VSOP PROPOSAL COVER SHEETS

ID :

TR :

SR :

DEADLINE : 17 November, 1995
SEND TO : VSOP SOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229, JAPAN

Please read Appendix C of Announcement of Opportunity for details on how to fill in this Cover Sheet.

(1) Date prepared : 17-Nov-1995

(2) Proposal title : Do BL Lac Objects Have Rapidly Decelerated Jets ?

(3)	INVESTIGATORS	INSTITUTION
P.I.	Rikako Okayasu	ISAS, Japan
co-I.	H. Kobayashi, Y. Murata	ISAS, Japan
co-I.	P. Edwards, H. Hirabayashi	ISAS, Japan
co-I.	S. Ishizuki, T. Miyaji	NRO, Japan
co-I.	S. Horiuchi, M. Inoue	NAO, Japan
co-I.	F. Makino	ISAS, Japan
co-I.	N. Kawai	RIKEN, Japan
co-I.	K. Wajima	ISAS, Japan
co-I.		

(4) Principal Investigator (or contact person) details...

Name : Rikako OKAYASU
Address : ISAS
: 3-1-1 Yoshinodai, Sagamihara,
: Kanagawa 229
: Japan

Internet : okayasu@vsop.isas.ac.jp
Other e-mail :
Fax : +81-427-51-3972
Telephone : +81-427-51-3911

(5) Proposal Abstract :

Recently there has been proposed a unified scheme that parent galaxies of BL Lac objects are FR I radio galaxies and those of quasars are FR II radio galaxies. And evidence is growing that FR I galaxies have relativistic jets in their innermost regions and they are decelerated at radii of parsecs' scale. According to this unified scheme, it is expected that relativistic jets and their deceleration at such small radii are discovered also in BL Lac objects. We shall make monitoring observations of BL Lac objects with high angular resolutions by using the VSOP over several months in order to detect the small-scale relativistic jets, to catch the deceleration, and to test the unified scheme.

(6) Proposal Category (indicate all that apply):

Object type:

☑ AGN, ☐ Masers, ☐ Stellar, ☐ Other :

Experiment type:

☐ Single-observation, ☑ Monitoring, ☐ Polarization,
☐ Time-critical, ☐ Target of Opportunity, ☐ Other :

(7) 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),
☐ 2 channel x 32 MHz, 1-bit,
☐ 1 channel x 32 MHz, 2-bit

Phase calibration tones:

☑ On (Standard continuum mode),
☐ Off (Standard spectral line mode)

(Include justification of any non-standard choice at (14) below)

(8) Ground radio telescope setup

Polarization :

☑ VSOP Standard (IEEE LCP), ☐ Non-standard :

Recording mode :

☑ As for VSOP spacecraft (Standard), ☐ Other :

(9) Investigator participation in scheduling

☑ PI (or co-I) wishes to participate in scheduling ground radio telescopes
☑ PI (or co-I) wishes to participate in scheduling the space radio telescope

(10) Preferred correlator (see Sections 9.11 and 12 of VSOP Proposer's Guide):

☑ No preference, ☐ Mitaka, ☐ Socorro, ☐ Other :

(11) Preferred post-correlation data analysis location:

☐ Home Institution, ☑ Mitaka, ☐ NRAO AOC, ☐ JIVE, ☐ Other

(12) Post-correlation data analysis assistance required:

☑ None, ☐ Consultation, ☐ Extensive help

(13) Details of proposed experiments

An 'experiment' is one or more observations of one source in one wavelength band.
A request to observe the same source in all 3 wavelength bands requires 3 columns to be filled in.
To observe the same source at the same frequency multiple times – a 'monitoring experiment' – requires only one column to be filled in.
Number of experiments in this proposal: 4

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	Mkn421	Mkn421	BL Lac	BL Lac
RA (hh mm ss.s)	11 04 27.3	11 04 27.3	22 00 39.4	22 00 39.4
Dec (dd mm ss)	38 12 32	38 12 32	42 02 08	42 02 08
J2000 or B1950?	J2000	J2000	B1950	B1950
Observing frequency band (GHz)	5	1.6	22	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)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
FWHM of field of view required (mas)				
No. of correlating passes (if >1)	1	1	1	1
Measured total flux density (Jy)	0.7	0.77	2.6	2.3
Measured correlated flux density on > 5000 km baseline (Jy)	0.36	0.236	0.67	0.52
Image RMS needed (mJy/beam)	3	3	3	3
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	5	5	3	5
Number of large telescopes	0	0	2	0
Suggested array given at Item (14)	☐	☐	☐	☐
Minimum acceptable:				
Number of medium telescopes	4	4	3	4
Number of large telescopes	0	0	1	0
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	3	3	3	3
Minimum acceptable length (orbits)	2	2	2	2
Scheduling constraints:				
Preferred P.A. of beam *major* axis (deg)				
'No holes' (u,v) coverage?	☐	☐	☐	☐
Or maximum resolution (u,v) coverage?	☑	☑	☑	☑
Preferred range of dates for scheduling (for monitoring experiments give range for 1st observation only)	to	to	to	to
For monitoring programs:				
Number of observations	7	2	7	2
Mean interval (days)	90	510	30	180
Acceptable variance from mean (days)	10	10	10	10

(14) Additional notes to the scheduler :

We want the spectral index map with C/K (or L/C) band observations. So these observation should not be separated more than half month.

(15) 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 JAPAN

In addition, e-mail the completed LaTeX file to submit@vsopgw.isaslan1.isas.ac.jp

Cover Sheets of accepted proposals will be made available to the astronomical community.

Proposals must be received at ISAS by 17 November 1995