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: November 8, 2005

(2) Title of Proposal: IRAS 18061−2505: the third (and largest) planetary nebula showing water maser emission?

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
Olga Suárez	LAEFF-INTA (Spain)	olga@laeff.esa.es			
José F. Gómez	LAEFF-INTA (Spain)	jfg@laeff.esa.es			

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

(5) Contact author for scheduling: Olga Suárez
address: LAEFF-INTA
Apartado 50727
E-28080, Madrid (Spain)

(6) Telephone: +34-91-813-1263
E-mail: olga@laeff.esa.es
Fax: +34-91-813-1160

(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)	D				
(9) Wavelength(s) (400, 90, 20, 6, 3.5, 2, 1.3, 0.7 cm)	1.3				
(10) Time requested (hours)	1				

(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)

Water maser emission is present in the circumstellar environment of many stars in the Asymptotic Giant Branch and later phases. This emission was believed to disappear when the star evolves towards the Planetary Nebulae (PN) stage (Lewis 1989). However, H_2O emission has been detected so far in two PN (Miranda et al. 2001; de Gregorio-Monsalvo et al. 2004).
The recent detection of a water maser towards the position of the PN IRAS 18061−0525, using NASA's 70m antenna in Robledo (Spain), could be the third one of this type, if we can confirm that the emission comes from the PN. Moreover, this would be the largest ($\simeq 40''$) PN showing a water maser. Here we propose to obtain an accurate positional information on the water maser emission to confirm its association with the PN.

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.)	H_2O $(6_{16} - 5_{23})$			
Rest Frequency (MHz)	22235			
Velocity (km/s)	60			
Observing frequency (MHz)	22235			
Correlator mode	4			
IF bandwidth(s) (MHz)	3.12			
Hanning smoothing (y/n)	n			
Number of channels per IF	64			
Frequency Resolution (kHz/channel)	48.8			
Rms noise (mJy/bm, nat. weight., 1 hr)	2.5			
Rms noise (K, nat. weight., 1 hr)	0.7			

(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)
IRAS 18061−2505	18 09, -25.0	D	1.3	4	3.12/25	2.0	$< 1''$	3.5	> 50	1

*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