

ROMY RODRÍGUEZ MARTÍNEZ

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RESEARCH INTERESTS/GOALS

I am interested in the detection and characterization of extrasolar planets. My chief research goals are to combine precise measurements of small exoplanets's masses and radii with the chemical abundances of their host stars to constrain planetary structure and composition.

EDUCATION

PhD, Astronomy

August 2017 - Present

The Ohio State University

Advisor: B. Scott Gaudi

Master of Science, Physics

August 2015 - June 2017

University of Puerto Rico, Río Piedras

Advisor: Sarah Ballard

Bachelor of Science, Physics

August 2009 - May 2015

University of Puerto Rico, Río Piedras

PUBLICATIONS

13 total; 6 first author

13. Griffith, E.J., Johnson, J.A., Weinberg, D.H., et al., (incl. **Rodríguez Martínez, R.**), “Untangling the Sources of Abundance Dispersion in Low-Metallicity Stars”, *under review*. arXiv:2210.01821
12. Phillips, C., Wang, J., Edwards, B., **Rodríguez Martínez, R.**, et al. “Is LTT 1445 Ab a Hycean World or a cold Haber World? Exploring the Potential of *Twinkle* to Unveil Its Nature”, *under review*. arXiv:2209.12919
11. Duck, A., Martin, D.V., Gill, S., et al. (incl. **Rodríguez Martínez, R.**) “The EBLM project X. Benchmark masses, radii and temperatures for two fully convective M-dwarfs using K2”, *under review*. arXiv:2208.10534
10. Martin, D.V., Armitage, T., Duck, A., et al. (incl. **Rodríguez Martínez, R.**) “Revised Temperatures For Two Benchmark M-dwarfs – Outliers No More”, *under review*. arXiv:2208.10510
9. **Rodríguez Martínez, R.**, Gaudi, B.S., Schulze, J., et al. “A Reanalysis of the Composition of K2-106b: an Ultra-short Period Super-Mercury Candidate”, *AAS Journals*, *under review*. arXiv:2208.07883
8. Fitzmaurice, E., Martin, D. V., **Rodríguez Martínez, R.**, et al. “Spectroscopy of TOI-1259B - an unpolluted white dwarf companion to an inflated warm Saturn”, *Monthly Notices of the Royal Astronomical Society*. arXiv:2206.01259
7. **Rodríguez Martínez, R.**, Stevens, D.J., Gaudi, B.S., Panero, W., “Analytic Estimates of the Achievable Precision on the Physical Properties of Transiting Planets using Purely Empirical Measurements”, 2021, *The Astrophysical Journal*, 911, 84. arXiv:2101.09289
6. Godoy-Rivera, D., Tayar, J., Pinsonneault, M., **Rodríguez Martínez, R.**, et al., “Testing the Limits of Precise Subgiant Characterization with APOGEE and Gaia: Opening a Window to Unprecedented Astrophysical Studies”, *The Astrophysical Journal*, 915, 19. arXiv:2101.09289
5. **Rodríguez Martínez, R.**, Gaudi, B.S., Rodriguez, Joseph E., “KELT-25b and KELT-26b, a Hot Jupiter and a Substellar Companion Transiting Young A-stars observed by TESS”, 2020, *The Astronomical Journal*, 160, 3. arXiv:1912.01017

4. Rodriguez, J. E., Eastman, J. D., Zhou, G., et al. (incl. **Rodríguez Martínez, R.**) “KELT-24b: A $5M_J$ Planet on a 5.6 day Well-Aligned Orbit around the Young V=8.3 F-star HD 93148”, *The Astronomical Journal*, 158, 197. arXiv:1912.01017
3. **Rodríguez Martínez, R.**, Lopez, L., Shappee, B., Kochanek, C.S., Jayasinghe, T., Schmidt, S., “A Catalog of Flares on M dwarfs with ASAS-SN”, 2020 *The Astrophysical Journal*, 892, 144. arXiv:1912.05549
2. **Rodríguez Martínez, R.**, Ballard, S., Mayo, A., Vanderburg, A., Montet, B., Christiansen, J. L., “Characterization of Low Mass K2 Planet Hosts Using Near-Infrared Spectroscopy”, 2019, *The Astronomical Journal*, 158, 155. arXiv:1808.03652
1. **Rodríguez Martínez, R.**, Schmidt, S. J., Jayasinghe, T., Stanek, K. Z., Prieto, J. L., Shappee, B., Kochanek, C.S., Thompson, T. A., Holoien, T. W.-S., Bersier, D., Brimacombe, J., “ASASSN-18di: Discovery of a Powerful Flare on a Mid-M Dwarf”, 2018, *Research Notes of the American Astronomical Society*, 2, 2. arXiv:1804.04673

