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 : 1999, September 29

(2) Proposal title : Monitoring PKS 1413+135 For Superluminal Motion

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(5) Proposal Abstract :

We propose multi-epoch observations of PKS 1413+135 to determine if superluminal motion is present in this source. These observations will determine whether this object is a young or "frustrated" AGN with a two sided jet. If the jet is confined it must be decelerating. Radio monitoring data indicate that PKS 1413+135 is highly variable, a common feature of sources exhibiting superluminal motion. Ground based observations suggest, but do not conclusively prove, that superluminal motion may be present in PKS 1413+135, but they do prove conclusively that evolution is occuring on *both* sides of the core. Very few AGN show evolution on both sides of the core. Observations with HALCA provide enough resolution to detect even modestly superluminal motion. A finding of superluminal motion, particularly on both sides of the core, would be difficult to reconcile with "unified" schemes for AGN.

(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 (J*hhmm*±*ddmm*)	J1416+1320	J1416+1320		
Alternative name	PKS 1413+135	PKS 1413+135		
RA(J2000) (hh mm ss.ssss)	14 15 58.8180	14 15 58.8180		
Dec(J2000) (dd mm ss.ssss)	+13 20 23.718	+13 20 23.718		
Observing frequency band (GHz)	1.6	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)	0.5	1.1		
Correlated flux (mJy)	0.4	1.0		
Ground Radio Telescopes:				
Suggested array given at Item (11)?	☑	☑	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☑	☑	☐	☐
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☑	☑	☐	☐
Monitoring programs:				
Number of observations	4	4		
Mean interval (days)	180	180		
Related VSOP proposal code(s)	V083, W020	V083, W020		

(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 (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 observations with HALCA and the VLBA at 1.6 and 5 GHz. We request that the observations last for at least two (2) orbits of HALCA. This will allow for the best possible UV coverage for both ground-ground and space-ground baselines.
> The jets in PKS 1413+135 are oriented at position angle of 60 degrees East of North. Suitable UV coverage is obtained in March-April 2000 and July 2000. Observations are currently scheduled for January 2000 (W020a2 and W020b2).

(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 LaTeX 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, Sagamihara
Kanagawa 229-8510 JAPAN

OR e-mail the completed LaTeX 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