

# Benjamin Tjelvar Liberles

**Research Interests:** *Exoplanet Populations, Rocky Planets, Orbital Dynamics, Planetary Interiors, Planetary Atmospheres*

**Email:** bliberles@utexas.edu

**ORCID:** 0009-0003-7437-8743

**Website:** benjaminliberles.wixsite.com/website

## Education

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### The University of Texas at Austin

*PhD, Astronomy*

August 2024 – Present

*Austin, TX, USA*

### University of Florida

*Bachelor of Science, Astrophysics and Physics [Double Major], Mathematics [Minor]  
Highest Honors - Summa Cum Laude; Phi Beta Kappa*

August 2020 – May 2024

*Gainesville, FL, USA*

## Research Experience

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### Graduate Research Assistant

*Department of Astronomy, The University of Texas at Austin*

August 2024 – Present

*Austin, TX, USA*

- Advisor: Dr. Caroline Morley
- Adapting PICASO to model terrestrial exoplanet atmospheres

### Scientific Researcher and Student Assistant

*Department of Astronomy, University of Florida*

Sept. 2021 – July 2024

*Gainesville, FL, USA*

- Advisor: Dr. Jason Dittmann
- Analyzed the statistical difference in the planet size distribution of single- and compact multiple-transiting planetary systems around M-dwarfs and late K-dwarfs
- Awarded University Scholars Program research scholarship (2023)
- First-authored paper published in *The Astronomical Journal*
- Awarded University of Florida Department of Astronomy Departmental Star for an exemplary undergraduate honors thesis (2024)

### Scientific Intern

*Institute for Dynamic Systems and Control, ETH Zürich*

May 2023 – August 2023

*Zürich, Switzerland*

- Advisor: Dr. Raffaello D'Andrea
- Performed computational simulations and created animations of "Hamiltonian demons"
- Created a GitHub repository to give anyone access to perform and visualize their own simulations
- Wrote the user manual for `HamiltonianDemon`

### Volunteer Researcher

*Department of Physics, Temple University*

May 2019 – July 2019

*Philadelphia, PA, USA*

- Advisors: Dr. John Perdew, Dr. Vincenzo Carnevale
- Simulated the dissociation of  $H_2^+$
- Co-authored a published research paper in *The Journal of Chemical Physics* while in high school

## Academic Publications

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1. Liberles, B. T., Dittmann, J. A., Elardo, S. M., & Ballard, S. (2024). Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets. *The Astronomical Journal*, 168, 92. doi: 10.3847/1538-3881/ad58da.
2. Gould, T., Liberles, B. T., & Perdew, J. P. (2020). What do we learn from the classical turning surface of the Kohn–Sham potential as electron number is varied continuously?. *The Journal of Chemical Physics*, 152(5), 054105. doi: 10.1063/1.5130693.

## Research Presentations

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### Talks

1. **Liberles BT**, Dittmann JA, Elardo SM, & Ballard S. “Variations in the Radius Distribution of Single- and Compact Multiple-transiting Planets”. The University of Texas at Austin Stars/Planets/ISM Seminar. Austin, TX, USA. 16 October 2024.

