Curriculum Vitae

RAQUEL A. MARTINEZ

University of San Diego
Department of Physics & Biophysics
5998 Alcalá Park
San Diego, CA 92110

raquelmartinez@sandiego.edu
SCST 278
Phone: (626)710-0862
https://raquizzi.github.io

EDUCATION

The University of Texas at Austin, Austin, TX — Aug 2014 – Aug 2021
Ph. D. in Astronomy, Concentration in Teaching & Mentoring
Advisor: Dr. Adam Kraus

Wesleyan University, Middletown, CT — Aug 2011 – May 2013
M. A. in Astronomy
Thesis: *Searching for Spectral Signatures of the Hidden Secondary Component of BM Ori: Improved Spectroscopic Findings*
Advisor: Dr. Seth Redfield

California Institute of Technology, Pasadena, CA — Sept 2004 – June 2008
B. S. in Astrophysics

PROFESSIONAL APPOINTMENTS

Assistant Professor, University of San Diego — Sept 2024 – Present
NSF MPS-Ascend Fellow, UC Irvine — Sept 2022 – Aug 2024
Postdoctoral Scholar, S. Sallum, UC Irvine — Sept 2021 – Aug 2022
NASA Earth & Space Sciences Fellow, UT Austin — Sept 2017 – Aug 2020
Harrington Graduate Research Fellow, UT Austin — Sept 2014 – Aug 2021

SELECTED GRANTS, FELLOWSHIPS & AWARDS

NSF MPS-Ascending Faculty Catalyst Award — Sept 2025 – Present
Two-year $277,936 research grant
University of San Diego New Faculty PI Award — Spring 2025
RCSA Scialog Fellow, Early Science with the LSST — 2024 – Present
NSF MPS-Ascend Postdoctoral Fellowship — Sept 2022 – Aug 2024
Three-year $100,000/year postdoctoral fellowship
NASA Earth & Space Science Fellowship — Sept 2017 – Aug 2020
Three-year $35,000/year graduate fellowship
Donald D. Harrington Fellowship, UT Austin Graduate School — Sept 2014 – Aug 2021
Three-year $36,000/year graduate fellowship for the 1st, 2nd, and 5th years

SUCCESSFUL OBSERVING PROPOSALS

Hobby-Eberly Telescope: LRS2, 30.7 hrs, (**PI**) — Dec 2016 – Dec 2018
Gemini North: GNIRS, 1.4 hrs, (**PI**) — 2019B
JWST: NIRCam/Coronagraphy, NIRSpec/BOTS, MIRI/LRS (Co-I) — Cycle 2, 3
Keck-I: LRIS, 5 1/2 nights, (Co-I) — 2021B, 2022AB
Keck-II: NIRSPAO, 5 1/2 nights, (Co-I) — 2021B, 2022AB, 2024AB
Hubble Space Telescope: WFC3/UVIS, 26 orbits, (Co-I) — Cycle 28

JWST: MIRI, NIRCam, NIRISS, NIRSpec (Collaborator) Early Release Science

PRESENTATIONS

Invited Research Talks:

USD Cluster-Theme Symposium IV, San Diego, CA — Feb 2026
UCSD Astronomy Colloquium, San Diego, CA — Oct 2024
PCC Carnegie Observatories Lecture Series, Pasadena, CA — Apr 2024
Carleton College Colloquium, Northfield, MN — Nov 2023
Occidental College Colloquium, Los Angeles, CA — Mar 2023
University of San Diego Colloquium, San Diego, CA — Oct 2022
AAS Division of Dynamical Astronomy, Virtual — May 2021
KIPAC Tea Talk, Virtual — Dec 2020
Carnegie EPL Seminar, Virtual — Nov 2020
Carnegie Observatories, Virtual — Oct 2020
JPL Exoplanet Journal Club, Virtual — Oct 2020
Center for Astrophysics Star & Planets Seminar, Cambridge, MA — Oct 2019
Boston University, Boston, MA — Oct 2019
Dept. of Astronomy Board of Visitors Meeting, UT Austin — Feb 2016
Harrington Symposium, Amarillo, TX — April 2015
Harrington Fellows Program Board Meeting, UT Austin — March 2015

Contributed Research Talks:

