VSOP AO3 PROPOSAL COVER SHEETS

DEADLINE : 1 October, 1999
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : September 14th, 1999

(2) Proposal title : VSOP Observations of 2 Bl-Lac type objects: Mkn501, Mkn 421

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(5) Proposal Abstract :

We request VSOP observations at 6 and 18 cm of 2 nearby BL-Lac type objects: Mkn 501 and Mkn 421. Previous two epochs space VLBI observations at 18 cm of Mkn 501 show that the inner jet is centrally brightened at its beginning but becomes extended and limb brightened at $\sim$ 8 mas from the core. Moreover a comparison between images obtained at different epochs suggests a proper motion with apparent velocity = 6.7c. The aim of requested observations are: - to derive the jet orientation and velocity; - to compare jet properties of low power sources and high power radio quasars; - to confirm the presence in the jet of a inner high velocity spine surrounded by a decelerating sheat; - to study possible jet oscillations due to orbital motion-precession effects or to hydrodynamic jet instabilities; - to investigate the correlation between the radio properties and the high frequency (X and gamma rays) emission

(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 (11).

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	J1104+3812
Alternative name	Mkn 501	Mkn 421	Mkn 501	Mkn 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 (11)?	☐	☐	☐	☐
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 VSOP proposal code(s)	v017 w002	v017 w002	v017 w002	v017 w002

(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 (11) below)

(10) Assistance with preparation of ground telescope schedule files:

☐ VSOG assistance requested, ☑ Consultation desired, ☐ No assistance required

(11) Additional notes to the scheduler :

> Requested array: VLBA + at least one large telescope for a better comparison with AO1 and AO2 observations.

(12) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Refer to the VSOP Announcement of Opportunity for detailed instructions. Preprints and reprints will not be forwarded to the Scientific Review Committee.

EITHER e-mail the completed LaTeX file to submit@vsop.isas.ac.jp and 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

OR e-mail the completed LaTeX Cover Sheets file and, in a separate e-mail, the postscript file of the scientific and technical justification, 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 1 October 1999