

1411 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

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OBSERVATIONS

| Folder | Observation | Label | Observing Template | Science Target |
|---------|------------------|------------------------------------|----------------------------|-------------------------|
| Beta Pi | c with MIRI core | onagraphs | | |
| | 1 | Beta Pic Background - 1550 4QPM | MIRI Coronagraphic Imaging | (3) BETA-PIC-BACKGROUND |
| | 2 | Beta Pic Background - 2300 Lyot | MIRI Coronagraphic Imaging | (3) BETA-PIC-BACKGROUND |
| | 3 | Beta Pic - 2300 Lyot R oll 1 | MIRI Coronagraphic Imaging | (1) BETA-PIC |
| | 4 | Beta Pic - 1550 4QPM Roll 1 | MIRI Coronagraphic Imaging | (1) BETA-PIC |
| | 5 | Beta Pic - 1550 4QPM Roll 2 | MIRI Coronagraphic Imaging | (1) BETA-PIC |
| | 6 | Beta Pic - 2300 Lyot R oll 2 | MIRI Coronagraphic Imaging | (1) BETA-PIC |
| | 7 | Alpha Pic - 2300 Lyot PSF | MIRI Coronagraphic Imaging | (2) ALPHA-PIC |

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|----------|---------------|---|--|--------------------------|
| Folder | Observation | Label | Observing Template | Science Target |
| | 8 | Alpha Pic - 1550 4QP M PSF | MIRI Coronagraphic Imaging | (2) ALPHA-PIC |
| | 9 | Alpha Pic Background - 1550 4QPM PSF | MIRI Coronagraphic Imaging | (4) ALPHA-PIC-BACKGROUND |
| | 10 | Alpha Pic Background - 2300 Lyot PSF | MIRI Coronagraphic Imaging | (4) ALPHA-PIC-BACKGROUND |
| Beta Pie | c with NIRCam | Coronagraphs | | |
| | 20 | Alpha Pic - LW PSF | NIRCam Coronagraphic Imaging | (2) ALPHA-PIC |
| | 21 | Alpha Pic - SW PSF | NIRCam Coronagraphic Imaging | (2) ALPHA-PIC |
| | 22 | Beta Pic - SW Roll 1 | NIRCam Coronagraphic Imaging | (1) BETA-PIC |
| | 23 | Beta Pic - SW Roll 2 | NIRCam Coronagraphic Imaging | (1) BETA-PIC |
| | 25 | Beta Pic - LW Roll 2 | NIRCam Coronagraphic Imaging | (1) BETA-PIC |
| | 24 | Beta Pic - LW Roll 1 | NIRCam Coronagraphic Imaging | (1) BETA-PIC |
| | 26 | Alpha Pic - LW PSF | NIRCam Coronagraphic Imaging | (2) ALPHA-PIC |
| | 27 | Alpha Pic - SW PSF | NIRCam Coronagraphic Imaging | (2) ALPHA-PIC |

JWST Proposal 1411 (Created: Monday, January 23, 2023 at 3:01:17 PM Eastern Standard Time) - Overview

ABSTRACT

The famous debris disk around Beta Pic was the first circumstellar disk to be spatially resolved. Each successive generation of observations since then has delivered new insights into its complex structure, the physical composition of its constituent dust particles, and the physical processes that shape the disk. As one of the brightest and largest disks on the sky it remains a compelling target for detailed investigations at unprecedented sensitivities with JWST. We will observe Beta Pictoris using both the NIRCam and MIRI coronagraphs to cover the wavelength range 1.8 – 23 microns. NIRCam's F182M, F210M, F250M, F300M, F335M and F444W filters are sensitive to the presence of water and CO ices and organic tholins to allow characterization of disk composition and spatial variations. MIRI 15 and 23 micron coronagraphy will probe the warm inner asteroid belt analogue and the cooler outer main disk, respectively. These observations are coordinated with other GTO programs to ensure rich and consistent data sets across many disks: The 1.8-5 micron observations using NIRCam will be taken with the same set of filters and coronagraph masks as the NIRCam GTO team's Scattered Light Debris Disks program is using for several other disks, and our MIRI observation strategy matches that of the MIRI GTO Archetypal Debris Disk program. Furthermore spectroscopy of the Beta Pictoris disk will be obtained by MIRI science team member Christine Chen. In addition to revealing the disk in detail, our deep NIRCam F444W observations will achieve extraordinarily low detection limits to search for unknown wide-separation planetary companions, reaching well below the mass of Saturn. Note, the known planet Beta Pic b may also be observable in this program, depending on the timing of these observations relative to its orbital phase. While this program was designed originally and primarily to observe the disk, observations of Beta Pic b have become possible as a secondary goal due to the change in expected

JWST Proposal 1411 (Created: Monday, January 23, 2023 at 3:01:17 PM Eastern Standard Time) - Overview launch date.

OBSERVING DESCRIPTION

SUMMARY AND OVERALL OBSERVING STRATEGY

We observe the Beta Pictoris disk with both NIRCam and MIRI. For NIRCam observations, we observe with the 210R coronagraphic mask in two filters, and the 335R mask in 4 filters. These mask/filter combinations are the same as the NIRCam GTO team's Scattered Light Debris Disks program, ensuring a consistent data set of debris disks. For MIRI observations, we observe with the 1550 4QPM and 2300 Lyot masks.

We expect to be most sensitive to the disk at separations <5", where stellar PSF residuals will be significant. Thus, we employ the standard coronagraph sequence for every instrument/mask/filter combination observed: an initial observation oriented at a desired nominal aperture position angle, followed by a second observation with an aperture PA ~10 degrees relative to the first observation, followed by observation of the PSF reference star. All observations are linked by a non-interruptible sequence.

ORDER OF OBSERVATIONS

We note that there were two ways to schedule these observations. The first was to pick an ideal orient for each instrument (MIRI & NIRCam) that maximizes the spatial coverage of the disk, then schedule each instrument's observations as a non-interruptible sequence. Alternatively, we could sacrifice the orientation a bit, requiring the NIRCam and MIRI observations to be one long non-interruptible sequence, and placing the PSF reference observations in the middle, which could save some overheads. However, the second approach results in only a single 2 day scheduling window. Thus, we chose the first approach.

All NIRCam and MIRI observations are grouped separately by a "Sequence Observations, Non-Interruptible" special requirement (aka "Seq Non-Int SR") to ensure the PSF calibrator is observed close in time to the science target.

We perform the observations in an order to minimize overheads. We perform MIRI science observations of the target at both filters, then roll to our

JWST Proposal 1411 (Created: Monday, January 23, 2023 at 3:01:17 PM Eastern Standard Time) - Overview second orienation and repeat, then slew to the PSF reference star and observe in both filters. The arrangement for NIRCam is similar.

CHOICE OF PSF STAR

We chose Alpha Pictoris as our reference star, which is located ~19 degrees from the target star and has an overlapping visibility window. The Vizier Photometry viewer shows no obvious IR excess around Alpha Pic and it has been previously used as a PSF calibrator for Beta Pic at shorter wavelenths.

The difference in K mag between Alpha Pic and Beta Pic is ~0.9. Alpha Pic (A8V) is also fairly close in spectral type to Beta Pic (A6V), making it a good color match. This color match will minimize chromatic differences between the reference PSF and target PSF; the color match is more than adequate given previous estimates of the impact of color mismatch on NIRCam coroangraphy contrast. The color match is even less important for MIRI observations.

EXPOSURE TIMES

Exposure times were calculated in the JWST ETC using workbook #25161 (version 1.4), updated to #32789 (version 1.5.1).

Exposure times were calculated based on a model surface brightness. The surface brightness model came from scaling the results of Ballering et al. (2016) to other wavelengths. We used the 1.16 micron scattered light surface brightness in Fig 3 of Ballering and scaled it to other wavelengths by the flux of a stellar model of the Beta Pic star. We used the 24 micron thermal emission surface brightness in Fig 5 of Ballering and scaled it to other wavelengths based on the disk SED shown in Fig 14 of Ballering. We added the scattered light model to the thermal emission model to get the total surface brightness model at all wavelengths.

For MIRI coronagraph observations, we created a different scene for each of the observed filters. In each scene, we placed 5 extended sources (uniform brightness, 1" x 1" disk)--each source was placed at a different location and assigned a surface brightness corresponding to the model at

JWST Proposal 1411 (Created: Monday, January 23, 2023 at 3:01:17 PM Eastern Standard Time) - Overview

separations of 2, 4, 6, 8, and 10". Exposure times were estimated to get high SNR on the faintest (10" separation) portions of the disk while avoiding saturation in the brighter portions, while also maintaining some balance w/ the overheads APT applied to our observations (science time to overhead time ratio is roughly 1:2).

For NIRCam coronagraph observations, we created a different scene for each of the observed filters. In each scene, we placed 5 extended sources (uniform brightness, 0.5" x 0.5" disk)--each source was placed at a different location and assigned a surface brightness corresponding to the model at separations of 1, 2, 4, 6, and 8". The readout patterns were estimated by trying to keep NGROUPS large (near 10) while avoiding saturation as much as possible (only a few partially saturated pixels). The NIRCam coronagraph ETC gave puzzling results at output, so the SNR for the disk was determined using the NIRCam imaging templates w/ identical detector parameters (and no star in the image)--this corresponds to the limit of perfect PSF subtraction and serves as a good way to estimate possible SNR. Exposure times were estimated to get high SNR on the faintest (8" separation) portions of the disk while maintaining some balance w/ the overheads APT applied to our observations (science time to overhead time ratio varies from 1:1 to 2:1).

