

# Michael C. Cushing

# Curriculum Vitae

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## Education

University of Hawai'i at Mānoa	Ph.D. in Astronomy, 2004 Advisor: Dr. John T. Rayner
University of Hawai'i at Mānoa	M.S. in Astronomy, 2000
Boston University	B.A. in Astronomy & Physics, <i>summa cum laude with distinction</i> , 1997

## Research Interests

- Low-mass stars, brown dwarfs, and exoplanets
- Infrared astronomy and instrumentation
- Data reduction algorithms

## Employment History

- Associate Professor, University of Toledo  
(Sep 2015-)
- Assistant Professor, University of Toledo  
(Sep 2011-Aug 2015)
- NASA Postdoctoral Program Fellowship, Jet Propulsion Laboratory  
(Nov. 2009-Aug 2011)
- Intelligence Community Postdoc Fellowship, Institute for Astronomy, University of Hawai'i  
(Sept. 2007-August 2009)
- *Spitzer* Postdoctoral Fellow, Steward Observatory, University of Arizona  
(2005–August 2007)
- *Spitzer* Postdoctoral Fellow, SETI Institute/NASA Ames  
(2004–2005)

## Honors and Awards

- NASA Postdoctoral Fellowship (2009)
- *Spitzer* Postdoctoral Fellowship (2004)
- Boston University College Prize for Excellence in Astronomy
- Phi Beta Kappa

## Research Grants Awarded

- 2015–2016 *Taming the Tepid Three*  
HST, Cycle 22, (**co-PI, 37.5k**)
- 2015–2016 *An HST/Spitzer Case Study of Weather on a Y Dwarf*  
Spitzer Cycle 11 & HST Cycle 21, (**PI, 56k**)
- 2014–2016 *Collaborative Research: A Data Reduction Tool for iSHELL*  
NSF, (**Co-PI, 79k total, 31k to M.C.**)
- 2013–2015 *Characterizing the Ultra-cold Brown Dwarf WD 0806-661B*  
HST, Cycle 21 (Co-I, 36k)
- 2012–2015 *Confirming Ultra-Cold ( $T_{\text{eff}} < 500\text{K}$ ) Brown Dwarf Suspects Identified with WISE*  
HST, Cycle 20 (**PI, 331k**)
- 2012– *In Search of the Coldest Atmospheres: Identifying Companions to the Latest WISE Brown Dwarfs*  
HST, Cycle 20 (co-I, 47k)
- 2012– *Brown Dwarf and Exoplanet Weather Forecasts: Are Y Dwarfs Partly Cloudy?*  
Spitzer, Cycle 9 (**PI, 325k**)
- 2012– *Spitzer Trigonometric Parallaxes of the Solar Neighborhood's Coldest Brown Dwarfs*  
Spitzer, Cycle 9 (co-I, 133k)
- 2012– *SpIES: The Spitzer-IRAC Equatorial Survey*  
Spitzer, Cycle 9 (co-I, 440k)
- 2010– *Spitzer Verification of the Coldest WISE-selected Brown Dwarfs. II.*  
Spitzer, Cycle 8 (co-I, 113k)
- 2011– *Confirming Ultra-cold ( $T_{\text{eff}} < 500\text{K}$ ) Brown Dwarf Suspects Identified with WISE*  
HST, Cycle 19 (**PI, 18k**)
- 2010– *Spitzer Verification of the Coldest WISE-selected Brown Dwarfs*  
Spitzer, Cycle 7 (co-I, 180k)
- 2008–2011 *Precision Tests of Ultracool Dwarf Atmospheric Models*  
Spitzer, Cycle 5 (**PI, 102k**)
- 2007–2010 *Resolving Ultracool Astrophysics with Brown Dwarf Binaries*  
HST Cycle 16 (co-I, 113k)
- 2005–2007 *Probing the Chromospheres of M Dwarfs with the IRS*  
Spitzer Cycle 3 (**PI, 5k**)
- 2005–2008 *Atmospheric Structure and Chemistry of Low-Mass Stars and Brown Dwarfs*  
Spitzer Fellowship (**PI**)

## Mentoring Experience

### Postdoctoral Research:

Adam Schneider, University of Toledo (2013-2016)

### Graduate Research:

Wayne Oswald, University of Toledo (2015-)

