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: 17 Jan. 2005

(2) Title of Proposal: A Search for Radio Continuum Emission from the Optically Erupting T Tauri Star V1118 Ori

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
Steve Skinner	Univ. of Colorado	skinners@casa.colorado.edu			
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(4) Related VLA previous proposal number(s):

(5) Contact author for scheduling: Steve Skinner
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(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)	Any	Any			
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	3.5	6			
(10) Time requested (hours)	1.0	1.3			

(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)

A new optical outburst in the young T Tauri star V1118 Ori was reported on 10 Jan. 2005 (IAUC 8460). It brightened by 4 magnitudes in V in late 2004, and as of early January had reached an apparently stable value V $\sim$ 14. Such outbursts are extremely rare in young stars and are thought to be due to the poorly-understood process of episodic accretion. We have just been granted TOO time to observe the outburst in X-rays with Chandra and XMM-Newton, and continued optical monitoring has been arranged. We request here a short TOO VLA continuum observation to determine if the outburst is emitting detectable radio emission. If detected, we will propose follow-up VLA observations at a later date to determine if the radio emission is variable and to obtain more complete frequency coverage. The combined radio, X-ray, and optical data will provide a multi-wavelength picture of the energy release and time evolution of a rare accretion outburst.

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.)				
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:	**2**

(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)
V1118 Ori	05 35, -05.6	Any	3.5		50	0.2	0.1″	0.022	10	1.0
V1118 Ori	05 35, -05.6	Any	6		50	0.2	0.1″	0.022	10	1.3

*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): Asap, but week of 24 Jan. 2005 preferred since Chandra will observe V1118 Ori during that week. Strict simultaneity with Chandra not required.

(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