

# DEVONTAE C. BAXTER

The University of California, San Diego - Department of Astronomy & Astrophysics

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## Research Interests

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I am deeply curious about the physics driving galaxy formation and evolution in extreme environments — from overdense protoclusters in the distant universe to massive, collapsed galaxy clusters in the nearby cosmos. I pursue this by integrating cosmological simulations with multi-wavelength observations to investigate the drivers of galaxy growth — the processes fueling star formation — and quenching, the mechanisms that halt it, across diverse environments and cosmic epochs. Additionally, I am dedicated to fostering inclusive STEM spaces, particularly for individuals from historically excluded backgrounds, as diversity of thought is crucial to scientific advancement.

## Positions Held

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**NSF Astronomy & Astrophysics Postdoctoral Fellow at UC San Diego**

**July 2023 – Present**

*Mentor: Alison L. Coil*

*San Diego, CA*

## Education

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**The University of California, Irvine**

**May 2023**

*Doctorate of Philosophy (Ph.D.) in Physics | Advisor: Michael C. Cooper*

*Irvine, CA*

**Georgia Institute of Technology**

**May 2017**

*Bachelor of Science (B.S.) in Physics with highest honors | Advisor: Alberto Fernandez-Nieves*

*Atlanta, GA*

## Publications

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*Summary: 8 publications (4 first-author, 4 co-author)*

**Baxter, Devontae C.**, et al. 2024, *The Importance of Gas Starvation in Driving Satellite Quenching in Galaxy Groups at  $z \sim 0.8$* . ApJ, accepted.

L. Xie, G, et al. incl. **Baxter, Devontae C.**, 2024, *The First Quenched Galaxies: When and How?* ApJL, 967, L42.

**Baxter, Devontae C.**, et al. 2023, *When the Well Runs Dry: Modelling Environmental Quenching of High-mass Satellites in Massive Clusters at  $z \gtrsim 1$* . MNRAS, 526, 3716

E. Kukstas, et al. incl. **Baxter, Devontae C.**, 2023, *The GOGREEN Survey: A Critical Assessment of Environmental Trends in Cosmological Hydrodynamical Simulations at  $z \approx 1$* . MNRAS, 518, 4782

**Baxter, Devontae C.**, et al. 2022, *The GOGREEN Survey: The GOGREEN Survey: Constraining the Satellite Quenching Timescale in Massive Clusters at  $z \gtrsim 1$* . MNRAS, 515, 5479

M. K. Rodriguez Wimberly, et al. incl. **Baxter, Devontae C.** 2022, *Sizing from the Smallest Scales: The Mass of the Milky Way*. MNRAS, 513, 4968

**Baxter, Devontae C.**, et al. 2021, *A Machine Learning Approach to Measuring the Quenched Fraction of Low-Mass Satellites Beyond the Local Group*. MNRAS, 503, 1636

S. Mahajan, et al. incl. **Baxter, Devontae C.** 2020, *Reverse Janssen Effect in Narrow Granular Columns*. PRL, 124, 128002

## Funding

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*Total funding awarded (accepted and declined): \$629,850*

National Science Foundation – *23rd Annual Symposium of the NSF Astronomy and Astrophysics Postdoctoral Fellows* (\$50,000, Award# 2437597, PI: J. Moreno, co-PI: D. Baxter)

National Science Foundation – *Constraining the Cosmic Evolution of Environmental Quenching & Predicting Proto-cluster Populations* (\$330,000, Award# 2303800, PI: D. Baxter)

The University of California Chancellor's Postdoctoral Fellowship Program - *Constraining the Cosmic Evolution of Environmental Quenching* (\$9,850)

Sullivan Prize Postdoctoral Fellowship (\$240,000, Declined)

## Awards & Scholarships

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Honorable Mention: UC Irvine President's Dissertation Year Fellowship (\$1,000)	2022
AAS National Osterbrock Leadership Program Fellowship	2020-2023
UCI Physics & Astronomy Graduate Student Mentor Award	2020-2023
LSSTC Data Science Fellowship	2019-2022
Honorable Mention: Ford Foundation Predoctoral Fellowship	2019
UCI Eugene Cota-Robles Graduate Fellowship (\$67,000)	2017-2023
Tulsa Community Foundation: AMC Cares Scholarship (\$5,000)	2015-2017
Georgia Hope Scholarship (\$15,000)	2015-2017

## Professional Talks

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*Summary: 19 Talks (12 invited, 7 contributed)*

