

Stanley A. Baronett

Curriculum Vitae

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EDUCATION

University of Nevada, Las Vegas

Ph.D. in Astronomy

- Advisor: [Zhaohuan Zhu](#)

Las Vegas, NV

Fall 2022–present

University of Nevada, Las Vegas

M.S. in Astronomy, GPA: 4.00/4.00

- Advisors: [Zhaohuan Zhu](#), [Chao-Chin Yang](#)
- Thesis: “Dust-Gas Dynamics Driven by the Streaming Instability with Various Pressure Gradients”

Las Vegas, NV

Fall 2020–Spring 2022

University of Nevada, Las Vegas

B.S. in Physics, GPA: 3.76/4.00

- Concentration in Computational Physics
- [Sigma Pi Sigma](#) (honor society for physics and astronomy)

Las Vegas, NV

Fall 2018–Spring 2020

University of Hawai‘i at Mānoa

M.A. in Philosophy, GPA: 3.96/4.00

- Advisors: [Roger Ames](#), [Kenneth Kipnis](#)
- Thesis: “Sustaining Harmony Through Professional Roles”

Honolulu, HI

Fall 2013–Fall 2015

University of Hawai‘i at Mānoa

B.A. in Philosophy, GPA: 3.88/4.00

- Magna Cum Laude
- [Phi Beta Kappa](#) (academic honor society)

Honolulu, HI

Fall 2007–Spring 2012

EXPERIENCE

University of Nevada, Las Vegas

Graduate Research Assistant under [Zhaohuan Zhu](#)

- From Dust to Planets: Coupling Dust-Gas Dynamics with Multifrequency Radiation Transport in Protoplanetary Disks
- Numerical modeling using multigroup radiation hydrodynamics with Lagrangian particles ([Athena++](#))

Las Vegas, NV

Fall 2020–present

Center for Computational Astrophysics, Flatiron Institute

Pre-Doctoral Research Analyst under [Yan-Fei Jiang](#) and [Phil Armitage](#)

- Influence of multifrequency dust opacities on the thermodynamic structure of protoplanetary disks
- Numerical modeling using multifrequency Monte Carlo radiative transfer ([RADMC-3D](#)) and multigroup radiation hydrodynamics ([Athena++](#))

New York, NY

September 2023–January 2024

Flatiron Computational Fluid Dynamics for Astrophysics Summer School

One of 20 invited students out of 200 applicants

- Finite-volume, spectral, smooth-particle-hydrodynamics, moving-mesh, and high-order numerical techniques
- Applied tutorials on physical processes (MHD and radiation transport) and architectures (CPU and GPU)

New York, NY

July 2023–August 2023

University of Nevada, Las Vegas

Jason Steffen Research Group

Las Vegas, NV
Summer 2019–present

- Influence of stellar evolution and tidal dissipation on planetary orbital dynamics
- Numerical modeling of stellar evolution (**MESA**) and orbital dynamics using *N*-body simulations (**REBOUNDx** contributor)

University of Nevada, Las Vegas

Student Assistant under **Qiang Zhu**

Las Vegas, NV
Spring 2020

- Web Application Development
- Front and back-end development and deployment of the **Topological Phonon Database** and **Virtual X-ray Diffraction**

Qdigital Technology Services

IT Consultant

Las Vegas, NV
Summer 2016–Summer 2018

- Provided managed services, networking, systems infrastructure, support, information security, cloud and on-premises project implementation and deployment, enterprise resource planning, and web development

Hawaii Natural Energy Institute

IT Specialist

Honolulu, HI
Spring 2009–Spring 2016

- Sole IT administrator responsible for the procurement, deployment, and management of hardware, software, and various networks, and the facilitation of website content development

PUBLICATIONS

5. **Baronett, S. A.**, Yang, C.-C. & Zhu, Z. Dust-gas dynamics driven by the streaming instability with various pressure gradients. *MNRAS* **529**, 275–295. doi:[10.1093/mnras/stae272](https://doi.org/10.1093/mnras/stae272) (Mar. 2024).
4. Ferich, N., **Baronett, S. A.**, Tamayo, D. & Steffen, J. H. The Yarkovsky Effect in REBOUNDx. *ApJS* **262**, 41. doi:[10.3847/1538-4365/ac8d60](https://doi.org/10.3847/1538-4365/ac8d60) (Oct. 2022).
3. **Baronett, S. A.**, Ferich, N., Tamayo, D. & Steffen, J. H. Stellar evolution and tidal dissipation in REBOUNDx. *MNRAS* **510**, 6001–6009. doi:[10.1093/mnras/stac043](https://doi.org/10.1093/mnras/stac043) (Mar. 2022).
2. Li, J., Liu, J., **Baronett, S. A.**, Liu, M., Wang, L., Li, R., Chen, Y., Li, D., Zhu, Q. & Chen, X.-Q. Computation and data driven discovery of topological phononic materials. *Nature Communications* **12**, 1204. doi:[10.1038/s41467-021-21293-2](https://doi.org/10.1038/s41467-021-21293-2) (Jan. 2021).
1. **Baronett, S. A.** in *Distributing Worlds through Aesthetic Encounters* (eds Stoll, J., Xiang, S. & Underwood, B.) 141–153 (Cambridge Scholars Publishing, 2018).

