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 : 10 November 1995

(2) Proposal title : Polarization sensitive observations searching for Faraday rotation in 3 quasars.

(3)	INVESTIGATORS	INSTITUTION
P.I.	T.Cawthorne	University of Central Lancashire, UK
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

Earlier Observations at wavelengths 6cm and 3.6cm of the quasar 4C71.07 have revealed interesting misalignments between the apparent direction of the jet and the polarized structure. Faraday rotation is suspected as being the cause of such misalignments. Observations at three wavelengths are now required to confirm with confidence that the rotation is the result of the Faraday effect. Ground-based VLBI observations at lower frequencies, where the effect of Faraday rotation increases, are impossible due to the loss of resolution. Therefore VSOP-ground observations at 18cm of 4C71.07, and two other quasars expected of undergoing Faraday rotation (3C380 and 1928+738), are requested.

(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 :RCP LCP

Recording mode :

☐ As for VSOP spacecraft (Standard), ☑ Other : 4 channel x 16 MHz, 2-bit

(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: 3

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	4C71.07	3C380	1928+738	
RA (hh mm ss.s)	08 41 24.4	18 29 31.7	19 27 48.5	
Dec (dd mm ss)	+70 53 42	+48 44 47	+73 58 01	
J2000 or B1950?	J2000	J2000	J2000	
Observing frequency band (GHz)	1.6	1.6	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)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
FWHM of field of view required (mas)				
No. of correlating passes (if >1)				
Measured total flux density (Jy)	4.0	14.2	3.1	
Measured correlated flux density on > 5000 km baseline (Jy)	0.9	3.2	1.2	
Image RMS needed (mJy/beam)	0.1	0.1	0.1	
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	10	10	10	
Number of large telescopes	2	2	2	
Suggested array given at Item (14)	☐	☐	☐	☐
Minimum acceptable:				
Number of medium telescopes	6	6	6	
Number of large telescopes	2	2	2	
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	3	3	3	
Minimum acceptable length (orbits)	2	2	2	
Scheduling constraints:				
Preferred P.A. of beam *major* axis (deg)	-55	+61	+76	
'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				
Mean interval (days)				
Acceptable variance from mean (days)				

(14) Additional notes to the scheduler :

The values of the measured correlated flux density were unknown at 1.6 GHz so estimates are given. A calibration observation lasting one orbit of the polarization calibrator, 3C84, should be made at some time during the target source observations. The RMS needed refers to total intensity mapping. The VLBA is requested as part of the ground array.

(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