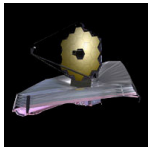

2627 - Demonstrating a Model-based Coronagraphic Phase Retrieval for Processing of High-Contrast-Imaging Observations with the James Webb Space Telescope

Cycle: 1, Proposal Category: GO

INVESTIGATORS

Name	*Institution*
Dr. Marie Ygouf (PI)	**Jet Propulsion Laboratory**
Dr. Charles A. Beichman (CoI)	Jet Propulsion Laboratory
Dr. Graca Rocha (CoI)	Jet Propulsion Laboratory
Prof. Michael R. Meyer (CoI)	University of Michigan
Jarron Leisenring (CoI)	University of Arizona
Dr. Laurent Pueyo (CoI)	Space Telescope Science Institute
Dr. Marshall Perrin (CoI)	Space Telescope Science Institute
Dr. Taichi Uyama (CoI)	California State University - Northridge
Dr. Matthew De Furio (CoI)	University of Texas at Austin
Julien Girard (CoI)	Space Telescope Science Institute
Dr. Jeffrey Jewell (CoI)	Jet Propulsion Laboratory
Dr. Joseph Jacob Green (CoI)	Jet Propulsion Laboratory
Dr. Alexandra Greenbaum (CoI)	California Institute of Technology
Dr. Gael Roudier (CoI)	Jet Propulsion Laboratory

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Wavefront Sensing on Reference Star				
	1	NIRCam Fine Phasing - NRCA3-FP1 - Bright Ref	WFSC NIRCam Fine Phasing	(2) BD+05-2724-BRIGHT-REF-KMAG7
NIRCam Imaging Calibrations on Faint Reference Star				

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
	2	NIRCam Imaging Faint Ref	NIRCam Engineering Imaging	(3) J1305+0421-FAINT-REF-KMAG13
NIRCam Coronagraphic Observations				
	3	NIRCam Coron. Faint Ref 5 arcsec offset Fro m Mask	NIRCam Coronagraphic Imaging	(3) J1305+0421-FAINT-REF-KMAG13
	4	NIRCam Coron. Bright Ref	NIRCam Coronagraphic Imaging	(2) BD+05-2724-BRIGHT-REF-KMAG7
	5	NIRCam Coron. Target Roll 1	NIRCam Coronagraphic Imaging	(1) HD-114174-TARGET-STAR-KMAG5
	6	NIRCam Coron. Target Roll 2	NIRCam Coronagraphic Imaging	(1) HD-114174-TARGET-STAR-KMAG5
Wavefront Sensing on Reference Star - REPEAT WOPR 89043				
	7	NIRCam Fine Phasing - NRCA3-FP1 - Bright R ef	WFSC NIRCam Fine Phasing	(2) BD+05-2724-BRIGHT-REF-KMAG7
NIRCam Imaging Calibrations on Faint Reference Star - REPEAT WOPR 89043				
	8	NIRCam Imaging Faint Ref	NIRCam Engineering Imaging	(3) J1305+0421-FAINT-REF-KMAG13
NIRCam Coronagraphic Observations - REPEAT WOPR 89043				
	9	NIRCam Coron. Faint Ref 5 arcsec offset Fro m Mask	NIRCam Coronagraphic Imaging	(3) J1305+0421-FAINT-REF-KMAG13
	10	NIRCam Coron. Bright Ref	NIRCam Coronagraphic Imaging	(2) BD+05-2724-BRIGHT-REF-KMAG7
	11	NIRCam Coron. Target Roll 1	NIRCam Coronagraphic Imaging	(1) HD-114174-TARGET-STAR-KMAG5
	12	NIRCam Coron. Target Roll 2	NIRCam Coronagraphic Imaging	(1) HD-114174-TARGET-STAR-KMAG5

