Galen Bergsten | Curriculum Vitae

PhD Candidate | gbergsten@arizona.edu
Lunar and Planetary Laboratory, University of Arizona

Education

Lunar and Planetary Laboratory, University of Arizona Expected *2026*
PhD in Planetary Sciences, Minor in Astrobiology (Thesis Advisor: Dr. Ilaria Pascucci)
MS (en route) in Planetary Sciences *2023*

University of Utah *2020*
Honors BS in Physics, Minors in Astronomy (Thesis Advisor: Dr. Gail Zasowski)
BS in Biology, Minor in Environmental & Organismal Biology

Research & Professional Experience

Graduate Research & Teaching Assistant, University of Arizona *2020 - Present*
Demographics of exoplanet systems and their dependence on host star properties; atmospheric evolution of small planets; the frequency of Earth-like habitable planets.

Physics and Astronomy REU, University of Utah *Summer 2018*
Spectroscopic modeling of stellar populations to constrain cluster chemistry and dynamics.

Undergraduate Research & Teaching Assistant, University of Utah *2017 - 2020*
Characterization of spectroscopic signatures in the interstellar medium associated with massive evolved stars; chemical enrichment via supernova remnant ejecta absorption features.

Leadership in Inclusion, Diversity, Equity, & Accessibility

Department Leadership

Journal Club Coordinator, Lunar and Planetary Laboratory *2022 - Present*
IDEA Committee, Lunar and Planetary Laboratory *2022 - Present*
Department Life Committee, Lunar and Planetary Laboratory *2022 - Present*
Graduate Student Colloquium Organizer, Lunar and Planetary Laboratory *2022 - Present*
Undergraduate Women in Physics & Astronomy, University of Utah *2018 - 2020*

Community Leadership

AWESOM SAG (Chair of DEIA Best Practices Working Group) *2023 - Present*
Inclusive Leadership Institute, University of Arizona *2022 - 2023*
Culturally Inclusive Planetary Engagement Workshop, Planetary ReaCH Program *2022*

Outreach

The Art of Planetary Science Volunteer *2020 - Present*
Tucson Festival of Books - Science City Volunteer *2023*
University of Utah Observatory Public Viewing Nights Volunteer *2017 - 2020*
Outreach Coordinator for Salt Lake City K-12 Public Schools *2016 - 2020*

Awards & Achievements

Grants

Science PI, NASA Exoplanet Research Program (XRP), ∼$700k *2024 - 2026*
(PI I. Pascucci), *Characterizing Multi-planet Systems with Integrated Demographics*

Honors

Best Graduate Student Talk Award (Lunar and Planetary Laboratory Conference) *2021*
BS in Physics and Astronomy (University of Utah), Magna cum Laude with Honors *2020*
Undergraduate Research Scholar *2020*
Crocker Science House Scholar *2017*

Scholarships

Galileo Circle Scholarship *2023*
Thomas J. Parmley Scholarship for Outstanding Students in Physics and Astronomy *2019*
Walter W. Wada Endowed Scholarship in Physics and Astronomy *2018*
Utah Student Success Scholarship *2016, 2017*
University of Utah President's Scholarship *2016*

Professional Activities

Science Committees and Affiliations

Science Interest Group 2, *Exoplanet Demographics* *2022 - Present*
NASA's Nexus for Exoplanet System Science Alien Earths Team Member *2021 - Present*
Study Analysis Group 22, *Investigating an Exoplanet Target Star Archive* *2020 - 2021*
American Astronomical Society *2018 - Present*
Society of Physics Students (Vice President), University of Utah Chapter *2016 - 2020*

Teaching Assistantships

Building a Habitable World - Instructor: Dr. Mark Marley (LPL) *2022*
Introductory Mechanics - Instructor: Mr. Adam Beehler (Utah) *2019*
Foundations of Astronomy - Instructor: Dr. Gail Zasowski (Utah) *2018, 2019*

Mentorship

Amairany Espinoza, Sunnyside High School *2023 - Present*
Project: *Using Earth-like Planets to Improve the Search for Life*
Diana Valverde, Mica Mountain High School *2023 - Present*
Project: *Using Exoplanet Systems to Contextualize the Solar System*
Colin Boecker-Grieme, Paradise Valley High School *2022 - 2023*
Project: *Habitability and Terrestrial Analogs of Europa's Subsurface Ocean*
Abhinav Vatsa, University of Arizona (Undergraduate) *2022*
Project: *Searching for Young Habitable Planets around Low-Mass M Dwarfs with TESS*
Abhinav Vishnuvajhala, BASIS Phoenix High School *2022*
Project: *Indicators of Uninhabitable Worlds with Machine Learning*