### Posters

1. **Liberles BT**, Morley CV, & Batalha NE. “Open-source Modeling Tools for Terrestrial Planetary Atmospheres within PICASO”. Exoclines VII. Montreal, Canada. 7-11 July 2025. Remote (*covid*).
2. **Liberles BT**, Dittmann JA, Elardo SM, & Ballard S. “Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets”. 2024 University of Florida Department of Astronomy Undergraduate Study Break. Gainesville, FL, USA. 26 April 2024.
3. **Liberles BT**, Dittmann JA, Elardo SM, & Ballard S. “Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets”. 2024 University of Florida Department of Physics Undergraduate Poster Session. Gainesville, FL, USA. 25 April 2024.
4. **Liberles BT**, Dittmann JA, Elardo SM, & Ballard S. “Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets”. 2024 University of Florida Department of Astronomy Promoting Undergraduate Learning and Studies in Astronomical Research (PULSAR) Research Symposium. Gainesville, FL, USA. 12 April 2024.
5. **Liberles BT**, Dittmann JA, Elardo SM, & Ballard S. “Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets”. 2024 University of Florida Undergraduate Research Symposium. Gainesville, FL, USA. 1 April 2024.
6. **Liberles BT**, Dittmann JA, Elardo SM, & Ballard S. “Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets”. Extreme Solar Systems V. Christchurch, New Zealand. 16-21 March 2024.
7. **Liberles BT**, and Dittmann JA. “A Statistical Interpretation of the Size Distribution of Single and Multi-Planetary Systems”. 2023 University of Florida Department of Physics Undergraduate Poster Session. Gainesville, FL, USA. 28 April 2023.
8. **Liberles BT**, and Dittmann JA. “A Statistical Interpretation of the Size Distribution of Single and Multi-Planetary Systems”. 2023 University of Florida Undergraduate Research Symposium. Gainesville, FL, USA. 4 April 2023.
9. **Liberles BT**, and Dittmann JA. “Investigating Differences Between Single and Multi-Planetary Systems”. 241st Meeting of the American Astronomical Society. Seattle, WA, USA. 8-12 January 2023. [aas241-aas.ipostersessions.com/?s=50-3F-1D-84-E9-45-F9-55-FC-7C-8A-BF-3A-AF-0B-04](https://aas241-aas.ipostersessions.com/?s=50-3F-1D-84-E9-45-F9-55-FC-7C-8A-BF-3A-AF-0B-04).

## Awards

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| • <b>University Scholars Program (2023)</b> -<br>Competitive Research Scholarship | • <b>University of Florida Department of<br/>Astronomy Departmental Star (2024)</b> -<br>Exemplary Undergraduate Honors Thesis |
| • <b>Phi Beta Kappa (2024)</b>  |  |

## Outreach & Miscellaneous

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### Dean's Office Graduate Council (*appointed*)

*College of Natural Sciences, The University of Texas at Austin*

*September 2025 - Present*

- Serving as point of contact between the Astronomy graduate students and the Dean's Office in the College of Natural Sciences

- Reviewing and awarding the College of Natural Sciences Graduate Mentoring Excellence Awards

### **Astronomy on Tap ATX**

*Austin-based astronomers*

*October 2024 - Present*

- Assisting a monthly event that brings a public audience accessible and engaging scientific presentations on topics related to astronomy
- Monitoring sales and production of merchandise as part of the merchandising committee

### **Graduate Undergraduate Mentoring in astronoMY (GUMMY)**

*The University of Texas at Austin*

*October 2024 - Present*

- Serving as a mentor for undergraduate students majoring in astronomy

### **Planetary Peer Network (PPN)**

*Center for Planetary Systems Habitability, The University of Texas at Austin*

*August 2024 - Present*

- Organizing events as part of the planning committee trying to foster an atmosphere that sparks collaborations in an interdisciplinary group of early career scientists broadly interested in plants and astrobiology from different disciplines spanning Astronomy, Geosciences, Biology, Engineering, etc.
- Moderated a panel on graduate school and summer internship applications targeted at undergraduate students
- Served on a panel to share my experience with graduate school applications and answer questions from undergraduates

### **Society of Physics Students Outreach Chair (*elected*)**

*University of Florida*

*April 2023 – April 2024*

- Organized volunteering and community events to generate interest in physics and STEM in general
- Created and coordinated Society of Physics Students' Mentorship Program
- Served as a peer mentor for younger undergraduate students majoring in physics

### **Women in Astronomy and Astrophysics Mentorship Program (WAAM)**

*University of Florida*

*September 2023 – April 2024*

- Served as a peer mentor for younger undergraduate students majoring in astronomy and astrophysics who are historically underrepresented in the field of astronomy
- Served on a REU/summer research student led panel to spread awareness about research opportunities away from the University of Florida
- Served on a panel to share my experience with graduate school applications and answer questions from younger undergraduates

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### *Languages & Citizenships*

**Languages:** English (*fluent*), Swedish (*heritage*), German (*intermediate*)

**Citizenships:** United States of America, Sweden