ABSTRACT

With its sensitivity in the near- and mid-infrared, the James Webb Space Telescope (JWST) will further push the limits of high-contrast imaging (HCI) by probing the population of young exoplanets at wide separations down to Saturn masses. Because stellar light residuals dominate over the background in regions up to 2” from the star, some crucial scientific discoveries may be missed, preventing their follow-up during the short life-span of this exceptional observatory. The current recommended strategy for JWST coronagraphic imaging involves contemporaneous calibration

exposures of a reference star. Those observations, accounting at least for half the time spent observing the science target or more, are subject to wavefront drifts that prevent the subtraction of stellar light down to the photon noise level. There is a high need for an alternative strategy that would leverage our knowledge of the observatory to further improve the calibration of stellar light residuals while avoiding the need for time-consuming calibration exposures. The proposed observations will be used to test and validate a model-based phase retrieval algorithm that estimates the instrumental aberrations directly from HCI observations. Data from wavefront sensing operations will help to constrain the phase retrieval. Angular differential strategy and dual-band imaging will be used to disentangle the astrophysical signal from the residual starlight. Calibration data will be requested in the form of non-coronagraphic and coronagraphic NIRCam images just before and after WFS. The findings will be used to draw recommendations for coronagraphic imaging observing strategies in the subsequent JWST cycles.

OBSERVING DESCRIPTION

We contacted the NIRCam helpdesk and this SMALL GO Calibration proposal was approved for submission (see ticket INC0162672).

As described in the Technical Justification, we have a detailed layout of the observations and have thought through the particular challenges posed by those observations. If accepted, we will work closely with the Space Telescpe Science Institute to make sure those observations are performed in the most efficient way and to ensure the validation of our technique of post-processing.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	HD-114174-TARGET-STAR-KMAG5	RA: 13 08 51.1117 (197.2129654d) Dec: +05 12 15.52 (5.20431d) Equinox: J2000	Proper Motion RA: 0.005714557831237684 sec of time/yr Proper Motion Dec: -0.6802579999202862 arcsec/yr Epoch of Position: 2015.5	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *http://simbad.harvard.edu/simbad/sim-basic?Ident=HD+114174* *Star with a white dwarf companion at ~0.5" with delta_L~10, ideal to test Coronagraphic suppression of 1e-4 or better at or inside the IWA with NIRCam* *G3IV+D type star* *Kmag=5.202* *Category=Star* *Description=[G stars]* *Extended=NO*			
(2)	BD+05-2724-BRIGHT-REF-KMAG7	RA: 13 12 34.8840 (198.1453500d) Dec: +04 18 40.85 (4.31135d) Equinox: J2000	Proper Motion RA: 9.22610745281892E-5 sec of time/yr Proper Motion Dec: 3.8700000000000003E-4 arcsec/yr Epoch of Position: 2015.5	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Kmag 7.16* *Category=Star* *Description=[G stars]*			
(3)	J1305+0421-FAINT-REF-KMAG13	RA: 13 05 24.6565 (196.3527354d) Dec: +04 21 5.09 (4.35141d) Equinox: J2000	Proper Motion RA: -0.01642528000257835 sec of time/yr Proper Motion Dec: -0.09586799992575834 arcsec/yr Epoch of Position: 2015.5	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Category=Star* *Description=[G stars]*			

Observation

Proposal 2627, Observation 1: NIRCam Fine Phasing - NRCA3-FP1 - Bright Ref Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: WFSC NIRCam Fine Phasing

Diagnostics

(NIRCam Fine Phasing - NRCA3-FP1 - Bright Ref (Obs 1)) Warning (Form): The selected fiducial point is not a standard option for the instrument.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	BD+05-2724-BRIGHT-REF-KMAG7	RA: 13 12 34.8840 (198.1453500d) Dec: +04 18 40.85 (4.31135d) Equinox: J2000	Proper Motion RA: 9.22610745281892E-5 sec of time/yr Proper Motion Dec: 3.8700000000000003E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Kmag 7.16
Category=Star
Description=[G stars]

Template

Module	Sensing type	Diversity	Expected No. of WFC Commands
A	Fine Phasing	PM8	170

