DANIELLA C. BARDALEZ GAGLIUFFI

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EDUCATION

University of California, San Diego *Expected June 2017*
Doctorate in Physics

Massachusetts Institute of Technology *September 2007 - June 2011*
Bachelor of Science in Physics with Minor in Astronomy

Universidad Nacional Agraria La Molina *March 2004 - July 2007 (transferred)*
Candidate for Bachelor of Science in Environmental Engineering

EXPERIENCE

UNIVERSITY OF CALIFORNIA, SAN DIEGO
Center for Astrophysics and Space Sciences September 2011 - Present
Graduate Student Researcher. Advisor: Prof. Adam Burgasser *San Diego, CA*

· Developed separation-independent method to identify T-dwarf companions to late-M/early-L dwarfs from low-resolution, near-infrared SpeX spectra using spectral indices and template fitting, called *spectral binaries*.
· Compiled and acquired spectroscopic observations of volume-limited sample of M7-L5 brown dwarfs in order to identify spectral binaries to estimate binary fraction.
· Assisted and directed observations at IRTF, Keck, Shane, and Nickel Telescopes.

CALIFORNIA INSTITUTE OF TECHNOLOGY
Infrared Processing and Analysis Center March 2014 - October 2014
IPAC Visiting Graduate Fellow. Supervisor: Dr. Christopher Gelino *Pasadena, CA*

· Analyzed high resolution laser guide star adaptive optics images of spectral binaries to characterize resolved companions and constrain the resolved binary fraction.
· Assisted and directed observations at Keck and 200-inch Hale (Palomar) Telescopes.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Kavli Institute for Astrophysics and Space Research February 2008 - June 2011
Senior Thesis. Advisor: Prof. Rob Simcoe *Cambridge, MA*

· Identified Lyman alpha emitter and absorber galaxies by comparing broadband and narrowband images in the Hubble Ultra Deep Field.

Undergraduate Research Opportunities Program. Supervisor: Prof. Adam Burgasser
· Spectrally deconvolved two unresolved brown dwarf binary systems straddling the L/T transition using HST imaging and SpeX spectroscopic data.

UNIVERSITÉ PARIS-SUD
Centre de Sciences Nucléares et de Sciences de la Matière June 2010 - September 2010
Summer Intern at Department of Electronics. Supervisor: Dr. Nabil Karkour *Paris, France*

· Analyzed signal processing in a gamma ray detector for the INTEGRAL telescope in order to reduce noise at the chip reader.

UNIVERSIDAD DE LA LAGUNA
Instituto de Astrofísica de Canarias July 2009 - September 2009
Summer Research Assistant. Supervisor: Dr. David Martínez Delgado. *Tenerife, Spain*

· Explored correlation between the morphology of stellar tidal streams and the mass of progenitor satellite galaxies using N-body simulations.

PUBLICATIONS

First-Author Publications

2. **D. Bardalez Gagliuffi**, A. Burgasser, C. Gelino, *High Resolution Imaging of Very Low Mass Spectral Binaries: Three Resolved Systems and Detection of Orbital Motion in an L/T Transition Binary*, AJ 150 163 (2015).

1. **D. Bardalez Gagliuffi**, A. Burgasser, C. Gelino, D. Looper, C. Nicholls, S. Schmidt, K. Cruz, A. West, J. Gizis, S. Metchev, *SpeX Spectroscopy of Unresolved Very Low Mass Binaries. II. Identification of Fifteen Candidate Binaries with Late-M/Early-L and T Dwarf Components*, ApJ 794 143 (2014).

Co-Authored Publications

11. S. Fajardo-Acosta, D. Kirkpatrick, A. Schneider, M. Cushing, D. Stern, C. Gelino, **D. Bardalez-Gagliuffi**, K. Kellogg, E. Wright, *Discovery of a Possible Cool White Dwarf Companion from the AllWISE Motion Survey*, accepted for publication to ApJ.

10. A. Burgasser, C. Blake, C. Gelino, J. Sahlmann, **D. Bardalez Gagliuffi**, *The Orbit of the L dwarf + T dwarf Spectral Binary SDSS J080531.84+481233.0*, ApJ 827 25 (2016).

9. J. Robert, J. Gagné, E. Artigau, D. Lafrenire, D. Nadeau, R. Doyon, L. Malo, L. Albert, C. Simard, **D. Bardalez Gagliuffi**, A. Burgasser, *A Brown Dwarf Census from the SIMP Survey*, accepted for publication to ApJ.