Jennifer Greco, University of Toledo (2014-)

Jesica Trucks, University of Toledo (2012-)

Kevin Hardegree-Ullman, University of Toledo (2012-)

Co-Advisor for B. Swift's graduate (Master's) research, University of Arizona (2008)

Co-Advisor for B. Bowler's graduate (Master's) research, University of Hawai'i (2008)

Undergraduate Research:

James Windsor, University of Toledo, (2015-)

David Kinder, University of Toledo, (2012-2014)

Trevin Flickinger, University of Toledo, (2012-2014)

High School:

Emily Griffith, Maumee Valley Country Day School, (Nov 2012)

**Professional Service**

*Spitzer Space Telescope* Cycle 13 science review panel, 2016

Gemini Fast Turnaround Review Panel, 2015-

*Spitzer Space Telescope* Cycle 12 science review panel, 2015

Outside reviewer for large *Hubble Space Telescope* proposals, 2014

*Hubble Space Telescope* User Committee member, 2014- (Chair 2016)

Gemini Observatory Science Review Panel, 2013-2014

*Hubble Space Telescope* Cycle 20 science review panel, 2012

*Spitzer Space Telescope* Cycle 5 science review panel, 2008

*Hubble Space Telescope* Cycle 16 science review panel, 2007

*Spitzer Space Telescope* Cycle 3 science review panel, 2006

Referee for *Nature*, *The Astrophysical Journal*, and *Astronomy & Astrophysics*

Provided input to the International Astronomical Union (IAU) Commission 45 triennial report

**A. Refereed Publications and Book Chapters:**

80 total (5755 citations), 14 first author (1463 citations), h-index=36

- A80. *The AllWISE Motion Survey, Part 2*  
Kirkpatrick, J. D., et al. (**Cushing, 5th author**) 2016, ApJS, 224, 36
- A79. *The Collapse of the Wien Tail in the Coldest Brown Dwarf? Hubble Space Telescope Near-infrared Photometry of WISE J085510.83071442.5*  
Schneider, A. C., **Cushing, M. C.**, Kirkpatrick, J. D., & Gelino, C. R. 2016, ApJL, 823, 35
- A78. **The First Detection of Photometric Variability in a Y Dwarf: WISE J140518.39+553421.3**  
**Cushing, M. C.**, et al. 2016, ApJ, 823, 152
- A77. *WISEA J114724.10–204021.3: A Free-floating Planetary Mass Member of the TW Hya Association*  
Schneider, A. C., Windsor, J., **Cushing, M. C.**, Kirkpatrick, J. D., & Wright, E. L. 2016, ApJ, 822, 1
- A76. *A Proper Motion Survey Using the First Sky Pass of NEOWISE-reactivation Data*  
Schneider, A. C. et al. (**Cushing 3rd author**) 2016, ApJ, 817, 112
- A75. *Hubble Space Telescope Spectroscopy of Brown Dwarfs Discovered with the Wide-field Infrared Survey Explorer*  
Schneider, A. C., et al. (**Cushing 2nd author**) 2015, ApJ, 804, 92
- A74. *Near-infrared Thermal Emission Detections of a Number of Hot Jupiters and the Systematics of Ground-based Near-infrared Photometry*  
Croll, B., et al. (**Cushing 4th author**) 2015, ApJ, 802, 28
- A73. *The Luminosities of the Coldest Brown Dwarfs*  
Tinney, C. G., Faherty, J. K., Kirkpatrick, J. D., **Cushing, M. C.**, Morley, C. V., & Wright, E. L. 2014, ApJ, 796, 39
- A72. *NEOWISE-R Observations of the Coolest Known Brown Dwarf*  
Wright, E. L., et al. (**Cushing 5th author**) 2014, AJ, 148, 82
- A71. *WISEP J061135.13–041024.0 AB: A J-band Flux Reversal Binary at the L/T Transition*  
Gelino, C. R., et al. (**Cushing 5th author**) 2014, AJ, 148, 6
- A70. Three New Cool Brown Dwarfs Discovered with the Wide-field Infrared Survey Explorer (WISE) and an Improved Spectrum of the Y0 Dwarf WISE J041022.71+150248.4**  
**Cushing, M. C.**, Kirkpatrick, J. D., Gelino, C. R., Mace, G. N., Skrutskie, M. F., & Gould, A. et al. 2014, AJ, 147, 113
- A69. *The AllWISE Motion Survey and the Quest for Cold Subdwarfs*  
Kirkpatrick, J. D. et al. (**Cushing 9th author**) 2014, ApJ, 783, 122