UC Irvine Astronomy Seminar <sup>†</sup>	April 2025
UC Riverside Astronomy Seminar <sup>†</sup>	April 2025
Conference for Emerging Black Academics in STEM*	April 2025
Washington State University Physics & Astronomy Colloquium <sup>†</sup>	Nov 2024
University of Florida Astronomy Colloquium <sup>†</sup>	Nov 2024
UC Davis Cosmology and Astronomy Seminar <sup>†</sup>	Oct 2024
Ensenada San Diego Astrophysical Society Meeting*	Sep 2024
Galaxy Formation and Evolution in Southern California Conference*	Sep 2024
President's Postdoctoral Fellowship Program Academic Spring Retreat*	April 2024
AAS 243rd Meeting (Dissertation Talk)*	Jan 2024
NSF AAPF Fellows Symposium*	Jan 2024
Georgia Institute of Technology Center for Relativistic Astrophysics Seminar <sup>†</sup>	Nov 2023
UC San Diego Astronomy Colloquium <sup>†</sup>	Oct 2023
The Baryon Cycle of Protocluster Galaxies Workshop <sup>†</sup>	Oct 2023
First Structures in the Universe Conference <sup>†</sup>	Sept 2023
Inaugural Conference for Emerging Black Academics in STEM <sup>†</sup>	May 2023
AAS 240th Meeting*	June 2022
University of Kansas Astronomy Seminar <sup>†</sup>	April 2022
The Ohio State University Little Galaxies Journal Club <sup>†</sup>	March 2021

<sup>†</sup>=invited; \*=contributed

## Observing Experience

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W.M. Keck Observatory/MOSFIRE	1.5 nights	MOSFIRE Survey of Galaxies in Early Rich Environments	Co-I
W.M. Keck Observatory/KCWI	4.5 nights	KCWI Survey of Ultradiffuse Galaxies in the Field	Co-I
W.M. Keck Observatory/DEIMOS	3.5 nights	DEIMOS Survey of the JWST CEERS Field	Co-I
W.M. Keck Observatory/DEIMOS	6.5 nights	Constraining the Physics of Satellite Quenching at $z < 1$	Co-I

## Advising Experience

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**Sophia Um** - UCSD Astronomy & Astrophysics Undergraduate 2024-Present  
I am actively guiding Sophia's project related to identifying and characterizing isolated quenched dwarf galaxies in cosmological simulations.

Program Development & Leadership

<b>Founder and Program Director</b> - Computational Astrophysics Research Preparation (CARP)	2023-Present
NSF-funded coding and mentorship program for junior college transfer students.	
<b>Program Coordinator</b> - Computational Research Access NEtwork (CRANE)	2022-Present
International coding and mentorship program for historically underrepresented scholars.	
<b>Program Chair</b> - UCI Physics and Astronomy Community Excellence Peer Mentoring Program	2020-2023
Student-led program focused on 1-on-1 and group mentoring for first-year graduate students at UC Irvine.	

Teaching Experience

Instructor - STARTastro Programming & Plotting in Python Workshop	July 2024
Instructor - Computational Astrophysics Research Preparation Spring Workshop	May 2024
Instructor - Computational Research Access NEtwork 2024 Workshop	May 2024
Teaching Assistant - UC Carpentries Fall Workshop Series	Sep 2023
Instructor - LSSTC Data Science Fellowship Program Workshop	June 2023
Instructor - Computational Research Access NEtwork 2023 Workshop	May 2023
Instructor - Physics Olympiad Winter Bootcamp at Ardent Academy for Gifted Youth	December 2019
Teaching Assistant - Physics 20E (Life in the Universe) at UC Irvine	Spring 2019
Teaching Assistant - Physics 20B (Cosmology) at UC Irvine	Winter 2019
Teaching Assistant - Physics 20D (Space Science) at UC Irvine	Fall 2018

Teaching & Mentorship Certificates

Instructor Certification from <i>The Carpentries</i>	
Certification in Course Design from UCI Division of Teaching Excellence and Innovation	
Certification for the Integration of Research, Teaching and Learning from UCI Division of Teaching Excellence and Innovation	
Mentoring Excellence Program Certification from UCI Graduate Division	

Professional Service

UCSD Astronomy & Astrophysics Colloquium Committee Member	2024-2025
<i>Hubble Space Telescope</i> Cycle 32 TAC Expert Reviewer	2024
Social Event Chair - UCI Physics Grad Caucus	2018-2020

Professional Memberships

American Astronomical Society	2020-Present
National Society of Black Physicists	2024-Present

Skills

<b>Technical Skills:</b> Python, L <sup>A</sup> T <sub>E</sub> X, Bash, HTML/CSS, Mathematica, Git, ADQL/SQL, Machine Learning (PyTorch, Tensorflow)
<b>Soft Skills:</b> Scientific communication, project management, teaching and mentoring across diverse backgrounds
<b>Foreign Languages:</b> Spanish (fluent), French (intermediate)

References

<u>Reference 1</u>	<u>Reference 2</u>	<u>Reference 3</u>
Dr. Michael Cooper	Dr. Alison Coil	Dr. Gregory Rudnick
cooper@uci.edu	acoil@ucsd.edu	grudnick@ku.edu
Ph.D. Advisor	Postdoctoral Mentor	Research Collaborator