APS Global Summit, Anaheim, CA — Mar 2025
SPIE Optics+Photonics, presented on behalf of D. Stelter, San Diego, CA — Aug 2023
7th Annual UCI Postdoctoral Scholar Research Symposium, Irvine, CA — Apr 2023
AAS #241, Seattle, WA — Jan 2023
SACNAS National Diversity in STEM Conference, Virtual — Oct 2020
AAS #237, Honolulu, HI — Jan 2020
Brown Dwarf-Exoplanet Connection Workshop III, Newark, DE — Oct 2019
6^{th} **Annual GMT Community Science Meeting,** Honolulu, HI — Sept 2018

Other Workshops and Panels:

23rd Annual Symposium of NSF AST Fellows, Panelist, National Harbor, MD — Jan 2025
Women in Astronomy IV, Austin, TX — June 2017
Co-designer & Co-presenter of *Practicing Allyship: Recognizing and Confronting Macro/Microaggressions* Workshop with Brandon Bozek and Caitlin Casey
Northeast Conference for Undergraduate Women in Physics, Panelist, Yale — Jan 2012

TEACHING EXPERIENCE & PUBLIC OUTREACH

Instructor of Record:

PHYS 106 Exploring the Night Sky; **PHYS 270L** Mechanics Lab — Spring 2026
PHYS 270 Introduction to Mechanics; **PHYS 270L** Mechanics Lab — Fall 2025
PHYS 136 General Physics I; **PHYS 137L** General Physics II Lab — Spring 2025
PHYS 136 General Physics I; **PHYS 136L** General Physics I Lab — Fall 2024

Astronomy on Tap Talk, San Diego, CA — Dec 2025
AstroTech Instructor and Facilitator, Berkeley, CA — May 2023 – Present
Astronomy on Tap Organizer and Co-Host, Austin, TX — Jul 2016 – Mar 2019
Girl Day STEM Festival Volunteer, UT Austin — Feb 2016 – Feb 2020

- Coordinated UT Department of Astronomy involvement in event

attended by >5000 K-8 school-aged children

AAS Astronomy Ambassador Jan 2017 – Present
Astronomy on Tap Talk, Austin, TX May 2015, May 2016
Smart Kids: Career Paths and Personal Journeys in Science, Panelist, UT Austin Mar 2018
Teaching Assistant, AST 364P *Planetary Systems*, UT Austin Fall 2017
CNS Science in the Public Square, Panelist, UT Austin Nov 2016
Young Scientists' Day, Travis Heights Elementary School Nov 2016
***JWST* Exhibit Volunteer,** SXSW Gaming Expo March 2015, 2016
Teaching Assistant, Wesleyan University Fall 2011 – Spring 2013

- *Introductory Astronomy*, *Descriptive Astronomy*, *The Universe*

Outreach Volunteer, Van Vleck Observatory, Wesleyan University Fall 2011 – Spring 2013

PROFESSIONAL DEVELOPMENT

Faculty Teaching Institute, Washington, D.C. Nov 2024
Institute for Scientist & Engineer Educators Leadership Institute, Monterey, CA May 2023
Postdoc Leadership Institute, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, San Juan, PR Oct 2022
Institute for Scientist & Engineer Educators Leadership Institute, Hilo, HI May 2022
Institute for Scientist & Engineer Educators Leadership by Design, UCSC 2021
Institute for Scientist & Engineer Educators Professional Development Program 2017 – 2019, 2024
Women in Astronomy IV, Austin, TX June 2017
Inclusive Astronomy, Vanderbilt University June 2015

