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 : Sept. 28, 1999

(2) Proposal title : Toroidal B Fields in BL Lac Objects

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(5) Proposal Abstract :

Our previous HALCA + VLBA + Effelsberg space VLBI polarization observations revealed a twisted jet structure in the BL Lacertae object 1803+784, with the magnetic field transverse all along the jet. This may mean that we are seeing a series of relativistic shocks along the jet, each of which enhances the local transverse magnetic field. However, it is perhaps more likely that we have detected a toroidal magnetic field associated with the VLBI jet. We propose here additional VSOP polarization observations of 1803+784 and new observations of two other BL Lac objects, in order to further study the nature of the possibly toroidal field in 1803+784 and attempt to identify other AGN whose jets have toroidal B fields on parsec scales.

(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: 3

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	0954+658	0823+033	1803+784	
Alternative name				
RA(J2000) (hh mm ss.ssss)	09 58 47.2	08 25 50.3	18 00 45.7	
Dec(J2000) (dd mm ss.ssss)	65 33 54.8	03 09 24.5	78 28 04.0	
Observing frequency band (GHz)	5	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)				
Correlated flux (mJy)	600	1500	1300	
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)	V057,W016	V057,W016	V057,W016	

(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 (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 :

Our strongly preferred array is VLBA + one or more large ground antennas (phased VLA, EF, GBT, WSRT). This type of array has been proven effective for previous VSOP polarization observations. It is very desirable to observe with the phased VLA, since this automatically provides the integrated polarization measurements required for absolute calibration of the polarization position angles. In addition, these sources are known rapid (intraday) variables, and use of the VLA would allow us to monitor the integrated fluxes and polarizations so that we can be aware of possible rapid variability during the HALCA 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