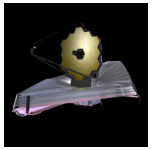

6678 - A crucial piece of the puzzle: completing the panchromatic view of a nearby young SN with JWST observations

Cycle: 2, Proposal Category: DD

INVESTIGATORS

Name	*Institution*
Dr. Rubina Kotak (PI) (ESA Member)	**University of Turku**
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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Epoch 2				
	1	LRS_epoch2	MIRI Low Resolution Spectroscopy	(1) 24ggi
	2	MRS1	MIRI Medium Resolution Spectroscopy	(1) 24ggi
	7	MRS-img	MIRI Imaging	(1) 24ggi
Epoch 3				
	3	LRS_epoch3	MIRI Low Resolution Spectroscopy	(1) 24ggi
	4	MRS2	MIRI Medium Resolution Spectroscopy	(1) 24ggi
	6	MRS-img	MIRI Imaging	(1) 24ggi

ABSTRACT

SN~2024ggi was reported less than a week ago in NGC 3621; at a distance of only ~7 Mpc it is the nearest core-collapse supernova to occur in the southern hemisphere in over a decade. Furthermore, it was discovered within hours of explosion, a progenitor candidate has already been identified in archival pre-explosion Hubble Space Telescope images, and a multi-wavelength follow-up campaign is already underway. Here we request mid-infrared observations over the course of Cycle 3 to derive diagnostics that are simply not accessible via other means. Our proposed observations are critical for interpreting SN~2024ggi in the context of supernovae resulting from the core collapse of massive stars.

OBSERVING DESCRIPTION

We request ~6.1 hrs of observing time to carry out mid-IR imaging and spectrocopy at 3 epochs over the course of Cycle 3 using MIRI LRS, MRS, and imaging. The proposed observations will allow us to cleanly access information on the composition and distribution of material in the ejecta that is not possible at other wavelengths.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Observation

Proposal 6678, Observation 1: LRS_epoch2

Fri May 17 16:00:59 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

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

(Visit 1:1) Informational (Form): Visit schedulable, but most scheduling windows are when JWST is pointed in direction of greatest micrometeoroid impact risk. This is likely due to scheduling special requirements.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 24ggi	F560W	FAST	4	1	1	11.1	198120

Template

Subarray	Obtain Verification Image?
FULL	false

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	ALONG SLIT NOD				

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	50	3	6	1	2	843.612	198120

Special Requirements	
	Between Dates 21-DEC-2024:00:00:00 and 15-JAN-2025:00:00:00 Group Observations 1, 2, 7 within 5 Days

Observation

Proposal 6678, Observation 2: MRS1

Fri May 17 16:00:59 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

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
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 24ggi	F560W	FAST	6	1	1	16.65	198120

Template

Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction
Channel 4	YES	FULL	NEUTRAL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	POINT SOURCE	NEGATIVE

Spectral Elements

#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1		IMAGER	F1800W	FASTR1	20	2	1	Dither 1	4	8	455.107	
1	SHORT(A)	MRSLONG		SLOWR1	23	1	1	Dither 1	4	4	2197.873	
1	SHORT(A)	MRSSHORT		SLOWR1	23	1	1	Dither 1	4	4	2197.873	

Special Requirements	Group Observations 1, 2, 7 within 5 Days

Observation

Proposal 6678, Observation 7: MRS-img

Fri May 17 16:00:59 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4		5	1			DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F2550W	FASTR1	15	1	1	Dither 1	4	4	166.502	
2	F1280W	FASTR1	10	1	1	Dither 1	4	4	111.002	
3	F1500W	FASTR1	10	1	1	Dither 1	4	4	111.002	

Special Requirements

Group Observations 1, 2, 7 within 5 Days

Observation

Proposal 6678, Observation 3: LRS_epoch3

Fri May 17 16:00:59 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 24ggi	F560W	FAST	4	1	1	11.1	198120

Template

Subarray	Obtain Verification Image?
FULL	false

Dithers

#	Dither Type	No. Spectral Steps	Spectral Step Offset	No. Spatial Steps	Spatial Step Offset
1	ALONG SLIT NOD				

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	100	3	6	1	2	1676.124	198120

Special Requirements	
	Between Dates 27-APR-2025:00:00:00 and 20-JUN-2025:00:00:00 Group Observations 3, 4, 6 within 5 Days

Observation

Proposal 6678, Observation 4: MRS2

Fri May 17 16:00:59 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	1 24ggi	F560W	FAST	6	1	1	16.65	198120

Template

Primary Channel	Simultaneous Imaging	Imager Subarray	Grating Wheel Direction
Channel 4	YES	FULL	NEUTRAL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	POINT SOURCE	NEGATIVE

Spectral Elements

#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1		IMAGER	F1800W	FASTR1	20	2	1	Dither 1	4	8	455.107	
1	SHORT(A)	MRSLONG		SLOWR1	22	1	1	Dither 1	4	4	2102.313	
1	SHORT(A)	MRSSHORT		SLOWR1	22	1	1	Dither 1	4	4	2102.313	

Special Requirements	Group Observations 3, 4, 6 within 5 Days

Observation

Proposal 6678, Observation 6: MRS-img

Fri May 17 16:00:59 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	24ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]
Extended=NO

Template

Subarray
FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	CYCLING	1	4		5	1			DEFAULT

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F2550W	FASTR1	15	1	1	Dither 1	4	4	166.502	
2	F1280W	FASTR1	10	1	1	Dither 1	4	4	111.002	
3	F1500W	FASTR1	10	1	1	Dither 1	4	4	111.002	

Special Requirements

Group Observations 3, 4, 6 within 5 Days