

# M. Katy Rodriguez Wimberly

NSF MPS ASCEND POSTDOCTORAL FELLOW · UNIVERSITY OF CALIFORNIA, RIVERSIDE

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## Research Statement(s)

I study Near-Field Cosmology and Galaxy Evolution using both optical telescopes and cosmological simulations. In particular, my work focuses on ultra-faint dwarf galaxies — researching these possible relics of the first galaxies ever formed to learn more about the Early Universe, how the earliest galaxies evolve, and how they can be used as a tool to learn more about our own galaxy, the Milky Way.

Alongside this astrophysics research, I work to improve the astronomical community for all, including publishing articles to help spread successful programs. I have created peer mentorship programs implemented at my alma mater, UC Irvine, and within the Cal-Bridge Program. My aim is to normalize a holistic approach to academic success and strengthen marginalized communities.

## Education

### University of California, Irvine

Irvine, California

Ph.D. in Physics

Sep 2016 - Dec 2021

- Thesis Advisor: Prof. Michael Cooper
- Thesis: Ultra-Faint Dwarf Galaxies: Investigating the Evolution of Our Universe & Those Who Study It

### University of California, Irvine

Irvine, California

M.S. in Physics

Sep 2016 - June 2019

- GPA: 3.34 out of possible 4.00

### California State University, Long Beach

Long Beach, California

M.S. in Physics

Aug 2015 - May 2016

- GPA: 4.00 out of possible 4.00
- Transferred to Ph.D. Program

### California State University, Long Beach

Long Beach, California

B.S. in Physics

Jan 2011 - May 2015

- Minor: Math
- Overall GPA: 3.15 out of possible 4.00
- Major GPA: 3.20 out of possible 4.00

### Mount San Antonio College

Walnut, California

A.A.

Jan 2004 - June 2009

- Majors: Fine Arts, Natural Science & Math, Social & Behavioral Sciences
- Overall GPA: 3.32 out of possible 4.00

## Publications

### A Model of Mentorship for Students from Historically Underrepresented Groups in STEM

Understanding Interventions

Rodriguez Wimberly, M.K., et al.

2022

- Under Review
- arXiv: 2209.03395

### Sizing from the Smallest Scales: The Mass of the Milky Way

MNRAS, 513, 4968

Rodriguez Wimberly, M.K., et al.

2022

### Characterizing the Infall Times and Quenching Timescales of the Milky Way Satellites with *Gaia* Proper Motions

MNRAS

Fillingham, S.P. et al.

2019

- Under Review
- arXiv: 1906.04180

### Suppressing Star Formation on the Smallest Scales: What Role Does Environment Play?

MNRAS, 483, 4031

Rodriguez Wimberly, M.K., et al.

2019

### SETI Observations of Exoplanets with the Allen Telescope Array

AJ, 152.6 (2016b): 181

Harp, G.R. et al.

2016

## Highlighted Awards

**NSF MPS Ascend Postdoctoral Fellow**, 2021 - Current

**AAS National Osterbrock Fellow**, 2020 - 2021

**NSF Graduate Research Fellow**, 2016 - 2021

**Eugene Cota-Robles Fellow**, 2016 - 2021

## Teaching Experience

### ASTR110L: Introduction to Astronomy Lab

CSU Long Beach

Instructor on Record

Aug 2015 - May 2016

- Duties included creating and implementing syllabi based off the department's experiment schedule, homework assignments, exams and final projects (sample syllabi can be viewed at [https://mkrodriguezvimberly.github.io/outreach\\_teaching\\_service/astro100Lsyllabus.html](https://mkrodriguezvimberly.github.io/outreach_teaching_service/astro100Lsyllabus.html)).
- CSULB Official Instructor Evaluations were given after each term and I was guided on how to interpret the feedback and implement desired improvements by the CSULB Physics & Astronomy Department Chair.

