



Observing Application

Date : Jun, 17 2013
Proposal ID : VLA/13A-531
Legacy ID : AH1130
PI : Assaf Horesh
Type : Director's Discretionary
Time - Target of Opportunity
Category : Energetic Transients and Pulsars
Total Time : 1.0

A Radio Observation of PTF13bvn - A Young Nearby Supernova in NGC 5806

Abstract:

We propose a TOO observation of a young nearby supernova (SN) PTF13bvn. We discovered the SN on June 16 in NGC5806, only 21.5 Mpc away. The supernova light curve and the prior detection limits suggest this is a young (1-2 days old) SN. Radio observations, especially when obtained at an early age, offer a unique view of SNe. Specifically, radio observations trace high energy particles; arise in locations of high magnetic field; and probe the interaction of fast outflows with the surrounding medium. Therefore, radio observations can provide measurements of the CSM density from which the mass-loss rate of the progenitor star can also be inferred. An example for the importance of early radio observations is SN 2011dh. Thanks to the early observations of this SN, we were able to obtain measurements of the CSM density at small radii, close to the star, and measure the early evolution of the shockwave.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
C_band_wide	C	C Band 6 cm 4000-8000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 5000.0,6000.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz
K_band_Wide	C	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 21500.0,22500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz

Sources:

Name	Position		Velocity		Group
PTF13bvn	Coordinate System	Equatorial	Convention	Radio	TOO1
	Equinox	J2000			
	Right Ascension	15:00:00.18 00:00:00.0	Ref. Frame	LSRK	
	Declination	+01:52:53.5 00:00:00.0	Velocity	0.00	
	Calibrator	No			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
TOO	1.00	1	0 day	13:00:00	17:00:00	30

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
TOO	PTF13bvn	C_band_wide	0.5 hour	0.015 mJy/bm	
TOO	PTF13bvn	K_band_Wide	0.5 hour	0.02 mJy/bm	

Present for observation: no

Staff support: None

Plan of Dissertation: no