Observing Application

Date :	May, 25 2012
Proposal ID :	VLA/12A-480
Legacy ID :	AL821
PI :	Tanmoy Laskar
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Energetic Transients and Pulsars
Total Time :	7.5

GRB120521C: A New High Redshift Burst

Abstract:

We request 7.5 hours of EVLA observations to monitor a new high-z burst, GRB120526C. We currently have observations at 5.8 GHz and 21.8 GHz at 0.15 and 1.15 days after the burst. In the first epoch, we found a 3-sigma upper limit at 21.8 GHz of 50 uJy. A second epoch one day later resulted in a radio detection at 21.8 GHz (~120 uJy). This detection has a rising spectral index, is within the Swift-XRT error circle, and clearly pinpoints the source of the emission, allowing precise astrometry with near-IR images for host identification. We are conducting a third epoch of observations at ~3 days with our detection program (12A-394) and request 5 additional epochs at factors of two in time for complete monitoring (~6, 12, 24, 48, and 96 days). We request 1.5 hours per epoch, for a total of 7.5 hours. If the source fades below detectability, we will cease observations. GRB120521C is among the highest redshift bursts discovered to-date and is only the third above z~6 with a radio detection. Therefore, this is a key priority for our program.

Authors:

Name	Institution	Email	Status
Tanmoy Laskar	Harvard University	tlaskar@cfa.harvard.edu	Graduating: 2013 Thesis: true
Bevin Zauderer	Harvard University	bevinashley@gmail.com	
Edo Berger	Harvard University	eberger@cfa.harvard.edu	

Principal Investigator: Tanmoy Laskar
Contact: Bevin Zauderer
Telephone: (404) 784-1359
Email: bevinashley@gmail.com

Related proposals:

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: 2000.0 kHz 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: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
Lband	Any	L Band 20 cm 1000 - 2000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 1250.0,1750.0 MHz Subband Bandwidth: 64.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 1000.0 kHz Total Bandwidth: 1,024.00 MHz
Ka_band	Any	Ka Band 0.9 cm 26500 - 40000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 32500.0,33500.0 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
GRB120521C	**Coordinate System**	Equatorial	**Convention**	Radio	DarkBurst
	Equinox	J2000			
	Right Ascension	14:17:08.8	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	+42:08:41.3	**Velocity**	0.00	
		00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Multiband	1.50	5	10 day	09:00:00	19:30:00	30

Session Constraints:

Name	Constraints	Comments
Multiband	We plan to observe C and K band in each 1.5 hour epoch to begin with. If the source brightens, we will include Ka band. If the source fades below detectability at higher frequencies, we will include L band. Actual integration time on source in each epoch will be ~20 min per frequency.	We request sessions to be separated at increasing increments in time (6, 12, 24, 48, and 96 days)