For NIRCam coronagraphy, we created LW and SW scenes consisting of the Beta Pic target star and the Alpha Pic reference star (both point sources with spectra modeled using Phoenix stellar models of the appropriate temperatures), with 4 extended sources in the corners of the detector. The extended sources span 4 orders of magnitude in surface brightness, representing the Beta Pic disk, which varies in brightness w/ separation. The surface brightness of the 4 extended sources were normalized at 1.16 micron and were assigned a stellar spectrum, a reasonable assumption. The 1.16 micron normalization was taken from Ballering et al. (2016).

Using these scenes, we arrived at the following exposure settings. Because we are interested in the disk at a range of separations, including regions where the stellar residuals dominate, we have a large dynamic range to consider and must avoid saturation for precise PSF subtraction. Thus we avoid full saturation of the target star's speckles. We do allow a few dozen pixels to be partially saturated, under the assumption that the ramps for these pixels can be recovered by the pipeline. We note that because the target star is very bright (Kmag = 3.5), even when reading out the coronagraphic subarray in rapid, a small number of pixels may fully saturate during the NIRCam 210R observations.

NIRCam:

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- MASK335R, F250M, SUB320, BRIGHT2, NGROUPS=10, NINTS=80 (could do SHALLOW4, but ~200 pix are partially saturated)

- MASK335R, F300M, SUB320, BRIGHT2, NGROUPS=10, NINTS=80 (could do SHALLOW4, but ~200 pix are partially saturated)

- MASK335R, F335M, SUB320, SHALLOW4, NGROUPS=10, NINTS=35
- MASK335R, F444W, SUB320, BRIGHT2, NGROUPS=10, NINTS=80 (could do SHALLOW4, but ~200 pix are partially saturated)
- MASK210R, F182M, SUB640, RAPID, NGROUPS=4, NINTS=90 <----172 partsat, 34 full sat
- MASK210R, F210M, SUB640, RAPID, NGROUPS=4, NINTS=90 <---- 115 partsat, 8 full sat

For the above settings, in the absence of a contrast floor the faintest portions of the disk should be detectable at SNR~40 per resol.

14 Oct 2022 Update: Given the ~order of magnitude improvement in NIRCam 335R contrast using a SGD demonstrated during commissioning, we decided to add a 5 point SGD to the Alpha Pic reference star observation for NIRCam. We kept the total exposure time the same, which we believe will still allow significant improvements in PSF subtraction with application of the KLIP algorithm.

MIRI:

- 1550: 30 min of integration provides $SNR \sim 20$ per resol in the faintest regions. This is roughly 50% of the overhead time, so this is a decent use of science time.

- 2300: 30 min of integration provides SNR~12 per resol in faintest regions of image. Again, roughly 50% of the overhead time according to APT.

The exposure settings chosen in terms of groups and ints were verified in the ETC to not produce any warnings other than the saturated pixel warnings received for NIRCam SW observations.

The reference PSF star (Alpha Pic) is 0.9 mag brighter than the science target, so we reduced the observations to be roughly half as long in each filter.

ORIENTATION & TIME CONSTRAINTS

JWST Proposal 1411 (Created: Monday, January 23, 2023 at 3:01:17 PM Eastern Standard Time) - Overview We used the Coronagraphic Target Visibility Tool to plan the PA special requirements. The disk's midplane is at a PA of 32 degrees.

The two instruments are split into separate groups of observations, so we chose slightly different orientations for MIRI & NIRCam observations.

Because the disk is edge-on, we chose the orientation very specifically to place the disk midplane near the diagonal of the NIRCam coronagraph subarray to maximize spatial coverage, but avoid the ND spots.

For MIRI, we oriented the disk at an angle of ~45 deg from the 4QPM axes.

We also adopt a relative roll angle between observations of 10 - 14 degrees. The overlap of all of these special requirements results in a scheduling window ~2 weeks in length for each instrument.

We note that while we have specific PA range special requirements, these are not completely rigid. In the event of a TA issue or other scheduling problem, we would consider alternative orientations. For the MIRI observations in particular, we only require the disk midplane is oriented near ~45 deg from the 4QPM axes--there are several orientations acceptable, but we could only program one into APT. For NIRCam, the orientation we request is ideal, and other orientations would sacrifice some of the science; alternative orientations could be considered if absolutely necessary.

TARGET ACQUISITION

The orientation selected for our observations places the disk midplane in MIRI quadrants 2 and 4; we perform TA in quadrant 1.

Target acquisition exposure parameters were determined using the ETC. The JWST ETC user documentation states a min. SNR of 20 is needed.

For MIRI...

- Beta Pic @ F1550 achieves an SNR > 100 w/ just 4 groups using the ND filter
- Beta Pic @ F2300 achieves an SNR >100 w/ just 4 groups using the ND filter
- Alpha Pic is slightly brighter and thus gets even higher SNR (>200) using just 4 groups & the ND filter

JWST Proposal 1411 (Created: Monday, January 23, 2023 at 3:01:17 PM Eastern Standard Time) - Overview The above were calculated via ETC workbook #25161. No saturation issues are reported by the ETC.

For NIRCam...

- This is a bright target, so the ND filter must be used.

- For NIRCam 210R observations, the ETC indicates NGROUPS>3 with RAPID to achieve an extracted SNR > 30. We chose NGROUPS=17 which gives an extracted SNR=200 and no saturation issues.

- For the NIRCam 335R observations with RAPID, the ETC indicates that NGROUPS>9 to meet the ETC's recommended threshold of 30 for the extracted SNR. Because TA exposures are so short compared to the rest of the program (low cost), we might as well do a little better than this, so we chose NGROUPS=33 which gives an extracted SNR of 120 and no saturation.

Because Beta Pic is edge-on, we are performing TA in the quadrants that the disk does not reside in, and we do not expect to perform science in the TA quadrants, we do not require a 2nd exposure with the MIRI observations to treat persistence.

Because the reference PSF target is only a factor of 2 brighter, and we have plenty of dynamic range with TA left, we adopt the same exposure settings for the reference PSF target.

ITEMS TO ADDRESS

We may update the reference star at a later time, as it is currently creating fully saturated pixels in the NIRCam SW observations.

| Proposal 1411 - Targets - Coronagraph | y of the Debris Disk A | Archetype Beta Pictoris |
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| | # | Name | Target Coordinates | Targ. Coord. Corrections | Miscellaneous |
|------|---------------------------------------|---|---|--|---------------|
| | (1) | BETA-PIC | RA: 05 47 17.0877 (86.8211988d) | Proper Motion RA: 4.65 mas/yr | |
| | | | Dec: -51 03 59.44 (-51.06651d) | Proper Motion Dec: 83.10 mas/yr | |
| | | | Equinox: J2000 | Epoch of Position: 2000 | |
| | Comments: Category= Description | This object was generated by the Calibration n=[Coronagraphic] | targetselector and retrieved from the SIMBAD database. | | |
| | (2) | ALPHA-PIC | RA: 06 48 11.4551 (102.0477296d) | Proper Motion RA: -66.07 mas/yr | |
| | | | Dec: -61 56 29.00 (-61.94139d) | Proper Motion Dec: 242.97 mas/yr | |
| its | | | Equinox: J2000 | Epoch of Position: 2000 | |
| Targ | Comments: Category= Description | This object was generated by the Calibration n=[Coronagraphic] | targetselector and retrieved from the SIMBAD database. | | |
| ed | (3) | BETA-PIC-BACKGROUND | RA: 05 46 23.5000 (86.5979167d) | | |
| Ě | | | Dec: -51 07 3.70 (-51.11769d) | | |
| | | | Equinox: J2000 | | |
| | Comments: Category= Description | Offset from Beta Pic by ~8 arcmin Calibration n=[Coronagraphic] | n in a patch of the sky that appears faint in 2MASS and WIS | E bandpasses. Source is not in the path of Beta Pic's prop | per motion. |
| | (4) | ALPHA-PIC- | RA: 06 49 58.2200 (102.4925833d) | | |
| | | BACKGROUND | Dec: -62 04 7.30 (-62.06869d) | | |
| | | | Equinox: J2000 | | |
| | Comments: Category= Description | • Offset from Alpha Pic by ~10 arcs Calibration n=[Coronagraphic] | nin in a patch of the sky that appears faint in 2MASS and W | 'ISE bandpasses. Source is not in the path of Alpha Pic's | proper motion |

Proposal 1411 - Observation 1 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| L C | Proposal 1411, Observation 1: Beta Pic Back | ground - 1550 4QPM | | | | | | Mon Jan 23 20 | :01:17 GMT 2023 |
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| ați | Diagnostic Status: Warning | | | | | | | | |
| Ž | Observing Template: MIRI Coronagraphic Ima | ging | | | | | | | |
| se | Background Observation For: [Beta Pic - 2300 | Lyot Roll 1 (Obs 3), Beta Pic - | - 1550 4QPM Roll 1 (Obs 4), | Beta Pic - 1550 4Q | PM Roll 2 (Obs 5) | , Beta Pic - 2300 | Lyot Roll 2 (Obs 6 | 5)] | |
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| s s | # Name | Target Coordinates | | Targ. Coord. Cor | rections | | Miscellaneous | | |
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| ar | | Dec: -51 07 3.70 (-51.11769d) |) | | | | | | |
| | | Equinox: J2000 | | | | | | | |
| ě. | Comments: Offset from Beta Pic by ~8 arcmin | in a patch of the sky that appea | urs faint in 2MASS and WISE | bandpasses. Source | e is not in the path | of Beta Pic's prop | per motion. | | |
| Ê | Category=Calibration Description=[Coronagraphic] | | | | | | | | |
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Proposal 1411 - Observation 1 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Sequence Observations 1
Sequence Observations 1

Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Proposal 1411 - Observation 2 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| 50 4QPM Roll 2 (Obs 5), Beta | Pic - 2300 Lyot Roll 2 (Obs 6)] | | | | | | | | |
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| 50 4QPM Roll 2 (Obs 5), Beta | Pic - 2300 Lyot Roll 2 (Obs 6)] | | | | | | | | |
| 50 4QPM Roll 2 (Obs 5), Beta | Pic - 2300 Lyot Roll 2 (Obs 6)] | | | | | | | | |
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| | Miscellaneous | | | | | | | | |
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| | Source is not in the path of Bet Back Back I Pe OUND I I I I I I I I I I I I I I I I I I I | L. Corrections Miscellaneous Source is not in the path of Beta Pic's proper motion. | L Corrections Miscellaneous Source is not in the path of Beta Pic's proper motion. | | | | | | |

Proposal 1411 - Observation 2 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Aperture PA Range 340 to 355 Degrees (V3 335.16455103 to 350.16455103) No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

13

Proposal 1411 - Observation 3 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| no | Proposal 1411, Observation 3: B | eta Pic - 2300 Lyo | ot Roll 1 | | | | | | | Mon Jan 2 | 3 20:01:17 GMT 2023 |
|----------|--|---------------------|-------------------|--------------------|---------------------|-----------------------|-----------------|------------------|--------------------|-------------------------|-------------------------|
| ati | Diagnostic Status: Warning | | | | | | | | | | |
| S S | Observing Template: MIRI Corona | agraphic Imaging | | | | | | | | | |
| ps(| Background Observations: [Beta Pi Roll 2 (Obs 6)] | ic Background - 15 | 550 4QPM (Obs | 1), Beta Pic Bacl | kground - 2300 Lyot | (Obs 2), Beta Pic - 1 | 550 4QPM Roll 1 | (Obs 4), Beta Pi | c - 1550 4Q | PM Roll 2 (Obs 5), Be | eta Pic - 2300 Lyot |
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| ics | (Visit 3:1) Warning (Form): Overh | neads are provision | al until the Visi | t Planner has been | n run. | | | | | | |
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| s. | # Name | Targ | et Coordinates | | | Targ. Coord. Corr | rections | | Miscella | neous | |
| get | (1) BETA-PIC | RA: | 05 47 17.0877 (8 | 86.8211988d) | | Proper Motion RA: | 4.65 mas/yr | | | | |
| ar | | Dec: | -51 03 59.44 (-5 | 51.06651d) | | Proper Motion Dec | : 83.10 mas/yr | | | | |
| ЧТ | | Equir | nox: J2000 | | | Epoch of Position: | 2000 | | | | |
| xe | Comments: This object was genera | ated by the targets | elector and retri | eved from the SIM | ABAD database. | | | | | | |
| ΪĹ | Category=Calibration Description=[Coronagraphic] | | | | | | | | | | |
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| ents | # Coron Mask/Filter | Mask | Filter | Readout Pattern | Groups/Int | Integrations/Ex p | Exposures/Dith | Total Dithers | Total Integrati | Total Expos ons Time | ure ETC Wkbk.Calc ID |
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| <i>6</i> | Alpha Dia 2200 Lucit DEE (Oha 7 | (DEE Deference) | Eiltona (E2200C | 2) | | | | | | | |
| ce | Additional Justification: false |) (PSF Reference; | ritters [r2500C | -1) | | | | | | | |
| ren | raditional sustineation. Table | | | | | | | | | | |
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Proposal 1411 - Observation 3 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Aperture PA Range 340 to 355 Degrees (V3 335.16455103 to 350.16455103) No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible Aperture PA Offset 6 from 3 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 4 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| Program | tion | Proposal 1411, Observation 4: B | seta Pic - 1550 4QPM | Roll 1 | | | | | | Mon Jan 23 | 20:01:17 GMT 2023 |
|--|--------------|---|----------------------------|----------------------------------|---------------------|-----------------------|----------------------|-----------------------|--------------------|----------------------|-------------------------|
| B Sectors and the sector a | vat | Observing Template: MIRI Coron | agraphic Imaging | | | | | | | | |
| Spectra Corrections Miscellance Target Coordinates Targe Coordinates Targe Coord. Corrections Miscellance generation the Name Target Coordinates Targe Coord. Corrections Miscellance generation Differ Type Target Coordinates Target Coordinates Target Coordinates Miscellance generation Differ Type Target Filter Quadrant Readout Pattern Groups/Int Integrations/Exp Total Integration Total Integrations Miscellance effect Mask/Filter Mask Filter Readout Groups/Int Integrations/Ex Exposures/Dith Tota | Obser | Background Observations:[Beta P 2 (Obs 6)] | ic Background - 1550 | 4QPM (Obs 1), Beta Pic Bacl | kground - 2300 Lyot | (Obs 2), Beta Pic - 2 | 2300 Lyot Roll 1 (Ob | s 3), Beta Pic - 155 | 0 4QPM R | coll 2 (Obs 5), Beta | Pic - 2300 Lyot Roll |
| C Name Target Coordinates Target Coordinates Target Coordinates Miscellaneou (1) BETA-PIC RA:05 47 17.0877 (66.8211988d) Proper Motion RA: 4.65 mas/yr Equino::2000 Epoch of Position: 2000 Epoch of Posi | iagnostics | (Visit 4:1) Warning (Form): Over | neads are provisional u | until the Visit Planner has been | n run. | | | | | | |
| BETA-PIC R:: 05 47 17.0877 (86.8211988d) Proper Motion RA: 4.65 max/yr Description Equinox: 32:000 Epoch of Position: 2000 Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Epoch of Position: 2000 diagony-Calibration Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Integrations/Exp Total Integrations Total Integrations Bernor Repeat observation No No Proper Motion RA: 4.65 max/yr Epoch of Position: 2000 # Target Filter Quadrant Readout Pattern Groups/Int Integrations/Exp Total Integrations Total Integrations Weight 1 SAME FND 1 FAST 6 1 1 1.4 Weight # Coron Mask Filter Readout Groups/Int Integrations/Exp Exposures/Dith Total Dithers Total Integrations/Exp Integrations # Coron Mask Filter Readout Groups/Int Integrations/Exp Exposures/Dith Total Dithers Total Integrations/Exp Integrations # Coron Mask/Filter Pattern Groups/Int | ۵ ۵ | # Name | Target (| Coordinates | | Targ. Coord. Corr | rections | М | iscellaneou | us | |
| Viscous Proper Motion Dec: \$3.10 mas/yr Epuch of Position: 2000 Cargeory-Calibration Dec: comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Decerption: Coronagraphic J Total Integrations/Exp Total Integrations To The The proper Motion Dec: 83.10 mas/yr # Target Filter Quadrant Readout Pattern Groups/Int Integrations/Exp Total Integrations To The The pattern 8 Repeat observation NO NO NONE 9 # Coron Mask/Filter Mask Filter Readout Pattern Groups/Int Integrations/Exp Total Integrations/Exp 9 # Coron Mask/Filter Mask Filter Readout Pattern Groups/Int Integrations/Exp Exposures/Dith Total Dithers Total Integrations/Exp Integrations/Exp | jet: | (1) BETA-PIC | RA: 05 4 | 47 17.0877 (86.8211988d) | | Proper Motion RA: | 4.65 mas/yr | | | | |
| Image: Point | arç | | Dec: -51 | 03 59.44 (-51.06651d) | | Proper Motion Dec | : 83.10 mas/yr | | | | |
| Bit Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category: Catibration: Description=[Coronagraphic] Integrations/Exp Total Integrations Total Integrations <th< th=""><th>F -</th><th></th><th>Equinox:</th><th>: J2000</th><th></th><th>Epoch of Position:</th><th>2000</th><th></th><th></th><th></th><th></th></th<> | F - | | Equinox: | : J2000 | | Epoch of Position: | 2000 | | | | |
| # Target Filter Quadrant Readout Pattern Groups/Int Integrations/Exp Total Integrations Por Tre 1 SAME FND 1 FAST 6 1 1 1.4 98 Repeat observation NO Image: Same Same Same Same Same Same Same Same | Fixe | Comments: This object was genera Category=Calibration Description=[Coronagraphic] | ated by the targetselect | tor and retrieved from the SIM | MBAD database. | | | | | | |
| index FND 1 FAST 6 1 1 1.4 are presented by the present by the presented b | tion | # Target | Filter | Quadrant | Readout Pattern | Groups/Int | Integrations/Ex | p Total Integra | ations To Ti | otal Exposure me | ETC Wkbk.Calc ID |
| Repeat observation NO NO # Dither Type 1 NONE # Coron Mask/Filter Mask Filter Readout Pattern Groups/Int pattern Integrations/Ex Exposures/Dith Total Dithers Total Integrations 1 4QPM/F1550C 4QPM F1550C FASTR1 100 55 1 1 55 1 4QPM/F1550C 4QPM F1550C FASTR1 100 55 1 1 55 8 Alpha Pic - 1550 4QPM PSF (Obs 8) (PSF Reference; Filters [F1550C]) Additional Justification: false K | Acquisi | 1 SAME | FND | 1 | FAST | 6 | 1 | 1 | 1.4 | 438 | 32789.4 |
| Image: Point problem NO Image: Point problem Dither Type Image: Point problem Image: Point problem NONE Image: Point problem Image: Point problem Image: Point problem Total Dithers Total Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Total Dithers Total Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Total Dithers Total Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Total Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Total Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Image: Point problem Ima | te | Repeat observation | | | | | | | | | |
| y # Coron Mask/Filter Mask Filter Readout Pattern Groups/Int Integrations/Ex Exposures/Dith Total Dithers Integrations 1 4QPM/F1550C 4QPM F1550C FASTR1 100 55 1 1 55 1 4QPM/F1550C 4QPM F1550C FASTR1 100 55 1 1 55 8 Alpha Pic - 1550 4QPM PSF (Obs 8) (PSF Reference; Filters [F1550C]) Additional Justification: false Set Filters | Templa | NO | | | | | | | | | |
| Pic 1 NONE Image: series of ser | rs | # | | | | Dither Type | | | | | |
| # Coron Mask/Filter Mask Filter Readout Pattern Groups/Int Pattern Integrations/Ex p Exposures/Dith Pattern Total Dithers Integrations 1 4QPM/F1550C 4QPM F1550C FASTR1 100 55 1 1 55 1 4QPM/F1550C 4QPM PSF (Obs 8) (PSF Reference; Filters [F1550C]) | Dithe | 1 | | | | NONE | | | | | |
| I 4QPM/F1550C 4QPM F1550C FASTR1 100 55 1 1 55 Image: State of the state of th | ents | # Coron Mask/Filter | Mask Fi | ilter Readout Pattern | Groups/Int | Integrations/Exp | Exposures/Dith To | otal Dithers To In | otal tegrations | Total Exposı Time | ire ETC Wkbk.Calc ID |
| Alpha Pic - 1550 4QPM PSF (Obs 8) (PSF Reference; Filters [F1550C]) Additional Justification: false | ectral Eleme | 1 4QPM/F1550C | 4QPM F1 | 1550C FASTR1 | 100 | 55 | 1 1 | 55 | | 1331.183 | |
| Additional Justification: false | s Sp | Alpha Pic - 1550 40PM PSF (Ob | (PSF Reference: Fi | ilters [F1550C]) | | | | | | | |
| | SF Reference | Additional Justification: false | , , , (,), Reference, i i | | | | | | | | |