## Highlighted Mentorship

### Cal-Bridge Mentorship Handbook

Revision Team Lead

June 2021

- Led team of 4 other Cal-Bridge Alumni in rewriting the program's mentorship handbook with the guidance of the program's director.
- Revisions focus on reciprocal mentor-mentee relationships (especially in that as much as students need to adapt to academia, mentors and academia need to adapt to students), highlighting hurdles specific to many underrepresented groups within STEM, and mental health
- Publicly available at <https://tinyurl.com/CBMentorshipHandbook>

### Cal-Bridge Mentor Map

Author

Aug 2020

- Created a Mentor/Support Network Map designed specifically for undergraduate STEM students.
- Publicly available at <https://tinyurl.com/CBMentorshipMap>

## Observing Experience

2 Nights **Keck Observatory**, Scheduled for May 2023, Mass-Metallicity Relation for UFDs

LRIS, Lead Co-I

1.5 Nights **Keck Observatory**, Chemical Abundances in UFD, Willman 1

DEIMOS, Lead Co-I

15 Nights **Keck Observatory**, Extragalactic Star Formation Quenching Survey

DEIMOS, Co-I

Oct 2015 **UCO/Lick Observatory**, Robert P. Kraft Observational Astronomy Workshop

## Skills

### Programming

Python (Pandas, SciPy, NumPy, Scikit-learn, AstroPy), IRAF (DEIMOS Mask Design, Wavelength Calibration), MySQL, Fortran95, Mathematica, HTML, Certified LabVIEW Associate Developer

### Tools

Unix, Shell (Bash/Zsh),  $\text{\LaTeX}$ (Overleaf/R Markdown), Pypelt, Aladin, DS9, Gwyddion, Git, Atomic & Magnetic Force Microscopy.

### Soft Skills

Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

## Society Memberships

**Astronomical Society of the Pacific**, Board of Directors Member, Diversity Committee Co-Chair

2017 - Present

**American Astronomical Society**, Member, Early Career Task Force Member

2015 - Present

**American Physical Society**, Member

2015 - 2017

**Society of Physics Students - CSULB**, CSULB Chapter Secretary (2013-2015), Member

2011 - 2015

## Invited Talks

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<b>First Friday Astronomy</b> , Boise State University, Department of Physics	upcoming Mar'23
<b>Astronomy Colloquium</b> , University of Texas, Austin, Department of Astronomy	upcoming Apr'23
<b>241<sup>st</sup> Meeting of the American Astronomical Society</b> , NSF AAPF Symposium Mentorship Panelist	upcoming Jan'23
<b>Astronomy Colloquium</b> , University of Michigan, Department of Astronomy	September 2022
<b>Conversations in Equity &amp; Inclusion</b> , University of Michigan, Department of Astronomy	September 2022
<b>Astronomy Brown Bag Lunch</b> , MIT	May 2022
<b>Physics &amp; Astronomy Colloquium</b> , Pomona College	April 2022
<b>Cosmology &amp; Astronomy Seminar</b> , University of California, Davis	October 2021
<b>Cosmology &amp; Astronomy Seminar</b> , University of California, Davis	October 2021
<b>CCAPP Little Galaxies Meeting</b> , The Ohio State University	October 2021
<b>Lunchtime Seminar</b> , The Carnegie Observatories	September 2021
<b>Lunchtime Seminar</b> , The Carnegie Observatories	February 2020
<b>Barriers to Equity, Inclusion &amp; Diversity in Astronomy</b> , Plenary Speaker, Presented on Imposter Syndrome, Astronomical Society of the Pacific 130 <sup>th</sup> Annual Meeting	September 2018

## Recent Contributed Presentations

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<b>241<sup>st</sup> Meeting of the American Astronomical Society</b> , NSF AAPF Symposium Contributed Oral Presentation	upcoming Jan'23
<b>Astronomical Society of the Pacific 2022: A Virtual Conference</b> , Contributed Oral Presentation	upcoming Dec'22
<b>Keck Science Meeting</b> , Oral Presentation	September 2022
<b>GalFESCA Conference</b> , Oral Presentation	September 2022
<b>240<sup>th</sup> Meeting of the American Astronomical Society</b> , Dissertation Contributed Oral Presentation	June 2022
<b>Science by Diverse Scientists: A Cal-Bridge Physics &amp; Astronomy Seminar</b> , Oral Presentation	April 2022
<b>Galaxy Formation &amp; Evolution in the Era of the Roman Space Telescope</b> , Oral Presentation	October 2020
<b>Space Telescope Science Institute's 2020 Spring Symposium — The Local Group: Assembly &amp; Evolution</b> , Poster Presentation	September 2020

