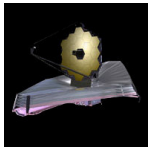

12509 - Evaluating a Distantly Bright Kreutz Sungrazer

Cycle: 4, Proposal Category: DD

INVESTIGATORS

Name	*Institution*
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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Imaging				
	1	NIRCam F250M	NIRCam Imaging	(1) 2026A1
	2	NIRCam F277W	NIRCam Imaging	(1) 2026A1
	3	NIRCam F300M	NIRCam Imaging	(1) 2026A1
	4	NIRCam F430M	NIRCam Imaging	(1) 2026A1
	5	NIRCam F460M	NIRCam Imaging	(1) 2026A1
	6	MIRI F560W	MIRI Imaging	(1) 2026A1
	7	MIRI F1000W	MIRI Imaging	(1) 2026A1
	8	MIRI F1500W	MIRI Imaging	(1) 2026A1

ABSTRACT

Sungrazing comets undergo extreme thermal processing from heating at their perihelia often <1 R_sun above the Sun's surface. Nearly all known sungrazers are part of the Kreutz family, descended from a disrupted progenitor sungrazer whose major fragments have returned to become several of the brightest comets in history. Thousands of tiny fragments too small to survive the sungrazing encounter have also been spotted in solar

coronagraphic imagery, and continue to be seen on a near-daily basis. However, until now, no Kreutz sungrazer—big or small—has ever been spotted >50 deg from the Sun before perihelion, which has limited their comparability with non-sungrazing comets and thus value as probes for thermal alteration. The early discovery of Kreutz sungrazer C/2026 A1 while still observable by JWST thus presents an unprecedented opportunity to characterize the properties of such a comet. While ephemeris uncertainties remain too high for IFU/slit targeting, they are sufficient for NIRCam and MIRI color imaging. We request a set of 8 such observations to measure the nucleus albedo/size, its primary volatile composition, and key reflectance/emissivity features to evaluate thermal processing effects. The data will also capture any accompanying fragments, aiding assessment of the mechanisms behind their apparently routine formation tens of au from the Sun. The results will provide an early indication of whether this comet is a major sungrazer likely to survive perihelion or a minor one comparable to those commonly seen with solar coronagraphs—and if the latter, why this one is so bright/active so far from the Sun—with impacts for solar system contextualization and heliophysics.

OBSERVING DESCRIPTION

We request a set of 8 imaging observations with NIRCam and MIRI, each with a different set of filters covering spectral features of interest. All NIRCam observations use F150W2 in the shortwave channel, with the 5 observations using F250M, F277W, F300M, F430M, and F460M in the longwave channel. The 3 MIRI observations use F566W, F1000W, and F1500W. MIRI background observations are done as coordinated parallel observations with 3 of the 5 NIRCam observations. All observations should be scheduled on or before 2026 February 9, as the target exits JWST's field of regard on that date. The observations would ideally be grouped within a 1-day window, if scheduling allows.

Proposal 12509 - Targets - Evaluating a Distantly Bright Kreutz Sungrazer

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Observation

Proposal 12509, Observation 1: NIRCam F250M

Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): MIRI Imaging

Diagnostics

(NIRCam F250M (Obs 1)) Warning (Form): Coordinated parallel observations of moving targets will result in trailing of fixed sources, and pointing that depends on the ephemeris of the prime science target and time when the observation is taken.

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

(NIRCam F250M (Obs 1)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

NIRCam Imaging	MIRI Imaging
Module: B	Subarray: FULL
Subarray: FULL	

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	INTRAMODULEX	4		1	NIRCam Only	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F150W2	F250M	BRIGHT1	5	1	4	4	386.524	

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F560W	FASTR1	34	1	1		4	4	377.405	

Special Requirements	
	Offset 39.0 arcsec, -29.5 arcsec No Parallel Attachments DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 2: NIRCam F277W Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): MIRI Imaging

Diagnostics

(NIRCam F277W (Obs 2)) Warning (Form): Coordinated parallel observations of moving targets will result in trailing of fixed sources, and pointing that depends on the ephemeris of the prime science target and time when the observation is taken.

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

(NIRCam F277W (Obs 2)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

NIRCam Imaging	MIRI Imaging
Module: B	Subarray: FULL
Subarray: FULL	

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	INTRAMODULEX	4		1	NIRCam Only	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F150W2	F277W	BRIGHT1	5	1	4	4	386.524	

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F1000W	FASTR1	6	5	1		4	20	377.405	

Special Requirements	
	Offset 39.0 arcsec, -29.5 arcsec No Parallel Attachments DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 3: NIRCam F300M Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): MIRI Imaging

Diagnostics

(NIRCam F300M (Obs 3)) Warning (Form): Coordinated parallel observations of moving targets will result in trailing of fixed sources, and pointing that depends on the ephemeris of the prime science target and time when the observation is taken.

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

(NIRCam F300M (Obs 3)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

NIRCam Imaging	MIRI Imaging
Module: B	Subarray: FULL
Subarray: FULL	

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	INTRAMODULEX	4		1	NIRCam Only	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F150W2	F300M	BRIGHT1	5	1	4	4	386.524	

Spectral Elements

MIRI Imaging	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F1500W	FASTR1	6	5	1		4	20	377.405	

Special Requirements	
	Offset 39.0 arcsec, -29.5 arcsec No Parallel Attachments DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 4: NIRCam F430M

Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

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

(NIRCam F430M (Obs 4)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

Module	Subarray	Target Placement
ALL	FULL	Module B center (small extended source)

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F150W2	F430M	BRIGHT1	5	1	4	4	386.524	

Special Requirements

Offset 39.0 arcsec, -29.5 arcsec
Fiducial Point Override NRCBS_FULL

DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 5: NIRCam F460M

Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

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

(NIRCam F460M (Obs 5)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

Module	Subarray
B	FULL

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEX	4	STANDARD		1

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	Optional ETC ID
1	F150W2	F460M	BRIGHT1	5	1	4	4	386.524	

Special Requirements

Offset 39.0 arcsec, -29.5 arcsec

DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 6: MIRI F560W Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

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

(MIRI F560W (Obs 6)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						LARGE

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F560W	FASTR1	34	1	1	Dither 1	4	4	377.405	

Special Requirements

Offset 0.0 arcsec, -19.5 arcsec

DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 7: MIRI F1000W

Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

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

(MIRI F1000W (Obs 7)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						LARGE

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F1000W	FASTR1	6	5	1	Dither 1	4	20	377.405	

Special Requirements

Offset 0.0 arcsec, -19.5 arcsec

DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075

Observation

Proposal 12509, Observation 8: MIRI F1500W

Tue Jan 27 18:00:15 GMT 2026

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

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

(MIRI F1500W (Obs 8)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Solar System Targets

#	Name	Level 1	Level 2	Level 3
(1)	2026A1	TYPE=COMET,Q=0.0057692023,E=0.99996527,I=144.490701,O=7.876245,W=86.312967,T=04-APR-2026:14:28:50,TTimeScale=TDB,EQUINOX=J2000,EPOCH=16-JAN-2026:00:00:00,EpochTimeScale=TDB		

Comments: Extended=YES

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4						LARGE

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	Optional ETC ID
1	F1500W	FASTR1	6	5	1	Dither 1	4	20	377.405	

Special Requirements

Offset 0.0 arcsec, -19.5 arcsec

DEFAULT WINDOW: ANGULAR RATE 2026A1 FROM JWST LESS THAN 0.075