



Observing Application

Date : Jun, 13 2011
Proposal ID : VLA/11A-277
Legacy ID : AS1107
PI : Alicia Soderberg
Type : Director's Discretionary
Time - Target of
Opportunity
Category : Energetic Transients and
Pulsars
Total Time : 42.0

Showcasing EVLA Capabilities with a Study of SN2011dh in M51

Abstract:

On June 1st a new supernova was discovered coincident with a spiral arm of M51, dubbed SN2011dh. Spectroscopy indicates that the explosion is hydrogen-rich with some similarities to SN 1993J, while examination of pre-discovery HST images reveal a yellow hypergiant progenitor. Shortly after discovery, a bright (4 mJy) counterpart was discovered at 100 GHz with an optically-thin spectrum, which we also detect with SMA observations at 230 GHz. We request 14 epochs of wide-band EVLA data over the next 8 months to study the temporal and spectral evolution of the SN with unprecedented detail. The combination of radio data together with our on-going multi-wavelength campaign (X-ray, optical) provides an excellent opportunity to shed light on the nature of the explosion, the dynamics of the ejecta and on the pre-explosion mass loss history. Bright SNe this close (8 Mpc) are infrequent, and SN will undoubtedly be heavily studied for several years and become a benchmark event. All data from this project will be made public immediately.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Spectroscopy, Monitoring

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Sband	Any	S Band 10 cm 2000 - 4000 MHz WIDAR RSRO	Comments: we request wide-band
Xband	Any	X Band 3.6 cm 8000 - 12000 MHz WIDAR RSRO	Comments: we request wide-band
Kuband	Any	Ku Band 2 cm 12000 - 18000 MHz WIDAR RSRO	Comments: we request wide-band
Kband	Any	K Band 1.3 cm 18000 - 26500 MHz WIDAR RSRO	Comments: we request wide-band
Kaband	Any	Ka Band 0.9 cm 26500 - 40000 MHz WIDAR RSRO	Comments: we request wide-band
Cband	Any	C Band 6 cm 4000-8000 MHz WIDAR RSRO	Comments: we request wide-band
Lband	Any	L Band 20 cm 1000 - 2000 MHz WIDAR RSRO	Comments: We request wide-band. We also will attempt to search for narrow absorption features (e.g., HI) when the SN emission peaks in L-band (dt~200 days). co-I Rupen will lead the spectral line set-up.

Sources:

Name	Position		Velocity		Group
SN2011dh	Coordinate System	Equatorial	Convention	Radio	Event
	Equinox	J2000			
	Right Ascension	13:30:05.8 00:00:00.0	Ref. Frame	LSRK	
	Declination	+47:10:11.2 00:00:00.0	Velocity	0.00	

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
SNobserveL	0.40	14	14 day	00:00:00	24:00:00	0
SNobserveS	0.40	14	14 day	00:00:00	24:00:00	0
SNobserveC	0.40	14	14 day	00:00:00	24:00:00	0