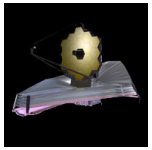

8633 - Back from the dead or the final nail in the coffin: is SN2008S still alive?

Cycle: 4, Proposal Category: GO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1	2008S NIRcam	NIRCam Imaging	(1) SN-2008S
	2	2008S MIRI	MIRI Imaging	(1) SN-2008S

ABSTRACT

SN2008S is the prototype for a class of underluminous, dusty transients whos true origins are unclear. 08S-like transients are often regarded as supernova impostors, non-terminal mass loss eruptions of massive stars. However this may not be the case, pre-explosion imaging of SN2008S show that it may have a low mass progenitor and Spitzer follow-up found that SN2008S had faded below the luminosity of its progenitor, perhaps indicating a terminal explosion. However, a surviving progenitor may exist and be dust-enshrouded. This proposal aims to finally solve the mystery

of this common class of underluminous (if true supernovae) transient. Using NIRcam and MIRI over a range of filters, we aim to see if the transient is still detectable, construct spectral energy distributions in order to fit models of dust enshrouded progenitors in order to determine if dust could feasibly still be obscuring a survivng progenitor. Furthermore, SEDs of the stars local to SN2008S can be used to estimate the mass, informing us on the mass of the progenitor of SN2008S. The timing of this proposal is perfect as we are on the cusp of an explosion in transient discoveries with LSST at the Vera C. Rubin Observatory coming online in the next year or so. LSST will discover enormous numbers of transients and this investigation will provide a vital case-study for these mysterious objects.

OBSERVING DESCRIPTION

We aim to use NIRcam and MIRI in the following filters: F460M, F560W, F1000W, F1280W, F1500W and F2100W in order to determine whether SN2008S has faded so much that feasible dust behaviour can no longer hide a survivng progenitor or if there is cold dust obscuring the progenitor. Hence this will determine whether SN2008S is a true supernova or an impostor.

Proposal 8633 - Targets - Back from the dead or the final nail in the coffin: is SN2008S still alive?

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	SN-2008S	RA: 20 34 45.3300 (308.6888750d) Dec: +60 05 58.40 (60.09956d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Eruptive variables, Supernovae]
Extended=NO

Observation

Proposal 8633, Observation 1: 2008S NIRcam

Mon Sep 15 19:00:15 GMT 2025

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	SN-2008S	RA: 20 34 45.3300 (308.6888750d) Dec: +60 05 58.40 (60.09956d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Eruptive variables, Supernovae]
Extended=NO

Template

Module	Subarray
B	FULL

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULE	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	F200W	F460M	DEEP2	5	1	4	4	3521.661	

Special Requirements

Offset 25.0 arcsec, 25.0 arcsec

Observation

Proposal 8633, Observation 2: 2008S MIRI Mon Sep 15 19:00:15 GMT 2025

Diagnostic Status: Warning

Observing Template: MIRI Imaging

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)	SN-2008S	RA: 20 34 45.3300 (308.6888750d) Dec: +60 05 58.40 (60.09956d) Equinox: J2000	Epoch of Position: 2000	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Star
Description=[Eruptive variables, 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		1	1			DEFAULT

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	20	4	1	Dither 1	4	16	921.313	
2	F1000W	FASTR1	50	4	1	Dither 1	4	16	2253.332	
3	F1500W	FASTR1	70	12	1	Dither 1	4	48	9446.236	