Benjamin Tjelvar Liberles

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

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Education

The University of Texas at Austin August 2024 – Present
PhD, Astronomy *Austin, TX, USA*

University of Florida August 2020 – May 2024
Bachelor of Science, Astrophysics and Physics [Double Major], Mathematics [Minor] *Gainesville, FL, USA*
Highest Honors - *Summa Cum Laude*; Phi Beta Kappa

Research Experience

Graduate Research Assistant August 2024 – Present
Department of Astronomy, The University of Texas at Austin *Austin, TX, USA*
- Advisor: Dr. Caroline Morley
- Simulating outgassing of planetary interiors on terrestrial exoplanets and studying the dynamical relationship between planetary interiors and atmospheres

Scientific Researcher and Student Assistant Sept. 2021 – July 2024
Department of Astronomy, University of Florida *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 May 2023 – August 2023
Institute for Dynamic Systems and Control, ETH Zürich *Zürich, Switzerland*
- Advisor: Dr. Raffaello D'Andrea
- Performed computational simulations and created animations of "Hamiltonian demons"
- Created a public GitHub repository to give anyone access to perform and visualize their own simulations (not yet released)
- Wrote the user manual for `HamiltonianDemon`

Volunteer Researcher May 2019 – July 2019
Department of Physics, Temple University *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 still in high school

Academic Publications

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

1. **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.
2. **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.
3. **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.
4. **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*.

Awards

- **University Scholars Program** (*2023*) - Competitive Research Scholarship
- **Phi Beta Kappa** (*2024*)
- **University of Florida Department of Astronomy Departmental Star** (*2024*) - Exemplary Undergraduate Thesis

Outreach

Society of Physics Students Outreach Chair (*elected*)
University of Florida *April 2023 – April 2024*
- Organizing volunteering and community events to generate interest in physics and STEM in general
- Created and coordinating Society of Physics Students' Mentorship Program
- Serving as a peer mentor for younger undergraduate students majoring in physics

Women in Astronomy and Astrophysics Mentorship Program
University of Florida *September 2023 – April 2024*
- Serving 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

Languages & Citizenships

Languages: English (*fluent*), Swedish (*heritage*), German (*intermediate*)
Citizenships: United States of America, Sweden