VSOP AO4 PROPOSAL COVER SHEETS

DEADLINE : 2 October, 2000
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : September 29, 2000

(2) Proposal title : Peculiar GPS source 2050+364: gravitational lensing system?

(3)	INVESTIGATORS	INSTITUTION
P.I.	KAMENO Seiji	NAO, Japan
co-I.	FUJISAWA Kenta	NAO, Japan
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		

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

Name : KAMENO Seiji
E-mail : kameno@hotaka.mtk.nao.ac.jp
Fax :+81-422-3869
Phone : +81-422-3631

Address : 2-21-1 Osawa
:Mitaka, Tokyo
:181-8588, Japan
:
:

(5) Proposal Abstract :

We propose to observe the GPS galaxy 2050+364 at 1.7 and 5 GHz. This object shows peculiar properties: the east and west components separated by 60 mas are similar to each other in terms of the morphologies and spectra. The both show steep spectra at high frequency like a radio lobe, however, no significant central component like the core can be seen between the east and west component. A gravitational lense model could explain the nature. If so, it is the smallest separation of the lensing system. Gravity source can be a close binary of compact objects in the Cygnus superbubble, in which many OB associations exist. Based on the morphologies of components, we estimated the mass of the gravity source of 126 $M_{\odot}$ at the distance of 1 kpc. VSOP observations test the hypothesis and would reveal the morphological change within 6 months.

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

Object type:

☑ AGN, ☐ Maser, ☐ Stellar, ☐ Pulsar, ☑ Other :Gravitational lense

Observation type:

☑ Continuum, ☐ Spectral Line, ☐ Polarization, ☐ Time critical,
☐ Phase-reference, ☐ 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:2

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J2052+3635	J2052+3635		
Alternative name	2050+364	2050+364		
RA(J2000) (hh mm ss.ssss)	20 52 52.052	20 52 52.052		
Dec(J2000) (dd mm ss.sss)	+36 35 35.309	+36 35 35.309		
Observing frequency band (GHz)	1.6	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	128	128		
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	4.8	2.8		
Correlated flux (mJy)	100 – 500	100 – 400		
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)	W171f, W330v	W330w		

(9) VSOP spacecraft observing mode (see Section 3 and Table 2 of the VSOP Proposer's Guide):

- [x] 2 channel x 16 MHz, 2-bit (Standard mode),
- [ ] Other:

Phase calibration tones:

- [x] 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 :

Since 2050+364 showes an extended structure of 60 mas, visibility amplitudes of the space baselines rapidly vary in the range of 0.1 – 0.4 Jy. We request attendance of at least one large telescope such as the phased VLA and Effelsberg, to salvage fringes at the minimums of visibilities.

(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 2 October 2000