- A68. *WISE Y Dwarfs as Probes of the Brown Dwarf-Exoplanet Connection*  
Beichman, C. et al. (**Cushing 4th author**) 2014, ApJ, 783, 68
- A67. *The First AllWISE Proper Motion Discovery: WISEA J070720.50+170532.7*  
Wright, E. L. et al. (**Cushing 12th author**) 2014, AJ, 147, 61
- A66. *Ultracool Objects: L, T, and Y Dwarfs***  
**Cushing, M. C.** 2014, in *50 Years of Brown Dwarfs*, Astrophysics and Space Science Library, 401, 113
- A65. *Discovery of the Young L Dwarf WISE J174102.78–464225.5*  
Schneider, A. C. et al. (**Cushing 2nd author**) 2014, AJ, 147, 34
- A64. *The Exemplar T8 Subdwarf Companion of Wolf 1130*  
Mace, G. N. et al. (**Cushing 3rd author**) 2013, ApJ, 777, 36
- A63. *Discovery of the Y1 Dwarf WISE J064723.23–623235.5*  
Kirkpatrick, J. D. et al. (**Cushing 2nd author**) 2013, ApJ, 776, 128
- A62. *Nearby M, L, and T Dwarfs Discovered by the Wide-field Infrared Survey Explorer (WISE)*  
Thompson, M. A. et al. (**Cushing 3rd author**) 2013, PASP, 125, 809
- A61. *A Study of the Diverse T Dwarf Population Revealed by WISE*  
Mace, G. N. et al. (**Cushing 3rd author**) 2013, Astrophysical Journal, 205, 6
- A60. *A T8.5 Brown Dwarf Member of the  $\xi$  Ursae Majoris System*  
Wright, E. L. et al. (**Cushing 15th author**) 2013, Astronomical Journal, 145, 84
- A59. *The Coldest Brown Dwarf (or Free-floating Planet)?: The Y Dwarf WISE 1828+2650*  
Beichman, C., Gelino, C. R., Kirkpatrick, J. D., Barman, T. S., Marsh, K. A., **Cushing, M. C.**, & Wright, E. L. 2013, Astrophysical Journal, 764, 101
- A58. *Parallaxes and Proper Motions of Ultracool Brown Dwarfs of Spectral Types Y and Late T*  
Marsh, K. A., Wright, E. L., Kirkpatrick, J. D., Gelino, C. R., **Cushing, M. C.**, Griffith, R. L., Skrutskie, M. F., and Eisenhardt, P. R. M., 2013, Astrophysical Journal, 762, 119
- A57. *Eleven New Heavily Reddened Field Wolf-Rayet Stars*  
Smith, J. D. T., **Cushing, M. C.**, Barletta, A., McCarthy, D., Kulesa, C., Van Dyk, S. D. 2012, Astronomical Journal, 144, 166
- A56. *WISE J163940.83–684738.6: A Y Dwarf Identified by Methane Imaging*  
Tinney, C. G., Faherty, J. K., Kirkpatrick, J. D., Wright, E. L., Gelino, C. R., **Cushing, M. C.**, Griffith, R. L., Salter, G. 2012, Astrophysical Journal, 759, 60
- A55. *Spitzer Photometry of WISE-selected Brown Dwarf and Hyper-luminous Infrared Galaxy Candidates*