Selected Talks and Posters

1. DPS-EPSC Meeting #55 (Contributed Talk; In-Person) *October 2023*
   The Occurrence of Earth-sized Planets around M Dwarfs.
2. Caltech/IPAC Seminar (Online) *March 2023*
   The Occurrence Rate of Earth Analogs with Kepler.
3. AAS Meeting #241 (Contributed Talk; In-Person) *January 2023*
   Demographics of Kepler's Small Planets into the Habitable Zone.
4. Jet Propulsion Laboratory Exoplanet Journal Club (Online) *October 2022*
   The Demographics of Kepler's Earths and super-Earths into the Habitable Zone.
5. Exoplanets IV (Poster; In-Person) *May 2022*
   The Demographics of Kepler's Earths and super-Earths into the Habitable Zone.
6. Origins Seminar Series (Seminar; In-Person) *May 2022*
   The Long & Short of It: the Population of Earths, from Short Periods to the Habitable Zone.
7. PLATO Conference 2021 (Contributed Talk; Online) *October 2021*
   Kepler's Small Planets and their Dependence on Stellar Mass.
8. TESS Science Conference 2 (Poster; Online) *August 2021*
   Demographics of Small Kepler Planets and their Dependence on Stellar Mass
9. Sagan Workshop (Poster; Online) *July 2021*
   Stellar Mass Dependence in the Abundance of Small Kepler Planets.

Publications

Lead Author

12. **Bergsten, G.**, Pascucci, I., Hardegree-Ullman, K. K. et al., in review: *No Evidence for More Earth-sized Planets in the Habitable Zone of Kepler's M versus FGK Stars*
11. **Bergsten, G.**, Pascucci, I., Mulders, G. D. et al. 2022, AJ, 164, 190: *The Demographics of Kepler's Earths and super-Earths into the Habitable Zone*

Major Contributions

10. Schlecker, M., Apai, D., Lichtenberg, T. et al. (**Bergsten, G.** 4th author) 2023, PSJ, in press (arXiv:2309.04518): *Bioverse: The Habitable Zone Inner Edge Discontinuity as an Imprint of Runaway Greenhouse Climates on Exoplanet Demographics*
9. Fernandes, R. B., Hardegree-Ullman, K. K., Pascucci, I. et al. (**Bergsten, G.** 4th author) 2023, AJ, 166, 175: *Using Photometrically-Derived Properties of Young Stars to Refine TESS's Transiting Young Planet Survey Completeness*
8. Hardegree-Ullman, K. K., Apai, D., **Bergsten, G.** et al. 2023, AJ, 165, 267: *Bioverse: A Comprehensive Assessment of the Capabilities of Extremely Large Telescopes to Probe Earth-like O2 Levels in Nearby Transiting Habitable Zone Exoplanets*
7. Fernandes, R. B., Mulders, G. D., Pascucci, I. et al. (**Bergsten, G.** 4th author) 2022, AJ, 164, 78: *pterodactyls: A Tool to Uniformly Search and Vet for Young Transiting Planets in TESS Primary Mission Photometry*
6. Koskinen, T. T., Lavvas, P., Huang, C. et al. (**Bergsten, G.** 4th author) 2022, ApJ, 929, 52: *Mass loss by atmospheric escape from extremely close-in planets*

5. Hinkel, N. R., Pepper, J., Stark, C. C. et al. (**Bergsten, G.** 15th author) 2021, arXiv:2112.04517: *Final Report for SAG 22: A Target Star Archive for Exoplanet Science*
4. Ashok, A., Zasowski, G., Seth, A. et al. (**Bergsten, G.** 5th author) 2021, AJ, 161, 167: *The APOGEE Library of Infrared SSP Templates (A-LIST): High-resolution Simple Stellar Population Spectral Models in the H Band*

Minor Contributions

3. Boley, K. M., Christiansen, J. L., Zink, J. et al. (**Bergsten, G.** 9th author), submitted: *The First Evidence of a Host Star Metallicity Cut-off In The Formation of Super-Earth Planets*
2. Christiansen, J. L., Zink, J. K., Hardegree-Ullman, K. K. et al. (**Bergsten, G.** 8th author) 2023, AJ, in press: *Scaling K2 VII: Evidence for a high occurrence rate of hot sub-Neptunes at intermediate ages*
1. Wanderley, F., Kunha, C., Souto, D. et al. (**Bergsten, G.** 13th author) 2023, ApJ, 951, 90: *Stellar Characterization and Radius Inflation of Hyades M Dwarf Stars from the APOGEE Survey*