Authorship on the SAO/NASA Astrophysics Data System (ADS)

FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS

• UNLV Foundation Board of Trustees Fellowship	(\$30,000/yr.)	2024–2026
• Summer Doctoral Research Fellowship (UNLV)	(\$7,000)	2024
• Flatiron Institute Center for Computational Astrophysics Pre-doctoral Fellow		2023–2024
• Russell L. and Brenda Frank Scholarship	(\$2,830)	2023–2024
• Russell L. and Brenda Frank Scholarship	(\$2,500)	2022–2023
• Nevada Space Grant Consortium Graduate Fellowship	(\$20,000)	2021–2022
• Alumni Association Scholarship (UNLV)	(\$2,500)	2021–2022
• Donna Weistrop and David B. Shaffer Scholarship	(\$1,000)	2021–2022

- Patricia Sastaunik Scholarship (\$2,500) 2021–2022
- Russell L. and Brenda Frank Scholarship (\$2,500) 2020–2021
- Kenneth R. Sites Physics Scholarship (\$1,500) 2019–2020
- Dean’s Honor List (UNLV) 2018
- Departmental Merit Scholarship (Philosophy, UHM) 2013–2015
- Departmental Merit Scholarship (Philosophy, UHM) 2008–2011
- Dean’s List (UHM) 2007–2012

PRESENTATIONS

- **Talk**, Center for Computational Astrophysics Pre-Doc Symposium, Flatiron Institute, New York, NY 2024
Radiation Transport in Protoplanetary Disks (Jan. 19)
- **Poster**, Origins of Solar Systems Gordon Research Conference: Chemical and Dynamical Constraints on Planet Formation, Mount Holyoke College, MA 2023
Dust-Gas Dynamics Driven by the Streaming Instability with Various Pressure Gradients (Jun. 11–16)
- **Poster**, Origins of Solar Systems Gordon Research Seminar: Constraining the Origin and Evolution of Planetary Systems Through a Multidisciplinary Approach, Mount Holyoke College, MA 2023
Dust-Gas Dynamics Driven by the Streaming Instability with Various Pressure Gradients (Jun. 10–11)
- **Poster**, AASTCS 9: Exoplanets IV, Las Vegas, NV 2022
Dust-Gas Dynamics Driven by the Streaming Instability with Various Pressure Gradients (May 2–6)
- **Exhibit** (Virtual), NASA@SC21, NASA Science and Engineering Powered by HPC 2021
Protoplanetary Disk Simulations from Large to Small Scales (Nov. 8)
- **Seminar** (Virtual), Orbital Dynamics & Planetology Group, São Paulo State University, Brazil 2021
Stellar Evolution and Tidal Dissipation in REBOUNDx (Apr. 16)

TEACHING

- **Teaching Assistant** at the University of Nevada, Las Vegas Fall 2020–Spring 2021
Physics for Scientists and Engineers Lab III (PHYS 182L)
- **Grader** at the University of Hawai‘i at Mānoa Fall 2013
Introduction to Deductive Logic (PHIL 110)

OUTREACH

- **Lead Organizer**, Astronomy on Tap, Las Vegas 2022–present
Helped organize the following events:
”Astronomy on Tap, Las Vegas XI” (Mar. 5, 2024)
”VAR! 100 Years of Variable Stars & Extragalactic Astronomy” (Oct. 3, 2023)
”Journey to the Center of the Earth” (Jun. 20, 2023)
”Universe in a Box” (Mar. 2, 2023)
”Backyard Telescopes” (May 26, 2022)
”The Horrors of Black Holes” (Oct. 27, 2022)
- **Judge**, Beal Bank USA Southern Nevada Regional Science & Engineering Fair 2022–2024
Elementary, middle, and high school divisions
- **Event Supervisor**, Nevada Science Olympiad State Tournament, Division B (middle school) 2022–2023
Developed and administered written exams for the Solar System event
- **Exhibit**, Inquiry III: The Art of Scientific Discovery (UNLV College of Sciences) Oct 2022
Submitted a display piece entitled “Streaming Instability”

- **Assistant Organizer**, Neighborhood Star Party, Las Vegas, NV

2022

Helped Prof. Jason Steffen organize the event at Sonoma at Summerlin by Coleman HOA (Oct. 8)