## Highlighted Service Activities

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<b>American Astronomical Society Early Career Task Force</b> Invited Early Career Task Force Member	2022 - Present
<b>Cal-Bridge Mentorship Committee Chair</b> Cal-Bridge Program: A bridge program assisting undergraduate STEM students into graduate programs <ul style="list-style-type: none"><li>Led revision of program's mentorship handbook</li><li>Led creation and execution of professional development workshop focused on relational mentoring using the revised mentorship handbook</li></ul>	2020 - Present
<b>Astronomical Society of the Pacific Board of Directors Member</b> Diversity Committee Co-Chair	2019 - Present
<b>Cal-Bridge Director of Peer Mentoring Program</b> Creator & Organizer of Peer Mentoring Program for Cal-Bridge Scholars	2019 - Present
<b>APS-IDEA Network: UCI Team Member</b> Network creating equitable, inclusive and diverse communities	2020-2021
<b>UCI Physics &amp; Astronomy Community Excellence</b> <ul style="list-style-type: none"><li>Co-Creator of Peer Mentoring Programs for 1st Year Physics Graduate Students</li><li>Group Sessions &amp; 1-on-1 Mentoring with Trained Peer Mentors</li><li>Our Website: <a href="https://uci-pace.github.io">uci-pace.github.io</a></li></ul>	2018-2021

## Highlighted Media Pieces

### Mercury Magazine Contributor (Research Focus)

Astronomical Society of the Pacific

2018 - Present

Author: Katy Rodriguez Wimberly

### Road to Happiness: Featured Alumni Story

California State University STEM Network

August 2022

Author: Monica Alarcon

### The Reionization of Katy Rodriguez Wimberly

UC Irvine School of Physical Sciences Features

September 2021

Author: Lucas Van Wyk Joel

### Ultra-Faint Dwarf Galaxies: Cosmic Fossils?

Astronomy YouTube SciComm Playlist

2018-2020

Creator: Katy Rodriguez Wimberly

### Katy Rodriguez Wimberly: Changing My Life for Science

The Story Collider: True, Personal Stories About Science

May 2017

Speaker: Katy Rodriguez Wimberly

## Employment History

<b>UCI Competitive Edge Program</b> , Graduate Student Peer Mentor	2017 & 2018
<b>UCI Competitive Edge Program</b> , Graduate Student Researcher	2016
<b>CSLUB Physics Dept.</b> , Teaching Assistant - Astronomy Lab Instructor	2015-2016
<b>UCI Summer Internship Program</b> , Cal-Bridge Student Researcher	2015
<b>US Army Reserves</b> , Staff Sergeant, Saxophonist, Human Resources Manager	2003-2015
<b>CSLUB Physics Dept.</b> , Learning Assistant	2013-2015
<b>SETI Institute REU</b> , CAMPARE Student Researcher	2014
<b>LSAMP Academic Year Fellowship</b> , Student Researcher	2013-2014
<b>University of Texas, Brownsville Physics REU</b> , Student Researcher	2012
<b>CSULB Physics Dept.</b> , Winter Research Student Researcher	2012
<b>Dept. of Defense Army Civilian</b> , 300th Army Band Unit Administrator	2009-2012
<b>Anbeten Productions</b> , Design Assistant/Consultant	2006-2009
<b>Disneyland Attractions Dept.</b> , Innoventions Supervisor, Project Lead & Performer	2007-2009
<b>Mt. San Antonio College Theatre Dept.</b> , Asst. Costumer	2006
<b>Disneyland Entertainment Dept.</b> , Costumer & Atmosphere Character	2003-2006

## References

<b>Dr. Laura Sales</b> lsales@ucr.edu - 951.827.7037	Professor - UC Riverside
<b>Dr. Michael Cooper</b> cooper@uci.edu - 949.824.6485	Professor - UC Irvine
<b>Dr. Alex Ji</b> alexji@uchicago.edu - 773.702.8203	Professor - University of Chicago
<b>Dr. Alex Rudolph</b> alrudolph@cpp.edu - 909.717.1851	Professor - Cal Poly Pomona