8. M. Gillon, E. Jehin, S. Lederer, L. Delrez, J. de Wit, A. Burdanov, V. Van Grootel, A. Burgasser, A. Triaud, C. Opitom, B. O. Demory, D. Sahu, **D. Bardalez Gagliuffi**, P. Magain, D. Queloz, *Temperate Earth-sized planets transiting a nearby ultracool dwarf star*, Nature 533 7602 (2016).

7. A. Burgasser, C. Melis, J. Todd, C. Gelino, G. Hallinan, **D. Bardalez Gagliuffi**, *Radio Emission and Orbital Motion from the Close-encounter Star-Brown Dwarf Binary WISE J072003.20-084651.2*, AJ 150 180 (2015).

6. J. Sahlmann, A.J. Burgasser, E.L. Martn, P.F. Lazorenko, **D. Bardalez Gagliuffi**, M. Mayor, D. Sgransan, D. Queloz, S. Udry, *DE0823-49 is a juvenile binary brown dwarf at 20.7 pc*, A&A 579 61 (2015).

5. A. Burgasser, M. Gillon, C. Melis, B. Bowler, E. Michelsen, **D. Bardalez Gagliuffi**, C. Gelino, E. Jehin, L. Delrez, J. Manfroid, C.H. Blake, *WISE J072003.20-084651.2: An Old and Active M9.5 + T5 Spectral Binary 6 pc from the Sun*, AJ 149 104 (2015).

4. S. Schmidt, J. Prieto, K. Stanek, B. Shappee, N. Morrell, **D. Bardalez Gagliuffi**, C. Kochanek, J. Jencson, T. Holoien, U. Basu, J. Beacom, D. Szczygieł, G. Pojmanski, J. Brimacombe, M. Dubberley, M. Elphick, S. Foale, E. Hawkins, D. Mullins, W. Rosing, R. Ross, Z. Walker, *Characterizing a Dramatic $\Delta V\sim$-9 Flare on an Ultracool Dwarf Found by the ASAS-SN Survey*, ApJL 781 2 L24 (2014).

3. A. Burgasser, C. Luk, S. Dhital, **D. Bardalez Gagliuffi**, C. Nicholls, L. Prato, A. West, S. Lpine, *Discovery of a Very Low Mass Triple with Late-M and T Dwarfs Components: LP 704-48/SDSS J0006-0852AB*, ApJ 757 110 (2012).

2. A. Burgasser, **D. Bardalez Gagliuffi**, J. Gizis, *Hubble Space Telescope Imaging and Spectral Analysis of Brown Dwarf Binaries at the L Dwarf/T Dwarf Transition*, AJ 141 70 (2011).

1. D. Martinez-Delgado, R. Gabany, K. Crawford, S. Zibetti, S. Majewski, H. Rix, J. Fliri, J. Carballo-Bello, **D. Bardalez Gagliuffi**, J. Peñarrubia, T. Chonis, B. Madore, I. Trujillo, M. Schirmer, D. McDavid, *Stellar Tidal Streams in Spiral Galaxies of the Local Volume: A Pilot Survey with Modest Aperture Telescopes*, AJ 140 962 (2010).

Conference Proceedings

1. **D. Bardalez Gagliuffi**, A. Burgasser, C. Gelino, C. Melis, C. Blake, *Bridging the Gap on Tight Separation Brown Dwarf Binaries*, 18th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun (2014).

White Papers

1. J. Faherty, K. Alatalo, L. Anderson, R. Assef, **D. Bardalez Gagliuffi**, M. Barry, D. Benford, M. Bilicki, B. Burningham, D. Christian, M. Cushing, P. Eisenhardt, M. Elvisx, S. Fajardo-Acosta, D. Finkbeiner, W. Fischer, W. Forrest, J. Fowler, J. Gardner, C. Gelino, V. Gorjian, C. Grillmair, M. Gromadzki, K. Hall, Z. Ivezi'c, N. Izumi, D. Kirkpatrick, A. Kovcs, D. Lang, D. Leisawitz, F. Liu, A. Mainzer, K. Malek, G. Marton, F. Masci, I. McLean, A. Meisner, R. Nikutta, D. Padgett, R. Patel, L. Rebull, J. Rich, F. Ringwald, M. Rose, A. Schneider, K. Stassun, D. Stern, C-W. Tsai, F. Wang, M. Weston, E Edward; J. Wu, J. Yang, *Results from the Wide-field Infrared Survey Explorer (WISE) Future Uses Session at the WISE at 5 Meeting*, arXiv:1505.01923.

