VLBA PROPOSAL COVERSHEET

rcvd:

DEADLINES: 1st of Feb., June, Oct.
EMAIL TO: toosoc@nrao.edu
OR MAIL TO: Director NRAO, Edgemont Rd. Charlottesville, VA 22903-2475, USA

(1) Date Prepared: April 3, 2007

(2) Title of Proposal: Frequency Phase Transfer Astrometry to align AGB-star maser images

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	Students Only G/U	For Thesis?	Ph.D. Year
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(4) Related previous or current VLBI proposal(s): BD118 ⊗ Resubmission

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(7) Scientific Category: ⊗ astrometry & geodesy ⊗ galactic ◯ extragalactic ◯ other:
Rapid Response Science: ◯ Known Transient ◯ Exploratory ⊗ Target of Opportunity

(8) Wavelength(s) requested (those not available on the global network are indicated with a small circle):
◯ 90cm ◯ 50cm ∘ 30cm ◯ 21cm ◯ 18cm ◯ 13cm ◯ 6cm ∘ 5cm ◯ 3.6cm ◯ 3.6/13cm
∘ 2cm ◯ 1.3cm ⊗ 7mm ⊗ 3mm
◯ Global Network standard bands ⊗ Special frequencies: 43.122,86.243-GHz

(9) Recording format: ◯ Default continuum setup (VLBA only), ⊗ VLBA/MkIV, ◯ MkIII: Mode
Bandwidth per BaseBand channel: 16
Aggregate bit rate: 256 (4 BB channels at 32 MSamples/sec of ◯ 1 bit, ⊗ 2 bit)

(10) ◯ Multi-epoch observation: ____ epochs of ____ hours each, separated by ____

(11) Network	Requested antennas	Total time requested
EVN & MERLIN		
VLBA	ALL (with 86 GHz)	12 hrs
other NRAO		
Non-VLBI Intruments		

(12) ABSTRACT (Do not write outside this space. Please type)

We have demonstrated a new approach to multi-frequency phase transfer method, using the rapid frequency switching capability of the VLBA, producing the astrometric images of continuum sources (exp. BD119). We wish to apply this method to observations of the ν=1 J=1→0 and J=2→1 SiO maser transitions (at 43 and 86 GHz). At the analysis, we use the scaled phases from the lower frequency observations to calibrate the higher frequency. This method of transferring the phase allows the frames of the two observations to be astrometically aligned. The relative registration of these examples can be applied to the resolution of the SiO excitation route.

Scheduler use only
(8/03)

(13) Observation type: ⊗ Interferometry, ○ Spectroscopy, ○ Pulsar, ⊗ Phase referencing

(14) Proposal is ⊗ Suitable ○ Unsuitable for dynamic scheduling.

(15) Polarization: ○ Single Polarization ⊗ Dual Circular Polarization
Global network standard for single polarization is LCP for all λs except 13cm (RCP) and 3.6cm (RCP).

(16) Tape usage (Show <recording time>/<total time>): 12 hrs/12 hrs

(17) Assistance required:
Observation Setup: ⊗ Consultation, ○ Extensive help, ○ Observe file preparation
Postprocessing: ⊗ Consultation, ○ Extensive help, ○ Calibration service

(18) Processor: ⊗ Socorro, ○ JIVE, ○ Haystack, ○ Bonn, ○ Washington, ○ Other______
Special processing: ○ XPol, ○ Pulsar gate, ○ Multiple Fields: ____
Averaging time: 1s Spectral channels per baseband channel: 512
○ Other special processing: ______

(19) Postprocessing Location: OAN

(20) Source list: ⊗ J2000 ○ B1950
If more than 4 sources, please attach list. If more than 30, give only selection criteria and GST range(s)

	Source 1	Source 2	Source 3	Source 4
Name(s)	see table 1			
RA (hh mm)				
Dec (dd.d)				
GST range (Europe)				
GST range (US)				
GST range (Other)				
Band(s)	7mm,3mm			
Flux density (Total, Jy)				
Flux density (correlated, mJy)				
RMS needed (mJy/beam)				
Peak/RMS needed				

Sources will be selected from this list based on the maser fluxes, and the optical light curve phase.

(21) Preferred VLBI session or range of dates for scheduling, and why:
Observations preferably during winter, for best weather conditions. (*see text for detailed explanation*).

(22) Dates which are NOT acceptable, and why:

(23) Attach a self-contained scientific justification, not in excess of 1000 words.
Preprints or reprints will not be forwarded to the referees.

Information about the capabilities of the VLBA may be found on the World Wide Web by starting at the NRAO home page, http://www.nrao.edu, and selecting the VLBA from "Sites and Telescopes."

A brief summary of the capabilities of the EVN antennas is given in the EVN STATUS TABLE in the EVN USER GUIDE, which may be found at http://www.evlbi.org/user_guide/user_guide.html.

Please include the full postal addresses for first-time users or for those that have moved (if not contact author).