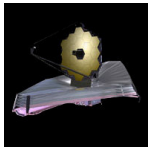

4901 - Zooming in on the Dust in the R Aqr Symbiotic System: Effects of the Powerful Outburst and Jet resulting from the Recent WD Periastron Passage

Cycle: 3, Proposal Category: GO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Coronagraphic Imaging				
	1	F1140C Roll 1	MIRI Coronagraphic Imaging	(4) R-Aqr-Offset-Source
	2	F1140C Roll 2	MIRI Coronagraphic Imaging	(4) R-Aqr-Offset-Source
	3	F1140C REF	MIRI Coronagraphic Imaging	(5) Chi-Aqr-Offset-Source
	4	F1550C REF	MIRI Coronagraphic Imaging	(5) Chi-Aqr-Offset-Source
	5	F1550C Roll 1	MIRI Coronagraphic Imaging	(4) R-Aqr-Offset-Source
	6	F1550C Roll 2	MIRI Coronagraphic Imaging	(4) R-Aqr-Offset-Source
	7	F1550C Target BG	MIRI Coronagraphic Imaging	(3) R-AQR-BACKGROUND
	9	F1550C REF BG	MIRI Coronagraphic Imaging	(6) CHI-AQR-BACKGROUND
	8	F1140C Target BG	MIRI Coronagraphic Imaging	(3) R-AQR-BACKGROUND
	10	F1140C REF BG	MIRI Coronagraphic Imaging	(6) CHI-AQR-BACKGROUND

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Pre-imaging				
	11	Pre-Imaging	MIRI Imaging	(7) R-Aqr-Offset-Pre-Imaging
	12	Pre-Imaging REF	MIRI Imaging	(8) Chi-Aqr-Offset-Pre-Imaging

ABSTRACT

We propose JWST/MIRI coronagraphic imaging of the complex circumbinary dust environment of R Aqr, a nearby wind accreting and jet producing symbiotic binary system (WD + Mira-type star). The unprecedented sensitivity of the MIRI coronagraph imaging will provide a unique opportunity to map directly the R Aqr circumbinary dust, including in the vicinity of the binary -- as close as about 100 AU (~0.5"), and in the extended (outer jet) region, reaching up to a distance of over 3000 AU (15").

Our goal is to determine - for the first time - the spatial/spectral distribution and characteristics of the faint silicate dust emission in this extremely active interacting system, and including along the jet and in the orbital plane. Our aim is to carry out a timely high-angular resolution (0.4") study of the distribution and characteristics of the dust and especially of the effects of the new outburst and jet (observed since 2019 in X-ray, UV-optical, radio and near-IR) - resulting from the enhanced accretion during the recent WD periastron passage. These phenomena are observable in R Aqr only about twice a century, with the next periastron expected in about 40 years.

We will use the 4QPM masks to block the bright central source, in order to detect fainter emission as close as ~0.5" to the binary. We will observe an unresolved reference source to obtain a good empirical PSF. By zooming in on the close circumbinary region, where the jet/ejecta plow through (and interact with) the newly formed and pre-existing dust, we will gain unique insights into the R Aqr symbiotic system, and the precursor environments of potential progenitors of PN and of a fraction of SN Ia.

OBSERVING DESCRIPTION

We request JWST/MIRI coronagraphic imaging of a bright symbiotic system R Aqr and its dusty environment with the 4QPM/F1140C and 4QPM/F1550C setups, in order to detect extended circumstellar emission as close as 0.5" (100 AU) up to about 17" (3400 AU) radius around the central source.

The flux density of the science target is ~800 Jy in the N band, and is concentrated in close proximity of the unresolved binary at the center of the system. The extended structures we are interested in are located from about 0.5" and as far as about 17" arcsec radius (diagonally) from the center, outside the IWA of the two masks. We require a 5 sigma sensitivity of ~15 mJy to observe these extended structures created by the interactions of a

powerful jet with circumstellar dust. Based on the JWST ETC the required sensitivity can be reached with a total integration of ~11 min in both filters. This sensitivity can be achieved with the FAST readout pattern with 5 groups/int, 50 integrations/exp and a 9 point small dither pattern. With this setup, saturation will be limited to 11 pixels in the 4QPM/F1140C (and no saturation in 4QPM/F1550C).

