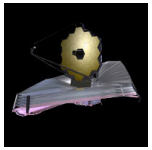

6677 - Observing Molecule and Dust Formation in the Nearby SN 2024ggi

Cycle: 2, Proposal Category: DD

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
+30-60d				
	2	NIRspec	NIRSpec Fixed Slit Spectroscopy	(1) SN2024ggi
	3	LRS-MIRI	MIRI Low Resolution Spectroscopy	(1) SN2024ggi

ABSTRACT

On April 11, 2024, the Type II supernova (SN II) 2024ggi was discovered in NGC 3621 at only 7 Mpc from Earth; one of only a few SNe found within 7 Mpc in the last century. Discovered only hours after explosion, the >2 mag rise over the following 8 hours triggered an intense, worldwide, multi-wavelength effort to provide a high-cadence view of SN 2024ggi's evolution. JWST observations will provide crucial insights as the only telescope capable of completing the wavelength coverage in the NIR+MIR. The proximity of 2024ggi provides a perfect opportunity to study details of dust formation and any asymmetries in SNe II. The production sites of dust are still debated. AGB stars are considered to be the primary dust producers, but the first dust likely formed before AGB stars had time to produce it. SNe II are expected to play an important role in dust production since their current rate dominates over all other types of SNe. We request 6.18 hr of DDT to obtain a NIR+MIR spectral time-series of 2024ggi at 3 epochs between ~30-400 d past explosion to detect and track the formation and evolution of molecules and dust in the ejecta. The observations will provide a legacy data set from which the community can understand dust formation in SNe II to a degree not previously possible. The data will also uniquely constrain the ejecta of a nearby SN II, adding to the handful of SNe II within 7 Mpc, but with the unparalleled insights that JWST provides.

Forgoing JWST observations at the proposed phases will hinder any future science (JWST or otherwise) of SN 2024ggi, and the community will be unable to measure reliably the evolution of dust growth of one of the nearest SN in the JWST era.

OBSERVING DESCRIPTION

We request 6.18 hrs of non-disruptive ToO time to obtain 3 NIR+MIR spectra of SN 2024ggi. We will use NIRSpec in the G395M/F290LP and G235M/F170LP gratings and the LRS mode on MIRI. This program will provide an unprecedented dataset on the evolution of CO, SiO and dust formation in the ejecta of one of the closest SN II in JWSTs lifetime, and enable a unique avenue to determine how SNe II explode to a degree that was not possible with previous facilities.

Proposal 6677 - Targets - Observing Molecule and Dust Formation in the Nearby SN 2024ggi

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	SN2024ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]

Observation

Proposal 6677, Observation 2: NIRspec

Fri May 10 21:01:35 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec Fixed Slit 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)	SN2024ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]

Acquisition

#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	WATA	SUB32	F140X	NRSRAPID	3	1	1	0.08	156228

Template

Slit	Subarray
S400A1	SUBS400A1

Dithers

#	Primary Dither Positions	Sub-Pixel Pattern
1	3	NONE

Spectral Elements

#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Exp	#	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395M/F290LP	S400A1	NRSRAPID	20	1	1	NONE	3	3	98.215	156228
2	G235M/F170LP	S400A1	NRSRAPID	12	1	2	NONE	3	3	60.823	156228

Special Requirements	
	Between Dates 11-MAY-2024:00:00:00 and 10-JUN-2024:00:00:00 2 After 3 by <None specified> to 1 Days

Observation

Proposal 6677, Observation 3: LRS-MIRI

Fri May 10 21:01:35 GMT 2024

Diagnostic Status: Warning

Observing Template: MIRI Low Resolution Spectroscopy

Diagnostics

(LRS-MIRI (Obs 3)) Warning (Form): Groups/Int cannot be 1, Groups/Int = 2 requires permission and Groups/Int of 3-4 is allowed but not recommended.

(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)	SN2024ggi	RA: 11 18 22.0910 (169.5920458d) Dec: -32 50 15.29 (-32.83758d) Equinox: J2000		

Comments:
Category=Star
Description=[Supernovae]

Acquisition

#	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	SAME	F560W	FAST	4	1	1	11.1	156231

Template

Subarray	Obtain Verification Image?
FULL	true

Dithers

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

Pointing Verification

#	PV Readout Pattern	PV Groups/Int	PV Integrations/Exp	PV Total Integrations	PV Exposures/Dith	PV Total Dithers	PV Total Exposure Time	PV ETC Wkbk.Calc ID	Filter
1	FASTR1	4	4	4	1	1	52.726		F560W

Spectral Elements

#	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Exposures/Dith	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	FASTR1	15	3	6	1	2	260.854	156231

Special Requirements

Between Dates 11-MAY-2024:00:00:00 and 10-JUN-2024:00:00:00

2 After 3 by <None specified> to 1 Days