VLBA PROPOSAL COVERSHEET

rcvd:

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OR MAIL TO: Director NRAO, Edgemont Rd. Charlottesville, VA 22903-2475, USA

(1) Date Prepared: December 14, 2006

(2) Title of Proposal: Frequency Phase Transfer Astrometry for mm-VLBI

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only: For Thesis?	Students Only: Ph.D. Year
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(4) Related previous or current VLBI proposal(s): BP80 BD119 ○ 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: 43.125, 86.250-GHz

(9) Recording format: ⊗ Default continuum setup (VLBA only), ○ VLBA/MkIV, ○ MkIII: Mode
Bandwidth per BaseBand channel: 16
Aggregate bit rate: 512 (8 BB channels at 32 MSamples/sec of ○ 1 bit, ⊗ 2 bit)

(10) ⊗ Multi-epoch observation: 4 epochs of 1 hours each, separated by 1 week

(11) Network	Requested antennas	Total time requested
EVN & MERLIN		
VLBA	ALL	4 hrs
other NRAO		
Non-VLBI Intruments		

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

We believe we have demonstrated a new approach to multi-frequency phase transfer method, using the rapid frequency switching capability of the VLBA, producing astrometrical results with mm-VLBI. This will be confirmed with experiment BD119. We request extra filler-time to expand the range of conditions where we test this method. We are observing two pairs of AGN's: 1308+326/1308+328 and 3C273/3C274 at 43 and 86 GHz with integer frequency ratios. At the analysis, we use the scaled phases from the lower frequency observations to calibrate the higher frequency, with ionospheric calibrations from the other source observed in parallel. This method of transferring the phase allows the frames of the two observations to be astrometically aligned. The development of this new calibration strategy will be useful for all high frequency VLBI observations. With a small amount of extra time we will be able to expand our results considerably.

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>): 4 hrs/4 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: 64
◯ 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)	1308+326	1308+328	3C273	3C274
RA (hh mm)	13:10:28.66	13:10:59.40	12:29:06.69	12:30:49.42
Dec (dd.d)	32:20:43.78	32:33:34.43	02:03:08.59	12:23:28.04
GST range (Europe)				
GST range (US)	18:00-23:00	18:00-23:00	17:00-22:30	17:00-22:30
GST range (Other)				
Band(s)	7mm,3mm	7mm,3mm	7mm,3mm	7mm,3mm
Flux density (Total, Jy)	1.4	0.4	10	4
Flux density (correlated, mJy)	1,400	400	1800	790
RMS needed (mJy/beam)	-	-	-	-
Peak/RMS needed	-	-	-	-

(21) Preferred VLBI session or range of dates for scheduling, and why:
4 $\sim$ 1 hour sessions of filler-time very close in time to BD119 (January?) but without the weather restrictions.

(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).