VSOP AO2 PROPOSAL COVER SHEETS

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

(1) Date prepared : May 5, 1998

(2) Proposal title : Sub-Parsec Imaging of High-T_b nuclei in Seyferts

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(5) Proposal Abstract :

We propose to observe two Seyfert galaxies (Mrk 348, III Zw 2) with variable, flat-spectrum radio nuclei that are compact and bright enough to be observed on earth-space baselines. The proposed observations provide a unique oppotunity to study these low-z AGN at a high linear resolution (i.e. sub-parsec scale), since only a few selected object in this class are accessible with space VLBI. From the observations we expect to see whether Seyfert nuclei can show core-jet structures similar to radio-loud AGN, despite showing substantial differences in their parsec-to-kpc structure. In addition we are searching for even higher brightness temperature components that might be indicative of relativistic boosting. For Mrk 348 we also might find evidence for an obscuring torus/disk that could cause the observed free-free absorption in the nucleus of this Seyfert 2 galaxy.

(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: 2

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0010+1058	J0048+3157		
Alternative name	IIIZw2/Mrk 1501	Mrk 348		
RA(J2000) (hh mm ss.ssss)	00 10 31.0058	00 48 47.1437		
Dec(J2000) (dd mm ss.ssss)	+00 58 29.504	+31 57 25.094		
Observing frequency band (GHz)	5	5		
Continuum observations: Standard VSOP freq. channels? Channel A range (MHz) Channel B range (MHz)	 ☑	 ☑	 ☐	 ☐
Spectral line observations: Ch.A spectral line rest freq. (MHz) Ch.A LSR velocity (km/s) Ch.B spectral line rest freq. (MHz) Ch.B LSR velocity (km/s) FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	0.2-2	0.2-0.6		
Correlated flux (mJy)	200-2000	100-200		
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:

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

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

(10) Additional notes to the scheduler :

We request the VLBA + phased VLA as GRT to ensure fringe detection, since the expected core fluxes are relatively faint and could be on the 100-200mJy level. We also request consultation 1-2 months before each observation, to ensure that the source flux has not dropped below 100mJy. An early observation of III Zw 2 in October 1998 is highly desirable since it will still be in the current outburst phase (0.5-1.5 Jy) and it provides the best UV coverage. Because Mrk 348 is the weaker source, one should also consider to add Arecibo to this experiment.

(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