



11204 - Imaging Circumstellar Disks and Envelopes around Proto-Brown Dwarfs

Cycle: 16, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) CHA25174 ANY	NIC1 NIC2	1	24-Apr-2007 09:22:39.0	yes
02	(2) CHA4146 ANY	NIC1 NIC2	1	24-Apr-2007 09:23:00.0	yes

2 Total Orbits Used

ABSTRACT

Using the Spitzer Space Telescope, we have discovered two young brown dwarfs with Class I spectral energy distributions (i.e., proto-brown dwarfs). We propose to perform broad-band NICMOS imaging of these Class I brown dwarfs to spatially resolve their circumstellar disks and envelopes. If successful, these data would comprise the first measurements of this kind for brown dwarfs and would provide fundamental constraints on models for the formation of brown dwarfs.

OBSERVING DESCRIPTION

We will obtain NIC2 images of 2 protostellar brown dwarfs in the Chamaeleon star-forming region through the F110W, F160W, and F205W filters.

These filters are selected because they provide contiguous broad-band near-IR photometry. Each target will be observed in a 6-point dither pattern (NIC-SPIRAL-DITH) that is centered in the NIC2 array.

To optimize the sampling of the PSF, we select a subpixel dither spacing of 60.5 pixels, or 4.56775". At each dither position, we will obtain one MULTIACCUM image in each of the 3 filters. The exposure times of the individual images will be 128, 128, and 96 sec in F110W, F160W, and F205W, respectively, which will provide sufficient signal-to-noise for extended emission based on the results from program 7413 for IRAS 04325+2402 C (Hartmann et al. 1999) and the magnitudes of our 2 targets (H=15.3 and 15.2, K_s=13.9 and 13.8). Because the target areas contain only faint sources, we use one of the SPARS modes for SAMP-SEQ.

The combination of SPARS16 and NSAMP=10 provides sufficient samples (8-10) for good cosmic ray rejection. Immediately before and after the dither sequence on each target, we will obtain one image in F205W at a position 30" from the target to measure the background. These two chop positions will be on opposite sides of the target. During the exposures with NIC2, we will obtain parallel images with NIC1 through the F160W filter with the maximum exposure times that do not interfere with the NIC2 observations. Each target will be observed in one orbit and one visit. There are no scheduling constraints for this program.

Visit	Proposal 11204, Visit 01 Diagnostic Status: Warning Scientific Instruments: NIC2, NIC1 Special Requirements: (none)									
	(Visit 01) Warning: POS TARG OUTSIDE OF APERTURE (Visit 01) Warning: POS TARG OUTSIDE OF APERTURE									
Diagnosics										
Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
	(1)	Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=4.568 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=true					(3-8)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous		
	(1)	CHA25174	RA: 11 07 3.6930 (166.7653875d) Dec: -77 24 30.71 (-77.40853d) Equinox: J2000				V=(?) H=15.2	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CHA25174	NIC2, MULTIACCUM, NIC2-FIX	F205W	SAMP-SEQ=SPARS 16; NSAMP=8	POS TARG 30,0	Prime + Parallel Group 1-2	[==>]	[1]
	2		ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=7		Prime + Parallel Group 1-2	[==>]	[1]
	3		(1) CHA25174	NIC2, MULTIACCUM, NIC2-FIX	F110W	SAMP-SEQ=SPARS 16; NSAMP=10		Pattern 3-8 (1) Prime + Parallel Group 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]

Proposal 11204 - Visit 01 - Imaging Circumstellar Disks and Envelopes around Proto-Brown Dwarfs

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures (continued)	4	(1) CHA25174	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 16; NSAMP=10		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	5	(1) CHA25174	NIC2, MULTIACCUM, NIC2-FIX	F205W	SAMP-SEQ=SPARS 16; NSAMP=8		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	6	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=9		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	7	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=9		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	8	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=9		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	9	(1) CHA25174	NIC2, MULTIACCUM, NIC2-FIX	F205W	SAMP-SEQ=SPARS 16; NSAMP=8	POS TARG -30,0	Prime + Parallel Gro up 9-10	[==>]	[1]
	10	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=7		Prime + Parallel Gro up 9-10	[==>]	[1]

Proposal 11204 - Visit 02 - Imaging Circumstellar Disks and Envelopes around Proto-Brown Dwarfs

Tue Apr 24 13:23:07 GMT 2007

Visit	Proposal 11204, Visit 02 Diagnostic Status: Warning Scientific Instruments: NIC2, NIC1 Special Requirements: (none)									
	(Visit 02) Warning: POS TARG OUTSIDE OF APERTURE (Visit 02) Warning: POS TARG OUTSIDE OF APERTURE									
Diagnosics										
Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
	(1)	Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=4.568 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=true					(3-8)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(2)	CHA4146	RA: 11 06 29.4260 (166.6226083d) Dec: -77 24 58.64 (-77.41629d) Equinox: J2000			V=(?) H=15.2	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) CHA4146	NIC2, MULTIACCUM, NIC2-FIX	F205W	SAMP-SEQ=SPARS 16; NSAMP=8	POS TARG 30,0	Prime + Parallel Group 1-2	[==>]	[1]
	2		ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=7		Prime + Parallel Group 1-2	[==>]	[1]
	3		(2) CHA4146	NIC2, MULTIACCUM, NIC2-FIX	F110W	SAMP-SEQ=SPARS 16; NSAMP=10		Pattern 3-8 (1) Prime + Parallel Group 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]

Proposal 11204 - Visit 02 - Imaging Circumstellar Disks and Envelopes around Proto-Brown Dwarfs

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures (continued)	4	(2) CHA4146	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 16; NSAMP=10		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	5	(2) CHA4146	NIC2, MULTIACCUM, NIC2-FIX	F205W	SAMP-SEQ=SPARS 16; NSAMP=8		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	6	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=9		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	7	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=9		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	8	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=9		Pattern 3-8 (1) Prime + Parallel Gro up 3-8	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] [==>(Pattern 5)] [==>(Pattern 6)]	[1]
	9	(2) CHA4146	NIC2, MULTIACCUM, NIC2-FIX	F205W	SAMP-SEQ=SPARS 16; NSAMP=8	POS TARG -30,0	Prime + Parallel Gro up 9-10	[==>]	[1]
	10	ANY	NIC1, MULTIACCUM, NIC1	F160W	SAMP-SEQ=SPARS 16; NSAMP=7		Prime + Parallel Gro up 9-10	[==>]	[1]