To limit PSF subtraction artifacts we require two rolls, with PA constrained between 10 and 14 degrees, and background observations with the same configuration as one dither of the source (with repeat in the 3rd quadrant). For PSF reference we chose a star with comparable flux (~150 Jy in the N band) and color of the science target. We will observe in a single roll in both bands, with a configuration of FAST readout, 25 groups/int, 60 integrations/exp and with the same 9 point small dither pattern (will produce no saturation). The total integration, per filter, on the reference is ~1 hour, in order to obtain a comparable SNR as the science target. The reference will also require a matching background acquisition (also with repeat in the 3rd quadrant).

According to the ETC, both science target and reference saturate in target acquisition, even with the shortest integration settings and the FND filter. Conversations with the JWST help desk suggested that the modality of target acquisition will need to be changed from the APT default (acquisition on source) before execution. We have identified two Gaia DR3 red stars near (< 1 arcmin) R Aqr and the PSF reference, which we will use for target acquisition. The coronagraphic masks are then centered on R Aqr and the PSF reference by specifying an offset from the respective Gaia target acquisition stars. Note that the actual value of the offset will need to be updated once the observations are scheduled, to take into account precession, proper motion, parallax and roll angle to be calculated at the time of the observations. The R Aqr offset will also be updated according to precise measurement of the position of the Mira star in the system, using recent ALMA and VLBI SiO observations, to improve upon the Gaia DR3 astrometry.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	R-AQR-BACKGROUND	RA: 23 43 49.5000 (355.9562500d) Dec: -15 17 4.40 (-15.28456d) Equinox: J2000		
Comments: *Category=Calibration* *Description=[Telescope/sky background]*				
(4)	R-Aqr-Offset-Source	RA: 23 43 46.9449 (355.9456037d) Dec: -15 16 28.48 (-15.27458d) Equinox: J2000	Proper Motion RA: -2.709 mas/yr Proper Motion Dec: -4.081 mas/yr Parallax: 0" Epoch of Position: 2016	
Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.2, bp-rp = 0.9, G8V *Category=Calibration* *Description=[Astrometric]* *Extended=NO*				
(5)	Chi-Aqr-Offset-Source	RA: 23 16 50.5686 (349.2107025d) Dec: -07 43 6.81 (-7.71856d) Equinox: J2000	Proper Motion RA: 2.7933 mas/yr Proper Motion Dec: -11.0657 mas/yr Parallax: 0.00094" Epoch of Position: 2016	
Comments: Offset star for PSF Standard chi Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.95 *Category=Calibration* *Description=[Astrometric]* *Extended=NO*				
(6)	CHI-AQR-BACKGROUND	RA: 23 43 49.5000 (355.9562500d) Dec: -15 17 4.40 (-15.28456d) Equinox: J2000		
Comments: *Category=Calibration* *Description=[Telescope/sky background]*				
(7)	R-Aqr-Offset-Pre-Imaging	RA: 23 43 47.9708 (355.9498783d) Dec: -15 17 2.21 (-15.28395d) Equinox: J2000	Proper Motion RA: 20.269 mas/yr Proper Motion Dec: -11.813 mas/yr Parallax: 0.0037" Epoch of Position: 2016	
Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 19.40 *Category=Calibration* *Description=[Astrometric]* *Extended=NO*				
(8)	Chi-Aqr-Offset-Pre-Imaging	RA: 23 16 50.5686 (349.2107025d) Dec: -07 43 6.81 (-7.71856d) Equinox: J2000	Proper Motion RA: 2.7933 mas/yr Proper Motion Dec: -11.0657 mas/yr Parallax: 0.00094" Epoch of Position: 2016	
Comments: Offset star for PSF Standard chi Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.95 *Category=Calibration* *Description=[Astrometric]* *Extended=NO*				

Observation

Proposal 4901, Observation 1: F1140C Roll 1 Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observations:[F1140C Roll 2 (Obs 2), F1550C Roll 1 (Obs 5), F1550C Roll 2 (Obs 6), F1550C Target BG (Obs 7), F1140C Target BG (Obs 8)]

