

VSOP AO3 PROPOSAL COVER SHEETS

DEADLINE : 1 October, 1999

SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 9/21/99

(2) Proposal title : Ultra-Aligned Jets in the Pearson-Readhead Survey

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(5) Proposal Abstract :

As part of our current program to study bending and projection effects in a well-selected sample of AGNs with space VLBI at 5 GHz, we propose to obtain additional HALCA and VLBA observations of two Pearson-Readhead survey quasars with peculiar parsec-scale jet structure. These AGNs exhibit severe jet bending within ~ 5 mas of the core, and are highly core-dominated on arcsecond scales. They also possess unusual parsec-scale diffuse haloes of radio emission centered on the core component. These properties suggest that they are examples of “ultra-aligned” relativistic jets oriented extremely close to our line of sight. We intend to use the high-resolution capability of HALCA at 1.6 GHz, plus multi-frequency observations with the VLBA, to trace these distinctive jet structures on a variety of physical scales, and investigate the extreme limits of projection and Doppler beaming effects in AGNs.

(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 (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 (<i>Jhhmm±ddmm</i>)	J1625+4134	J1740+5211		
Alternative name	1624+416	1739+522		
RA(J2000) (hh mm ss.ssss)	16 25 57.6697	17 40 36.9778		
Dec(J2000) (dd mm ss.ssss)	+41 34 40.6290	+52 11 43.4070		
Observing frequency band (GHz)	1.6	1.6		
<i>Continuum observations:</i>				
Standard VSOP freq. channels?	☒	☒	☐	☐
Channel A range (MHz)				
Channel B range (MHz)				
<i>Spectral line observations:</i>				
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				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	1.68	1.98		
Correlated flux (mJy)	~ 100 – 200	> 1000		
<i>Ground Radio Telescopes:</i>				
Suggested array given at Item (11)?	☒	☒	☐	☐
<i>GRT observing mode:</i>				
128Mbps LCP (standard)	☒	☒	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
<i>Preferred correlator:</i>				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☒	☒	☐	☐
<i>Monitoring programs:</i>				
Number of observations				
Mean interval (days)				
Related VSOP proposal code(s)	v030	v030		

(9) 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),
☐ Other:

Phase calibration tones:

- ☒ 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 :

- We request that the sources be scheduled as close together in time as possible, ideally with one source immediately preceding and one immediately following our multifrequency VLBA-only observing run.
- We would prefer the observations to be scheduled in the interval March — May 2000, when the uv-coverage is optimal for both sources.
- For J1740+521, we request HALCA plus the full VLBA and one VLA antenna.
- Due to its weak correlated flux, we request that J1625+413 be observed with HALCA, the full VLBA and the phased VLA.

(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 L^AT_EX 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, Sagami-hara
Kanagawa 229-8510 JAPAN

OR e-mail the completed L^AT_EX 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 1 October 1999