Dithers

#	Primary Dither Type
1	WFSC

Spectral Elements

#	Short Pupil	Short Filter	Long Pupil	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	WLM8	F212N	CLEAR	F356W	RAPID	4	4	8	407.997	185657.4
2	WLP8	F212N	CLEAR	F356W	RAPID	4	4	8	407.997	

Special Requirements

No Parallel Attachments
Wavefront Sensing SENSING_ONLY
Fiducial Point Override NRCA3_FP1
DMS Priority ELEVATED

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

Observation

Proposal 2627, Observation 2: NIRCam Imaging Faint Ref

Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Engineering Imaging

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	J1305+0421-FAINT-REF-KMAG13	RA: 13 05 24.6565 (196.3527354d) Dec: +04 21 5.09 (4.35141d) Equinox: J2000	Proper Motion RA: -0.01642528000257835 sec of time/yr Proper Motion Dec: -0.09586799992575834 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[G stars]

Template

Module	Subarray
A	FULL

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	NONE		SMALL-GRID-DITHER		5-POINT-BOX

Spectral Elements

#	Short Pupil	Long Pupil	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	CLEAR	CLEAR	F212N	F460M	RAPID	5	2	10	5	590.522	185696.7
2	MASKRND	MASKRND	F212N	F460M	SHALLOW4	4	1	5	5	1019.993	185696.9

Special Requirements

Fiducial Point Override NRCA3_FP1

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

Observation

Proposal 2627, Observation 3: NIRCam Coron. Faint Ref 5 arcsec offset From Mask Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Error

Observing Template: NIRCam Coronagraphic Imaging

Diagnostics

(NIRCam Coron. Faint Ref 5 arcsec offset From Mask (Obs 3)) Error (Form): Permission has not been granted for this program to use Special Requirement 'No Parallel Attachments'.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	J1305+0421-FAINT-REF-KMAG13	RA: 13 05 24.6565 (196.3527354d) Dec: +04 21 5.09 (4.35141d) Equinox: J2000	Proper Motion RA: -0.01642528000257835 sec of time/yr Proper Motion Dec: -0.09586799992575834 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[G stars]

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	3 J1305+0421-FAINT-REF-KMAG13	F210M	FAINT	DEEP8	9	1	1	30.763	185657.1

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	false	FULL	5-POINT-BOX

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	MEDIUM8	4	1	5	5	2039.986	185696.11
2	F187N	F460M	MEDIUM8	4	1	5	5	2039.986	185696.13

PSF References

PSF Reference: true

Special Requirements	Offset 5.0 arcsec, 0.0 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, Non-interruptible

Observation

Proposal 2627, Observation 4: NIRCam Coron. Bright Ref

Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Error

Observing Template: NIRCam Coronagraphic Imaging

Diagnostics

(NIRCam Coron. Bright Ref (Obs 4)) Error (Form): Permission has not been granted for this program to use Special Requirement 'No Parallel Attachments'.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	BD+05-2724-BRIGHT-REF-KMAG7	RA: 13 12 34.8840 (198.1453500d) Dec: +04 18 40.85 (4.31135d) Equinox: J2000	Proper Motion RA: 9.22610745281892E-5 sec of time/yr Proper Motion Dec: 3.8700000000000003E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Kmag 7.16
Category=Star
Description=[G stars]

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	2 BD+05-2724-BRIGHT-REF-KMAG7	F210M	BRIGHT (ND Square)	DEEP8	17	1	1	59.883	185657.2

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	false	SUB640A210R	9-POINT-CIRCLE

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	SHALLOW4	4	5	9	45	3768.178	185696.15
2	F187N	F460M	SHALLOW4	6	3	9	27	3391.083	185696.17

PSF References

PSF Reference: true

Special Requirements	
	Offset 0.005 arcsec, -0.003 arcsec No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, Non-interruptible

Observation

Proposal 2627, Observation 5: NIRCam Coron. Target Roll 1 Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Coronagraphic Imaging

