VLBA PROPOSAL COVERSHEET

rcvd:

DEADLINES: 1st of Feb., June, Oct.
EMAIL TO: exploresoc@nrao.edu

(1) Date Prepared: January 27, 2004

(2) Title of Proposal: Exploratory Imaging of Q0906+6930

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only For Thesis?	Ph.D. Year
Roger W. Romani	Stanford University	rwr@astro.stanford.edu			
David Sowards-Emmerd	Stanford University	dse@darkmatter.stanford.edu	G	YES	2004
Lincoln J. Greenhill	CfA & Stanford	lincoln@cfa.harvard.edu			

(4) Related previous or current VLBI proposal(s): ○ Resubmission

(5) Contact author for scheduling: Lincoln J. Greenhill
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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:________

(9) Recording format: ⊗ Default continuum setup (VLBA only), ○ VLBA/MkIV, ○ MkIII: Mode______
Bandwidth per BaseBand channel: ______
Aggregate bit rate:______ (______ BB channels at ______ 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	2hr + 3hr
other NRAO		
Non-VLBI Instruments		

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

We have just discovered a radio bright $S_{8.4} = 190$mJy, flat spectrum ($\alpha_{1.4/8.4} = -0.4$), compact Blazar candidate at $z = 5.49$. This is apparently the most distant radio-selected blazar yet seen and an excellent candidate to search for a high redshift jet interacting with the CMBR. With its high northern declination and substantial correlated flux, this is an excellent target for simple imaging during gaps in the VLBA schedule. We propose 2cm/0.7cm exploratory observations that will, at a minimum, improve measurements of the blazar SED and perform a sensitive search for sub-mas jet structure. We request exploratory observations as any resolved structure will be crucial in motivating high energy studies in the upcoming CXO observation cycle (March 12 proposal deadline). If jet structure is seen, this source represents an excellent laboratory for studying the interaction of jet particles with the high-z CMBR and will be the target of future detailed morphology and kinematic studies.

Scheduler use only

(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: Stanford

(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)	Q0906+6930			
RA (hh mm)	09 06 30.7494			
Dec (dd.d)	+69 30 30.844			
GST range (Europe)				
GST range (US)				
GST range (Other)				
Band(s)	15 GHz, 43 GHz			
Flux density (Total, Jy)	0.24, 0.37			
Flux density (correlated, mJy)	(Core dominant)			
RMS needed (mJy/beam)	0.19, 0.36			
Peak/RMS needed	1200, 1000			

(21) Preferred VLBI session or range of dates for scheduling, and why:
Before 3/1/04, if possible, to guide CXO proposal.

(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).