VSOP AO5 PROPOSAL COVER SHEETS

DEADLINE : 1 February, 2001
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : January 20, 2001

(2) Proposal title : Sub-mas structure in the highly variable source 0524+034

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(5) Proposal Abstract :

We resubmit the proposal to observe at 5 GHz the highly variable BL Lac object 0524+034 detected recently with the RATAN–600 radio telescope. The new version of this proposal emphasizes the 15 GHz VLBA image of this source as suggested by the review of our original proposal. The high degree of broad band variability with the characteristic scale of 10 days and shorter (possibly, as short as IDV), the inverted spectrum and the available ground-based VLBI images provide strong evidence on the existence of sub-mas component(s) suitable for VSOP imaging. It is the Space VLBI (VSOP) resolution at 5 GHz which is needed to explore the jet components, which have steep spectrum and are too faint at shorter wavelengths. The two-epoch experiment proposed here is aimed at providing critical observational data for an examination of the circumnuclear environment in and propagation medium toward the source.

(6) Proposal Category (indicate all that apply):
Object type:
☑ AGN, ☐ Maser, ☐ Stellar, ☐ Pulsar, ☐ Other :
Observation type:
☑ Continuum, ☐ Spectral Line, ☐ Polarization, ☑ Time critical,
☐ Phase-reference, ☐ 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: 1

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0527+0331			
Alternative name	0527+034			
RA(J2000) (hh mm ss.ssss)	05 27 32.7052			
Dec(J2000) (dd mm ss.sss)	+03 31 31.492			
Observing frequency band (GHz)				
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)	0.2–1			
Correlated flux (mJy)	200 (highly variable)			
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)	 2 180			
Related VSOP proposal code(s)	W413			

(9) VSOP spacecraft observing mode (see Section 3 and Table 2 of the VSOP Proposer's Guide):

☑ 2 channel x 16 MHz, 2-bit (Standard mode),

☐ Other:

Phase calibration tones:

☑ 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 :

First Epoch: 8–24 September, 2001.
Second Epoch: 2–19 March, 2002.
Suggested ground telescopes and arrays: at least two large telescopes (phased VLA, phased WSRT, Effelsberg, phased ATCA) requested to make possible synchronous with VSOP detection of possible delay in the scintillation pattern.

(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 February 2001