AWARDS AND HONORS

The Allan Markowitz Graduate Award in Observational Astronomy Department of Astronomy, Ohio State University	October 2022
ExoExplorers Program (ExoPAG Executive Committee/ NASA Exoplanet Exploration Program)	January 2021
Presidential Fellowship, The Ohio State University	December 2021
Two Sigma Diversity PhD Fellowship Grant (\$2000)	March 2021
Two Sigma Diversity PhD Fellowship Finalist	March 2021
Honorable Mention for Ford Foundation Predoctoral Fellowship	January 2019
Beth A. Brown Award for Best Graduate Poster Presentation (National Society of Black Physicists conference)	November 2018
Ann S. Tuttle Scholarship (OSU)	September 2017

SELECTED TALKS PRESENTED

“Revisiting the Composition of K2-106b: an Ultra-dense, Ultra-short Period Exoplanet” NASA JPL Exoplanet Seminar, Invited Talk	April 25, 2022
“Journey into the Centers of Super-Earths: Constraining the Interior Structure and Composition of Low-Mass Exoplanets” Carnegie Observatories, Invited Colloquium Talk	March 18, 2022
“Revisiting the Composition of K2-106b: an Ultra-dense, Ultra-short Period Exoplanet” ExoExplorer Science Talks	March 18, 2022
“Analytic Estimates of the Achievable Precision on the Physical Properties of Transiting Exoplanets” Habitable Worlds 2021 Conference	February 2021
“Analytic estimates of the achievable precision of the properties of transiting exoplanets” National Society of Black Physicists Conference	November 2020
“Finding Flares with ASAS-SN” Cool Stars Conference 2020, Invited Talk	Cancelled due to COVID-19
“KELT-25b & KELT-26b: A hot Jupiter and a substellar companion transiting young A-stars observed by TESS”, Carnegie Observatories, Invited “Astronomy Tea” talk	July 2020
“Searching for Hot Planets Around Hot Stars with the KELT Survey”, Harvard-Smithsonian Center for Astrophysics, Stars & Planets Seminar, Invited Talk	October 2019
“Strange New Worlds”, Arecibo Observatory, Invited Seminar Talk	April 2017

TELESCOPE PROPOSALS

Large Binocular Telescope (LBT), “Characterizing the atmospheres of white dwarf companions to known exoplanets” (PI), 10 hours awarded, August 2022

Large Binocular Telescope (LBT) “Confirming the First Super Mercury? Exploring the Composition of K2-229b, an Ultra-Dense, Ultra-Short Period Exoplanet” (PI), 8 hours awarded, August 2020

TEACHING & ADVISING

[The Ohio State University](#)

Summer Undergraduate Research Program (SURP) at OSU

Tayt Armitage, astronomy undergraduate, Co-advisor: David V. Martin

May 2022 - present

Columbia High School Science Research Program

Informal advisor for Nicholas Pugliese, high school student in the Science Research Program

January 2021 - December 2021

SciAccess Zenith Mentorship Program

Informal mentor for Olivia Wilkerson, high school student in the Space Science

Mentoring Program at OSU

August - December 2020

Polaris Mentorship Program

Kevin Hoy and Hannah Parsons; astronomy undergraduates, Co-advisor: Alison Duck August 2019 - May 2020

[University of Puerto Rico, Río Piedras](#)

University of Puerto Rico, Río Piedras, Intermediate Lab II

Graduate Teaching Assistant (TA)