Diagnostics

(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(F1140C Roll 1 (Obs 1)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	R-Aqr-Offset-Source	RA: 23 43 46.9449 (355.9456037d) Dec: -15 16 28.48 (-15.27458d) Equinox: J2000	Proper Motion RA: -2.709 mas/yr Proper Motion Dec: -4.081 mas/yr Parallax: 0" Epoch of Position: 2016	

Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.2, bp-rp = 0.9, G8V
Category=Calibration
Description=[Astrometric]
Extended=NO

Acquisition

#	Target	Filter	Quadrant	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	1	FASTGRPAVG	22	1	1	21.092	174553

Template

Repeat observation
NO

Dithers

#	Dither Type
1	NONE

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1140C	MASK1140	4QPM	F1140C	FASTR1	5	450	1	1	450	646.896	174553

PSF References	F1140C REF (Obs 3) (PSF Reference; Filters [F1140C]) Additional Justification: false
Special Requirements	After Date 15-OCT-2025:00:00:00 Aperture PA Range 51.83544897 to 73.83544897 Degrees (V3 47.0 to 69.0) Offset -46.8058704 arcsec, 22.7186692 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible V3 PA Offset 2 from 1 by 10 to 10 Degrees (Same offsets in Aperture)

Observation

Proposal 4901, Observation 2: F1140C Roll 2 Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observations:[F1140C Roll 1 (Obs 1), F1550C Roll 1 (Obs 5), F1550C Roll 2 (Obs 6), F1550C Target BG (Obs 7), F1140C Target BG (Obs 8)]

Diagnostics

(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(F1140C Roll 2 (Obs 2)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	R-Aqr-Offset-Source	RA: 23 43 46.9449 (355.9456037d) Dec: -15 16 28.48 (-15.27458d) Equinox: J2000	Proper Motion RA: -2.709 mas/yr Proper Motion Dec: -4.081 mas/yr Parallax: 0" Epoch of Position: 2016	

Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.2, bp-rp = 0.9, G8V
Category=Calibration
Description=[Astrometric]
Extended=NO

Acquisition

#	Target	Filter	Quadrant	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	1	FASTGRPAVG	22	1	1	21.092	174553

Template

Repeat observation
NO

Dithers

#	Dither Type
1	NONE

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1140C	MASK1140	4QPM	F1140C	FASTR1	5	450	1	1	450	646.896	174553

PSF References	F1140C REF (Obs 3) (PSF Reference; Filters [F1140C]) Additional Justification: false
Special Requirements	Offset -42.149729 arcsec, 30.5012631 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible V3 PA Offset 2 from 1 by 10 to 10 Degrees (Same offsets in Aperture)

Observation

Proposal 4901, Observation 3: F1140C REF Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observations:[F1550C REF (Obs 4), F1550C REF BG (Obs 9), F1140C REF BG (Obs 10)]

Diagnostics

(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	Chi-Aqr-Offset-Source	RA: 23 16 50.5686 (349.2107025d) Dec: -07 43 6.81 (-7.71856d) Equinox: J2000	Proper Motion RA: 2.7933 mas/yr Proper Motion Dec: -11.0657 mas/yr Parallax: 0.00094" Epoch of Position: 2016	

Comments: Offset star for PSF Standard chi Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.95
Category=Calibration
Description=[Astrometric]
Extended=NO

Acquisition

#	Target	Filter	Quadrant	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	1	FASTGRPAVG	22	1	1	21.092	174553

Template

Repeat observation
NO

Dithers

#	Dither Type
1	9-POINT-SMALL-GRID

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1140C	MASK1140	4QPM	F1140C	FASTR1	25	60	1	9	540	3362.95	174553

PSF References	PSF Reference: true
Special Requirements	Offset -29.1468409 arcsec, -2.6896063 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 4901, Observation 4: F1550C REF

Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observations:[F1140C REF (Obs 3), F1550C REF BG (Obs 9), F1140C REF BG (Obs 10)]

Diagnostics

(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	Chi-Aqr-Offset-Source	RA: 23 16 50.5686 (349.2107025d) Dec: -07 43 6.81 (-7.71856d) Equinox: J2000	Proper Motion RA: 2.7933 mas/yr Proper Motion Dec: -11.0657 mas/yr Parallax: 0.00094" Epoch of Position: 2016	

