VSOP AO2 PROPOSAL COVER SHEETS

DEADLINE : 8 May, 1998
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

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

(1) Date prepared : 15 April 1998

(2) Proposal title : TESTING THE SUB-PC ACCRETION DISK HYPOTHESIS FOR NGC 4261

(3)	INVESTIGATORS	INSTITUTION
P.I.	Dayton L. Jones	Jet Propulsion Laboratory, Caltech, USA
co-I.	Ann E. Wehrle	Infrared Processing & Analysis Center, Caltech, USA
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		

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

Name : Dayton Jones
E-mail : dj@bllac.jpl.nasa.gov
Fax : 1-818-393-6890
Phone : 1-818-354-7774

Address : Mail Code 238-332
: Jet Propulsion Laboratory
: 4800 Oak Grove Drive
: Pasadena, CA 91109
: USA

(5) Proposal Abstract :

We propose to image the central region of NGC 4261 (3C270) with VSOP at 5 GHz to determine the width of a gap in emission seen on the counterjet side of the radio core, and thereby test the hypothesis that this gap is caused by free-free absorption in a nearly edge-on inner accretion disk. Ground-based images at 8, 22, and 43 GHz show that the apparent depth of this feature does not decrease with increasing frequency as expected if it is caused by free-free absorption. A possible reason for this is that the true width and depth of the feature is unresolved with ground-based VLBI at lower frequencies. Higher angular resolution at (nearly) the same frequency is the most direct way to test this. We also propose to make an image at 1.6 GHz to compare with ground-based 5 & 8 GHz images. Comparable resolution images at these frequencies will provide a better measurement of the electron density distribution if the disk hypothesis is correct.

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

Object type:

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

Observation type:

☑ Continuum, ☐ Spectral Line, ☐ Polarization, ☐ Time-critical, ☐ 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 (10).

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*)	J1219+0549	J1219+0549		
Alternative name	3C270	3C270		
RA(J2000) (hh mm ss.ssss)	12 19 23.219	12 19 23.219		
Dec(J2000) (dd mm ss.ssss)	+05 49 29.74	+05 49 29.74		
Observing frequency band (GHz)	5	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)				
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)	5.0	10.		
Correlated flux (mJy)	350	200		
Ground Radio Telescopes:				
Suggested array given at Item (10)?	☑	☑	☐	☐
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 AO1 proposal code(s)				

(9) VSOP spacecraft observing mode (see Section 3 and Table 5 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 (10) below)

(10) Additional notes to the scheduler :

VLBA plus at least two large ground telescopes (phased VLA and Bonn) requested for 5 GHz, and VLBA plus at least three large ground telescopes (phased VLA, Bonn, and DSN 70-m) requested for 1.6 GHz. Large ground telescopes are especially needed for initial ground-space fringe detection at 1.6 GHz, where the correlated flux density of the source is very near the detection limit for VSOP-VLBA baselines. Simultaneous VLBA and S2 recording at tracking stations is also requested to allow phase cal tone extraction at Penticton and subsequent coherent use of both IF bands during fringe fitting. This will improve the fringe detection limit by $\sqrt{2}$, and will be needed for this relatively weak source. The best epoch for these experiments will be June 1999, when the (u,v) coverage is east-west (same orientation as the radio jets) and includes a wide range of spacings.

(11) 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 229-8510 JAPAN
In addition, e-mail the completed LaTeX file 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 8 May 1998