- Griffith, R. L. et al. (**Cushing 5th author**) 2012, *Astronomical Journal*, 144, 148
- A54. *The First Hyper-luminous Infrared Galaxy Discovered by WISE*  
Eisenhardt, P. R. M., et al. (**Cushing 10th author**), 2012, *Astrophysical Journal*, 755, 173
- A53. *Masses, Radii, and Cloud Properties of the HR 8799 Planets*  
Marley, M. S., Saumon, D., **Cushing, M. C.**, Ackerman, A. S., Fortney, J. J., Freedman, R. 2012, *Astrophysical Journal*, 754, 135
- A52. *Further Defining Spectral Type "Y" and Exploring the Low-mass End of the Field Brown Dwarf Mass Function*  
Kirkpatrick, J. D. et al. (**Cushing 3rd author**), 2012, *Astrophysical Journal*, 753, 156
- A51. *Resolved Spectroscopy of a Brown Dwarf Binary at the T Dwarf/Y Dwarf Transition*  
Burgasser, A. J., Gelino, C. R., **Cushing, M. C.**, & Kirkpatrick, J. D. , 2011, *Astrophysical Journal*, 745, 26
- A50. *A Candidate Dual Activity Galactic Nucleus at  $z=1.175$*   
Barrows et al., (**Cushing, 7th Author**), 2011, *Astrophysical Journal*, 744, 7
- A49. *The First Hundred Brown Dwarfs Discovered with Data from the Wide-field Infrared Survey Explorer (WISE)*  
Kirkpatrick et al., (**Cushing, 2nd Author**), 2011, *Astrophysical Journal Supplemental Series*, 197, 19
- A48. The Discovery of Y Dwarfs Using Data from the Wide-field Infrared Survey Explorer (WISE)**  
**Cushing, M. C.** et al. 2011, *Astrophysical Journal*, 743, 50
- A47. *WISE Brown Dwarf Binaries: The Discovery of a T5+T5 and a T8.5+T9 System*  
Gelino, C. R. et al. (**Cushing 3rd author**) 2011, *Astronomical Journal*, 142, 57
- A46. *Fire Spectroscopy of Five Late-type T Dwarfs Discovered with the Wide-field Infrared Survey Explorer*  
Burgasser, A. J. et al. (**Cushing 2nd author**) 2011, *Astrophysical Journal*, 735, 116
- A45. *The Gemini NICI Planet-finding Campaign: Discovery of a Substellar L Dwarf Companion to the Nearby Young M Dwarf CD35 2722*  
Zahed, W. et al. (**Cushing 9th author**) 2011, *Astrophysical Journal*, 729, 139
- A44. *The First Ultra-Cool Brown Dwarf Discovered by the Wide-Field Infrared Survey Explorer*  
Mainzer et al. (**Cushing 2nd author**) 2011, *Astrophysical Journal*, 726, 30
- A43. *Clouds in the Coldest Brown Dwarfs: FIRE Spectroscopy of the T8 Dwarf Ros 458C*  
Burgasser et al. (**Cushing 7th author**) 2010, *Astrophysical Journal*, 725, 1405
- A42. *Near-Infrared Spectroscopy of the Extrasolar Planet HR 8799b*  
Bowler, B. P., Liu, M. C., Dupuy, T. J. & **Cushing, M.C.**, 2010, *Astrophysical Journal*, 723, 850
- A41. SDSS J141624.08+134826.7: Blue L Dwarfs and Non-Equilibrium Chemistry**

**Cushing, M. C., Saumon, D., & Marley M. S. 2010, *Astronomical Journal*, 140, 1428**

A40. *Studying the Physical Diversity of Late-M Dwarfs with Dynamical Masses*

Dupuy, T. J., Liu, M. C., Bowler, B. P., & **Cushing, M. .C.**, 2010, *Astrophysical Journal*, 721, 1725

A39. *Properties of the T8.5 Dwarf Wolf 940B*

Leggett, S. K., Saumon, D., Burningham, B., **Cushing, M. C.**, Marley, M. S., & Pinfield, D. J. 2010, *Astrophysical Journal*, 720, 252

A38. *Discoveries from a Near-Infrared Proper Motion Survey using Multi-Epoch 2MASS Data*

Kirkpatrick, J. D. et al. (**Cushing 6th author**) 2010, *Astrophysical Journal Supplemental Series*, 190, 100

A37. *Discovery of A Young L Dwarf Binary, SDSS J224953.47+004404.6AB*

Allers, K. N., Liu, M. C., Dupuy, T. J. & **Cushing, M. C.** 2010, *Astrophysical Journal*, 715, 561

A36. *SpeX Spectroscopy of Unresolved Very Low-Mass Binaries. I. Identification of Seventeen Candidates Binaries Straddling the L Dwarf/T Dwarf Transition*

