Observing Application

Date:Jul 25, 2007
Proposal ID:VLA/07C-236
Legacy ID:AO223
PI: Rachel Osten
Type:Rapid Response
Exploratory Time
Category: Stellar
Total time: 1.0 hour

Request for Exploratory Time: Ultracool Dwarfs at High Spatial Resolution

Abstract:

In previous proposals, we have detected and characterized the radio emission from the tight M8 binary LP349-25. This close binary (d=14.8 pc) has a separation of 0.12". Its radio emission appears to be constant, based on two epochs of observations. Thus its behavior is unlike that of the other radio-detected ultracool dwarfs. The separation of the two dwarfs is large enough that VLBA observations can easily resolve the disks of the two stars and determine the relative contribution to the total radio emission from each dwarf. VLBA observations can also offer crucial astrometric information on the uncertain orbital elements. The flux density at 3.6 cm in both epochs was the same within the error bars. These observations were done in C and D arrays. We request a small amount of observing time (1 hour total) in the current A configuration to determine the amount of correlated flux at 3.6 and 6 cm in the highest spatial resolution available with the VLA. This will provide crucial information to support a planned VLBA proposal our team will submit this fall.

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Related proposals:
VLA/06C-121,VLA/07A-164

Joint:
Not a Joint Proposal

Observing type(s):
Continuum, Polarimetry, *

Resources:

Resource name	Tele. Conf.	Frontend & Backend	Set up
M8binary	VLA A	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 8435.1,8485.1 MHz
Cband	VLA A	C Band 6 cm 4200 - 7700 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 4885.1,4835.1 MHz

Sources:

Source name	RA / RA Range	DEC / DEC Range	System	Velocity/z	Group name
LP349-25	00:27:56.2 00:00:00.0	+22:19:31 00:00:00	J2000	0 km/s	M8binary

Sessions:

Session Name	Session Time	Repeat	Separation	LST Minimum	LST Maximum	Elevation Minimum
Aarray	1.0 hour	1	0 day	00:00:00	24:00:00	0

Session Constraints:

Session Name	Constraint	Comments
Aarray	this can be dynamically scheduled	

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
Aarray	LP349-25/M8binary	M8binary	0.5 hour	0.035mJy/bm
Aarray	LP349-25/M8binary	Cband	0.5 hour	0.041mJy/bm

Total Time per Configuration:

Configuration	Total Time
A	1.0