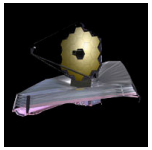

4441 - Multiband Imaging of the Outflows of HH 46/47

Cycle: 1, Proposal Category: DD

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Imaging				
	96	HH 46 NIRCam imaging	NIRCam Imaging	(8) HH46

ABSTRACT

We propose to image the outflows of HH 46/47 with both broad-band and narrow-band filters using the NIRCam instrument. HH46/47 is is a large prostellar outflow generated by a young intermediate-mass star. Highly embedded at optical and near-infrared wavelengths, the central source brightens to several Jy at mid-infrared wavelengths. Narrowband filters will show the morphology of rotational molecular H2 emission, shocked gas though Paschen-alpha emission, and ionized PAH emission at 3.3 microns, while broadband filters will show background stellar light at varying levels of extinction behind the cloud.

OBSERVING DESCRIPTION

Observation of the HH46 protostellar outflow. HH46/47 is is a large prostellar outflow generated by a young intermediate-mass star. Highly embedded at optical and near-infrared wavelengths, the central source brightens to several Jy at mid-infrared wavelengths. The observation consists of imaging, but no spectroscopy to avoid overlap with an approved GO1 program.

- NIRCam imaging of the entire outflow, including both the NE and SW outflow lobes. Note that only the SW lobe is visible at short wavelengths, but both are bright at long wavelengths due to variable extinction. NIRCam employs 6 dithers using a 2x2 mosaic of fullbox patterns overlapping by 71.5% in the long-axis direction of NIRCam for most uniform depth and maximum efficiency possible at the position angles available. 6 filters are covered, with a mix of bandwidths: F115W-F200W will provide extinction colors of the background stellar field, a medium band filter will show PAHs (F335M) and a long-wave point (F444W) a continuum reference for H2. Finally, two NB filters will reveal strong atomic (F187N) and molecular (F470N) shocked emission. The narrow-band exposures are significantly deeper than the M and W band. Exposure times are set using a outflow model, combined with measured Spitzer surface brightnesses. At the longest wavelengths, the very red central source will saturate (W1=10 mag, W2=7.2 mag). Thus, the is placed on the edge of only one detector, so as not to affect multiple detectors.

The PA is constrained to minimize the risk of contamination from claws.

Proposal 4441 - Targets - Multiband Imaging of the Outflows of HH 46/47

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(8)	HH46	RA: 08 25 43.6728 (126.4319700d) Dec: -51 00 37.52 (-51.01042d) Equinox: J2000	Epoch of Position: 2015.5	

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

Observation

Proposal 4441, Observation 96: HH 46 NIRCam imaging Mon May 01 22:01:05 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

(Visit 96:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 96:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 96:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.
(Visit 96:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(8)	HH46	RA: 08 25 43.6728 (126.4319700d) Dec: -51 00 37.52 (-51.01042d) Equinox: J2000	Epoch of Position: 2015.5	

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

Template

Module	Subarray	Target Placement
ALL	FULL	Module Gap

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift	Column shift	Tile Order
2	2	10.0	71.5	0.0	0.0	DEFAULT

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	FULLBOX	5TIGHT	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F187N	F470N+F444W	SHALLOW4	5	1	5	5	1288.412	
2	F115W	F335M	BRIGHT2	7	1	5	5	751.574	
3	F200W	F444W	BRIGHT2	8	1	5	5	858.942	

Special Requirements

Before Date 01-JUL-2023:00:00:00
Group Visits within 53.0 Days
Aperture PA Range 117.1286469 to 119.6286469 Degrees (V3 117.2 to 119.7)
Visits Same PA