Diagnostics

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

(NIRCam Coron. Target 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
(1)	HD-114174-TARGET-STAR-KMAG5	RA: 13 08 51.1117 (197.2129654d) Dec: +05 12 15.52 (5.20431d) Equinox: J2000	Proper Motion RA: 0.005714557831237684 sec of time/yr Proper Motion Dec: -0.6802579999202862 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

http://simbad.harvard.edu/simbad/sim-basic?Ident=HD+114174

Star with a white dwarf companion at ~0.5" with delta_L~10, ideal to test Coronagraphic suppression of 1e-4 or better at or inside the IWA with NIRCam

G3IV+D type star
Kmag=5.202
Category=Star
Description=[G stars]
Extended=NO

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 HD-114174-TARGET-STAR-KMAG5	F210M	BRIGHT (ND Square)	SHALLOW4	17	1	1	15.475	185657.3

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	true	SUB640A210R	NONE

Confirmation

#	Conf. Readout Pattern	Conf. Groups/Int	Conf. Integrations/Exp	Conf. Total Integrations	Conf. Total Exposure Time	Conf. Total Dithers
1	RAPID	2	1	1	21.474	1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	BRIGHT2	6	49	1	49	2667.384	185696.19
2	F187N	F460M	BRIGHT2	10	30	1	30	2637.694	185696.23

PSF References

NIRCam Coron. Bright Ref (Obs 4) (PSF Reference; Filters [F187N/F460M, F212N/F335M])

Additional Justification: false

Special Requirements

Offset 0.005 arcsec, -0.003 arcsec
No Parallel Attachments

Sequence Observations 1, 2, 3, 4, 5, 6, Non-interruptible
Aperture PA Offset 5 from 6 by 7 to 14 Degrees (Same offsets in V3)

Observation

Proposal 2627, Observation 6: NIRCam Coron. Target Roll 2 Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Coronagraphic Imaging

Diagnostics

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

(NIRCam Coron. Target 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
(1)	HD-114174-TARGET-STAR-KMAG5	RA: 13 08 51.1117 (197.2129654d) Dec: +05 12 15.52 (5.20431d) Equinox: J2000	Proper Motion RA: 0.005714557831237684 sec of time/yr Proper Motion Dec: -0.6802579999202862 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

http://simbad.harvard.edu/simbad/sim-basic?Ident=HD+114174

Star with a white dwarf companion at ~0.5" with delta_L~10, ideal to test Coronagraphic suppression of 1e-4 or better at or inside the IWA with NIRCam

G3IV+D type star
Kmag=5.202
Category=Star
Description=[G stars]
Extended=NO

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 HD-114174-TARGET-STAR-KMAG5	F210M	BRIGHT (ND Square)	SHALLOW4	17	1	1	15.475	185657.3

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	true	SUB640A210R	NONE

Confirmation

#	Conf. Readout Pattern	Conf. Groups/Int	Conf. Integrations/Exp	Conf. Total Integrations	Conf. Total Exposure Time	Conf. Total Dithers
1	RAPID	2	1	1	21.474	1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	BRIGHT2	6	49	1	49	2667.384	185696.19
2	F187N	F460M	BRIGHT2	10	30	1	30	2637.694	185696.23

PSF References

NIRCam Coron. Bright Ref (Obs 4) (PSF Reference; Filters [F187N/F460M, F212N/F335M])

Additional Justification: false

Special Requirements

Offset 0.005 arcsec, -0.003 arcsec
No Parallel Attachments

Sequence Observations 1, 2, 3, 4, 5, 6, Non-interruptible
Aperture PA Offset 5 from 6 by 7 to 14 Degrees (Same offsets in V3)

Observation

Proposal 2627, Observation 7: NIRCam Fine Phasing - NRCA3-FP1 - Bright Ref Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: WFSC NIRCam Fine Phasing

Diagnostics

(NIRCam Fine Phasing - NRCA3-FP1 - Bright Ref (Obs 7)) Warning (Form): The selected fiducial point is not a standard option for the instrument.

