Observing Application

Date :	Apr, 25 2012
Proposal ID :	VLA/12A-474
Legacy ID :	AZ210
PI :	Bevin Zauderer
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Energetic Transients and Pulsars
Total Time :	3.5

Monitoring of the Nearby Sub-energetic GRB 120422A

Abstract:

Sub-energetic (10^49 erg) gamma-ray bursts (GRBs) form a bridge population between cosmological GRBs with beamed relativistic ejecta and standard core-collapse supernovae. These sub-energetic events are rare, occurring only once every ~2 years. The recent GRB 120422A at z=0.28 belongs to this rare bridge population, and therefore merits detailed study. We have detected this burst in two epochs at both 6 GHz and 22 GHz, and request 3.5 hours of EVLA time to continue monitoring of this burst at about 8, 16 and 32 d. The radio observations will constrain the total relativistic ejecta and shed light on the geometry.

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Related proposals:

10C-145, 12A-394

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup

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Kband	Any	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
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: 128.0 MHz Total Bandwidth: 2,048.00 MHz

Sources:

Name	Position		Velocity		Group
GRB120422A	**Coordinate System**	Equatorial	**Convention**	Redshift	GRB Afterglows
	Equinox	J2000			
	Right Ascension	09:07:38.42	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	+14:01:07.1	**Redshift**	0.28	
		00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Day8	1.50	1	1 day	05:00:00	13:00:00	30
Day16	1.00	2	16 day	05:00:00	13:00:00	30

Session Constraints:

Name	Constraints	Comments
Day8		First observation will be C+K, and 1.5 hours includes overhead for reference pointing, slewing, gain, flux and bp calibration
Day16		We request epochs 2 and 3 at factors of two in time: dt~16 and 32 days post-burst.

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Day8	GRB120422A	Kband	1.0 hour	0.02 mJy/bm	
Day8	GRB120422A	Cband	0.5 hour	0.01 mJy/bm	
Day16	GRB120422A	Cband	1.0 hour	0.01 mJy/bm	

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