

# Joseph Robert Livesey

📍 Department of Astronomy, University of Wisconsin–Madison

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## Research Interests

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Dynamics of planetary systems, star clusters, and AGN; exoplanet demography and orbital architectures of exoplanetary systems; planetary formation, oceans, interiors, atmospheres, and habitability.

## Education

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<b>PhD</b>	<b>University of Wisconsin–Madison</b> , Astronomy	Expected 2028
	<ul style="list-style-type: none"> <li>• Advisor: Juliette Becker</li> <li>• Doctoral minor: Atmospheric &amp; Oceanic Sciences</li> </ul>	
<b>MS</b>	<b>University of Wisconsin–Madison</b> , Astronomy	2025
<b>BS</b>	<b>University of Washington</b> , Astronomy and Physics	2022
	<ul style="list-style-type: none"> <li>• Departmental honors in Astronomy and in Physics</li> <li>• Minors: Linguistics and Mathematics</li> </ul>	

## Research Appointments

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Graduate Research Assistant, University of Wisconsin–Madison	2023–2028
Research Analyst (post-baccalaureate scholar), University of Washington	Mar–Aug 2023

## Honors and Awards

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Graduate & Professional Research Fellowship, Wisconsin Space Grant (\$6,000)	2025
Blair Savage Travel Award, U. Wisconsin	2025
Fluno Graduate Fellowship, U. Wisconsin	2023
President’s Fellowship, Georgia Institute of Technology ( <i>declined</i> )	2023
Phi Beta Kappa	2022
Mary Gates Research Scholarship, U. Washington (\$5,000)	2020

## Teaching Experience

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<b>U. Wash.</b>	TA, ASTR 150 (The Planets)	Spring 2023
	Grader, ASTR 427 (Computational Methods)	Autumn 2022
	Grader, ASTR 150 (The Planets)	Winter 2023
	Grader, ASTR/ASTBIO 115 (Life in the Universe)	Spring 2022
	Grader, ASTR 101	Winter 2022, Autumn 2022

## Service to the Profession

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Executive Secretary, NASA XRP	1 panel
AbSciCon Primary Convener, Session: “Dynamical Environments of Habitable Worlds”	May 2026
Local Organizing Committee, Great Lakes Exoplanet Area Meeting (GLEAM)	Nov 2025
Scientific Organizing Committee, VPLANET workshop	Sep 2022

## Outreach

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Lead Coordinator, Madison Astronomy on Tap	2025–
Coordinator, Madison Astronomy on Tap	2023–2025
Volunteer, Washburn Observatory Public Observing Nights	2023–






## Refereed Publications

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First-authored: 3. Total: 9. Total citations: 34.  $h = 3$ .

*Citation counts are listed on the left.*







### First author

- “Discovery and Characterization of the TOI-4468 Planetary System: A Transiting Hot Jupiter With a Lone Nearby Outer Companion.”  
**J. R. Livesey**, B. J. Hord, J. Becker, A. Vanderburg, J. E. Rodriguez, E. Koo et al., *submitted to AAS Journals*.
- 3 “Tides Tighten the Hycean Habitable Zone.”   
**J. R. Livesey**, J. Becker & S. L. Widicus Weaver 2025, *ApJL*, 987, L8.
- 8 “Secular Perturbations From Exterior Giants Strongly Influence Gap Complexity in Peas-in-a-Pod Exoplanetary Systems.”    
**J. R. Livesey** & J. Becker 2025, *ApJ*, 979, 202.
- 10 “Orbital Stability and Secular Dynamics of the Proxima Centauri Planetary System.”    
**J. R. Livesey**, R. Barnes & R. Deitrick 2024, *ApJ*, 964, 4.

### Second or third author

- 6 “The Fate of Oceans on First-Generation Planets Orbiting White Dwarfs.”   
J. Becker, A. Vanderburg & **J. R. Livesey** 2025, *ApJ*, 979, 99.

### Contributing author

- “GJ 523 b is a Massive, 170 Myr-old Mega-Earth, Likely on a Polar Orbit.”   
M. A. Kroft et al. **including J. R. Livesey**, *submitted to AJ*.
- 1 “THYME. XIII. Two Young Neptunes Orbiting a 75-Myr Star in the Alpha Persei Cluster.”   
A. Dattilo, A. Vanderburg, M. G. Barber, A. W. Mann, R. Kerr, A. L. Kraus, **J. R. Livesey** et al. 2025, *AJ*, 170, 318.
- 2 “A Pair of Dynamically Interacting Sub-Neptunes Around TOI-6054.”   
M. A. Kroft, T. G. Beatty, I. J. M. Crossfield, **J. R. Livesey** et al. 2025, *AJ*, 170, 150.
- 2 “The Effects of Kinematic MHD on the Atmospheric Circulation of Eccentric Hot Jupiters.”   
H. Beltz, W. Houck, L. C. Mayorga, T. D. Komacek, **J. R. Livesey** & J. Becker 2025, *ApJ*, 984, 90
- 2 “History and Habitability of the LP 890-9 Planetary System.”    
R. Barnes, L. N. R. do Amaral, J. Birky, L. Carone, P. E. Driscoll, **J. R. Livesey** et al. 2025, *PSJ*, 6, 25.





