# VSOP AO2 PROPOSAL COVER SHEETS

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

**(1)** Date prepared : 2-May-1998

**(2)** Proposal title : Sub-mas Structure and Motion in Lobe-dominated Quasars

| **(3)** | INVESTIGATORS | INSTITUTION |
|---|---|---|
| P.I. | David H. Hough | Trinity University, San Antonio, TX, USA |
| co-I. | David W. Murphy | JPL, Pasadena, CA, USA |
| co-I. | Anthony C. S. Readhead | Caltech, Pasadena, CA, USA |
| co-I. | Rene C. Vermeulen | NFRA, Dwingeloo, The Netherlands |
| co-I. | David A. Wood, Jr. | University of Arizona, Tucson, AZ, USA |
| co-I. | | |
| co-I. | | |
| co-I. | | |
| co-I. | | |

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


Name : David Hans Hough
E-mail : dhough@physics.trinity.edu
Fax : 210-736-7423
Phone : 210-736-7466

Address : Trinity University
: Department of Physics
: San Antonio, TX 78212-7200
: USA
:


**(5)** Proposal Abstract :


We propose VSOP plus VLBA observations at 5 GHz to make Phase 2, second-epoch maps of the relatively strong nuclei in the lobe-dominated quasars 3C207 and 3C245. As for the Phase 1, first-epoch observations (currently scheduled for 1998 November), the superior beam size and shape as compared to ground-based VLBI will enable us to probe details of the exceedingly compact (<0.5 mas) structures known to exist in these objects. Depending on the exact (u,v) coverage obtained during Phase 1, these Phase 2 maps may permit superior tests of jet alignment and bending. In addition, of course, we will be able to search for superluminal motion – which may be unusally large in the case of 3C207 – with second-epoch maps. These investigations of compact morphology, jet curvature, and parsec-scale jet speeds will be of great value in testing AGN unification scenarios.


**(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*) | J1042+1203 | J0840+1312 | | |
| Alternative name | 3C245 | 3C207 | | |
| RA(J2000) (hh mm ss.ssss) | 10 42 44.618 | 08 40 47.589 | | |
| Dec(J2000) (dd mm ss.ssss) | 12 03 31.07 | 13 12 23.59 | | |
| 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) | | | | |
| 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) | 0.9 | 0.5 | | |
| Correlated flux (mJy) | 0.5 | 0.5 | | |
| *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) | v013 | v013 | | |

**(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 (10) below)

**(10)** Additional notes to the scheduler :

**Experiment 1**: prefer GRT = VLBA
observing date - first choice 25-Nov-99 to 15-Dec-99
second choice 13-May-99 to 3-Jun-99
**Experiment 2**: prefer GRT = VLBA
observing date - first choice 15-Apr-99 to 5-May-99
second choice 1-Feb-99 to 28-Feb-99
third choice 28-Oct-99 to 16-Nov-99

**(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**