# 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 : 8-May-1998

**(2)** Proposal title : Do All Gamma-Ray Loud AGNs Show the Superluminal Motion?

| **(3)** | INVESTIGATORS | INSTITUTION |
|---|---|---|
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**(5)** Proposal Abstract :


We aim to impose restrictions on the condition of the gamma-ray emission mechanism by observing pc-scale jet motion of gamma-ray loud AGNs. It is suggested that external low energy photons reradiate as gamma-rays by the inverse-Compton scattering and the gamma-ray radiation beam is narrower than the synchrotron radiation beam for this model. We show that these conditions is valid for gamma-ray loud AGNs which existing data are available and that it is expected to detect the superluminal motion for all gamma-ray loud AGNs. We propose observations of gamma-ray loud AGNs which do not detect the superluminal motion yet. If we detect the superluminal motion for these sources then it is a evidence supporting the above model.


**(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: 7

**(8)** Details of proposed experiments

| | Experiment 1 | Experiment 2 | Experiment 3 | Experiment 4 |
|---|---|---|---|---|
| Source name (J*hhmm*±*ddmm*) | J0339-0146 | J0423-0120 | J0538-4405 | J0808+4950 |
| Alternative name | CTA26 | OA129 | PKS0537-441 | |
| RA(J2000) (hh mm ss.ssss) | 03 39 30.9377 | 04 23 15.8007 | 05 38 50.3615 | 08 08 39.6662 |
| Dec(J2000) (dd mm ss.ssss) | -01 46 35.8028 | -01 20 33.0641 | -44 05 08.9380 | +49 50 36.5302 |
| Observing frequency band (GHz) | 5 | 5 | 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) | 3.01 | 4.36 | 4.81 | 1.22 |
| Correlated flux (mJy) | 800 | 2500 | 2000 | 1000 |
| *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 | 2 | 2 | 2 | 2 |
| Mean interval (days) | 300 | 300 | 180 | 240 |
| Related AO1 proposal code(s) | | | | |

| | Experiment 5 | Experiment 6 | Experiment 7 | Experiment 8 |
|---|---|---|---|---|
| Source name (*Jhhmm±ddmm*) | J1512-0905 | J1740+5211 | J1743-0350 | |
| Alternative name | OR-17 | 4C51.37 | OT-68 | |
| RA(J2000) (hh mm ss.ssss) | 15 12 50.5329 | 17 40 36.9778 | 17 43 58.8561 | |
| Dec(J2000) (dd mm ss.ssss) | -09 05 59.8279 | +52 11 43.4069 | -03 50 04.6162 | |
| Observing frequency band (GHz) | 5 | 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) | 3.25 | 1.13 | 2.37 | |
| Correlated flux (mJy) | 1500 | 1000 | 2000 | |
| *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 | | 2 | | |
| Mean interval (days) | | 180 | | |
| Related AO1 proposal code(s) | | | | |

**(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 :

Exp 3,5 Pref Array = AT, CD, HH, HO, MP and TI

For each observation, two or three orbits are required.

**(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**