## Presentations

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### Invited talks

- 2. “Close Outer Companions to Hot Jupiters.”  
D. Z. Seligman & A. D. Feinstein Group Meeting, Michigan State University. 10 April 2026.
- 1. “Close Outer Companions to Hot Jupiters.”  
Star and Planet Formation Journal Club, University of Michigan. 7 April 2026.

### Contributed talks

- 5. “Discovery and Dynamics of a Transiting Hot Jupiter and Its Lone Outer Companion.”  
GLEAM 2025, Madison, WI. November 2025.
- 4. “Outer Giants Strongly Influence Gap Complexity in Peas-in-a-Pod Systems.”   
DDA 56, Atlanta, GA. May 2025.
- 3. “Quantifying the Surface Heating of Tidally Migrating White Dwarf Planets.”   
AAS 244, Madison, WI. June 2024.
- 2. “Orbital Dynamics of the Proxima Centauri System.”   
AAS 241, Seattle, WA. January 2023.
- 1. “Orbital and Rotational Evolution of Proxima Centauri b.”   
AAS 237, virtual. January 2021.

## Posters

4. “The Dearth of Nearby Outer Companions to Hot Jupiters.”  
DDA 57, Chicago, IL. June 2026.
3. “Tides Tighten the Hycean Habitable Zone.”  
Astrobiology Science Conference 2026, Madison, WI. May 2026.
2. “Outer Giants Strongly Influence the Gap Complexity of Tightly Packed Exoplanetary Systems.”  
WiCOR Kickoff Poster Session, Madison, WI. September 2024.
1. “Quantifying the Surface Heating of Tidally Migrating White Dwarf Planets.”  
Astrobiology Science Conference 2024, Providence, RI. May 2024.

## Public talks

1. “The Ninth Planet(s) of the Solar System, and Why Pluto Had to Die.”  
Astronomy on Tap, Madison, WI. 17 Feb 2026.

## Telescope Time Awarded

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*Confirming TOI-4468.03: An Outer Giant in an Atypical Hot Jupiter System* 2026B  
**PI.** WIYN 3.5-meter – 8 hours with NEID spectrograph

*Unveiling the Nature of a Potential Hycean World: TOI-7032.01* 2025A  
**Co-I.** WIYN 3.5-meter – 10 hours with NEID spectrograph

*Hot Jupiter Formation Pathways: Mass Measurements for a New Multi-Planet System* 2024A, 2025A  
**Co-I.** WIYN 3.5-meter – 13 hours with NEID spectrograph

## Professional Development

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Exoplanets: Compositions, Mineralogy, Evolution (RiMG workshop), Chicago, IL Aug 2024

## Memberships

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- American Astronomical Society (AAS)
- AAS Division on Dynamical Astronomy (DDA)
- AAS Division for Planetary Sciences (DPS)

## Technical Skills

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**Code:** Python, C, Julia

**Software:** Unix, Git, L<sup>A</sup>T<sub>E</sub>X, Jupyter, Mathematica, Condor, Slurm, MySQL, HTML, CSS

## Graduate Coursework

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**Astronomy:** Observational Techniques, Radiative Processes, Astrophysical Fluids, Stellar Interiors & Evolution, Interstellar Medium, Galaxies, Cosmology, Solar System Dynamics

**Other:** Atmospheric Thermodynamics, Physical Oceanography, Large-Scale Ocean–Atmosphere Coupling, Prebiotic Chemistry & Astrobiology

## Non-Academic Employment

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Library Technician, Odegaard Undergraduate Library Jun–Sep 2022  
Access Services Student Assistant, Odegaard Undergraduate Library 2018–2022  
Front End Assistant, Costco Wholesale Jul–Sep 2018

## References

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Prof. **Juliette Becker** • U. Wisconsin • Ph.D. advisor

Prof. **Rory Barnes** • U. Washington • Undergraduate research advisor

Prof. **Nicholas C. Stone** • U. Wisconsin

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