Burgasser, A. J. et al. (**Cushing 3rd author**) 2009, *Astrophysical Journal*, 710, 1142

A35. *The Benchmark Ultracool Subdwarf HD 114762B: A Test of Low-Metallicity Atmospheric and Evolutionary Models*

Bowler, B .P., Liu, M. C., & **Cushing, M. C.** 2009, *Astrophysical Journal*, 706, 1114

A34. *The IRTF Spectral Library: The Cool Stars*

Rayner, J. T., **Cushing, M. C.**, Vacca, W. D. 2009, *Astrophysical Journal Supplemental Series*, 185, 289

A33. *The 0.8-14.5  $\mu\text{m}$  Spectra of Mid-L to Mid-T Dwarfs: Diagnostics of Effective Temperature, Grain Sedimentation, Gas Transport, and Surface Gravity*

Stephens, D. C., et al. (**Cushing 3rd author**) 2009, *Astrophysical Journal*, 702, 154

A32. *2MASS 22344161+4041387AB: A Wide, Young, Accreting, Low-Mass Binary in the LkH $\alpha$ 233 Group*

Allers, K. N. et al. (**Cushing 4th author**) 2009, *Astrophysical Journal*, 697, 824

A31. *2MASS J06164006–6407194: The First Outer Halo L Subdwarf*

**Cushing, M. C., Looper, D., Burgasser, A. J., Kirkpatrick, J. D., Cruz, K. L., Sweet, A., and Faherty, J. 2009, *Astrophysical Journal*, 696, 986**

A30. *The Physical Properties of Four  $\sim$ 600 K T Dwarfs*

Leggett, S. K. et al. (**Cushing 2nd author**) 2008, *Astrophysical Journal*, 695, 1517

A29. *An Infrared High Proper Motion Survey Using 2MASS and SDSS: Discovery of M, L and T Dwarfs*

Sheppard, S. S., and **Cushing, M. C.** 2009, *Astronomical Journal*, 137, 304

A28. *2MASS J09393548–2448279: The Coldest and Least Luminous Brown Dwarf Binary Known?*

- Burgasser, A. J., Tinney, C. G., **Cushing, M. C.**, Saumon, D., Marley, M. S., Bennett, C., and Kirkpatrick J. D. 2008, *Astrophysical Journal*, 689, L53
- A27. *Trigonometric Parallaxes for Two Late-Type Subdwarfs: LSR 1425+71 (sdM8.0) and the Binary LSR 1610-00 (sd?M6pec)*  
Dahn, C. C.. et al. (**Cushing 12th author**) 2008, *Astrophysical Journal*, 686, 548
- A26. *Discovery of Two Nearby, Peculiar L Dwarfs from the 2MASS Proper Motion Survey: Young or Metal-Rich?*  
Looper, D. L.. et al. (**Cushing 6th author**) 2008, *Astrophysical Journal*, 686, 528
- A25. *HN Peg B: A Test of Models of the L to T Dwarf Transition*  
Leggett, S. K. et al. (**Cushing 4th author**) 2008, *Astrophysical Journal*, 682, 1256
- A24. *CLOUDS Search for Variability in Brown Dwarf Atmospheres. Infrared Spectroscopic Time Series of L/T Transition Brown Dwarfs: A Test of Models of the L to T Dwarf Transition*  
Goldman, B. et al. (**Cushing 2th author**) 2008, *Astronomy & Astrophysics*, 487, 277
- A23. Atmospheric Parameters of L and T Dwarfs**  
**Cushing, M. C. et al. 2008, Astrophysical Journal, 678, 1372**
- A22. *Moderate-Resolution Spitzer Infrared Spectrograph Observations of M, L, and T Dwarfs*  
Mainzer, A. K. et al. (**Cushing 5th author**) 2007, *Astrophysical Journal*, 662, 1245
- A21. *Oph 1622–2405: Not a Planetary-Mass Binary*  
Luhman, K. L., Allers, K. N., Jaffe, D. T., **Cushing, M. C.**, Williams, K. A., Slesnick, C. L., & Vacca, W. D. 2007, *Astrophysical Journal*, 659, 1629
- A20. *Characterizing Young Brown Dwarfs Using Low Resolution Near-IR Spectra*  
Allers, K. N. et al. (**Cushing 10th author**) 2007, *Astrophysical Journal*, 657, 511
- A19. *Physical Parameters of Two Very Cool T Dwarfs*  
Saumon, D. et al. (**Cushing 7th author**) 2007, *Astrophysical Journal*, 656, 1136
- A18. *Discovery of a Young Substellar Companion in Chamaeleon*  
Luhman, K. et al. (**Cushing 7th author**) 2006, *Astrophysical Journal*, 649, 894
- A17. A Spitzer Infrared Spectrograph Spectral Sequence of M, L, and T Dwarfs**  
**Cushing, M. C. et al. 2006, Astrophysical Journal, 648, 614**
- A16. *Ammonia as a Tracer of Chemical Equilibrium in the T7.5 Dwarf Gliese 570D*  
Saumon, D., Marley, M. S., **Cushing, M. C.**, Leggett, S. K., Roellig, T. L., Lodders, K., & Freedman, R. S. 2006, *Astrophysical Journal*, 647, 552
- A15. *Near-Infrared Spectra of the Leading and Trailing Hemispheres of Enceladus*



