# 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
SEND TO: Director NRAO, 520 Edgemont Rd., Charlottesville, VA 22903-2475

**(1)** Date Prepared: September 15, 2004

**(2)** Title of Proposal: Search for radio flares from SGR 1806−20 in outburst

| | | | For Grad Students Only | |
|---|---|---|---|---|
| **(3)** AUTHORS | INSTITUTION | Who Will Come To The VLA? | Observations For Ph.D. Thesis? | Anticipated Ph.D. Year |
| S. R. Kulkarni | Caltech | | | |
| Brian Cameron | Caltech | | Yes | 2008 |
| D. A. Frail | NRAO | | | |
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**(4)** Related VLA previous proposal number(s):

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

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

**(7)** Scientific Category: ◯ astrometry,geodesy & techniques, ◯ solar, ◯ propagation, ◯ planetary, ◯ stellar, ⊗ pulsar, ◯ ISM, ◯ galactic center, ◯ galactic structure & dynamics (HI), ◯ normal galaxies, ◯ active galaxies, ◯ cosmology

| | | | | | |
|---|---|---|---|---|---|
| **(8)** Configurations (one per column) (A, B, C, D, BnA, CnB, DnC, Any) | D→A | | | | |
| **(9)** Wavelength(s) (400, 90, 20, 18, 6, 3.5, 2, 1.3, 0.7 cm) | 3.5 | | | | |
| **(10)** Time requested (hours) | 2 | | | | |

**(11)** Type of observation: ⊗ imaging, ⊗ point source, ⊗ monitor, ⊗ continuum, ◯ lin poln, ◯ circ poln, ◯ solar, ◯ VLBI,
(check all that apply) ◯ spectroscopy, ◯ multichannel continuum, ◯ phased array, ⊗ pulsar, ◯ high-time resolution
◯ Pie Town link, ◯ other _____

**(12)** ABSTRACT (Do not write outside this space. Please type.)

I seek 2 hours of VLA time to follow up on the giant outburst from the soft-gamma ray repeater SGR 1806−20. In the two decades of SGR 1806−20 this is the brightest event and has a fluence of $4 \times 10^{-5}$ erg cm$^{-2}$. Radio emission in the form of radio afterglow has been detected previously in the aftermath of the giant flare of the August 1998 flare from SGR 1900+14. A detection of SGR 1806−20 would lead to an accurate position for future astrometric studies and and through a study of the afterglow we would be able to determine the composition of the particles in the burst.

NRAO use only
(03/00)

**(13)** Observer present for observations? ◯ Yes ⊗ No Data reduction at? ⊗ Home ◯ AOC or CV (2 weeks notice)

**(14)** Help required: ⊗ None ◯ Consultation ◯ Friend (extensive help)

| **(15)** Spectroscopy Only: | line 1 | line 2 | line 3 | line 4 |
|---|---|---|---|---|
| Transition (HI, OH, etc.) | | | | |
| Rest Frequency (MHz) | | | | |
| Velocity (km/s) | | | | |
| Observing frequency (MHz) | | | | |
| Correlator mode | | | | |
| IF bandwidth(s) (MHz) | | | | |
| Hanning smoothing (y/n) | | | | |
| Number of channels per IF | | | | |
| Frequency Resolution (kHz/channel) | | | | |
| Rms noise (mJy/bm, nat. weight., 1 hr) | | | | |
| Rms noise (K, nat. weight., 1 hr) | | | | |

**(16)** Number of sources 1 (If more than 10 please attach list. If more than 30 give only selection criteria and LST range(s).)

| **(17)** NAME | Epoch: 1950 ◯ 2000 ◯ RA hhmm Dec ± xx.x° | Config. | Band (cm) | Band-width (MHz) | Total Flux | | Largest angular size | Required rms (mJy/bm) | Time requested (hours) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | line (Jy)* | cont. (Jy) | | | |
| SGR1806−20 | 18:05 -20 | D/A | 3.5 | 50 | | 0.0001 | 1″ | 0.025 | 2.0 |
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*this should be the total flux at the peak of the line

Notes to the table (if any): Target list to be determined based on GRB triggers

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

**(19)** Preferred range of dates for scheduling (give reason):

**(20)** Dates which are not acceptable:

**(21)** Special hardware, software, or operating requirements:

**(22)** 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).