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: 15 July 2004

(2) Title of Proposal: VLA observation of an ultraluminous supersoft X-ray source in outburst

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
Albert Kong*	CfA	akong@cfa.harvard.edu			
Michael P. Rupen	NRAO	mrupen@nrao.edu			
Lorant Sjouwerman	NRAO	lsjouwer@nrao.edu			

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

(5) Contact author for scheduling: Michael P. Rupen
address: NRAO
1003 Lopezville Road
Socorro, NM 87801

(6) Telephone: 505/835-7248
E-mail: mrupen@nrao.edu
Fax: 505/835-7027

(7) Scientific Category: ○ solar system ○ galactic ⊗ extragalactic ○ other:
Rapid Response Science: ○ Known Transient ○ Exploratory ⊗ Target of Opportunity

(8) Configurations (one per column) (A+Pt, A, B, C, D, BnA, CnB, DnC, Any)	ANY				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	4, 6cm				
(10) Time requested (hours)	2				

(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)

We request two hours of VLA time to check for radio emission from the super-soft ultraluminous X-ray source (ULX) in M101, currently undergoing a strong X-ray outburst. These observations would represent the first rapid radio follow-up of a ULX outburst, and shed light on the connection between the X-ray accretion luminosity and a possible relativistic radio jet. Such jets are expected by analogy with stellar-mass black holes in galactic X-ray binaries and supermassive black holes in the centers of galaxies.

NRAO use only
(08/03)

(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.)				
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)				

(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)
M101 ULX	14 03, +54.4	any	4, 6		50	0.01	$< 1''$	0.02	10:1	2

*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): As soon as possible, and certainly by the end of July 2004

(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).

v4.2 8/03