



Observing Application

Date : Oct, 02 2012
 Proposal ID : VLA/12B-387
 Legacy ID : AZ224
 PI : Bevin Zauderer
 Type : Director's Discretionary
 Time - Target of Opportunity
 Category : Energetic Transients and Pulsars
 Total Time : 6.0

GRB120923A: A New Very High (z>8) Redshift Burst

Abstract:

We request 6 hours of EVLA observations to monitor a new high-z burst, GRB 120923A. We currently have observations at 5.8 GHz and 21.8 GHz at 0.8 and ~7 days after the burst. In the first epoch, we found a 3-sigma upper limit at 5.8 GHz of 28 uJy. A second epoch a week later resulted in a radio detection at 5.8 GHz (~30 uJy). This detection is within the Swift-XRT error circle, and coincides with a Gemini near-IR counterpart host, potentially at $z > 8$. We request 4 more epochs of 1.5 hours each, for a total of up to 6 hours for observations at 5.8 GHz. We will only include observations at 21.8 GHz if the source substantially brightens. If the source fades below detectability, we will cease observations. GRB 1205923A is among the highest redshift bursts discovered to-date and is only the fourth above $z \sim 6$ with a radio detection. Therefore, this is a key priority for our program.

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Related proposals:

12A-394

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
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Name	Conf.	Frontend & Backend	Setup
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

Testing Resource Images

Sources:

Name	Position		Velocity		Group
GRB120923A	Coordinate System	Equatorial	Convention	Radio	HighRedshift
	Equinox	J2000			
	Right Ascension	20:15:10.75 00:00:00.0	Ref. Frame	LSRK	
	Declination	+06:13:16.7 00:00:00.0	Velocity	0.00	

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
MultiFreq	1.50	4	4 day	15:45	00:30:00	25

Session Constraints:

Name	Constraints	Comments
MultiFreq		Each 1.5 hour observing block will be spaced logarithmically in time, roughly at 2-3 days, 4-6 days and 10-12 days. The fourth epoch will only be observed if the source was detected in the third epoch. Calculated RMS for K and C band includes 1.75 GHz bandwidth, and an assumed integration time on source of 50% of the session time. We plan to only observe at C band unless the source substantially brightens.

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
MultiFreq	GRB120923A	Kband	0.5 hour	.018 mJy/bm	
MultiFreq	GRB120923A	Cband	1.0 hour	.008 mJy/bm	