Comments: Offset star for PSF Standard chi Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.95
Category=Calibration
Description=[Astrometric]
Extended=NO

Acquisition

#	Target	Filter	Quadrant	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	1	FASTGRPAVG	22	1	1	21.092	174553

Template

Repeat observation
NO

Dithers

#	Dither Type
1	5-POINT-SMALL-GRID

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1550C	MASK1550	4QPM	F1550C	FASTR1	25	75	1	5	375	2335.682	174553

PSF References	PSF Reference: true
Special Requirements	Offset -29.1468341 arcsec, -2.6896104 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 4901, Observation 5: F1550C Roll 1 Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observations:[F1140C Roll 1 (Obs 1), F1140C Roll 2 (Obs 2), F1550C Roll 2 (Obs 6), F1550C Target BG (Obs 7), F1140C Target BG (Obs 8)]

Diagnostics

(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(F1550C Roll 1 (Obs 5)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	R-Aqr-Offset-Source	RA: 23 43 46.9449 (355.9456037d)	Proper Motion RA: -2.709 mas/yr	
		Dec: -15 16 28.48 (-15.27458d)	Proper Motion Dec: -4.081 mas/yr	
		Equinox: J2000	Parallax: 0"	
			Epoch of Position: 2016	

Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.2, bp-rp = 0.9, G8V
Category=Calibration
Description=[Astrometric]
Extended=NO

Acquisition

#	Target	Filter	Quadrant	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	1	FASTGRPAVG	22	1	1	21.092	174553

Template

Repeat observation
NO

Dithers

#	Dither Type
1	NONE

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1550C	MASK1550	4QPM	F1550C	FASTR1	15	180	1	1	180	690.039	174553

PSF References	F1550C REF (Obs 4) (PSF Reference; Filters [F1550C]) Additional Justification: false
Special Requirements	Aperture PA Range 51.83544897 to 73.83544897 Degrees (V3 47.0 to 69.0) Offset -46.8058794 arcsec, 22.7186802 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible V3 PA Offset 6 from 5 by 10 to 10 Degrees (Same offsets in Aperture)

Observation

Proposal 4901, Observation 6: F1550C Roll 2 Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observations:[F1140C Roll 1 (Obs 1), F1140C Roll 2 (Obs 2), F1550C Roll 1 (Obs 5), F1550C Target BG (Obs 7), F1140C Target BG (Obs 8)]

Diagnostics

(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(F1550C Roll 2 (Obs 6)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	R-Aqr-Offset-Source	RA: 23 43 46.9449 (355.9456037d)	Proper Motion RA: -2.709 mas/yr	
		Dec: -15 16 28.48 (-15.27458d)	Proper Motion Dec: -4.081 mas/yr	
		Equinox: J2000	Parallax: 0"	
			Epoch of Position: 2016	

Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.2, bp-rp = 0.9, G8V
Category=Calibration
Description=[Astrometric]
Extended=NO

Acquisition

#	Target	Filter	Quadrant	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	1	FASTGRPAVG	22	1	1	21.092	174553

Template

Repeat observation
NO

Dithers

#	Dither Type
1	NONE

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1550C	MASK1550	4QPM	F1550C	FASTR1	15	180	1	1	180	690.039	174553

PSF References	F1550C REF (Obs 4) (PSF Reference; Filters [F1550C]) Additional Justification: false
Special Requirements	Offset -42.1497354 arcsec, 30.5012766 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible V3 PA Offset 6 from 5 by 10 to 10 Degrees (Same offsets in Aperture)

Observation

Proposal 4901, Observation 7: F1550C Target BG Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observation For: [F1140C Roll 1 (Obs 1), F1140C Roll 2 (Obs 2), F1550C Roll 1 (Obs 5), F1550C Roll 2 (Obs 6)]

Diagnostics

(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	R-AQR-BACKGROUND	RA: 23 43 49.5000 (355.9562500d) Dec: -15 17 4.40 (-15.28456d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Repeat observation	Background Quadrant
FND	YES	1

Dithers

#	Dither Type
1	BACKGROUND

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1550C	MASK1550	4QPM	F1550C	FASTR1	15	20	1	2	40	152.916	