Proposal 1411 - Observation 4 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Aperture PA Range 340 to 355 Degrees (V3 335.16455103 to 350.16455103) No Parallel Attachments Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible Aperture PA Offset 5 from 4 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 5 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| tion | Proposal 1411, Observation 5: B Diagnostic Status: Warning | eta Pic - 1550 4QP | M Roll 2 | | | | | | | Mon Jan 23 | 3 20:01:17 GMT 2023 |
|-----------------------|---|-----------------------|---------------------|--------------------|---------------------|-----------------------|---------------------|------------------|--------------------|--------------------------|-------------------------|
| Vai | Observing Template: MIRI Corona | agraphic Imaging | | | | | | | | | |
| Obsei | Background Observations:[Beta Pi 2 (Obs 6)] | ic Background - 155 | 50 4QPM (Obs 1) |), Beta Pic Back | aground - 2300 Lyot | (Obs 2), Beta Pic - 2 | 2300 Lyot Roll 1 (C | 0bs 3), Beta Pic | - 1550 4QPN | M Roll 1 (Obs 4), Beta | a Pic - 2300 Lyot Roll |
| iagnostics | (Visit 5:1) Warning (Form): Overh | neads are provisiona | l until the Visit F | Planner has beer | n run. | | | | | | |
| ۵ ۵ | # Name | Targe | t Coordinates | | | Targ. Coord. Corr | rections | | Miscella | neous | |
| jets | (1) BETA-PIC | RA: 05 | 5 47 17.0877 (86 | 5.8211988d) | | Proper Motion RA: | 4.65 mas/yr | | miscenu | leous | |
| arĉ | | Dec: -: | 51 03 59.44 (-51. | .06651d) | | Proper Motion Dec | : 83.10 mas/yr | | | | |
| H | | Equino | ox: J2000 | | | Epoch of Position: | 2000 | | | | |
| Fixed | Comments: This object was genera Category=Calibration Description=[Coronagraphic] | uted by the targetsel | ector and retriev | ved from the SIM | IBAD database. | | | | | | |
| tion | # Target | Filter | Qua | drant | Readout Pattern | Groups/Int | Integrations/I | Exp Total In | tegrations | Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | FND | 1 | | FAST | 6 | 1 | 1 | | 1.438 | 32789.4 |
| te | Repeat observation | | | | | | | | | | |
| Templa | NO | | | | | | | | | | |
| rs | # | | | | | Dither Type | | | | | |
| Dithe | 1 | | | | | NONE | | | | | |
| ents | # Coron Mask/Filter | Mask | Filter | Readout Pattern | Groups/Int | Integrations/Exp | Exposures/Dith | Total Dithers | Total Integrati | Total Exposi ons Time | ure ETC Wkbk.Calc ID |
| Spectral Eleme | 1 4QPM/F1550C | 4QPM | F1550C | FASTR1 | 100 | 55 | 1 | 1 | 55 | 1331.183 | |
| PSF References | Alpha Pic - 1550 4QPM PSF (Obs Additional Justification: false | 8) (PSF Reference; | Filters [F1550C | S]) | | | | | | | |

