VLBA PROPOSAL COVERSHEET

DEADLINES: 1st of Feb., June, Oct.
EMAIL TO: proposevn@HP.mpifr-bonn.mpg.de, propsoc@nrao.edu

rcvd:

(1) Date Prepared: March 2, 2007

(2) Title of Proposal: The Megamaser Cosmology Project: A Target of Opportunity in Mrk 1419

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
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(4) Related previous or current VLBI proposal(s): BB143, BB231 ○ 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: 21.85-21.95 GHz

(9) Recording format: ○ Default continuum setup (VLBA only), ⊗ VLBA/MkIV, ○ MkIII: Mode
Bandwidth per BaseBand channel: 16 MHz
Aggregate bit rate: 512 (8 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	10
other NRAO	GBT	10
Non-VLBI Intruments		

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

The H_2O maser in Mrk 1419 may become one of the cornerstone sources for the Megamaser Cosmology Project (MCP). It has a similar spectrum to NGC 4258 and is located well into the Hubble Flow, so a maser distance directly yields an estimate of H_0. We have just detected a 200 mJy flare in this source, which would allow us to self-calibrate on the maser using the GBT and VLBA antennas. Self-calibration is highly preferable to external phase-referencing. As discussed in this ToO request, one observing track now could produce data with the sensitivity of nearly 10 tracks, once the flare fades. Therefore, we request a 10 hour ToO observation of Mrk 1419 with the VLBA and GBT.

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>): _______

(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: ________ Spectral channels per baseband channel: ________
◯ Other special processing: ____

(19) Postprocessing Location: CfA/NRAO-CV

(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)	Mrk 1419			
RA (hh mm)	9h40m36.4d			
Dec (dd.d)	+03d34m37s			
GST range (Europe)				
GST range (US)	9.0-19.0			
GST range (Other)	9.0-19.0			
Band(s)	K (22 GHz)			
Flux density (Total, Jy)	200 mJy (peak)			
Flux density (correlated, mJy)	200 mJy (peak)			
RMS needed (mJy/beam)	2 mJy			
Peak/RMS needed				

(21) Preferred VLBI session or range of dates for scheduling, and why:
We would prefer to schedule as soon as possible, within the next 10 days, to maximize the likelihood that the flare is bright during the observation.

(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).