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 : 16-nov-95

(2) Proposal title : 5 GHz images of the two TeV gamma ray emitting AGN

(3)	INVESTIGATORS	INSTITUTION
P.I.	P. Edwards	ISAS, Japan
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co-I.	F. Makino	ISAS, Japan
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co-I.	H. Kobayashi, Y. Murata, R. Okayasu	ISAS, Japan
co-I.	K. Wajima, D. Konigorski	ISAS, Japan
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

Only two AGN are known to emit gamma-rays above 300 GeV – Mkn 421 and Mkn 501. The former is a weak EGRET source and the latter has not been detected by EGRET. The parsec-scale jet in Mkn 501 is almost orthogonal (on the plane of the sky) to the kiloparsec-scale jet, and there is some evidence that the same may be true for Mkn 421. We propose to make 5 GHz images of these two BL Lac objects during their atmospheric Cerenkov observing season to examine 'orthogonal jet' models, and search for possible correlations between the VLBI structures and TeV activity.

(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: 2

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	Mkn 501	MKn 421		
RA (hh mm ss.s)	16 53 52.2	11 04 27.3		
Dec (dd mm ss)	39 45 37	38 12 32		
J2000 or B1950?	J2000	J2000		
Observing frequency band (GHz)	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)				
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)	1.42	0.725		
Measured correlated flux density on $>$ 5000 km baseline (Jy)	0.43	0.224		
Image RMS needed (mJy/beam)	1.	1.		
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	6	6		
Number of large telescopes	2	2		
Suggested array given at Item (14)	☑	☑	☐	☐
Minimum acceptable:				
Number of medium telescopes	5	5		
Number of large telescopes	1	1		
Suggested array given at Item (14)	☐	☐	☐	☐
Length of observation:				
Preferred length (orbits)	3	3		
Minimum acceptable length (orbits)	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)	97-04-01 to 97-04-14	97-05-01 to 97-05-14	to	to
For monitoring programs:				
Number of observations				
Mean interval (days)				
Acceptable variance from mean (days)				

(14) Additional notes to the scheduler :

Exp 1, Pref Array = VLBA and UD or EF
Exp 2, Pref Array = VLBA and UD or EF

Correlated fluxes are maximum derived values from Pearson-Readhead 5GHz map for Mkn501, and from Caltech-Jodrell survey 5GHz map for Mkn421.

Preferred dates can be shifted later by 28 days (one new moon period) if necessary.

(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