Devontae C. Baxter

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Scholarly Identity

Research Interests: galaxy evolution; baryon cycle in galaxy groups, clusters, and protoclusters
Specialization: optical imaging & spectroscopy, cosmological simulations, astronomical data science
Collaborations: C3VO, GOGREEN

Employment

NSF Astronomy & Astrophysics Postdoctoral Fellow at UC San Diego **July 2023 - present**
Mentor: Alison L. Coil

Education

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*

Publication Statistics (full list attached at the end)

Peer-reviewed papers: **14** total (**5** first-author, **9** contributing author)
Citations: **120+** total, h-index=**7**

Presentations

***Summary:** **27** presentations (**16** invited, **11** contributed) | †=invited; ∗=contributed*

Colloquia/Seminars

UC San Diego Community and Science Advancements in Spanish (CaSAS) Seminar†	Sep 2025
Caltech Tea Talk†	May 2025
University of Wisconsin-Madison Science Seminar†	April 2025
UC Irvine Astronomy Seminar†	April 2025
UC Riverside Astronomy Seminar†	April 2025
UC San Diego Simulations TheoRy AND more (STRAND) Meeting†	March 2025
Washington State University Physics & Astronomy Colloquium†	Nov 2024
University of Florida Astronomy Colloquium†	Nov 2024
UC Davis Cosmology and Astronomy Seminar†	Oct 2024
Georgia Institute of Technology Center for Relativistic Astrophysics Seminar†	Nov 2023
UC San Diego Astronomy Colloquium†	Oct 2023
University of Kansas Astronomy Seminar†	April 2022
The Ohio State University Little Galaxies Journal Club†	March 2021

Conferences/Workshops

Galaxy Formation and Evolution in Southern California Conference*	Sep 2025
Tracing Cosmic Evolution with Galaxy Clusters V*	July 2025
President's Postdoctoral Fellowship Program 2025 Academic Spring Retreat*	April 2025
Conference for Emerging Black Academics in STEM*	April 2025
Ensenada San Diego Astrophysical Society Meeting*	Sep 2024
Galaxy Formation and Evolution in Southern California Conference*	Sep 2024
President's Postdoctoral Fellowship Program 2024 Academic Spring Retreat*	April 2024
AAS 243rd Meeting (Dissertation Talk)*	Jan 2024
NSF AAPF Fellows Symposium*	Jan 2024

The Baryon Cycle of Protocluster Galaxies Workshop† Oct 2023
First Structures in the Universe Conference† Sept 2023
Inaugural Conference for Emerging Black Academics in STEM† May 2023
AAS 240th Meeting* June 2022
Georgia Tech College of Science REU Poster Symposium* July 2017

Funding & Awards

Summary: Total funding awarded (accepted and declined) **$717,850**

Prize Fellowships

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

Grants

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

Other Honors & Awards

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

Observing Experience

Summary: **16.5 nights** on Keck (KCWI, KCRM, MOSFIRE, DEIMOS) as Co-Investigator across **5** programs.

Observatory / Instrument	Time	Program	Role
Keck/KWCI+KCRM	0.5 night	Illuminating the Physics of the Multiphase Baryon Cycle	Co-I
Keck/MOSFIRE	1.5 nights	MOSFIRE Survey of Galaxies in Early Rich Environments	Co-I
Keck/KCWI	4.5 nights	KCWI Survey of Ultradiffuse Galaxies in the Field	Co-I
Keck/DEIMOS	3.5 nights	DEIMOS Survey of the JWST CEERS Field	Co-I
Keck/DEIMOS	6.5 nights	Constraining the Physics of Satellite Quenching at $z < 1$	Co-I

Advising & Mentorship

Summary: *Primary advisor for **1** undergraduate; formal mentor for **29** students (**4** graduate, **25** undergraduate).*

Research Advising

Sophia Um, Senior thesis at UC San Diego 2024-present

Academic Mentorship

UC San Diego Astronomy & Astrophysics Postdoc × Grad Mentorship Program | **2 grads** 2024-present
Computational Astrophysics Research Preparation Program | **25 undergrads** 2024-present
UC Irvine PACE Mentorship Program Peer Mentor | **2 grads** 2019-2021

Teaching Experience

Summary: *Taught **6** courses (**1** Instructor of Record, **3** Teaching Assistant, **2** Guest Lecturer) and **10** workshops.*

Instructor of Record

ASTR 20A (Introduction to Astrophysics I) at UC San Diego — Fall 2025

Teaching Assistant

Physics 20E (Life in the Universe) at UC Irvine — Spring 2019
Physics 20B (Cosmology) at UC Irvine — Winter 2019
Physics 20D (Space Science) at UC Irvine — Fall 2018

Guest Lecturer

ASTR 2 (Galaxies and the Universe) at UC San Diego — May 2025
Physics 138 (Astrophysics of Galaxies) at UC Irvine — Nov 2020

Workshops/Bootcamps

Instructor - STARTastro Programming & Plotting Workshop — July 2025
Instructor - Computational Astrophysics Research Preparation Spring 2025 Workshop — June 2025
Instructor - Computational Research Access 2025 NEtwork — May 2025
Instructor - STARTastro Programming & Plotting in Python Workshop — July 2024
Instructor - Computational Astrophysics Research Preparation Spring 2024 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 — Dec 2019

Training & Certificates

Instructor Certification from *The Carpentries* — 2024

The Carpentries is an international organization that teaches coding and data science skills through hands-on workshops. This certificate **recognizes the completion of pedagogical training to teach these skills to a global population of learners.**

