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 : 11/09/95

(2) Proposal title : Orbiting VLBI Observations of the Pulsar 0329+54

(3)	INVESTIGATORS	INSTITUTION
P.I.	Anthony H. Minter	National Radio Astronomy Observatory
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(4) Principal Investigator (or contact person) details...

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(5) Proposal Abstract :

Observations of the scattering disk of the pulsar 0329+54 due to turbulence in the interstellar medium will be obtained at 1.6 GHz. These observations will allow measurements of the spectral index of the power spectrum of turbulent density fluctuations in the ISM to be made as well as allowing the determination of the inner scale and the anisotropy of these fluctuations. Simultaneous observations of the dynamic spectrum, dispersion measure and rotation measure of this pulsar will also be measured allowing for a more complete analysis of the turbulence towards this pulsar to be made. Periodic observation of the pulsar will allow the correlation of several properties of the turbulence to be determined as well as allowing the proper motion of the pulsar to be measured with high accuracy.

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

Object type:

☐ AGN, ☐ Masers, ☐ Stellar, ☑ Other : Pulsar

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 : 1 LCP, 1 RCP, 2 bit sampled, 16 MHz channels

Recording mode :

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

(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:1

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name	0329+54			
RA (hh mm ss.s)	03 32 59.40			
Dec (dd mm ss)	54 34 42.51			
J2000 or B1950?	J200			
Observing frequency band (GHz)	1.6			
Continuum observations:				
Standard VSOP freq. channels?	☐	☐	☐	☐
Channel A range (MHz)	1600-1616			
Channel B range (MHz)	1664-1680			
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)	0.200 (Integrated)			
Measured correlated flux density on > 5000 km baseline (Jy)	0.180			
Image RMS needed (mJy/beam)	0.1			
Ground Radio Telescopes:				
Preferred choice:				
Number of medium telescopes	18			
Number of large telescopes	4			
Suggested array given at Item (14)	☑	☐	☐	☐
Minimum acceptable:				
Number of medium telescopes	11			
Number of large telescopes	1			
Suggested array given at Item (14)	☑	☐	☐	☐
Length of observation:				
Preferred length (orbits)	4			
Minimum acceptable length (orbits)	1			
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)	January 1997 to March 1997	to	to	to
For monitoring programs:				
Number of observations	12			
Mean interval (days)	90			
Acceptable variance from mean (days)	30			

(14) Additional notes to the scheduler :

The preferred choice of ground radio telescopes consist of the VLBA, VLA, Green Bank, Arecibo and the EVN. It is preferred that the VLA operate with all 27 antennas in the phased array mode. The minimal acceptable ground radio telescopes consist of the VLBA, one VLA antenna, and the Green Bank telescope. It is important to have at least one VLA antenna in the observations such that short baselines can be obtained so that the inner scale of the turbulence can be determined. The proposed, non-standard mode of operation at the Green Bank telescope will be handled by proposer, on site at the telescope.

(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