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 Exploratory: exploresoc@nrao.edu
OR MAIL TO: Director NRAO, 520 Edgemont Rd., Charlottesville, VA 22903-2475

(1) Date Prepared: 12 April 2005

(2) Title of Proposal: Are OH Masers Tracing an Outflow in W3(OH)?

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Students Only Ph.D. Year
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(4) Related VLA previous proposal number(s):

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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)	B	B, CnB, or C			
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	20	6			
(10) Time requested (hours)	1	0.5			

(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)

Recent observations of 6030 MHz OH masers in the W3(OH) region with the Effelsberg 100 m telescope have uncovered a new velocity component at -70 km s^{-1} LSR. These masers do not fit into kinematic models of the main ultracompact H II region in W3(OH) (systemic velocity of -44 km s^{-1}). Observations of water masers in the nearby Turner-Welch object point to an outflow of tens of km s^{-1} with respect to the systemic -46.5 km s^{-1}, but OH masers have heretofore only been observed near the systemic velocity. Are the masers at -70 km s^{-1} associated with the main ultracompact H II region, the Turner-Welch object, or some other young star in the area? We propose to take a quick look at the ground-state ($^2\Pi_{3/2}, J = 3/2$) and $^2\Pi_{1/2}, J = 1/2$ masers in the region to determine where the -70 km s^{-1} features are located.

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.)	OH	OH	OH	OH
Rest Frequency (MHz)	1665/1667	1612/1720	4750/4765	
Velocity (km/s)	−70, −44	−70, −44	−70, −44	
Observing frequency (MHz)				
Correlator mode	2AC	2AC	2AC	
IF bandwidth(s) (MHz)	0.78125	0.78125	1.5625	
Hanning smoothing (y/n)	n	n	n	
Number of channels per IF	256	256	256	
Frequency Resolution (kHz/channel)	3.052	3.052	6.104	
Rms noise (mJy/bm, nat. weight., 1 hr)	0.1	0.1	0.07	
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)
W3(OH)	02 27, +61.9	B	20, 6	2AC	0.78125	0.9		0.25	N/A	1 + 0.5

*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): N/A

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

(21) Dates which are not acceptable: N/A

(22) Special hardware, software, or operating requirements: B configuration *required* for L-band observations; B configuration *preferred* for C-band observations, but CnB/move or C also acceptable

(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).