- Verbiscer, A. J., Peterson, D. E., Skrutskie, M., **Cushing, M. C.**, Helfenstein, P., Nelson, M. J., Smith, J. D., & Wilson, J. C. 2006, *Icarus*, 182, 211
- A14. *Post-Outburst Infrared Spectra of V 1647 Ori, the Illuminating Star of McNeil's Nebula*  
Gibb, E. L., Rettig, T. W., Brittain, S. D., Wasikowski, D., Simon, T., Vacca, W. D., **Cushing, M. C.** & Kulesa, C. 2006, *Astrophysical Journal*, 641, 383
- A13. *The Schizophrenic Spectrum of LSR 1610–0040: a Peculiar M Dwarf/Subdwarf*  
**Cushing, M. C. & Vacca, W. D. 2006, *Astronomical Journal*, 131, 1797**
- A12. *Discovery of a Magnetic White Dwarf/Probable Brown Dwarf Short-Period Binary*  
Schmidt, G. D., Szkody, P., Silvestri, N. M., **Cushing, M. C.**, Liebert, J., & Smith, P. S. 2005, *Astrophysical Journal Letters*, 630, L173
- A11. *An Infrared Spectroscopic Sequence of M, L, and T Dwarfs*  
**Cushing, M. C., Rayner, J. T., & Vacca, W. D. 2005, *Astrophysical Journal*, 623, 1115**
- A10. *Spitzer Infrared Spectrograph (IRS) Observations of M, L, and T Dwarfs*  
Roellig, T. L. et al. (**Cushing 8th author**) 2004, *Astrophysical Journal Supplement Series*, 154, 418
- A9. *Near-Infrared Spectroscopy of McNeil's Nebula Object*  
Vacca, W. D., **Cushing, M. C.**, & Simon, T. 2004, *Astrophysical Journal*, 609, L29
- A8. *Spextool: A Spectral Extraction Package for SpeX, a 0.8–5.5 Micron Cross-Dispersed Spectrograph*  
**Cushing, M. C., Vacca, W. D., & Rayner, J. T. 2004, *Publications of the Astronomical Society of the Pacific*, 116, 362**
- A7. *Nonlinearity Corrections and Statistical Uncertainties Associated with Near-Infrared Arrays*  
Vacca, W. D., **Cushing, M. C.**, & Rayner, J. T. 2004, *Publications of the Astronomical Society of the Pacific*, 116, 352
- A6. *A Method of Correcting Near-Infrared Spectra for Telluric Absorption*  
Vacca, W. D., **Cushing, M. C.**, & Rayner, J. T. 2003, *Publications of the Astronomical Society of the Pacific*, 115, 389
- A5. *SpeX: A Medium-Resolution 0.8–5.5 Micron Spectrograph and Imager for the NASA Infrared Telescope Facility*  
Rayner, J. T., Toomey, D. W., Onaka, P. M., Denault, A. J., Stahlberger, W. E., Vacca, W. D., **Cushing, M. C.**, & Wang, S. 2003, *Publications of the Astronomical Society of the Pacific*, 115, 362
- A4. *FeH Absorption in the Near-Infrared Spectra of Late M and L Dwarfs*  
**Cushing, M. C., Rayner, J. T., Davis, S. P., & Vacca, W. D. 2003, *Astrophysical Journal*, 582, 1066**
- A3. *Hokupa'a-Gemini Discovery of Two Ultracool Companions to the Young Star HD 130948*

