VLA OBSERVING APPLICATION

A
rcvd:

- DEADLINES: 1st of Feb., June., Oct. for next configuration following review
  INSTRUCTIONS: Each numbered item must have an entry or N/A
  E-MAIL TO: propsoc@nrao.edu (different for some Rapid Response Science)
  OR MAIL TO: Director NRAO, 520 Edgemont Rd., Charlottesville, VA 22903-2475

(1) Date Prepared: December 30, 2004

(2) Title of Proposal: Resolving the Connection between SGR 1806−20, LBV 1806−20 and a Dense Star Cluster

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
S. R. Kulkarni	Caltech				
P. B. Cameron	Caltech		G	Yes	2008
D. A. Frail	NRAO				

(4) Related VLA previous proposal number(s):

(5) Contact author for scheduling: D. A. Frail
address: NRAO/VLA

(6) Telephone: 505 835 9115
E-mail: dfrail@nrao.edu
Fax:

(7) Scientific Category: ○ solar system ⊗ galactic ○ extragalactic ○ other:

Rapid Response Science: ○ Known Transient ○ Exploratory ⊗ Target of Opportunity
Joint Proposal: ○ VLA/VLBA ○ VLA/GBT ○ VLA/VLBA/GBT

(8) Configurations (one per column) (A+Pt, A, B, C, D, BnA, CnB, DnC, Any)	A				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	20				
(10) Time requested (hours)	1.5				

(11) Type of observation: ⊗ continuum ○ spectroscopy ○ multichannel continuum ○ polarimetry ○ solar
(check all that apply) ⊗ pulsar ○ high-time resolution ○ Pie Town link ○ other:

(12) Suitable for dynamic scheduling? ○ Suitable ○ Unsuitable

(13) ABSTRACT (do not write outside this space)

As a result of a rare Giant Outburst, SGR 1806−20 is currently radio bright (S>100 mJy at 1.4 GHz) but fading quickly. We request VLA time to observe this SGR in the 21-cm line of HI to measure a kinematic distance to this unusual source. This distance will help us in understaning the origin of magnetars and place the energetics of SGR 1806−20 on a sound physical basis.

NRAO use only
(10/04)

(14) Observer present for observations? ○ Yes ⊗ No Data analysis at? ⊗ Home ○ AOC or CV (2 weeks notice)

(15) Help required: ⊗ None ○ Consultation ○ Friend (extensive help)

(16) Spectroscopy only	line 1	line 2	line 3	line 4
Transition (HI, OH, etc.)	HI			
Rest Frequency (MHz)	1420.405			
Velocity (km/s)	50.0			
Observing frequency (MHz)				
Correlator mode	2AD			
IF bandwidth(s) (MHz)	1.525			
Hanning smoothing (y/n)	N			
Number of channels per IF	256			
Frequency Resolution (kHz/channel)	6.1			
Rms noise (mJy/bm, nat. weight., 1 hr)	3.5			
Rms noise (K, nat. weight., 1 hr)				

(17) Number of sources:	**1**

(If more than 10 please attach list. If more than 30 give only selection criteria and LST range(s).)

(18) NAME	Coordinates 1950 ○ 2000 ⊗ RA hh mm	Dec. ± xx.x°	Conf.	λ (cm)	Corr. mode	Band-width per IF (MHz)	Total Flux (Jy)*	LAS	Required rms (mJy/bm)	Required dynamic range	Time request (hr)
SGR 1806−20	18 08	-20.4	A	20	2AD	1.56	0.1	1 ″	3.5		1.5

*For spectral line, this should be the total flux at the peak of the line

Notes to the table (if any):

(19) Restrictions to elevation (other than hardware limits) or HA range (give reason):

(20) Preferred range of dates for scheduling (give reason):

(21) Dates which are not acceptable:

(22) Special hardware, software, or operating requirements:

(23) Please attach a self-contained Scientific Justification **not in excess of 1000 words.** (Preprints or reprints will be ignored.) Please include the full addresses (postal and e-mail) for first-time users or for those that have moved (if not contact author). When your proposal is scheduled, the contents of the cover sheets become public information (Any supporting pages are for refereeing only).

v4.3 10/04