PRESENTATIONS

Selected Talks Invited Talks with ⋆

- *Towards the true binary fraction of low mass stars and brown dwarfs: spectral binaries at wide and tight separations*
  SACNAS National Diversity in STEM Conference, Long Beach, CA (October 2016)
  NASA Ames Research Center, Mountain View, CA (September 2016)
  Cool Dwarf Multiplicity Throughout the Ages Splinter Session at Cool Stars 19, Uppsala, Sweden (June 2016)
  Centro de Astrobiología, European Space Agency, Madrid, Spain (May 2016).

- *Probing the Small Separation Regime with Brown Dwarf Binaries*
  Carnegie Institution of Washington, Department of Terrestrial Magnetism, Washington, DC (August 2015)
  Pennsylvania State University, State College, PA (July 2015)
  ⋆ Bucknell University, Lewisburg, PA (July 2015)
  American Museum of Natural History, New York, NY, (July 2015).

- *Sistemas binarios espectrales de enanas marrones*
  ⋆ Jornadas de Astronoma, UNI, Lima, Peru (January 2015).

- *Resolving the closest separated brown dwarf binaries*
  IPAC Fellowship Talk, Caltech, Pasadena, CA (October, 2014).

- *Bridging the gap on tight separation brown dwarf binaries*
  Greater IPAC Science Symposium, Caltech, Pasadena, CA (March 2014).

- *Searching for the M+T binary needle in the brown dwarf haystack*
  Journal Club, Centro de Astrobiología, European Space Agency, Madrid, Spain (May 2013).

- *Clasificación de enanas marrones binarias con el Telescopio Espacial Hubble*
  ⋆ Encuentro Peruano de Astronoma y Astrofísica, Lima, Perú (January 2010).

Posters

- *What is the true binary fraction of low mass stars and brown dwarfs?*
  Keck Science Meeting, Pasadena, CA (September 2016).
- *Potential Brown Dwarf/Planet System in the 130-200 Myr AB Doradus Association*
  228th American Astronomical Society Meeting (AAS), San Diego, CA (June 2016).
- *Spectral Binary Statistics in a Volume-Limited Ultracool Spectroscopic Sample of 25pc*
  227th American Astronomical Society Meeting (AAS), Kissimmee, FL (January 2016).
- *JHKW1W2 Colors and their Utility on Finding M/L+T Spectral Binaries*
  WISE at 5, California Institute of Technology, Pasadena, CA (February 2015).
- *Bridging the gap on tight separation brown dwarf binaries*
  18th Cambridge Workshop on Cool Stars, Flagstaff, AZ (June 2014).
- *Searching for the M+T binary needle in the brown dwarf haystack*
  Brown Dwarfs Come of Age, Fuerteventura, Canary Islands, Spain (May 2013).
- *Discovery of an Old, Wide, Very Low Mass Triple System with Late-M and T Dwarf Components*
  17th Cambridge Workshop on Cool Stars, Barcelona, Spain (June 2012).
  220th American Astronomical Society Meeting (AAS), Anchorage, AK (June 2012).
- *Discovery of a Brown Dwarf triple system with Hubble Space Telescope imaging and spectral analysis*
  214th American Astronomical Society Meeting (AAS), Pasadena, CA (June 2009).
  Boston Undergraduate Research Symposium (BURS), Cambridge, MA (April 2009).
  MIT Society of Physics Students Symposium (SPSS), Cambridge, MA, (April 2009).

SCHOLARSHIPS, GRANTS AND AWARDS

Outstanding Oral Presentation at SACNAS National Diversity in STEM Conference, Long Beach, CA (October 2016).

Davidson Grants for Travel to Lick Observatory, August 2016 ($400).

Sigma Xi Grants in Aid of Research, May 2016 ($1600).

Cool Stars 19, Travel Grant, June 2016 (4000 kr).

Semi-finalist at UC system-wide Grad SLAM public speaking contest ($100).

Association for Women In Science Scholarship, San Diego Chapter, April 2015 ($1000).

IPAC Fellowship, Caltech, March-October 2014 ($18000).

UCSD Friends of the International Center Scholarship, May 2013 ($2000).

Cool Stars 17, Graduate Student Poster Award, 3rd place, June 2012 (€100).

Cool Stars 17, Travel Grant, June 2012 ($500).

John Reed Research Fund, Summer 2008.

AAS Chambliss Astronomy Achievement Student Award, Honorable Mention, June 2009.

Margarita C. Hennessy Scholarship recipient (Full tuition: ∼$40,000 per year; 2007-2011).

OUTREACH AND SERVICE

Referee for Monthly Notices of the Royal Astronomical Society (since July 2015) and the Astronomical Journal (since June 2016).

Invited Panelist at Cal-bridge 2016 Workshop Series Session on Graduate School, UCSD, San Diego, CA (May 2016).