## Previous Awards

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**UCI Latino Excellence & Achievement Award** , 2020  
**UCI Physics & Astronomy Department Award for Outstanding Contributions** , 2019  
**UCI Graduate Division Tom Angell Mentor Fellowship** , 2019  
**Doctoral Diversity Initiative Fellow** , 2016  
**Diversity Recruitment Fellowship** , 2016  
**Nevin Graduate Endowment Fellowship** , 2016  
**CSU-UC Cal-Bridge Scholar** , 2014 - 2017  
**LSAMP PROUD Scholar Award** , 2015  
**CSULB Physical Sciences and Mathematics Scholar** , 2014  
**CSULB Physics Department Scholarship** , 2014  
**Louis Stokes' Alliance for Minority Participation Academic Year Fellow** , 2013 - 2014  
**CSULB Physics Department Scholarship** , 2013

## Past Service Activities

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<b>DreamWakers Speaker</b>	2017 - Present
Virtual chats with grade school science classrooms.	
<b>NASA SMD Bridge Program Workshop</b>	2022
Early Career Perspectives Breakout Discussion Facilitator.	
<b>EmpowHER: Empowering Women through High School Engagement and STEM Research-Keynote Speaker</b>	2022
Inaugural Annual Conference to enhance student success in STEM	University of California, Irvine
<b>UCI Competitive Edge Workshop Leader</b>	2020
Created and Lead Workshop on Impostor Phenomena	
<b>APS Conference for Undergraduate Women in Physics at UCI</b>	2020
Local Organizing Committee	
<ul style="list-style-type: none"> <li>Assisted in proposal, promotion, recruitment, and programming</li> <li>Co-Leader of ASCEND@UCI Mini Conference - Our Website: <a href="https://sites.uci.edu/cuwip2020/ascend-at-uci/">https://sites.uci.edu/cuwip2020/ascend-at-uci/</a></li> </ul>	
<b>Astronomical Society of the Pacific Junior Board Fellow</b>	2017-2019
First ever Junior Board Fellow on the ASP Board of Directors	
<b>Bruin Brains Research Conference - Keynote Speaker</b>	2019
TRIO Programming at Salt Lake Community College, UT	
<b>Expand Your Horizons Event - Keynote Speaker</b>	2019
Annual Workshop for 6-10th Grade Girls Interested in STEM	Salt Lake Community College, UT
<b>UCI Physics &amp; Astronomy Inclusive Excellence Committee</b>	2017-2019
Department Committee to Improve Climate and Diversity	A Graduate Student Representative
<b>UCI Physics &amp; Astronomy Physics Graduate Caucus</b>	2017-2019
Department Organization to Improve Graduates' Experience	Mentorship Chair
<b>UCI Physics &amp; Astronomy Admission Task Force</b>	2018-2019
Department Committee to Improve Diversity in Admissions	A Graduate Student Representative
<b>UCI Astronomy Outreach</b>	2016-2019
Telescope Volunteer for Elementary-level Classroom Night Sky Viewing Parties	
<b>Astronomy Outreach for Underrepresented Youth</b>	2016-2019
K-12 Classroom Visits for underrepresented groups ranging from ethnic minorities to Autistic and Downs Syndrome students.	

## Letters to a Pre-Scientist Scientist Pen Pal

2015-2019

Pen Pal during each Academic Year with a grade school student interested in space science.

## UCI DECADE Learning Community - Invited Workshop Leader

2018

Created and Lead Workshop on Facing Impostor Phenomena

## Reclaiming STEM Science Communication Workshop - Invited Speaker

2018

Presented "Building Your Social Media Brand"

## UCI Physics & Astronomy Stride! Peer Mentoring

2018

Mentoring & Activities Focused on Graduate Applications & Transition

## UCSC Osterbrock Sierra Conference Planning Committee, Co-I

2017

Lead Professional Development Planning & Execution

## SPS CSULB Chapter Secretary

2013-2015

- Assist in outreach program & event planning & execution
- Assist in chapter and physics department event planning and execution