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	BD+05-2724-BRIGHT-REF-KMAG7	RA: 13 12 34.8840 (198.1453500d) Dec: +04 18 40.85 (4.31135d) Equinox: J2000	Proper Motion RA: 9.22610745281892E-5 sec of time/yr Proper Motion Dec: 3.8700000000000003E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Kmag 7.16
Category=Star
Description=[G stars]

Template

Module	Sensing type	Diversity	Expected No. of WFC Commands
A	Fine Phasing	PM8	170

Dithers

#	Primary Dither Type
1	WFSC

Spectral Elements

#	Short Pupil	Short Filter	Long Pupil	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	WLM8	F212N	CLEAR	F356W	RAPID	4	4	8	407.997	200046.4
2	WLP8	F212N	CLEAR	F356W	RAPID	4	4	8	407.997	

Special Requirements

No Parallel Attachments
Wavefront Sensing SENSING_ONLY
Fiducial Point Override NRCA3_FP1
DMS Priority ELEVATED

Sequence Observations 7, 8, 9, 10, 11, 12, Non-interruptible

Observation

Proposal 2627, Observation 8: NIRCam Imaging Faint Ref

Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Engineering Imaging

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)	J1305+0421-FAINT-REF-KMAG13	RA: 13 05 24.6565 (196.3527354d) Dec: +04 21 5.09 (4.35141d) Equinox: J2000	Proper Motion RA: -0.01642528000257835 sec of time/yr Proper Motion Dec: -0.09586799992575834 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[G stars]

Template

Module	Subarray
A	FULL

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	NONE		SMALL-GRID-DITHER		5-POINT-BOX

Spectral Elements

#	Short Pupil	Long Pupil	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	CLEAR	CLEAR	F212N	F460M	RAPID	5	2	10	5	590.522	200046.7
2	MASKRND	MASKRND	F212N	F460M	SHALLOW4	5	4	20	5	5314.701	200046.9

Special Requirements

Fiducial Point Override NRCA2_FP4MIMF

Sequence Observations 7, 8, 9, 10, 11, 12, Non-interruptible

Observation

Proposal 2627, Observation 9: NIRCam Coron. Faint Ref 5 arcsec offset From Mask

Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Coronagraphic Imaging

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
(3)	J1305+0421-FAINT-REF-KMAG13	RA: 13 05 24.6565 (196.3527354d) Dec: +04 21 5.09 (4.35141d) Equinox: J2000	Proper Motion RA: -0.01642528000257835 sec of time/yr Proper Motion Dec: -0.09586799992575834 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[G stars]

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	3 J1305+0421-FAINT-REF-KMAG13	F210M	FAINT	DEEP8	9	1	1	30.763	200046.1

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	false	FULL	5-POINT-BOX

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	SHALLOW4	5	1	5	5	1288.412	200046.11
2	F187N	F460M	SHALLOW4	10	2	5	10	5314.701	200046.13

PSF References

PSF Reference: true

Special Requirements	Offset 5.0 arcsec, 0.0 arcsec Sequence Observations 7, 8, 9, 10, 11, 12, Non-interruptible

Observation

Proposal 2627, Observation 10: NIRCam Coron. Bright Ref

Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Coronagraphic Imaging

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
(2)	BD+05-2724-BRIGHT-REF-KMAG7	RA: 13 12 34.8840 (198.1453500d) Dec: +04 18 40.85 (4.31135d) Equinox: J2000	Proper Motion RA: 9.22610745281892E-5 sec of time/yr Proper Motion Dec: 3.8700000000000003E-4 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Kmag 7.16
Category=Star
Description=[G stars]

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	2 BD+05-2724-BRIGHT-REF-KMAG7	F210M	BRIGHT (ND Square)	DEEP8	17	1	1	59.883	200046.2

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	false	SUB640A210R	9-POINT-CIRCLE

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	SHALLOW4	4	5	9	45	3768.178	200046.15
2	F187N	F460M	SHALLOW4	6	3	9	27	3391.083	200046.17

PSF References

PSF Reference: true

Special Requirements	
	Offset -0.004 arcsec, -0.011 arcsec Sequence Observations 7, 8, 9, 10, 11, 12, Non-interruptible

