

# Galen Bergsten | Curriculum Vitae

PhD Candidate | [gbergsten@arizona.edu](mailto:gbergsten@arizona.edu)

Lunar and Planetary Laboratory, University of Arizona

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## 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

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## 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.

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## 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*

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## 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

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## 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

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## 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*

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## 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.*
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## Publications

### Lead Author

12. **Bergsten, G.**, Pascucci, I., Hardegree-Ullman, K. K. et al. 2023, *AJ*, in press ([arXiv:2310.11613](https://arxiv.org/abs/2310.11613)): *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](https://doi.org/10.3847/15384357.2022.0000000), **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.** 4<sup>th</sup> author) 2023, *PSJ*, in press ([arXiv:2309.04518](https://arxiv.org/abs/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.** 4<sup>th</sup> author) 2023, [AJ](https://doi.org/10.3847/15384357.2023.0000000), **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](https://doi.org/10.3847/15384357.2023.0000000), **165**, 267: *Bioverse: A Comprehensive Assessment of the Capabilities of Extremely Large Telescopes to Probe Earth-like O<sub>2</sub> Levels in Nearby Transiting Habitable Zone Exoplanets*
7. Fernandes, R. B., Mulders, G. D., Pascucci, I. et al. (**Bergsten, G.** 4<sup>th</sup> author) 2022, [AJ](https://doi.org/10.3847/15384357.2022.0000000), **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.** 4<sup>th</sup> author) 2022, [ApJ](https://doi.org/10.3847/15384357.2022.0000000), **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.** 15<sup>th</sup> 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.** 5<sup>th</sup> 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.** 9<sup>th</sup> 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.** 8<sup>th</sup> 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.** 13<sup>th</sup> author) 2023, [ApJ](#), **951**, 90: *Stellar Characterization and Radius Inflation of Hyades M Dwarf Stars from the APOGEE Survey*
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