Proposal 1411 - Observation 5 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Special Requirements Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible Aperture PA Offset 5 from 4 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 6 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| uo | Proposal 1411, Observation 6: B | eta Pic - 2300 Lyo | ot Roll 2 | | | | | | | Mon Jan 23 | 3 20:01:17 GMT 2023 |
|----------|---|----------------------|--------------------|--------------------|---------------------|-----------------------|--------------------|------------------|----------------------|--------------------------|-------------------------|
| ati | Diagnostic Status: Warning | | | | | | | | | | |
| Ž | Observing Template: MIRI Coron | agraphic Imaging | | | | | | | | | |
| Obse | Background Observations:[Beta P. Roll 2 (Obs 5)] | ic Background - 15 | 50 4QPM (Obs | 1), Beta Pic Back | kground - 2300 Lyot | (Obs 2), Beta Pic - 2 | 300 Lyot Roll 1 (C | Obs 3), Beta Pic | - 1550 4QPN | M Roll 1 (Obs 4), Beta | a Pic - 1550 4QPM |
| ics | (Visit 6:1) Warning (Form): Overh | heads are provision | al until the Visit | Planner has been | n run. | | | | | | |
| ost | | | | | | | | | | | |
| g | | | | | | | | | | | |
| Dia | | | | | | | | | | | |
| ŝ | # Name | Targe | et Coordinates | | | Targ. Coord. Corr | rections | | Miscella | neous | |
| gei | (1) BETA-PIC | RA: 0 | 05 47 17.0877 (8 | 6.8211988d) | | Proper Motion RA: | 4.65 mas/yr | | | | |
| a | | Dec: - | -51 03 59.44 (-5 | 1.06651d) | | Proper Motion Dec: | : 83.10 mas/yr | | | | |
| L – | | Equin | iox: J2000 | | | Epoch of Position: 2 | 2000 | | | | |
| Fixe | Comments: This object was genera Category=Calibration Description=[Coronagraphic] | ated by the targetse | elector and retrie | eved from the SIM | ABAD database. | | | | | | |
| tion | # Target | Filter | Qua | adrant | Readout Pattern | Groups/Int | Integrations/I | Exp Total In | tegrations | Total Exposure Time | ETC Wkbk.Calc ID |
| lisi | 1 SAME | FND | 1 | | FAST | 6 | 1 | 1 | | 1.944 | 32789.4 |
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| ate | Repeat observation | | | | | | | | | | |
| ā | NO | | | | | | | | | | |
| Ten | | | | | | | | | | | |
| irs | # | | | | | Dither Type | | | | | |
| the last | 1 | | | | | NONE | | | | | |
| ם | | | | | | | | | | | |
| ents | # Coron Mask/Filter | Mask | Filter | Readout Pattern | Groups/Int | Integrations/Ex p | Exposures/Dith | Total Dithers | Total Integration | Total Exposi ons Time | ure ETC Wkbk.Calc ID |
| Ĕ | 1 LYOT/F2300C | LYOT | F2300C | FASTR1 | 100 | 55 | 1 | 1 | 55 | 1799.496 | |
| Ш | | | | | | | | | | | |
| ra | | | | | | | | | | | |
| ect | | | | | | | | | | | |
| Sp | | | | | | | | | | | |
| es | Alpha Pic - 2300 Lyot PSF (Obs 7 |) (PSF Reference; 1 | Filters [F2300C] |) | | | | | | | |
| ů ů | Additional Justification: false | | | | | | | | | | |
| ēre | | | | | | | | | | | |
| Ref | | | | | | | | | | | |
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Proposal 1411 - Observation 6 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Special Requirements Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible Aperture PA Offset 6 from 3 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 7 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| n | Proposal 1411, Observation 7: A | lpha Pic - 2300 L | yot PSF | | | | | | | Mon Jan 2 | 3 20:01:17 GMT 2023 |
|------|---|---------------------|------------------|-----------------------|--------------------|----------------------|--------------------|-----------------|------------|----------------|---------------------|
| atic | Diagnostic Status: Warning | | | | | | | | | | |
| Š | Observing Template: MIRI Coron | agraphic Imaging | | | | | | | | | |
| se | Background Observations:[Alpha | Pic - 1550 4QPM | PSF (Obs 8), A | Alpha Pic Backgrou | und - 1550 4QPM PS | F (Obs 9), Alpha Pic | e Background - 230 | 00 Lyot PSF (Ob | s 10)] | | |
| qo | | | | | | | | | | | |
| cs | (Visit 7:1) Warning (Form): Overl | heads are provision | nal until the Vi | isit Planner has been | n run. | | | | | | |
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| ou | | | | | | | | | | | |
| ag | | | | | | | | | | | |
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| ts | # Name | Targ | get Coordinat | es | | Targ. Coord. Corr | rections | | Miscellar | ieous | |
| .ge | (2) ALPHA-PIC | RA: | 06 48 11.4551 | (102.0477296d) | | Proper Motion RA: | : -66.07 mas/yr | | | | |
| Lar | | Dec: | -61 56 29.00 | (-61.94139d) | | Proper Motion Dec | : 242.97 mas/yr | | | | |
| Г, | | Equi | nox: J2000 | | | Epoch of Position: | 2000 | | | | |
| хе | Comments: This object was genera | ated by the targets | elector and re | trieved from the SIM | MBAD database. | | | | | | |
| ΪĹ | Category=Calibration Description=[Coronagraphic] | | | | | | | | | | |
| ion | # Target | Filter | (| Quadrant | Readout Pattern | Groups/Int | Integrations/ | Exp Total In | tegrations | Total Exposure | ETC Wkbk.Calc |
| siti | 1 SAME | FND | 1 | | FAST | 6 | 1 | 1 | | 1.944 | 32789.4 |
| gui | | | | | | | | | | | |
| Ac | | | | | | | | | | | |
| Ite | Repeat observation | | | | | | | | | | |
| pla | NO | | | | | | | | | | |
| em | | | | | | | | | | | |
| L s | # | | | | | Dither Ture | | | | | |
| er: | # 1 | | | | | NONE | | | | | |
| ith | 1 | | | | | NONE | | | | | |
| s | # Coron | Mack | Filtor | Doadout | Crouns/Int | Integrations/Fy | Exposures/Dith | Total Dithors | Total | Total Expos | ura FTC |
| ent | Mask/Filter | WIASK | Filter | Pattern | Groups/Int | p | Exposures/Ditii | | Integratio | ons Time | Wkbk.Calc ID |
| Ĩ. | 1 LYOT/F2300C | LYOT | F2300C | FASTR1 | 100 | 30 | 1 | 1 | 30 | 981.396 | |
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| 5 | DCE D from a state | | | | | | | | | | |
| ces | PSF Reference: true | | | | | | | | | | |
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Proposal 1411 - Observation 7 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Sequence Observations 1
Sequence Observations 1

Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Proposal 1411 - Observation 8 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| ۲ ۲ | Proposal 1411, Observation 8: A | lpha Pic - 1550 | 4QPM PSF | , •• _ | | <u></u> | | | | Mon Jan 23 | 3 20:01:17 GMT 2023 |
|---------|-----------------------------------|---------------------|-------------------|----------------------|-------------------|----------------------|-------------------|-----------------|---------------------|----------------|-------------------------|
| fic | Diagnostic Status: Warning | - | | | | | | | | | |
| Š | Observing Template: MIRI Corona | agraphic Imaging | g | | | | | | | | |
| se | Background Observations:[Alpha] | Pic - 2300 Lyot I | PSF (Obs 7), Alı | oha Pic Backgroun | d - 1550 4QPM PSF | (Obs 9), Alpha Pic H | Background - 2300 | Lyot PSF (Obs 1 | 10)] | | |
| qo | | | | | | | | | | | |
| cs | (Visit 8:1) Warning (Form): Overh | heads are provision | onal until the Vi | sit Planner has been | n run. | | | | | | |
| osti | | | | | | | | | | | |
| gno | | | | | | | | | | | |
| Diaç | | | | | | | | | | | |
| s L | # Name | Tai | rget Coordinate | es | | Targ. Coord. Cori | rections | | Miscellar | ieous | |
| jet: | (2) ALPHA-PIC | RA | : 06 48 11.4551 | (102.0477296d) | | Proper Motion RA: | -66.07 mas/yr | | | | |
| arç | | Dec | c: -61 56 29.00 (| -61.94139d) | | Proper Motion Dec | : 242.97 mas/yr | | | | |
| Ë | | Equ | inox: J2000 | . , | | Epoch of Position: | 2000 | | | | |
|) ec | Comments: This object was genero | ated by the target | tselector and ret | rieved from the SIM | MBAD database. | 1 | | | | | |
| iÊ | Category=Calibration | | | Ū. | | | | | | | |
| uo | # Target | Filter | Q | Juadrant | Readout Pattern | Groups/Int | Integrations/ | Exp Total In | tegrations | Total Exposure | ETC Wkbk.Calc |
| siti | 1 SAME | FND | | | FAST | 6 | 1 | 1 | | 1 438 | 1D 32789 / |
| qui | | IND | 1 | | 17101 | 0 | 1 | 1 | | 1.450 | 52707.4 |
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| ate | Repeat observation | | | | | | | | | | |
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| L S | # | | | | | Dither Type | | | | | |
| ner | 1 | | | | | 5-POINT-SMAL | L-GRID | | | | |
| Dit | | | | | | | | | | | |
| nts | # Coron Mask/Filter | Mask | Filter | Readout Pattern | Groups/Int | Integrations/Ex | Exposures/Dith | Total Dithers | Total Integratio | Total Exposi | ure ETC Wkbk Calc ID |
| ne | 1 40PM/F1550C | 40PM | F1550C | FASTR1 | 100 | P | 1 | 5 | 150 | 3629.954 | Thomesule in |
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Proposal 1411 - Observation 8 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Sequence Observations 1
Sequence Observations 1

Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Proposal 1411 - Observation 9 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| | | S Proposal 1411, Observation 9: Alpha Pic Background - 1550 4QPM PSF | | | | | | | | | | |
|--------------------------|---|--|--------------------|-----------------------|---------------------|-------------------|----------------------|-------------------------|--------------|-------------------------------|--------------------------|---------------------|
| | | | | | | | | | | Status: Warning | Diagnostic | atio |
| | | | | | | | | aging | graphic Im | emplate: MIRI Corona | Observing | Ž |
| | | | | | | QPM PSF (Obs 8)] | Alpha Pic - 1550 4 | 00 Lyot PSF (Obs 7), | ha Pic - 23 | Observation For: [Alp | Background | 0S6 |
| | | | | | | | | | | | | ō |
| | | | | | | ı run. | sit Planner has been | ovisional until the Vi | eads are pro | /arning (Form): Overh | (Visit 9:1) | cs |
| | | | | | | | | | | | | sti |
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| | Missellensons | Migaellanaau | | nationa | Tang Coord Com | | | Towast Coordinate | | Nome | # | |
| | wiscenaneous | Miscenaneou | | rections | Targ. Coord. Cori | | s (102/025833d) | PA: 06 49 58 2200 | | | # (4) | ets |
| | | | | | | | (102.49238330) | Dec: -62.04.7.30 (-4 | | BACKGROUND |) (+) | ar g |
| | | | | | | | 2.0000707 | Equinox: 12000 | | | | μË |
| | proper motion | s proper motion | uth of Alpha Pic's | arce is not in the pa | SE bandpasses, Sour | nt in 2MASS and W | kv that appears fai | nin in a patch of the s | bv ~10 arcn | Offset from Alpha Pic | Comments: | ed |
| | | ° F · · F · · · · · · · · · | | | | | | | ., | alibration [Coronagraphic] | Category= Description | i |
| | | | | | Target | | | | | | # | ۲ ۲ |
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| | ladrant | Quadrant | Background Q | | | rvation | Repeat obser | | | | AcqFilter | ate |
| | | | 1 | | | | YES | | | | FND | đ |
| | | | | | | | | | | | | Ten |
| | | | | | Dither Type | | | | | | # | ເ |
| | | | |) | BACKGROUND | | | | | | 1 | he |
| | | | | | | | | | | | | Dit |
| sure ETC Wkbk.Calc ID | Total Total Exposure Integrations Time | s Total Integrations | Total Dithers | Exposures/Dith | Integrations/Ex | Groups/Int | Readout Pattern | Filter | Mask | Coron Mask/Filter | # | nts |
| | 60 1451.981 | 60 | 2 | 1 | 30 | 100 | FASTR1 | F1550C | 4QPM | 4QPM/F1550C | 1 | a ue |
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| | | | | | | | | | | ustification: false | Additional | teferences Spectral |