January 2016

University of Puerto Rico, Río Piedras, Introduction to Physics Lab I

Graduate Teaching Assistant (TA)

August 2015

***A tiempo* Tutoring Center**

Math and Physics Tutor for Middle School students

August 2011

OUTREACH & SERVICE

Panelist for *Women in Space*

Q&A webinar for elementary school and high school students

May 2022

Panelist for *Galaxy Quest* Monthly Movie Nights - Science Fiction vs Science Fact

Q&A webinar, Astronomy Department, OSU

August 2021

American Astronomical Society Journal Author Series

Discussion of the paper “Analytic Estimates of the Achievable Precision

on the Physical Properties of Transiting Planets Using Purely Empirical Measurements”

May 2021

Speaker for “Magnifying Voices in Physics” event though

Womxn in Physics and Astronomy (WiPA) at UC Irvine

May 2021

Invited speaker at the Columbus School for Girls

April 2021

Invited speaker for middle and high school students at Colegio

Congregacion Mita (Virtual)

March 2021

Panelist for Space4Women Show (Webinar)

February 2021

Invited Speaker for OSU’s Astronomical Society

November 2020

Speaker for Friends of Ohio State Astronomy and Astrophysics (FOSAA) event

“The Search for Life in the Universe and the Exoplanet Revolution”

October 2020

Panelist for <i>Women in Space</i> Q&A webinar for elementary school and high school students	September 2020
Panelist for <i>The Martian</i> Monthly Movie Nights - Science Fiction vs Science Fact Q&A webinar, Astronomy Department, OSU	August 2020
Invited speaker for the Planetary Habitability Lab's "AstroChat" series event University of Puerto Rico Arecibo campus	December 2019
Invited speaker at elementary school Myrna M. Fuentes Caguas, Puerto Rico	December 2019
Creator and co-organizer of symposium: "The Hunt for Alien Habitable Worlds" Speakers: Sarah Ballard, Noemí Pinilla-Alonso, Abel Méndez University of Puerto Rico, Río Piedras	March, 2017

PRESS COVERAGE

¿Qué Pasa, Ohio State? magazine, "Reaching for the Starts: Interview with Romy Rodríguez Martínez"	
AAS Journal Author Series: Presentation of my Research on "Analytic Estimates of the Achievable Precision on the Physical Properties of Transiting Planets using Purely Empirical Measurements"	
Media appearance: "Puerto Rican scientists mourn loss of Arecibo Observatory's iconic telescope" Article by Meghan Bartels for Space.com	
ASAS-SN-18di (Articles on this paper were published in phys.org, medium.com, renfrewshireastro.co.uk, and others.)	April 2018

POSTER PRESENTATIONS

"Is K2-106b truly a Super-Mercury?" (Exoplanets IV Conference)	May 2022
"Finding Flares with ASAS-SN" , (National Society of Black Physicists Meeting), won Beth Brown Award for Best Graduate Poster	November 2018
"Finding Flares with ASAS-SN" , Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Conference	October 2018
"Characterization of Low-mass K2 planet hosts using Near-Infrared Spectroscopy" 229th American Astronomical Society Meeting	January 2017
"Characterization of Low-mass K2 planet hosts using Near-Infrared Spectroscopy" Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Conference	October 2016

CONFERENCES ATTENDED

Exoplanets IV (Las Vegas, NV)	May 2022
Habitable Worlds 2021 (Virtual)	February 2021
Exoplanet Demographics Conference (Virtual)	November 2020
National Society of Black Physicists (Virtual)	November 2020
233rd American Astronomical Society Meeting, (Seattle, WA)	January 2019
National Society of Black Physicists, (Columbus, OH)	November 2018
SACNAS - National Diversity in STEM Conference, (San Antonio, TX)	October 2018

Planets around Hot Stars Meeting, (Nashville, TN)	June 2018
2nd Earth-Like Worlds Workshop, (Manati, PR)	February 2017
229th American Astronomical Society Meeting (Grapevine, TX)	January 2017
SACNAS - National Diversity in STEM Conference (Long Beach, CA)	October 2016
Astrobiology Science Conference (Chicago, IL)	June 2015