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 : April 21st - 1998

(2) Proposal title : Observations of 2 BL-Lac type objects: Mrk 501 and Mrk 421

(3)	INVESTIGATORS	INSTITUTION
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(5) Proposal Abstract :

We request VSOP observations at 6 and 18 cm of 2 nearby BL-Lac type objects: Mrk 501 and Mrk 421. Previous VLBA and VSOP observations at 18 cm (Mrk501 only) show a strong core emission, a one-sided jet with large oscillations and an extended low brightness emission after change of the jet direction of $\sim 90°$. The aim of requested observations are: - to derive the jet velocity and orientation to compare jet properties of low power sources and high power radio quasars; - to measure the intrinsic core properties and size; - to compare different epoch maps and derive the proper motion of jet substructures and confirm the jet oscillation. In particular if jet oscillations are due to orbital motion-precession effects we expect a regular outward motion while if the oscillations are due to hydrodynamic jet instabilities, we expect a less organized motion.

(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: 4

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J1653+3945	J1104+3812	J1653+3945	J1653+3945
Alternative name	Mrk 501	Mrk 421	Mrk 501	Mrk 421
RA(J2000) (hh mm ss.ssss)	16 53 52.2167	11 04 27.319	16 53 52.2167	11 04 27.319
Dec(J2000) (dd mm ss.ssss)	+39 45 36.609	+38 12 31.51	+39 45 36.609	+38 12 31.51
Observing frequency band (GHz)	1.6	1.6	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)	1.5	1.6	0.9	0.7
Correlated flux (mJy)	750	300	510	290
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	2		2	2
Mean interval (days)	120		120	100
Related AO1 proposal code(s)	V017			

(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 :

Requested array: VLBA + at least one large telescope for a better comparison with AO1 observations.

(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