Potter, D. P., Martín, E. L., **Cushing, M. C.**, Baudoz, P., Brander, W., Guyon, O., & Neuhäuser, R. 2002, *Astrophysical Journal Letters*, 567, L133

A2. *Near-Infrared Adaptive Optics Spectroscopy of Binary Brown Dwarfs HD 130948B and HD 130948C*  
Goto, M. et al. (**Cushing 14th author**) 2002, *Astrophysical Journal Letters*, 567, L59

A1. *H– and K–Band Spectra of Brown Dwarf Candidates in the Core of the rho Ophiuchi Molecular Cloud Complex*  
**Cushing, M. C., Tokunaga, A. T., & Kobayashi, N. 2000, *Astronomical Journal*, 119, 3019**

**B. Conference Proceedings**

- B13. “Furthering our knowledge of the solar neighborhood using WISE” Cushing, M. C. et al. (**Cushing 7th author**), 2013, *Astronomische Nachrichten*, 334, 97
- B12. “Ultracool Dwarf Science from Widefield Multi-Epoch Surveys” Deacon, N. R. et al. (**Cushing 7th author**), 2008, in *16th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. Christopher M. Johns-Krull, Matthew K. Browning, and Andrew A. West, 429
- B11. “Cool Star Science with the FIRE Spectrograph” Burgasser, A. J. et al. (**Cushing 7th author**), 2008, in *16th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. Christopher M. Johns-Krull, Matthew K. Browning, and Andrew A. West, 573
- B10. “Keck LGS-AO Imaging of Cool WISE Brown Dwarfs” Gelino, C. R. et al. (**Cushing 3rd author**), 2008, in *16th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. Christopher M. Johns-Krull, Matthew K. Browning, and Andrew A. West, 871
- B9. “Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer” **Cushing, M. C.**, 2008, in *14th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. F. Van Belle, 1111
- B8. “Spitzer Spectroscopy of Low-Mass Stars and Brown Dwarfs” **Cushing, M. C.**, Marley, M. S., & Roellig, T. R. 2005, in *13th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. F. Favata, G. A. J. Hussain, & Battrick, B., 245
- B7. “The L to T Dwarf Transition” Marley, M. S., **Cushing, M. C.**, & Saumon, D. 2005, in *13th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. F. Favata, G. A. J. Hussain, & Battrick, B., 791
- B6. “Four Years of Good SpeX” Rayner, J. T., Onaka, P. M., **Cushing, M. C.**, & Vacca, W. D. 2004, in *Proceedings of the SPIE: Ground-based Instrumentation for Astronomy*. eds. Alan F. M. Moorwood and I. Masanori, 1498
- B5. “The Discovery of a Low-Mass Binary Companion to HD130948” Potter, D. E., **Cushing, M. C.**, & Neuhäuser, R. 2003, *The Future of Cool-Star Astrophysics: 12th Cambridge Workshop on Cool Stars, and Stellar Systems, and the Sun* eds. A. Brown, G. M. Harper, & T. Ayers, in press
- B4. “A Near-Infrared Spectral Sequence of late M, L, and T Dwarfs” **Cushing, M. C.**, Rayner, J. T., & Vacca, W. D. 2002, in *Proceedings of IAU Symposium 211: Brown Dwarfs* eds. E. Martín, 389
- B3. “Near-infrared Adaptive Optics Spectroscopy of Binary Brown Dwarfs HD 130948B and 130948C” Goto et al. (**Cushing 3rd author**) 2002, in *Proceedings of IAU Symposium 211: Brown Dwarfs* eds. E. Martín, 269
- B2. “A Search for Brown Dwarfs around Young Solar-Analog Stars Using the Hokupa’a/Gemini Adaptive Optics System” Potter, D. E., **Cushing, M. C.**, Martín, E. L. 2002, in *Proceedings of IAU Symposium 211: Brown Dwarfs* eds. E. Martín, 265

- B1. "CLOUDS: Continuous Observations of Ultra-cool Dwarfs" Goldman et al. 2002, in *Proceedings of IAU Symposium 211: Brown Dwarfs* eds. E. Martín, 461