Observation

Proposal 2627, Observation 11: NIRCam Coron. Target Roll 1 Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Coronagraphic Imaging

Diagnostics

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

(NIRCam Coron. Target Roll 1 (Obs 11)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	HD-114174-TARGET-STAR-KMAG5	RA: 13 08 51.1117 (197.2129654d) Dec: +05 12 15.52 (5.20431d) Equinox: J2000	Proper Motion RA: 0.005714557831237684 sec of time/yr Proper Motion Dec: -0.6802579999202862 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

http://simbad.harvard.edu/simbad/sim-basic?Ident=HD+114174

Star with a white dwarf companion at ~0.5" with delta_L~10, ideal to test Coronagraphic suppression of 1e-4 or better at or inside the IWA with NIRCam

G3IV+D type star
Kmag=5.202
Category=Star
Description=[G stars]
Extended=NO

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 HD-114174-TARGET-STAR-KMAG5	F210M	BRIGHT (ND Square)	SHALLOW4	17	1	1	15.475	200046.3

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	true	SUB640A210R	NONE

Confirmation

#	Conf. Readout Pattern	Conf. Groups/Int	Conf. Integrations/Exp	Conf. Total Integrations	Conf. Total Exposure Time	Conf. Total Dithers
1	RAPID	2	1	1	21.474	1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	BRIGHT2	6	49	1	49	2667.384	200046.19
2	F187N	F460M	BRIGHT2	10	30	1	30	2637.694	200046.23

PSF References

NIRCam Coron. Bright Ref (Obs 10) (PSF Reference; Filters [F187N/F460M, F212N/F335M])

Additional Justification: false

Special Requirements

Offset -0.004 arcsec, -0.011 arcsec
No Parallel Attachments

Sequence Observations 7, 8, 9, 10, 11, 12, Non-interruptible
Aperture PA Offset 11 from 12 by 7 to 14 Degrees (Same offsets in V3)

Observation

Proposal 2627, Observation 12: NIRCam Coron. Target Roll 2 Tue May 07 21:00:12 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Coronagraphic Imaging

Diagnostics

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

(NIRCam Coron. Target Roll 2 (Obs 12)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	HD-114174-TARGET-STAR-KMAG5	RA: 13 08 51.1117 (197.2129654d) Dec: +05 12 15.52 (5.20431d) Equinox: J2000	Proper Motion RA: 0.005714557831237684 sec of time/yr Proper Motion Dec: -0.6802579999202862 arcsec/yr Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

http://simbad.harvard.edu/simbad/sim-basic?Ident=HD+114174

Star with a white dwarf companion at ~0.5" with delta_L~10, ideal to test Coronagraphic suppression of 1e-4 or better at or inside the IWA with NIRCam

G3IV+D type star
Kmag=5.202
Category=Star
Description=[G stars]
Extended=NO

Acquisition

#	Target	Filter	Target Brightness	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 HD-114174-TARGET-STAR-KMAG5	F210M	BRIGHT (ND Square)	SHALLOW4	17	1	1	15.475	200046.3

Template

Module	Coronagraphic Mask	Obtain Astrometric Confirmation Images?	Subarray	Dither Pattern
A	MASK210R	true	SUB640A210R	NONE

Confirmation

#	Conf. Readout Pattern	Conf. Groups/Int	Conf. Integrations/Exp	Conf. Total Integrations	Conf. Total Exposure Time	Conf. Total Dithers
1	RAPID	2	1	1	21.474	1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F212N	F335M	BRIGHT2	6	49	1	49	2667.384	200046.19
2	F187N	F460M	BRIGHT2	10	30	1	30	2637.694	200046.23

PSF References

NIRCam Coron. Bright Ref (Obs 10) (PSF Reference; Filters [F187N/F460M, F212N/F335M])

Additional Justification: false

Special Requirements

Offset -0.004 arcsec, -0.011 arcsec
No Parallel Attachments

Sequence Observations 7, 8, 9, 10, 11, 12, Non-interruptible
Aperture PA Offset 11 from 12 by 7 to 14 Degrees (Same offsets in V3)