PROFESSIONAL ACTIVITIES & ACADEMIC SERVICE

University of San Diego Office of Undergraduate Research, STAR/BURST Reviewer 2025 – Present
Review Panelist, NSF AST 2024 – 2025
AAS Committee for the Status of Minorities in Astronomy, Member June 2024 – Present
Discussion Panelist, JWST Cycle 3 Jan 2024
Science Organizing Committee, ExSoCal, California Institute of Technology Sep 2023 – Dec 2023
Early Career Member, SPIE 2023 – Present
Review Panelist, NASA Feb 2023
Reviewer, AAS Journals 2022 – Present
Full Member, American Astronomical Society 2022 – Present
Mentoring Working Group Member, NASA Bridge Program Workshop Sept 2022 – Oct 2022
National Liaison, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, UC Irvine Chapter Sept 2022 – Aug 2024
New Professional Member, Society for Advancement of Chicanos/Hispanics and Native Americans in Science 2022 – Present
Local Organizing Committee, Bashfest Symposium, UT Austin 2017
UT Austin Department of Astronomy Leadership Positions
CNS Dean's Council Sept 2017 – April 2019
Equity & Inclusion Group, Co-Founder Aug 2016 – Aug 2021
Graduate Student Representative May 2016 – May 2017
UT Graduate Student Assembly Representative Sept 2015 – May 2016
Association of Women in Astronomy Research and Education, Coordinator 2014 – 2021
Graduate Student Member, Society for Advancement of Chicanos/Hispanics and Native Americans in Science 2016 – 2021
Junior Member, American Astronomical Society 2012 – 2021

Representative, Educational Policy Committee, Wesleyan University — Fall 2012 – Spring 2013
Executive Committee, Graduate Student Association, Wesleyan University — 2012 – 2013

PUBLICATIONS

Peer-reviewed Publications:

A Mid-Infrared Study of Directly-Imaged Planetary-Mass Companions us Archival Spitzer/IRAC Images
Martinez, R. A., Kraus, A. L. 2022, AJ, 163, 36

Searching for Wide Companions and Identifying Circum(sub)stellar Disks Through PSF-fitting of Spitzer/IRAC Archival Images
Martinez, R. A., Kraus, A. L. 2019, AJ, 158, 134

Ultraviolet Imaging of SR 12c with HST/WFC3: Accretion and Variability of a Giant Planet at the End Stages of Growth
Finley, C. O., Bowler, B. P., Wu, Y.-L., et al. (including **Martinez, R. A.**) 2026, submitted

Keck Observations in the INfrared of Taurus and ρ Oph Exoplanets And Ultracool dwarfs (KOINTREAU) I: A Planetary-Mass Companion and a Disk-Obscured Stellar Companion Discovered in Taurus
Walker, S. A. U., Liu, M. C., Mawet, D., et al. (including **Martinez, R. A.**) 2025, AJ, 171, 2, 80.

Discovery of a Nearby Habitable Zone Super-Earth Candidate Amenable to Direct Imaging
Beard, C., Robertson, P., Lubin, J., et al. (including **Martinez, R. A.**) 2025, AJ, 170, 5, 279.

The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems III: Aperture Masking Interferometric Observations of the star HIP 65426 at 3.8 μm
Ray, S., Sallum, S., Hinkley, S., et al. (including **Martinez, R. A.**) 2025, ApJ Letters, 983, 1, L25.

Orbital architectures of planet-hosting binaries - III. Testing mutual inclinations of stellar and planetary orbits in triple-star systems
Evans, E. L., Dupuy, T. J., Sullivan, K., et al. (including **Martinez, R. A.**) 2024, MNRAS, 534, 575

The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems. V. Do Self-consistent Atmospheric Models Represent JWST Spectra? A Showcase with VHS 1256–1257 b
Petrus, S., Whiteford, N., Patapis, P., et al. (including **Martinez, R. A.**) 2024, ApJ Letters, 966, L11

The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems. IV. NIRISS Aperture Masking Interferometry Performance and Lessons Learned
Sallum, S., Ray, S., Kammerer, J., et al. (including **Martinez, R. A.**) 2024, ApJ Letters, 963, L2

The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems II: A 1 to 20 Micron Spectrum of the Planetary-Mass Companion VHS 1256-1257 b
Miles, B. E., Biller, B. A., Patapis, P., et al. (including **Martinez, R. A.**) 2023, ApJL, 946, L6

The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems I: High Contrast Imaging of the Exoplanet HIP 65426 b from 2-16 μm
Carter, A. L., Hinkley, S., Kammerer, J., et al. (including **Martinez, R. A.**) 2023, ApJL, 951, L20

The JWST Early Release Science Program for the Direct Imaging and Spectroscopy of Exoplanetary Systems
Hinkley, S., Carter, A. L., Ray, S., et al. (including **Martinez, R. A.**) 2022, PASP, 134, 095003