**C. Invited Talks and Colloquia:** 3 international talks, 3 invited reviews

- C33. *WISEA J114724.10-204021.3: A Free-Floating Planetary Mass Member of the TW Hya Association, The Brown Dwarf to Exoplanet Connection*, Splinter Session at the 19th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun, Uppsala, Sweden, June 2016
- C32. *Hunting for Cool Brown Dwarfs with WISE*, University of Texas, Austin, April 2016
- C31. *Hunting for Cool Brown Dwarfs with WISE*, Wayne State University, March 2016
- C30. *Hunting for Cool Brown Dwarfs with WISE*, University of Cincinnati, March 2015
- C29. *Brown Dwarfs in the Era of WISE*, Caltech WISE at Five meeting, February 2015
- C28. *Hunting for Cool Brown Dwarfs with WISE*, Harvard Center for Astrophysics, March 2014
- C27. *Are Y Dwarfs Partly Cloudy?*, American Astronomical Society, January 2014
- C26. *The Discovery of Y Dwarfs with WISE*, University of Notre Dame, April 2013
- C25. *The Discovery of Y Dwarfs with WISE*, Texas A&M University, November 2012
- C24. *Ultracool Objects: L, T, and Y Dwarfs, at 50 Years of Brown Dwarfs: from Theoretical Prediction to Astrophysical Studies* (Bavaria, Germany), October 2012
- C23. *The Discovery of Y Dwarfs with WISE*, Youngstown State University, March 2012
- C22. *The Discovery of Y Dwarfs with WISE*, Penn State, April 2012
- C21. *The Discovery of Y Dwarfs with WISE*, Université de Montréal, February 2012
- C20. *The Discovery of Y Dwarfs with WISE*, American Astronomical Society Special Session (Austin, TX), January 2012
- C19. *The Discovery of Y Dwarfs with WISE*, University of Oxford, December 2011
- C18. *Characterizing the Coldest Brown Dwarfs Discovered with WISE*, at *Exploring Strange New Worlds: From Giant Planets to Super Earths* (Flagstaff, AZ), May 2011
- C17. *Searching for the Coldest Brown Dwarfs in the Solar Neighborhood with WISE*, MIT, May 2011
- C16. *Ultracool Atmospheres: From Brown Dwarfs to Exoplanets*, NASA JPL, December 2010
- C15. *Ultracool Atmospheres: From Brown Dwarfs to Exoplanets*, Carnegie DTM, May 2010
- C14. *Ultracool Atmospheres: From Brown Dwarfs to Exoplanets*, SOFIA/NASA Ames, June 2009
- C13. *Ultracool Atmospheres: From Brown Dwarfs to Exoplanets*, University of Toledo, October, 2009

- C12. *Atmospheric Parameters of Field L and T Dwarfs, at Cool Stars and Stellar Systems 15* (St. Andrews, Scotland), August 2008
- C11. *Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer*, Lowell Observatory, Flagstaff AZ, August 2007
- C10. *Observations of Condensate Clouds in L and T Dwarfs*, American Astronomical Society Special Session (Honolulu, HI), April 2007
- C9. *Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer*, New Mexico State University, April 2007
- C8. *Spitzer Spectroscopy of Ultracool Dwarfs at Cool Stars and Stellar Systems 14* (Pasadena, CA), November 2006
- C7. *Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer*, University of Virginia, March 2006
- C6. *Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer*, Boston University, March 2006
- C5. *Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer*, American Museum of Natural History (New York, NY), March 2006
- C4. *Clouds and Chemistry: Probing the Atmospheres of Ultracool Dwarfs with Spitzer*, Steward Observatory, University of Arizona, February 2006
- C3. *Spitzer Spectroscopy of Ultracool Dwarfs*, U.S. Naval Observatory, Flagstaff AZ, June 2005
- C2. *Spitzer Spectroscopy of Low-Mass Stars and Brown Dwarfs at Cool Stars and Stellar Systems 13* (Hamburg, Germany), July 2004
- C1. *A 0.6–4.1  $\mu\text{m}$  Spectroscopic Study of Very Low-Mass Stars and Brown Dwarfs*, University of California, Los Angeles, May 2004