Invited Moderator at "Women in Industry" Session at Conference for Undergrad Women in Physics (CUWiP), San Diego, CA (January 2016).

Instructor at Birch Aquarium Overnight session for middle school girls, San Diego, CA (October 2015).

Invited instructor at 2do Campamento Latinoamericano de Ciencias in Minas, Uruguay (March 2015).

Vista Unified School District STEMfest (March 2014).

MIT Educational Counselor and Admissions Interviewer (October 2013 - Present).

Instructor at UCSD Institute of the Americas Science Boot Camp (San Diego, July 2013).

American Association of University Women Tech Trek at UCSD (June 2013).

Expand Your Horizons at University of San Diego (March 2012).

Volunteer at Young Physicists Program (YPP) at UCSD (Oct 2011 - June 2012).

Freshman Associate Advisor at MIT (2008-2009).

ORGANIZATIONAL AND LEADERSHIP EXPERIENCE

Cool Dwarf Multiplicity Throughout the Ages: led organization and chaired splinter session at Cool Stars 19 in Uppsala Sweden, along with Dr. Christopher Gelino and Dr. Niall Deacon.

Creator and main organizer of the Graduate/Undergraduate Women in Physics mentoring program at UCSD, mWIP (January 2015 - Present). URL: `https://mwip.ucsd.edu`

UCSD Physics Graduate Council: Chair (2015-2016 academic year), Education Policy, Colloquium and Funding Crisis Committees (since June 2013).

TEACHING EXPERIENCE

Workshop Leader on Effective Presentations for Burgasser Research Group (Summer 2016).

Workshop Leader on Python Programming with Pandas for CASS Summer Undergrads (Summer 2016).

Teaching Assistant for Electricity and Magnetism Laboratory at UCSD. Prof. Mike Anderson (Winter 2014).

Teaching Assistant for Stars and Black Holes at UCSD. Prof. Alison Coil (Fall 2012).

Teaching Assistant for Optics and Waves Laboratory at UCSD. Prof. Alex Groisman (Fall 2012).

Undergraduate TA in 8.02: Electricity and Magnetism at MIT. Prof. Kathy Cooksey (Spring 2011).

STUDENTS MENTORED

Andrew Charles, 5th year undergraduate Physics major at UCSD (mWIP).

Rachel Choe, 2nd year undergraduate Physics major at UCSD (mWIP).

Elizabeth Moreno, 4th year undergraduate Physics Engineering major at Universidad de Guanajuato, Mexico (Summer 2016). Project: "Characterizing a Resolved M7 Dwarf Twin".

Kylie Noelle, 4th year undergraduate Physics major at UCSD (mWIP).

Sanyri Sanchez, 3rd year undergraduate Physics major at UCSD (mWIP).

MEMBERSHIPS

UCSD Graduate Women in Physics, since Sep 2011.

UCSD Graduate Student Association, Jun 2013 - Dec 2013.

American Astronomical Society (AAS), Junior Member since Dec 2011.

American Physical Society (APS), Student member since Dec 2011.

American Association of University Women (AAUW), Member-at-large since Dec 2011.

OBSERVING EXPERIENCE

Infrared Telescope Facility (IRTF). Instrument: SpeX 2015AB, 2016A
Principal Investigator

· "Towards the True Spectral Binary Fraction of Very Low Mass Stars and Brown Dwarfs" (awarded 3 nights).

Shane 3.0m Telescope. Lick Observatory. Instrument: ShARCS 2016B
Principal Investigator

· "Volume-Limited Spectral Survey of Late-M and L Dwarfs: Determining the Frequency and Separation Distribution of Very Low Mass Binaries through Spectral Blends" (awarded 3 nights).

Keck Telescopes. Instruments: NIRSPEC, NIRC2
Co-Investigator

· "Spectroscopic Monitoring of Unresolved L Dwarf/T Dwarf Spectral Binaries" (2010B - present, awarded 23.5 nights).
· "Resolving the Metallicity-Multiplicity Correlation for Low-Mass Subdwarfs" (2014B - present, awarded 2.5 nights).

SKILLS

Programming languages: Python, IDL, LaTeX, IRAF.

Database management with Python Pandas package.

Database retrieval from Virtual Observatory platforms (particularly Vizier) with Python Astroquery package.

Languages: Spanish (fluent), English (fluent), French (intermediate).

REFERENCES

Prof. Adam J. Burgasser (aburgasser@ucsd.edu)
Dr. Christopher R. Gelino (cgelino@ipac.caltech.edu)
Additional references available upon request.