status: Warning											
	Observing Template: NIRSpec IFU Spectroscopy											
	Coordinated Parallel Template(s): NIRCam Imaging											
Diagnostics	(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		
	(1)	NGC-1566-leftarm	RA: 04 20 3.9675 (65.0165312d) Dec: -54 57 1.09 (-54.95030d) Equinox: J2000				Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000					
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.											
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.											
	Category=Galaxy Description=[Spiral arms, Spiral galaxies] Extended=YES											
Template	NIRSpec IFU Spectroscopy						NIRCam Imaging					
	TA Method: NONE						Module: ALL					
	HFF Readout Mode: false						Subarray: FULL					
Mosaic	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order	
	2	1	10.0		10.0		0.0		0.0		DEFAULT	
Dithers	#	Dither Type		Size		Starting Point		Number of Points		Points		
	1	4-POINT-DITHER										
Spectral Elements	NIRSpec IFU Spectroscopy	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
	1	G140M/F100LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.6
	2	G140M/F100LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.6
	3	G235M/F170LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.7
	4	G235M/F170LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.7
	5	G395M/F290LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.8
	6	G395M/F290LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.8

Proposal 11148 - Observation 7 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
	1	F090W	F277W	SHALLOW2	5	1	4	4	944.836	
	2	F090W	F277W	SHALLOW2	5	1	4	4	944.836	
	3	F090W	F300M	SHALLOW2	5	1	4	4	944.836	
	4	F090W	F335M	SHALLOW2	5	1	4	4	944.836	
	5	F090W	F360M	SHALLOW2	5	1	4	4	944.836	
	6	F090W	F360M	SHALLOW2	5	1	4	4	944.836	
Special Requirements	Aperture PA Range 88.97164917 to 168.97164917 Degrees (V3 310.0 to 30.0) No Parallel Attachments V3 PA Offset 7 from 5 by 48 to 51 Degrees (Aperture -173.02835083 to -170.02835083)									

Proposal 11148 - Observation 8 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 8: NIRSpec-center											Wed Jul 29 17:00:13 GMT 2026
	Diagnostic Status: Warning											
	Observing Template: NIRSpec IFU Spectroscopy											
	Coordinated Parallel Template(s): NIRCam Imaging											
Diagnostics	(Visit 8:1) Warning (Form): Data Excess over lower threshold											
	(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous		
	(7)	NGC-1566-center	RA: 04 20 0.6615 (65.0027562d) Dec: -54 56 5.32 (-54.93481d) Equinox: J2000				Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000					
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.											
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.											
	Category=Galaxy											
	Description=[Spiral arms, Spiral galaxies] Extended=YES											
Template	NIRSpec IFU Spectroscopy						NIRCam Imaging					
	TA Method: NONE						Module: ALL					
	HFF Readout Mode: false						Subarray: FULL					
Mosaic	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order	
	2	1	10.0		10.0		0.0		0.0		DEFAULT	
Dithers	#	Dither Type		Size		Starting Point		Number of Points		Points		
	1	4-POINT-DITHER										
Spectral Elements	NIRSpec IFU Spectroscopy	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
	1	G140M/F100LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.6
	2	G140M/F100LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.6
	3	G235M/F170LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.7
	4	G235M/F170LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.7
	5	G395M/F290LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.8
	6	G395M/F290LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.8

Proposal 11148 - Observation 8 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
	1	F090W	F277W	SHALLOW2	5	1	4	4	944.836	
	2	F090W	F277W	SHALLOW2	5	1	4	4	944.836	
	3	F090W	F300M	SHALLOW2	5	1	4	4	944.836	
	4	F090W	F335M	SHALLOW2	5	1	4	4	944.836	
	5	F090W	F360M	SHALLOW2	5	1	4	4	944.836	
	6	F090W	F360M	SHALLOW2	5	1	4	4	944.836	
Special Requirements	Aperture PA Range 68.97164917 to 108.97164917 Degrees (V3 290.0 to 330.0) No Parallel Attachments									
	V3 PA Offset 8 from 4 by 46.8 to 50.1 Degrees (Aperture -174.22835083 to -170.92835083)									

Proposal 11148 - Observation 9 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Observation	Proposal 11148, Observation 9: NIRSpec-barend											Wed Jul 29 17:00:13 GMT 2026
	Diagnostic Status: Warning											
	Observing Template: NIRSpec IFU Spectroscopy											
	Coordinated Parallel Template(s): NIRCam Imaging											
Diagnostics	(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		
	(5)	NGC-1566-barend	RA: 04 19 59.7378 (64.9989075d) Dec: -54 56 40.23 (-54.94451d) Equinox: J2000				Proper Motion RA: -1.251 mas/yr Proper Motion Dec: 0.681 mas/yr Parallax: 1.385E-4" Epoch of Position: 2000					
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.											
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.											
	Category=Galaxy											
	Description=[Spiral arms, Spiral galaxies] Extended=YES											
Template	NIRSpec IFU Spectroscopy						NIRCam Imaging					
	TA Method: NONE						Module: ALL					
	HFF Readout Mode: false						Subarray: FULL					
Mosaic	Rows	Columns	Row Overlap %		Column Overlap %		Row shift (deg)		Column shift (deg)		Tile Order	
	2	1	10.0		10.0		0.0		0.0		DEFAULT	
Dithers	#	Dither Type		Size		Starting Point		Number of Points		Points		
	1	4-POINT-DITHER										
Spectral Elements	NIRSpec IFU Spectroscopy	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
	1	G140M/F100LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.6
	2	G140M/F100LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.6
	3	G235M/F170LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.7
	4	G235M/F170LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.7
	5	G395M/F290LP	NRSIRS2	4	1	false	true	NONE	4	4	1225.467	271713.8
	6	G395M/F290LP	NRSIRS2	4	1	true	true	NONE	4	4	1225.467	271713.8

Proposal 11148 - Observation 9 - Where the PAH-CO Relation Breaks: JWST Spectroscopy of High CO/PAH Ridges in NGC 1566

Spectral Elements	NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
	1	F090W	F277W	SHALLOW2	5	1	4	4	944.836	
	2	F090W	F277W	SHALLOW2	5	1	4	4	944.836	
	3	F090W	F300M	SHALLOW2	5	1	4	4	944.836	
	4	F090W	F335M	SHALLOW2	5	1	4	4	944.836	
	5	F090W	F360M	SHALLOW2	5	1	4	4	944.836	
	6	F090W	F360M	SHALLOW2	5	1	4	4	944.836	
Special Requirements	Aperture PA Range 138.97164917 to 163.97164917 Degrees (V3 0.0 to 25.0) No Parallel Attachments									
	V3 PA Offset 9 from 6 by -42.6 to -38 Degrees (Aperture 96.37164917 to 100.97164917)									