## CSULB Science Outreach

2013 - 2014

Workshop Leader for Mexican American Engineers & Scientists CSULB Chapter

## Past Contributed Presentations

<b>Keck Science Meeting</b> , Oral Presentation	September 2022
<b>Cal-Bridge's Science by Diverse Scientists</b> , Oral Presentation	September 2020
<b>GalFRESCA @ UCI</b> , Oral Presentation	August 2019
<b>Keck Science Meeting</b> , Poster Presentation	September 2018
<b>UCSC Galaxy Workshop</b> , Oral Presentation, Recording of the presentation can be <a href="#">found here!</a>	August 2018
<b>GalFRESCA, CalTech</b> , Oral Presentation	August 2017
<b>UCI Summer Research Symposium</b> , Poster Presentation	August 2016
<b>227<sup>th</sup> AAS Meeting</b> , Poster Presentation	January 2016
<b>APS Far West Meeting</b> , Oral Presentation	October 2015
<b>CAMPARE Research Symposium</b> , Oral Presentation	September 2015
<b>UCI Summer Research Symposium</b> , Oral Presentation	September 2015
<b>CSULB Student Research Symposium</b> , Poster Presentation	October 2014
<b>Astrobiology Science Conference</b> , Oral Presentation	June 2015
<b>CAMPARE Research Symposium</b> , Oral Presentation	September 2014
<b>SETI Institute REU Symposium</b> , Oral Presentation, <i>Lightening Talk</i> version <a href="#">found here</a> at 22:00 minutes	August 2014
<b>CSULB Student Research Symposium</b> , Poster Presentation	October 2013
<b>Conference for Undergraduate Women in Physics</b> , Poster Presentation	January 2013
<b>University of Texas, Brownsville REU Symposium</b> , Oral Presentation	January 2013

## Past Media Pieces

### Astronomy on Tap!

AoT Davis AoT West LA

March 2021

Co-Presenter: Katy Rodriguez Wimberly

### Katy Rodriguez Wimberly Receives Latino Excellence and Achievement Award

UC Irvine School of Physical Sciences News

May 2020

Author: Lucas Van Wyk Joel

### PACE Yourself

UC Irvine School of Physical Sciences Features

April 2020

Author: Lucas Van Wyk Joel

### M. Katy Rodriguez Wimberly Profile

1 Million Women in STEM

May 2020

Author: Katy Rodriguez Wimberly

### The Cal-Bridge Program

Cultivating Excelencia Podcast Interview

Summer 2020

Producer: Michelle Espino Lira

## **Astronomouse**

American Physical Society Forum on Graduate Student Affairs Newsletter

Winter 2019

Author: Katy Rodriguez Wimberly

## **Interview with Katy Rodriguez Wimberly**

Exploring New Worlds: An Astrophysicist's Journey from Academia to Industry

September 2019

Interviewer: Ines Juvan-Beaulieu

## **Reclaiming STEM: addressing the gap in diverse and inclusive trainings**

Sister STEM

June 2019

Authors: Evelyn Valdez-Ward AND Linh

Anh Cat

## **Student Spotlight: Katy Rodriguez Wimberly**

UCI Physics & Astronomy Blog

April 2019

## **California Program Cultivates Minority Physics and Astronomy Ph.D. Students**

Diverse Issues in Higher Education

October 2018

## **Cal-Bridge: Changing the Face of STEM One Student At A Time**

STEM For All Multiplex

May 2018

## **Peer Pressure Ep 38: Astronomy, Not Astrology with Katy Wimberly**

Peer Pressure Podcast

February 2018

Interviewers: Dominic Lozano and

Brandon Ongsy

## **Great Gram!**

Careers with STEM

November 2017

Interviewer: Eliza Brockwell

## **Hundreds gather at UCI to witness 'Great American Eclipse'**

OC Register

August 2017

Author: Tomoya Shimura

## **Student Highlight: Katy Rodriguez Wimberly**

Astronomy in Color

April 2016

Interviewer: Jorge Moreno

## **CSU LSAMP PROUD - Program Recognizing Outstanding Undergraduate Distinction**

California State University Louis Stokes Alliance For Minority Participation

October 2015