VSOP AO2 PROPOSAL COVER SHEETS

DEADLINE : 8 May, 1998
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

Please read Appendix C of Announcement of Opportunity for details on how to fill in this Cover Sheet.

(1) Date prepared : 8-May-1998

(2) Proposal title : OH absorption study in the nucleus of NGC 4945: Search for circumnuclear molecular gas on sub-parsec scale

(3)	INVESTIGATORS	INSTITUTION
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(5)

Proposal Abstract : NGC4945 is well known AGN as a first detected water megamaser source, however, because of its low declination of –49 deg. imaging VLBI observations on milliarcsecond (mas) scale have not ever been carried out. The distribution of symmetric maser emission shows the edge-on rotational motion implying the maser disk by analogy with that of NGC 4258 in the recent VLBI study. Also, most intense OH absorptions (1667 MHz, 1720 MHz) in AGNs were detected towards the nucleus of NGC 4945. The absorption could possibly the tracer of the molecular disk surrounding the AGN nucleus as well as water maser. The promising angular resolution of a few mas for the HALCA baselines would enable us to image OH molecular absorption in the nearby AGN, NGC 4945 for the first time on sub-parsec scale.

(6) Proposal Category (indicate all that apply):
Object type:
☑ AGN, ☐ Maser, ☐ Stellar, ☐ Pulsar, ☐ Other :
Observation type:
☐ Continuum, ☑ Spectral Line, ☐ Polarization, ☐ Time-critical, ☐ Other :

(7) Number of proposed experiments

An 'experiment' is one or more observations of one source at a fixed HALCA set-up. A request to observe the same source at 1.6 GHz and separately at 5 GHz requires two columns to be filled in in item (8) below. A request to observe the same source with HALCA simultaneously observing at 1.6 GHz and 5 GHz requires one column to be filled in. Multi-epoch observations of the same source at the same frequency – a 'monitoring experiment' – requires only one column to be filled in. Suggested observing dates, especially for for time-critical and monitoring experiments, should be specified in item (10).

The number of experiments in this proposal is:1

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	NGC 4945			
Alternative name	J 1305-4928			
RA(J2000) (hh mm ss.ssss)	13 05 27.49			
Dec(J2000) (dd mm ss.ssss)	-49 27 57.7			
Observing frequency band (GHz)	1.6			
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)	1667			
Ch.A LSR velocity (km/s)	560			
Ch.B spectral line rest freq. (MHz)	1720			
Ch.B LSR velocity (km/s)	560			
FWHM of field of view required (mas)				
Min. spectral channels per IF channel	1024			
Correlator averaging time (sec)	60			
No. of correlating passes (if >1)				
Total flux density (Jy)	6.8			
Correlated flux (mJy)	970			
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☐	☐	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☑	☐	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
Preferred correlator:				
No preference	☑	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☐	☐	☐	☐
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related AO1 proposal code(s)				

(9) VSOP spacecraft observing mode (see Section 3 and Table 5 of the VSOP Proposer's Guide):

- [x] 2 channel x 16 MHz, 2-bit (Standard mode),
- [ ] Other:

Phase calibration tones:

- [ ] On (Standard continuum mode),
- [x] Off (Standard spectral line mode)

(Include justification of any non-standard choice at (10) below)

(10) Additional notes to the scheduler :

(11) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Up to one page of (u,v) plots per source may optionally be included.
(Refer to the VSOP Announcement of Opportunity for detailed instructions.)
Preprints and reprints will not be forwarded to the Scientific Review Committee.

Send two paper copies of the complete proposal to:
VSOP Observing Proposals
VSOP Science Operations Group
Institute of Space and Astronautical Science
3-1-1 Yoshinodai, Sagamihara
Kanagawa 229-8510 JAPAN
In addition, e-mail the completed LaTeX file to submit@vsop.isas.ac.jp

Information from the Cover Sheets of scheduled proposals will be made available from the VSOP WWW site.

Proposals must be received at ISAS by 8 May 1998