Proposal 1411 - Observation 9 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Sequence Observations 1
Sequence Observations 1

Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Proposal 1411 - Observation 10 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| | Pı | Proposal 1411, Observation 10: A | Ipha Pic | Background - 2300 L | yot PSF | | | | | | Mon Jan 23 20 | :01:17 GMT 2023 |
|--|-----------------------------|-------------------------------------|---------------------|--------------------------|------------------------------|---------------------|---|----------------------|-----------------------|-----------------------------|------------------------------------|---------------------|
| atic | D | Diagnostic Status: Warning | | | | | | | | | | |
| Ž | 0 | Observing Template: MIRI Corona | graphic In | naging | | | | | | | | |
| SS | Ва | ackground Observation For: [Alp | ha Pic - 23 | 800 Lyot PSF (Obs 7), | Alpha Pic - 1550 4 | QPM PSF (Obs 8)] | | | | | | |
| ð | | | | | | | | | | | | |
| cs | (V | Visit 10:1) Warning (Form): Over | heads are p | provisional until the Vi | isit Planner has bee | en run. | | | | | | |
| sti | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| iaç | | | | | | | | | | | | |
| | | | | — | | | — — — — — — — — — — | | | | | |
| ets | # | AL DUA DIC | | Target Coordinates | S | | Targ. Coord. Cori | rections | | Miscellaneous | | |
| ğ | (4 | 4) ALPHA-PIC- BACKGROUND | | RA: 06 49 58.2200 (| (102.4925833d) | | | | | | | |
| ц Ц | | | | Dec: -62 04 7.30 (-6 | 2.068690) | | | | | | | |
| ed | C | Comments: Offset from Alpha Pic | $\sim 10 arc$ | min in a patch of the sl | by that appears fai | nt in 2MASS and WI | SE handnassas Sou | rea is not in the na | th of Alpha Pic's | proper motion | | |
| Ě | C | Category=Calibration | <i>y</i> ∼10 urci | min in a paien of the sr | ky inai appears jai | ni in 214ASS unu WI | SE bunupusses. Sou | ce is not in the pu | in oj Aipnu i ic s | proper monon | | |
| 2 | <i>D</i> | Description=[Coronagraphic] | | | | | Target | | | | | |
| tio | π 1 | | | | | | NONE | | | | | |
| is: | 1 | | | | | | NONE | | | | | |
| n b | | | | | | | | | | | | |
| ٩c | | | | | | | | | | | | |
| te | Δ. | | | | D (1) | | | | Paskanound O | | | |
| 5 | A | cqFilter | | | Repeat obser | rvation | | | background Q | uadrant | | |
| plai | FI | ND | | | YES | rvation | | | 1 | uadrant | | |
| empla | F | ND | | | YES | rvation | | | 1 | | | |
| s Templat | Fi # | ND | | | YES | rvation | Dither Type | | 1 | | | |
| iers Templa | Fi # | ND | | | YES | rvation | Dither Type | | 1 | | | |
| Dithers Templa | # 1 | ND | | | YES | | Dither Type BACKGROUND | , | 1 | | | |
| s Dithers Templa | # 1 | ND Coron | Mask | Filter | YES Peedout | Groups/Int | Dither Type BACKGROUNE |) Fynosures/Dith | Total Dithers | Total | Total Exposure | FTC |
| ents Dithers Templa | # 1 | Coron Mask/Filter | Mask | Filter | Readout Pattern | Groups/Int | Dither Type BACKGROUND Integrations/Ex P |) Exposures/Dith | Total Dithers | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| ements Dithers Templa | # 1 1 | Coron Mask/Filter LYOT/F2300C | Mask | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUNE Integrations/Ex P 30 | Exposures/Dith | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| Elements Dithers Templa | # 1 1 | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| al Elements Dithers Templa | # 1 1 | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| ctral Elements Dithers Templa | # FI 1 1 | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| Spectral Elements Dithers Templa | # FI 1 1 | ND Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| s Spectral Elements Dithers Templa | # Fr 1 1 | Additional Justification: false | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith 1 | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| ces Spectral Elements Dithers Templa | # Fr 1 1 A | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith 1 | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| ences Spectral Elements Dithers Templa | # Fr 1 1 A | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| ferences Spectral Elements Dithers Templa | # FT # 1 A A | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith 1 | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| References Spectral Elements Dithers Templa | # FT 1 1 A | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith 1 | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |
| SF References Spectral Elements Dithers Templa | # 1 1 A | Coron Mask/Filter LYOT/F2300C | Mask LYOT | Filter F2300C | Readout Pattern FASTR1 | Groups/Int 100 | Dither Type BACKGROUND Integrations/Ex p 30 | Exposures/Dith 1 | Total Dithers 2 | Total Integrations 60 | Total Exposure Time 1962.792 | ETC Wkbk.Calc ID |

Proposal 1411 - Observation 10 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

Sequence Observations 1
Sequence Observations 1

Sequence Observations 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Non-interruptible

Proposal 1411 - Observation 20 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| s Observation | Proposal 1411, Observation 20: Alph Diagnostic Status: Warning Observing Template: NIRCam Coronaş Background Observations:[] | a Pic - LW PSF graphic Imaging | hackground exposu | ire selected for temp | late that doesn | 't require background | avnostira | Mon Jan | 23 20:01:17 GMT 2023 |
|---------------|---|-----------------------------------|----------------------|-----------------------------|-----------------|-----------------------|---------------------|---------------------|----------------------|
| Diagnostic | (Visit 20:1) Warning (Form): Overhead | ls are provisional until the V | isit Planner has bee | en run. | | r require background | exposure | | |
| ts | # Name | Target Coordinate | es | | Targ. Coord | . Corrections | Ν | Aiscellaneous | |
| ge | (2) ALPHA-PIC | RA: 06 48 11.4551 | (102.0477296d) | | Proper Motio | on RA: -66.07 mas/yr | | | |
| Tar | | Dec: -61 56 29.00 (| -61.94139d) | | Proper Motio | n Dec: 242.97 mas/yr | | | |
| ס | | Equinox: J2000 | | | Epoch of Pos | ition: 2000 | | | |
| Ĭ | Comments: This object was generated b Category=Calibration | by the targetselector and ret | rieved from the SIN | IBAD database. | | | | | |
| Ē | Description=[Coronagraphic] | | | D. 1. (D.(| 0 / | · • | | | |
| tio | # larget | Filter | arget Brightness | Readout Pattern | Groups/In | t Integratio | ns/Exp I otal Integ | Time | ID |
| Acquisi | 1 SAME | F335M E S | BRIGHT (ND quare) | RAPID | 9 | 1 | 1 | 0.504 | 32789.19 |
| ate | Module | Coronagraphic Mask | | Obtain Astrometr Images? | ic Confirmat | ion Subarray | | Dither Pattern | |
| Temp | А | MASK335R | | false | | SUB320A3 | 335R | 5-POINT-BOX | |
| ts | # Filter | Readout Pattern | Groups/Int | Integrati | ons/Exp | Total Dithers | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| len l | 1 F250M | BRIGHT2 | 10 | 8 | | 5 | 40 | 898.813 | |
| en | 2 F300M | BRIGHT2 | 10 | 8 | | 5 | 40 | 898.813 | |
| Ξ | 3 F335M | SHALLOW4 | 10 | 4 | | 5 | 20 | 1069.45 | |
| tral | 4 F444W | SHALLOW4 | 10 | 4 | | 5 | 20 | 1069.45 | |
| ec | | | | | | | | | |
| с В | | | | | | | | | |
| F References | PSF Reference: true | | | | | | | | |
| 2 | | | | | | | | | |

Proposal 1411 - Observation 20 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Proposal 1411 - Observation 21 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| s Observation | Proposal 1411, Observation 21: Alp Diagnostic Status: Warning Observing Template: NIRCam Coror Background Observations:[] | oha Pic - SW PSF | a background exposu | re calacted for templ | ate that doesn't r | equire background a | Y DOCUTA | Mon Jan | 23 20:01:17 GMT 2023 |
|---------------|--|-------------------------------|-----------------------|------------------------------|--------------------|---------------------|---------------------------|------------------------------|----------------------|
| Diagnostic | (Visit 21:1) Warning (Form): Overhe | ads are provisional until the | Visit Planner has bee | en run. | | equite background e | xposure | | |
| ts | # Name | Target Coordina | ates | | Targ. Coord. C | Corrections | Mi | scellaneous | |
| ge | (2) ALPHA-PIC | RA: 06 48 11.455 | 51 (102.0477296d) | | Proper Motion l | RA: -66.07 mas/yr | | | |
| a | | Dec: -61 56 29.00 |) (-61.94139d) | | Proper Motion l | Dec: 242.97 mas/yr | | | |
| 5 | | Equinox: J2000 | | | Epoch of Positie | on: 2000 | | | |
| ix e | Comments: This object was generated | d by the targetselector and i | etrieved from the SIM | IBAD database. | | | | | |
| ΪĒ | Description=[Coronagraphic] | | | | | | | | |
| tion | # Target | Filter | Target Brightness | Readout Pattern | Groups/Int | Integration | s/Exp Total Integra | tions Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F210M | BRIGHT (ND Square) | RAPID | 5 | 1 | 1 | 1.097 | 25161 |
| late | Module | Coronagraphic Mas | k | Obtain Astrometri Images? | ic Confirmatior | n Subarray | | Dither Pattern | |
| Temp | А | MASK210R | | false | | SUB640A2 | 10R | 5-POINT-BOX | |
| ts | # Filter | Readout Patter | n Groups/Int | Integrati | ons/Exp T | otal Dithers | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| en | 1 F182M | RAPID | 4 | 10 | 5 | | 50 | 1047.484 | |
| e M | 2 F210M | RAPID | 4 | 10 | 5 | | 50 | 1047.484 | |
| Ξ | | | | | | | | | |
| ra | | | | | | | | | |
| SC | | | | | | | | | |
| Š | | | | | | | | | |
| ences | PSF Reference: true | | | | | | | | |
| - Refer | | | | | | | | | |
| PSI | | | | | | | | | |

