

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 : 8 May 1998

(2) Proposal title : Second epoch images of the TeV emitters Mkn421 and Mkn501

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

The two confirmed extragalactic sources of gamma-rays above 300 GeV are Mkn 421 and Mkn 501. The former is a weak EGRET source and the latter has not been detected by EGRET. Both display marked variability at TeV energies and this proposal seeks second epoch 5 GHz VSOP images (following our AO1 observations) to determine whether the TeV activity is a precursor to activity visible with the highest angular resolution observations.

(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 (<i>Jhhmm±ddmm</i>) | J1104+3812 | J1653+3945 | | |
| Alternative name | Mkn 421 | Mkn 501 | | |
| RA(J2000) (hh mm ss.ssss) | 11 04 27.3231 | 16 53 52.2167 | | |
| Dec(J2000) (dd mm ss.ssss) | 38 12 31.6470 | 39 45 36.6091 | | |
| Observing frequency band (GHz) | 5 | 5 | | |
| <i>Continuum observations:</i> | | | | |
| Standard VSOP freq. channels? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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 | 32 | 32 | | |
| Correlator averaging time (sec) | | | | |
| No. of correlating passes (if >1) | | | | |
| Total flux density (Jy) | 0.725 | 1.42 | | |
| Correlated flux (mJy) | 224 | 430 | | |
| <i>Ground Radio Telescopes:</i> | | | | |
| Suggested array given at Item (10)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>GRT observing mode:</i> | | | | |
| 128Mbps LCP (standard) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 128Mbps LCP/RCP | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 256Mbps LCP/RCP | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Preferred correlator:</i> | | | | |
| No preference | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mitaka | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Penticton | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Socorro | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Monitoring programs:</i> | | | | |
| Number of observations | | | | |
| Mean interval (days) | | | | |
| Related AO1 proposal code(s) | v130 | v130 | | |

(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 :

Correlated fluxes are maximum derived values from Pearson-Readhead 5GHz map for Mkn501, and from Caltech-Jodrell survey 5GHz map for Mkn421.

Suggested epoch for Mkn421: Nov/Dec 1999

Suggested epoch for Mkn501: Sep 1999

(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, Sagami-hara
Kanagawa 229-8510 JAPAN

In addition, e-mail the completed L^AT_EX 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