PROPOSAL COVERSHEET

rcvd:

DEADLINES: 1st of Feb., June, Oct.

(1) Date Prepared: August 7, 2007

(2) Title of Proposal: Towards a 1% mass determination for binary brown dwarf 2MASS07464+20

(3) AUTHORS (Add * for new location)	INSTITUTION	E-mail	G/U	Students Only: For Thesis?	Students Only: Ph.D. Year
Quinn Konopacky*	UCLA	quinn@astro.ucla.edu	G	No	2009
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(4) Related previous or current VLBI proposal(s): ◯ 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: _____

(9) Recording format: ◯ Default continuum setup (VLBA only), ◯ VLBA/MkIV, ◯ MkIII: Mode _____
Bandwidth per BaseBand channel: _____
Aggregate bit rate: 256 (8 BB channels at 16 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	8
other NRAO		
Non-VLBI Intruments		

(12) ABSTRACT (Do not write outside this space. Please type)
We are requesting VLBI time to attempt to detect the brown dwarf binary 2MASS0746425+200032. If detected this would be the first of a large project to obtain a new, very accurate parallax measurement for 2MASS0746425+200032. This source is one of a set of substellar binaries being monitored via high spatial and spectral resolution imaging, with the goal of obtaining dynamical masses. Such masses are critical for the proper calibration of theoretical substellar evolutionary models, which currently are quite discrepant in their mass predictions. The uncertainty in the best distance estimate for 2MASS0746425+200032 is currently contributing significantly to the total uncertainty in our measurement of its mass. With the unprecedented astrometric accuracy afforded by the VLBI, we should be able to measure the distance to this source to better than 1% and thus push the uncertainty in the mass of this source to the level which is needed to robustly distinguish between theoretical evolutionary models.

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: _____

(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)	2MASS07464			
RA (hh mm)	07 46			
Dec (dd.d)	20.0			
GST range (Europe)				
GST range (US)	9:30-21:00			
GST range (Other)				
Band(s)	8.4 GHz			
Flux density (Total, Jy)	0.8			
Flux density (correlated, mJy)	0.4-0.8			
RMS needed (mJy/beam)	0.04			
Peak/RMS needed	10-20			

(21) Preferred VLBI session or range of dates for scheduling, and why:

(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).