Proposal 1411 - Observation 21 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Proposal 1411 - Observation 22 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| Observation | Proposal 1411, Observation 22: Beta Diagnostic Status: Warning Observing Template: NIRCam Corona; Background Observations:[] | Pic - SW Roll 1 graphic Imaging | | | | | - | | Mon Jan | 23 20:01:17 GMT 2023 |
|-------------|---|---|--|--|----------------|------------------------|-------------|----------------|------------------------|----------------------|
| Diagnostics | (Beta Pic - SW Roll 1 (Obs 22)) Warni (Beta Pic - SW Roll 1 (Obs 22)) Warni (Visit 22:1) Warning (Form): Overhead | ng (Form): PSF Referenc ng (Form): Target requiri ls are provisional until th | e observations should ng background exposu e Visit Planner has bee | be SEQ NON-INT. are selected for templ en run. | late that does | n't require background | exposure | | | |
| ŝ | # Name | Target Coordin | ates | | Targ. Coord | l. Corrections | | Miscella | neous | |
| gei | (1) BETA-PIC | RA: 05 47 17.08 | 77 (86.8211988d) | | Proper Motio | on RA: 4.65 mas/yr | | | | |
| ar | | Dec: -51 03 59.4 | 4 (-51.06651d) | | Proper Motio | on Dec: 83.10 mas/yr | | | | |
| 5 | | Equinox: J2000 | | | Epoch of Pos | sition: 2000 | | | | |
| ixe | Comments: This object was generated | by the targetselector and | retrieved from the SIM | IBAD database. | | | | | | |
| ΪĒ | Description=[Coronagraphic] | | | | | | | | | |
| tion | # Target | Filter | Target Brightness | Readout Pattern | Groups/In | nt Integration | ns/Exp Tota | l Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F210M | BRIGHT (ND Square) | RAPID | 9 | 1 | 1 | | 1.825 | 25161 |
| late | Module | Coronagraphic Ma | sk | Obtain Astrometr Images? | ic Confirmat | tion Subarray | | | Dither Pattern | |
| Temp | А | MASK210R | | false | | SUB640A2 | 210R | | NONE | |
| ts | # Filter | Readout Patte | rn Groups/Int | Integrati | ons/Exp | Total Dithers | Total Integ | rations Tot | al Exposure Time | ETC Wkbk.Calc ID |
| len | 1 F182M | RAPID | 4 | 90 | | 1 | 90 | 188 | 5.471 | |
| en | 2 F210M | RAPID | 4 | 90 | | 1 | 90 | 188 | 5.471 | |
| Ξ | | | | | | | | | | |
| tral | | | | | | | | | | |
|) ec | | | | | | | | | | |
| S | | | | | | | | | | |
| ses | Alpha Pic - SW PSF (Obs 21) (PSF Re | ference; Filters [F182M, | F210M]) | | | | | | | |
| ue Ue | Additional Justification: false | | | | | | | | | |
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Proposal 1411 - Observation 22 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Special Requirements Sequence Observations 22, 23, 24, 25, 26, 27, Non-interruptible Aperture PA Offset 23 from 22 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 23 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| Observation | Proposal 1411, Observation 23: Beta Diagnostic Status: Warning Observing Template: NIRCam Coronag Background Observations:[] | Pic - SW Roll 2 graphic Imaging | | | | | | | Mon Jan | 23 20:01:17 GMT 2023 |
|-------------|---|--|--|--|----------------|----------------------|----------------|--------------------|------------------------|----------------------|
| Diagnostics | (Beta Pic - SW Roll 2 (Obs 23)) Warnin (Beta Pic - SW Roll 2 (Obs 23)) Warnin (Visit 23:1) Warning (Form): Overhead | ng (Form): PSF Referenc ng (Form): Target requiri ls are provisional until the | e observations should ng background exposu e Visit Planner has bee | be SEQ NON-INT. are selected for templ en run. | late that does | n't require backg | round exposure | | | |
| ß | # Name | Target Coordin | ates | | Targ. Coord | l. Corrections | | Miscella | neous | |
| ge | (1) BETA-PIC | RA: 05 47 17.08 | 77 (86.8211988d) | | Proper Motio | on RA: 4.65 mas | s/yr | | | |
| ar | | Dec: -51 03 59.4 | 4 (-51.06651d) | | Proper Motio | on Dec: 83.10 m | as/yr | | | |
| ц Ц | | Equinox: J2000 | | | Epoch of Po | sition: 2000 | | | | |
| хе | Comments: This object was generated b | by the targetselector and | retrieved from the SIM | IBAD database. | | | | | | |
| μĒ | <i>Category=Calibration</i> <i>Description=[Coronagraphic]</i> | | | | | | | | | |
| tion | # Target | Filter | Target Brightness | Readout Pattern | Groups/In | nt Integ | grations/Exp | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F210M | BRIGHT (ND Square) | RAPID | 9 | 1 | | 1 | 1.825 | 25161 |
| late | Module | Coronagraphic Ma | sk | Obtain Astrometri Images? | ic Confirma | tion Suba | array | | Dither Pattern | |
| Temp | А | MASK210R | | false | | SUB | 640A210R | | NONE | |
| Its | # Filter | Readout Patter | rn Groups/Int | Integratio | ons/Exp | Total Dithers | Total | Integrations Tot | al Exposure Time | ETC Wkbk.Calc ID |
| Jer | 1 F182M | RAPID | 4 | 90 | | 1 | 90 | 188 | 5.471 | |
| en | 2 F210M | RAPID | 4 | 90 | | 1 | 90 | 188 | 5.471 | |
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| tra | | | | | | | | | | |
| eci | | | | | | | | | | |
| Sp | | | | | | | | | | |
| es | Alpha Pic - SW PSF (Obs 21) (PSF Ref | ference; Filters [F182M, | F210M]) | | | | | | | |
| ů Ú | Additional Justification: false | | | | | | | | | |
| ere | | | | | | | | | | |
| Ref | | | | | | | | | | |
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| PS | | | | | | | | | | |

Proposal 1411 - Observation 23 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Special Requirements Sequence Observations 22, 23, 24, 25, 26, 27, Non-interruptible Aperture PA Offset 23 from 22 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 25 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| Observation | Proposal 1411, Observation 25: Beta P Diagnostic Status: Warning Observing Template: NIRCam Coronagr Background Observations:[] | ic - LW Roll 2 aphic Imaging | | | | | | Mon Jan | 23 20:01:17 GMT 2023 |
|-----------------------|--|---|--|---|------------------|-----------------------|------------------|----------------------------------|----------------------|
| Diagnostics | (Beta Pic - LW Roll 2 (Obs 25)) Warning (Beta Pic - LW Roll 2 (Obs 25)) Warning (Visit 25:1) Warning (Form): Overheads | g (Form): PSF Referenc g (Form): Target requiri are provisional until the | e observations should ng background expose e Visit Planner has bee | be SEQ NON-INT. ure selected for temp en run. | late that doesn' | 't require background | l exposure | | |
| ts | # Name | Target Coordin | ates | | Targ. Coord. | Corrections | | Miscellaneous | |
| l ge | (1) BETA-PIC | RA: 05 47 17.08 | 77 (86.8211988d) | | Proper Motion | n RA: 4.65 mas/yr | | | |
| Ta | | Dec: -51 03 59.4 | 4 (-51.06651d) | | Proper Motion | tion: 2000 | | | |
| Fixed | Comments: This object was generated by Category=Calibration Description=[Coronagraphic] | the targetselector and | retrieved from the SIN | IBAD database. | Epoch of 1 ost | 1011. 2000 | | | |
| tion | # Target | Filter | Target Brightness | Readout Pattern | Groups/Int | Integratio | ns/Exp Total Int | egrations Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F335M | BRIGHT (ND Square) | RAPID | 17 | 1 | 1 | 0.905 | 32789.19 |
| late | Module | Coronagraphic Ma | sk | Obtain Astrometr Images? | ic Confirmation | on Subarray | | Dither Pattern | |
| Temp | А | MASK335R | | false | | SUB320A | 335R | NONE | |
| ts | # Filter | Readout Patter | rn Groups/Int | Integrati | ons/Exp | Total Dithers | Total Integratio | ns Total Exposure Time | ETC Wkbk.Calc ID |
| ler | 1 F250M | BRIGHT2 | 10 | 80 | | 1 | 80 | 1797.626 | |
| len | 2 F300M | BRIGHT2 | 10 | 80 | | 1 | 80 | 1797.626 | |
| | 3 F335M | SHALLOW4 | 10 | 35 | | 1 | 35 | 18/1.537 | |
| Spectra | 4 I.444 M | SHALLOW4 | 10 | 55 | | 1 | 22 | 10/1.55/ | |
| PSF References | Alpha Pic - LW PSF (Obs 20) (PSF Refe Additional Justification: false | rence; Filters [F444W, | F250M, F300M, F335 | 5M]) | | | | | |

