



Observing Application

Date: Feb 6, 2007
 Proposal ID: VLA/07B-242
Legacy ID: AM910
 PI: Jean-Pierre Macquart
 Type: Rapid Response
 Target of Opportunity
 Category: Extragalactic
 Total time: 68.001 hour

Interstellar Scintillation Observations of the Extremely Bright GRB 070125

Abstract:

GRB 070125 was extremely bright with an isotropic energy of 10^{54} erg. The very high afterglow brightness and the absence of a jet break suggest the burst occurred in a region of very high circumstellar density. The high (~ 1 mJy) radio flux density of GRB 070125 enables us to determine the source size and evolution using ISS studies of variability in the afterglow. ISS is a diagnostic of the size of the source on the sky whereas the afterglow intensity is sensitive to radial parameters (e.g. Lorentz factor). Modelling of the afterglow becomes highly constrained with both observations.

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Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Monitoring, *

Resources:

Resource name	Tele. Conf.	Frontend & Backend	Set up
X-band	VLA Any	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 8435.1,8485.1 MHz
K-band	VLA Any	K Band 1.3 cm 18000 - 26500 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 22485.1,22435.1 MHz
U-band	VLA Any	U Band 2 cm 14650 - 15325 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 14964.9,14914.9 MHz
C-band	VLA Any	C Band 6 cm 4500 - 5000 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 4885.1,4835.1 MHz
L-band	VLA Any	L Band 20 cm 1200 - 2000 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 1464.9,1385.1 MHz

Sources:

Source name	RA / RA Range	DEC / DEC Range	System	Velocity/z	Group name
GRB 070125	07:51:17.7 00:00:00.0	31:09:04.2 00:00:00	J2000	0 km/s	

Sessions:

Session Name	Session Time	Repeat	Separation	LST Minimum	LST Maximum	Elevation Minimum
Session 2	2.0001001 hours	10	1 days	04:00:00	12:00:00	30
Session 1	8.0 hours	6	1 days	04:00:00	12:00:00	30

Session Constraints:

Session Name	Constraint	Comments
Session 2		
Session 1		We will observe at C and X bands simultaneously. Required sensitivity is 50-100 microJy per 10 mins at C/X band. Observations need not be on consecutive days (as long as the source remains bright, >~ 1mJy).

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
Session 2	GRB 070125/	K-band	0.6667 hour	0.050mJy/bm
Session 2	GRB 070125/	L-band	0.6667 hour	0.050mJy/bm
Session 2	GRB 070125/	U-band	0.6667 hour	0.050mJy/bm
Session 1	GRB 070125/	C-band	8.0 hour	0.050mJy/bm

Total Time per Configuration:

Configuration	Total Time
Any	68.001

Present for observation: no Staff support: None