TESS Hunt for Young and Maturing Exoplanets (THYME): A planet in the 45 Myr Tucana-Horologium association
Newton, E. R., Mann, A. W., Tofflemire, B. M., Pearce, L., Rizzuto, A. C., Vanderburg, A., **Martinez, R. A.,** et al. 2019, ApJL, 880, L17

How to Constrain Your M Dwarf. II. The Mass–Luminosity–Metallicity Relation from 0.075 to 0.7 Solar Masses
Mann, A. W., Dupuy, T., Kraus, A. L., Gaidos, E., Ansdell, M., Ireland, M., Rizzuto, A. C., Hung, C.-L., Dittmann, J., Factor, S., Feiden, G., **Martinez, R. A.,** Ruíz-Rodríguez, D., Chia Thao, P. 2019, ApJ, 871, 63

Published Proceedings:

Designing custom medium resolultion observing modes to trace planet accretion with SCALES
Martinez, R. A., Sallum, S., et al. 2023, Proceedings of the SPIE, 12680, 126801W.
https://doi.org/10.1117/12.2677530

Martinez, R. A., Silvia, D.W., Rice, E.L., & Porter, J. (2022). Value of the array of returner roles within the Professional Development Program. pp. 381–388 in S. Seagroves, A. Barnes, A.J. Metevier, J. Porter, & L. Hunter (Eds.), Leaders in effective and inclusive STEM: Twenty years of the Institute for Scientist & Engineer Educators. UC Santa Cruz: Institute for Scientist & Engineer Educators.

Characterizing exoplanet atmospheres with SCALES medium-spectral-resolution angular differential imaging
Desai, A. et al. (including **Martinez, R. A.**) 2024, Proceedings of the SPIE, 13096, 130969C.
https://doi.org/10.1117/12.3020521

SCALES status report
Stelter, R. D. et al. (including **Martinez, R. A.**) 2024, Proceedings of the SPIE, 13096, 1309619.
https://doi.org/10.1117/12.3020806

The Slicer Combined with Array of Lenslets for Exoplanet Spectroscopy: driving science cases and expected outcomes
Sallum, S. et al. (including **Martinez, R. A.**) 2023, Proceedings of the SPIE, 12680, 1268004.
https://doi.org/10.1117/12.2677831

The SCALES slenslit: a unique exoplanet spectrograph
Stelter, R. D., et al. (including **Martinez, R. A.**) 2023, Proceedings of the SPIE, 12680, 1268004.
https://doi.org/10.1117/12.2677508

Simulating medium-resolution exoplanet characterization with SCALES angular/reference differential imaging
Desai, A. et al. (including **Martinez, R. A.**) 2023, Proceedings of the SPIE, 12680, 1268023.
https://doi.org/10.1117/12.2677846

Recovering simulated planet and disk signals using SCALES aperture masking
Lach, M. R. et al. (including **Martinez, R. A.**) 2023, Proceedings of the SPIE, 12680, 1268024.
https://doi.org/10.1117/12.2677954

Weighing Exo-atmospheres: A Novel Mid-resolution Spectral Mode for SCALES
Stelter, R. D., Skemer, A. J., Kupke, R., et al. (including **Martinez, R. A.**) 2022, Proceedings of the SPIE, 12184, 1218445. doi:10.1117/12.2630400

The Planetary Systems Imager for TMT: Driving Science Cases and Top Level Requirements
Sallum, S., Millar-Blanchaer, M. A., Batalha, N., et al. (including **Martinez, R. A.**) 2022, Proceedings of the SPIE, 12184, 1218446. doi:10.1117/12.2630423

Design of SCALES: a 2-5 micron Coronagraphic Integral Field Spectrograph for Keck Observatory
Skemer, A. J., Stelter, R. D., Sallum, S., et al. (including **Martinez, R. A.**) 2022, Proceedings of the SPIE, 12184, 121840I. doi:10.1117/12.2630577

Finkelstein, K., **Martinez, R. A.**, & Vanderbosch, Z. (2022). Designing and implementing a PDP inquiry activity for an introductory astronomy research methods course. pp. 221–232 in S. Seagroves, A. Barnes, A.J. Metevier, J. Porter, & L. Hunter (Eds.), Leaders in effective and inclusive STEM: Twenty years of the Institute for Scientist & Engineer Educators. UC Santa Cruz: Institute for Scientist & Engineer Educators.