Observing Application

Date :	Feb, 06 2012
Proposal ID :	VLA/12A-450
Legacy ID :	AS1182
PI :	Alicia Soderberg
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Energetic Transients and Pulsars
Total Time :	12.0

"IIb or not IIb": Exploring the Diversity of Type IIb Supernovae with EVLA

Abstract:

With the improved capabilities of optical transient surveys (including amateur campaigns), local supernovae are being discovered earlier than ever before. As a result, a new class of Type IIb supernovae from compact progenitor stars (R~1e11 cm) has emerged with fleeting hydrogen features detectable only in the first days/week after explosion. These objects tend to be radio luminous owing to their fast shockwave velocities and enriched circumstellar environments, strongly resembling Type Ibc supernovae. Variable radio emission has been seen from almost every compact Type IIb to date. We propose a modest effort to monitor the recently detected radio emission from Type IIb SN2012P over the next 6 months, which we suggest is the newest member of this emerging class of explosions. This study will shed light on the progenitor properties of compact IIb supernovae and their relation to those of SNe Ibc (Wolf-Rayet stars).

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Cband	Any	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: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
Xband	Any	X Band 3.6 cm 8000 - 12000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 8500.0,9500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz

Sources:

Name	Position		Velocity		Group
SN2012P	**Coordinate System**	Equatorial	**Convention**	Radio	SN
	Equinox	J2000			
	Right Ascension	14:59:59.0	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	+01:53:24.0	**Velocity**	0.00	
		00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Observe	0.50	12	10 day	10:00:00	17:00:00	0
Observe2	0.50	12	10 day	10:00:00	17:00:00	0

Session Constraints:

Name	Constraints	Comments
Observe		
Observe2		C and X should be scheduled together in each 1 hr observation of the SN (12 total)

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Observe	SN2012P	Cband	0.5 hour	0.02 mJy/bm	
Observe2	SN2012P	Xband	0.5 hour	0.02 mJy/bm	

Present for observation: no Staff support: None Plan of Dissertation: no