Proposal 1411 - Observation 25 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Special Requirements Sequence Observations 22, 23, 24, 25, 26, 27, Non-interruptible Aperture PA Offset 25 from 24 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 24 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| Observation | Proposal 1411, Observation 24: Beta F Diagnostic Status: Warning Observing Template: NIRCam Coronag Background Observations:[] | Pic - LW Roll 1 | | | | | | | Mon Jan | 23 20:01:17 GMT 2023 |
|-------------|---|---|--|---|---------------|--------------|---------------|--------------------|------------------------------|----------------------|
| Diagnostics | (Beta Pic - LW Roll 1 (Obs 24)) Warnin (Beta Pic - LW Roll 1 (Obs 24)) Warnin (Visit 24:1) Warning (Form): Overheads | g (Form): PSF Reference g (Form): Target requirin are provisional until the | e observations should ng background exposu Visit Planner has bee | be SEQ NON-INT. are selected for temp en run. | late that doe | sn't require | background ex | posure | | |
| ŝ | # Name | Target Coordina | ates | | Targ. Coor | d. Correct | ons | Μ | scellaneous | |
| gei | (1) BETA-PIC | RA: 05 47 17.087 | 77 (86.8211988d) | | Proper Mot | ion RA: 4.6 | 5 mas/yr | | | |
| ar | | Dec: -51 03 59.44 | 4 (-51.06651d) | | Proper Mot | ion Dec: 83 | .10 mas/yr | | | |
| þ | | Equinox: J2000 | | | Epoch of Po | osition: 200 | C | | | |
| ixe | Comments: This object was generated by | y the targetselector and i | etrieved from the SIM | IBAD database. | | | | | | |
| ш | Description=[Coronagraphic] | | | | | | | | | |
| tion | # Target | Filter | Target Brightness | Readout Pattern | Groups/I | nt | Integrations/ | Exp Total Integra | tions Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F335M | BRIGHT (ND Square) | RAPID | 17 | | 1 | 1 | 0.905 | 32789.19 |
| ate | Module | Coronagraphic Mas | k | Obtain Astrometr Images? | ic Confirma | ation | Subarray | | Dither Pattern | |
| Temp | А | MASK335R | | false | | | SUB320A335 | R | NONE | |
| ts | # Filter | Readout Patter | n Groups/Int | Integrati | ons/Exp | Total Di | thers | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| len | 1 F250M | BRIGHT2 | 10 | 80 | | 1 | | 80 | 1797.626 | |
| eπ | 2 F300M | BRIGHT2 | 10 | 80 | | 1 | | 80 | 1797.626 | |
| Ξ | 3 F335M | SHALLOW4 | 10 | 35 | | 1 | | 35 | 1871.537 | |
| tral | 4 F444W | SHALLOW4 | 10 | 35 | | 1 | | 35 | 1871.537 | |
| pect | | | | | | | | | | |
| 5 | | | | | | | | | | |
| ces | Alpha Pic - LW PSF (Obs 20) (PSF Refe Additional Justification: false | erence; Filters [F444W, J | F250M, F300M, F335 |) [] | | | | | | |
| ren | | | | | | | | | | |
| efe | | | | | | | | | | |
| Ř | | | | | | | | | | |
| PSF | | | | | | | | | | |

Proposal 1411 - Observation 24 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments

Special Requirements Sequence Observations 22, 23, 24, 25, 26, 27, Non-interruptible Aperture PA Offset 25 from 24 by 10 to 14 Degrees (Same offsets in V3)

Proposal 1411 - Observation 26 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| s Observation | Proposal 1411, Observation 26: Alpha Diagnostic Status: Warning Observing Template: NIRCam Coronag Background Observations:[] | a Pic - LW PSF raphic Imaging | healemand array | re selected for temp | late that describe | roquiro hostoround | | Mon Jan | 23 20:01:17 GMT 2023 |
|-----------------------|--|---|-----------------------|-----------------------------|--------------------|----------------------|---------------------------|------------------------------|----------------------|
| Diagnostic | (Visit 26:1) Warning (Form): Overhead: | s are provisional until the V | isit Planner has bee | en run. | ate that doesn't | require background o | exposure | | |
| ţs | # Name | Target Coordinate | es | | Targ. Coord. | Corrections | Μ | scellaneous | |
| l g | (2) ALPHA-PIC | RA: 06 48 11.4551 | (102.0477296d) | | Proper Motion | RA: -66.07 mas/yr | | | |
| Tal | | Dec: -61 56 29.00 (| (-61.94139d) | | Proper Motion | Dec: 242.97 mas/yr | | | |
| Fixed | Comments: This object was generated b Category=Calibration Description=[Coronagraphic] | y the targetselector and ret | trieved from the SIM | IBAD database. | Epoch of Posit | 1011: 2000 | | | |
| tion | # Target | Filter 1 | arget Brightness | Readout Pattern | Groups/Int | Integration | s/Exp Total Integra | tions Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F335M E S | BRIGHT (ND Iquare) | RAPID | 9 | 1 | 1 | 0.504 | 32789.19 |
| late | Module | Coronagraphic Mask | | Obtain Astrometr Images? | ic Confirmatio | n Subarray | | Dither Pattern | |
| Temp | А | MASK335R | | false | | SUB320A3 | 35R | 5-POINT-BOX | |
| Its | # Filter | Readout Pattern | Groups/Int | Integrati | ons/Exp | Fotal Dithers | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| Jen | 1 F250M | BRIGHT2 | 10 | 8 | 4 | 5 | 40 | 898.813 | |
| le l | 2 F300M | BRIGHT2 | 10 | 8 | - | 5 | 40 | 898.813 | |
| | 3 F335M | SHALLOW4 | 10 | 4 | - | 5 | 20 | 1069.45 | |
| Spectra | 4 F444 W | SHALLOW4 | 10 | 4 | |) | 20 | 1009.43 | |
| PSF References | PSF Reference: true | | | | | | | | |

Proposal 1411 - Observation 26 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments Sequence Observations 2

Sequence Observations 22, 23, 24, 25, 26, 27, Non-interruptible

Proposal 1411 - Observation 27 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

| bservation | Proposal 1411, Observation 27: Alph Diagnostic Status: Warning Observing Template: NIRCam Corona Background Observations:[] | ha Pic - SW PSF | | | | | | Mon Jan | 23 20:01:17 GMT 2023 |
|---------------|--|--|--|-----------------------------------|--------------------|---------------------|---------------------------|------------------------------|----------------------|
| Diagnostics 0 | (Alpha Pic - SW PSF (Obs 27)) Warni (Visit 27:1) Warning (Form): Overhead | ng (Form): Target requirin ds are provisional until the | g background exposu Visit Planner has bee | re selected for templa en run. | ate that doesn't t | equire background e | exposure | | |
| Ś | # Name | Target Coordina | ntes | | Targ. Coord. (| Corrections | М | iscellaneous | |
| det | (2) ALPHA-PIC | RA: 06 48 11.455 | 51 (102.0477296d) | | Proper Motion | RA: -66.07 mas/yr | | | |
| a | | Dec: -61 56 29.00 |) (-61.94139d) | | Proper Motion | Dec: 242.97 mas/yr | | | |
| L 2 | | Equinox: J2000 | | | Epoch of Positi | on: 2000 | | | |
| ixe | <i>Comments: This object was generated</i> <i>Category=Calibration</i> | by the targetselector and a | etrieved from the SIM | IBAD database. | | | | | |
| Ľ | Description=[Coronagraphic] | | | | | | | | |
| tion | # Target | Filter | Target Brightness | Readout Pattern | Groups/Int | Integration | s/Exp Total Integra | tions Total Exposure Time | ETC Wkbk.Calc ID |
| Acquisi | 1 SAME | F210M | BRIGHT (ND Square) | RAPID | 5 | 1 | 1 | 1.097 | 25161 |
| ate | Module | Coronagraphic Mas | k | Obtain Astrometri Images? | c Confirmation | n Subarray | | Dither Pattern | |
| Temp | А | MASK210R | | false | | SUB640A2 | 10R | 5-POINT-BOX | |
| ts | # Filter | Readout Patter | n Groups/Int | Integratio | ons/Exp 1 | otal Dithers | Total Integrations | Total Exposure Time | ETC Wkbk.Calc ID |
| len l | 1 F182M | RAPID | 4 | 10 | 5 | | 50 | 1047.484 | |
| en | 2 F210M | RAPID | 4 | 10 | 5 | | 50 | 1047.484 | |
| Ξ | | | | | | | | | |
| tra | | | | | | | | | |
| bec | | | | | | | | | |
| S | | | | | | | | | |
| ences | PSF Reference: true | | | | | | | | |
| Refer | | | | | | | | | |
| PSF F | | | | | | | | | |

Proposal 1411 - Observation 27 - Coronagraphy of the Debris Disk Archetype Beta Pictoris

No Parallel Attachments Sequence Observations 2

Sequence Observations 22, 23, 24, 25, 26, 27, Non-interruptible