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 8, 1998

(2) Proposal title : Polarization Monitoring of Four Bright Quasars at 5 & 1.6 GHz

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(5) Proposal Abstract :

We propose to image in both total intensity and linear polarization the four brightest and best studied quasars 3C 273, 3C 279, 3C 345, and 3C 454.3. These observations will provide images of unmatched resolution and uv plane coverage, and will enable us to continue (for 3C 345 and 3C 454.3) our AO1 exploration of the structure and evolution of these prototypical relativistic jets over the broadest range of linear scale possible at this resolution. With matched-resolution observations from ground-only VLBI, we will obtain spectra and sizes of the youngest features in the jets, explore the development of ordered magnetic fields through shocks and boundary layer interactions, and search for Faraday rotation and depolarization in the dense ambient gas surrounding the central engine.

(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: 8

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J1229+0203	J1229+0203	J1256-0547	J1256-0547
Alternative name	3C273	3C273	3C279	3C279
RA(J2000) (hh mm ss.ssss)	12 29 06.6997	12 29 06.6997	12 56 11.1665	12 56 11.1665
Dec(J2000) (dd mm ss.ssss)	02 03 08.5980	02 03 08.5980	-05 47 21.5237	-05 47 21.5237
Observing frequency band (GHz)	5	1.6	5	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)				
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	32	32	32	32
Correlator averaging time (sec)	2	2	2	2
No. of correlating passes (if >1)				
Total flux density (Jy)	36.7	42.0	13.0	11.6
Correlated flux (mJy)	1000	1000	2500	2500
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	2
Mean interval (days)	90	90	90	90
Related AO1 proposal code(s)	v092d	v092f	v092g	v092i

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name (J*hhmm*±*ddmm*)	J1642+3948	J1642+3948	J2253+1608	J2253+1608
Alternative name	3C345	3C345	3C454.3	3C454.3
RA(J2000) (hh mm ss.ssss)	16 42 58.8099	16 42 58.8099	22 53 57.7479	22 53 57.7479
Dec(J2000) (dd mm ss.ssss)	39 48 36.9930	39 48 36.9930	16 08 53.5630	16 08 53.5630
Observing frequency band (GHz)	5	1.6	5	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)				
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	32	32	32	32
Correlator averaging time (sec)	2	2	2	2
No. of correlating passes (if >1)				
Total flux density (Jy)	8.5	6.5	23.3	12.2
Correlated flux (mJy)	2000	1500	6000	3000
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	2
Mean interval (days)	180	180	300	300
Related AO1 proposal code(s)	v092a	v092c	v092j	v092l

(9) VSOP spacecraft observing mode (see Section 3 and Table 5 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 (10) below)

(10) Additional notes to the scheduler :

-Suggested GRT Array: VLBA + phased-VLA + Effelsberg (large, well-calibrated antennas to maximize polarization sensitivity)
-Suggested Epochs:
3C 273: March 1999, May 1999
3C 279: March 1999, May 1999
3C 345: May 1999, September 1999
3C 454.3: December 1998, July 1999
-Please schedule 1.6 and 5 GHz separately but contemporaneously at each epoch.
-Tracking coverage gaps should be scheduled for polarization position-angle calibration by the ground array alone.
-Correlated Flux Densities listed in the "Details..." table are from the VSOP AO2 Proposers' Guide at 5 GHz with appropriate scaling to 1.6 GHz.

(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