Certification in Course Design — 2020

This certificate from UCI Division of Teaching Excellence and Innovation **recognizes the completion of training to design effective, inclusive, and engaging courses.**

Certification for the Integration of Research, Teaching and Learning — 2020

This certificate from UCI Division of Teaching Excellence and Innovation **recognizes the completion of training to integrate evidence-based teaching practices to enhance student outcomes.**

Mentoring Excellence Program Certification — 2019

This certificate from UCI Graduate Division **demonstrates acquisition of mentoring skills, such as cultural competence and inclusivity, effective communication, navigating power dynamics, and conflict mediation.**

Service & Leadership

Summary: *Organized **2** conferences; Served on **2** department/student committees; Reviewer for **3** grant/telescope proposals; Developed and/or led **3** mentoring/outreach programs.*

Scientific Organizing

Organizing Committee Member - Galaxy Formation & Evolution in Southern California Conference — 2025
Organizing Committee Member - 23rd Annual NSF AAPF Postdoc Symposium — 2024

Department Committees

UCSD Astronomy & Astrophysics Colloquium Committee Member — 2024-present

Grant & Telescope Proposal Review

Hubble Space Telescope Cycle 33 TAC Expert Reviewer 2025
Future Investigators in NASA Earth and Space Science and Technology (FINESST) No-Panel Reviewer 2025
Hubble Space Telescope Cycle 32 TAC Expert Reviewer 2024

Organizations

Founder and Program Director - Computational Astrophysics Research Preparation (CARP) 2023-present
NSF-funded coding and mentorship program for community college transfer students.

Program Coordinator - Computational Research Access NEtwork (CRANE) 2022-present
International coding and mentorship program for historically underrepresented scholars.

Co-Chair - UCI Physics & Astronomy Community Excellence (PACE) Peer Mentoring Program 2020-2023
Student-led program focused on 1-on-1 and group mentoring for first-year graduate students.

Social Event Chair - UC Irvine Physics Graduate Caucus 2018-2020

Outreach

Invited Speaker - Peninsula Astronomical Society Talk Series Jan 2026
Invited Speaker - Lick Observatory Summer Series Public Outreach Talks July 2025
Invited Speaker - AstroReach San Diego Feb 2025
Volunteer - UC San Diego Cosmic Tours Portable Planetarium Shows 2025-present
Volunteer - UC Irvine Telescope Outreach Program 2019-2020

Media Coverage

Black in Galaxy Astrophysics, *Nature Astronomy* June 2025
Devontae Baxter, Star Detective, UC Irvine Physical Sciences Communications Feb 2021
Some Granular Columns Weigh Too Much, American Physical Society News March 2020

Professional Memberships

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

Skills

Technical Skills: Python, LaTeX, Bash, Mathematica, Git, ADQL/SQL, Machine Learning (PyTorch, Tensorflow)
Soft Skills: Scientific communication, project management, teaching and mentoring across diverse backgrounds
Foreign Languages: Spanish (fluent), French (intermediate)

References

Reference 1
Prof. Michael Cooper
cooper@uci.edu
Ph.D. Advisor

Reference 2
Prof. Alison Coil
acoil@ucsd.edu
Postdoctoral Mentor

Reference 3
Prof. Gregory Rudnick
grudnick@ku.edu
Research Collaborator

List of Publications

Peer-Reviewed Publications

*Summary: **14** peer-review papers; **120+** citations; h-index=**7** (see ADS library)*

First-author publications (5 papers, 40+ citations):

5. **D. C. Baxter** et al., 2025, "Quantifying the Impact of Observational Incompleteness on Identifying and Interpreting Galaxy Protocluster Populations with the TNG-Cluster Simulation" *ApJ*, accepted

4. **D. C. Baxter** et al., 2025, "The Importance of Gas Starvation in Driving Satellite Quenching in Galaxy Groups at $z \sim 0.8$" *ApJ*, 979, 41

3. **D. C. Baxter**, 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

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

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

Co-authored publications (9 papers; contributed to data acquisition and/or paper writing):

9. F. Giddings, et al. (incl. **D. C. Baxter**), 2025, "Companion Fraction and Overdensity in the Hyperion Proto-supercluster ($z \sim 2.5$)" *ApJ*, submitted

8. L. Sandoval Ascensio, et al. (incl. **D. C. Baxter**), 2025, "Caught in the Act of Quenching: A Population of Post-Starburst UDGs" *OJAp*, 8, 110

7. G. Hewitt, et al. (incl. **D. C. Baxter**), 2025, "Distinct Origins of Environmentally Quenched Galaxies in the Core and Virialized Regions of Massive Clusters at $0.8 < z < 1.5$" *MNRAS*, 541, 49

6. H. Gully, et al. (incl. **D. C. Baxter**), 2025, "Insights into Environmental Quenching at $z \sim 1$: An Enhancement of Faint, Low-mass Passive Galaxies in Clusters" *MNRAS*, 539, 3058

5. G. Gururajan, et al. (incl. **D. C. Baxter**), 2025, "Gas Properties as a Function of Environment in the Proto-supercluster Hyperion at $z \sim 2.45$" *A&A*, 698, A312

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

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

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

1. S. Mahajan, M. Tennenbaum, S. Pathak, **D. C. Baxter**, et al., 2020, "Reverse Janssen Effect in Narrow Granular Columns" PRL, 124, 128002