PSF References

Additional Justification: false

Special Requirements	
	No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 4901, Observation 9: F1550C REF BG Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observation For: [F1140C REF (Obs 3), F1550C REF (Obs 4)]

Diagnostics

(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	CHI-AQR-BACKGROUND	RA: 23 43 49.5000 (355.9562500d) Dec: -15 17 4.40 (-15.28456d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Repeat observation	Background Quadrant
FND	YES	1

Dithers

#	Dither Type
1	BACKGROUND

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1550C	MASK1550	4QPM	F1550C	FASTR1	25	75	1	2	150	934.273	

PSF References

Additional Justification: false

Special Requirements	
	No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 4901, Observation 8: F1140C Target BG Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observation For: [F1140C Roll 1 (Obs 1), F1140C Roll 2 (Obs 2), F1550C Roll 1 (Obs 5), F1550C Roll 2 (Obs 6)]

Diagnostics

(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	R-AQR-BACKGROUND	RA: 23 43 49.5000 (355.9562500d) Dec: -15 17 4.40 (-15.28456d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Repeat observation	Background Quadrant
FND	YES	1

Dithers

#	Dither Type
1	BACKGROUND

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1140C	MASK1140	4QPM	F1140C	FASTR1	5	50	1	2	100	143.329	

PSF References

Additional Justification: false

Special Requirements	
	No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 4901, Observation 10: F1140C REF BG Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Coronagraphic Imaging

Background Observation For: [F1140C REF (Obs 3), F1550C REF (Obs 4)]

Diagnostics

(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(6)	CHI-AQR-BACKGROUND	RA: 23 43 49.5000 (355.9562500d) Dec: -15 17 4.40 (-15.28456d) Equinox: J2000		

Comments:
Category=Calibration
Description=[Telescope/sky background]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Repeat observation	Background Quadrant
FND	YES	1

Dithers

#	Dither Type
1	BACKGROUND

Spectral Elements

#	Coron Mask/Filter	Subarray	Mask	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	4QPM/F1140C	MASK1140	4QPM	F1140C	FASTR1	25	60	1	2	120	747.322	

PSF References

Additional Justification: false

Special Requirements	
	No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Observation

Proposal 4901, Observation 11: Pre-Imaging

Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(7)	R-Aqr-Offset-Pre-Imaging	RA: 23 43 47.9708 (355.9498783d) Dec: -15 17 2.21 (-15.28395d) Equinox: J2000	Proper Motion RA: 20.269 mas/yr Proper Motion Dec: -11.813 mas/yr Parallax: 0.0037" Epoch of Position: 2016	

Comments: Offset star for R Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 19.40
Category=Calibration
Description=[Astrometric]
Extended=NO

Template

Subarray
BRIGHTSKY

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	2-Point								DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F560W	FASTR1	35	1	1	Dither 1	2	2	60.57	

Special Requirements

Before Date 01-MAY-2025:00:00:00
Aperture PA Range 59.83544897 to 64.83544897 Degrees (V3 55.0 to 60.0)
Offset 6.0 arcsec, -9.0 arcsec

Sequence Observations 12, 11 (reordered), Non-interruptible

Observation

Proposal 4901, Observation 12: Pre-Imaging REF

Wed May 07 00:00:09 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(8)	Chi-Aqr-Offset-Pre-Imaging	RA: 23 16 50.5686 (349.2107025d) Dec: -07 43 6.81 (-7.71856d) Equinox: J2000	Proper Motion RA: 2.7933 mas/yr Proper Motion Dec: -11.0657 mas/yr Parallax: 0.00094" Epoch of Position: 2016	

Comments: Offset star for PSF Standard chi Aqr. High quality coordinates, proper motion and parallax from Gaia DR3. G = 18.95
Category=Calibration
Description=[Astrometric]
Extended=NO

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	2-Point								DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F560W	FASTR1	12	1	1	Dither 1	2	2	66.601	

Special Requirements

Before Date 01-MAY-2025:00:00:00
Aperture PA Range 67.83544897 to 72.83544897 Degrees (V3 63.0 to 68.0)
Offset -10.0 arcsec, 20.0 arcsec

Sequence Observations 12, 11 (reordered), Non-interruptible