

# MELINDA SOARES-FURTADO, PH.D.

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## PROFESSIONAL APPOINTMENTS

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Assistant Professor of Astronomy & Physics, University of Wisconsin–Madison	<i>*begins August 2024</i>
NASA Hubble Postdoctoral Fellow, University of Wisconsin–Madison	2021–present
Postdoctoral Fellow, University of Wisconsin–Madison	2020–2021
High School Math & Physics Instructor, Mount Madonna School	2012–2013

## EDUCATION

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Princeton University	Astrophysical Science	Ph.D., 2020
Princeton University	Astrophysical Science	M.S., 2016
University of California, Santa Cruz	Physics	B.S., 2014

## RESEARCH EXPERIENCE

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Graduate Student Researcher, Princeton University, Astrophysical Sciences <i>Advisor: Prof. Gáspár Bakos</i>	2014–2020
Undergraduate Student Researcher, UC Santa Cruz, Physics & Astronomy <i>Advisors: Profs. Enrico Ramirez-Ruiz &amp; David Williams</i>	2009–2014

## PEER-REVIEWED PUBLICATIONS

*\* Mentored students are underlined*

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20. **Soares-Furtado, M.**; Limbach, M.; Vanderburg, A.; Best, W.; Cody, A. M.; D’Onghia, E.; Heller, R.; Hensley, B.; Kounkel, M.; Kraus, A.; Mann, A.; Robberto, M.; Rosen, A.; Townsend, R.; Vos, J. *The TEMPO Survey II: Predicting Yields of Transiting Moons, Planets, and Satellites from a 30-day Survey of Orion with the Roman Space Telescope*, in preparation to be submitted to the Publications of the Astronomical Society of the Pacific.
  19. Ong, J.; Hon, M.; **Soares-Furtado, M.**; Stephan, A.; van Saders, J.; Tayar, J.; Shappee, B.; Hey, D.; Montet, B.; Cao, L.; Yildiz, M.; Çelik Orhan, Z.; Örtel, S.; Ahlborn, F. *Gasing Pangkah I: Asteroseismology and Preliminary Characterisation of a Rapidly-Rotating Red Giant in the TESS SCVZ*, submitted to The Astrophysical Journal.
  18. **Soares-Furtado, M.**; Capistrant, B.; Vanderburg, A.; Jankowski, A.; Mann, A.; Ross, G.; Srdoc, G.; Hinkel, N.; Becker, J.; Magliano, C.; Limbach, M.; Stephan, A.; Nine, A.; Tofflemire, B.; Kraus, A.; Giacalone, S.; Winn, J.; Bieryla, A.; Bouma, L.; Ciardi, D.; Collins, K.; Covone, G.; de Beurs, Z.; Huang, C.; Jenkins, J.; Kreidberg, L.; Latham, D.; Quinn, S.; Seager, S.; Shporer, A.; Twicken, J.; Wohler, B.; Vanderspek, R.; Yarza, R.; Ziegler, C. *TESS Hunt for Young and Maturing Exoplanets (THYME) XI: An Earth-sized Planet Orbiting a Nearby, Solar-like Host in the 400 Myr Ursa Major Moving Group*, in press with The Astronomical Journal.
  17. Yarza, R.; Razo-López, N.; Murguía-Berthier, A.; Wallace Everson, R.; MacLeod, M.; **Soares-Furtado, M.**; Lee, D.; Ramirez-Ruiz, E. *Hydrodynamics and Survivability During Post-Main-Sequence Planetary Engulfment*, 2023, The Astrophysical Journal, Volume 954, Issue 2, id.176. [[arXiv:2203.11227](https://arxiv.org/abs/2203.11227)]
  16. Limbach, M.; **Soares-Furtado, M.**; Vanderburg, A.; Best, W.; Cody, A. M.; D’Onghia, E.; Heller, R.; Hensley, B.; Kounkel, M.; Kraus, A.; Mann, A.; Robberto, M.; Rosen, A.; Townsend, R.; Vos, J. *The TEMPO Survey I: Predicting Yields of Transiting Moons, Planets, and Satellites from a 30-day Survey of Orion with the Roman Space Telescope*, 2023, Publications of the Astronomical Society of the Pacific, 135, 1043. [[arXiv:2209.12916](https://arxiv.org/abs/2209.12916)]

15. Kolborg, A.; Ramirez-Ruiz, E.; Martizzi, D.; Macias, P.; **Soares-Furtado, M.** *Constraints on the Frequency and Mass Content of R-Process Events Derived from Turbulent Mixing in Galactic Disks*, 2023, The Astrophysical Journal Letters, 936, 2. [[arXiv:2209.12916](#)]
14. Limbach, M.; Vanderburg, A.; Stevenson, K.; Blouin, S.; Morley, C.; Lustig-Yaeger, J.; **Soares-Furtado, M.**; Janson, M. *A New Method for Finding Nearby White Dwarf Exoplanets and Detecting Biosignatures*, 2022, Monthly Notices of the Royal Astronomical Society, 517, 2. [[arXiv:2209.12914](#)]
13. Tayar, J.; Moyano, F.; **Soares-Furtado, M.**; Escorza, A.; Joyce, M.; Martell, S.; Garcia, R.; Breton, S.; Mathis, S.; Mathur, S.; Delsanti, V.; Kiefer, S.; Bowman, D.; Van Reeth, T.; Shetye, S.; Daniel, D.; Christine, C.; Hedlund, S. *Spinning up the Surface: Evidence for Planetary Engulfment or Unexpected Angular Momentum Transport*, 2022, The Astrophysical Journal, 940, 1. [[arXiv:2208.01678](#)]
12. Capistrant, B.; **Soares-Furtado, M.**; Rappaport, S.; Vanderburg, A. *A Population of Dipper Stars from the Transiting Exoplanet Survey Satellite Mission*, 2022, The Astrophysical Journal Supplement Series, 263, 1. [[arXiv:2209.03379](#)]
11. Kolborg, A.; Martizzi, D.; Ramirez-Ruiz, E.; Pfister, H.; Sakari, C.; Wechsler, R.; **Soares-Furtado, M.** *Supernova-Driven Turbulent Metal Mixing in High Redshift Galactic Disks: Metallicity Fluctuations in the Interstellar Medium and its Imprints on Metal Poor Stars in the Milky Way*, 2022, The Astrophysical Journal Letters, 936, 2. [[arxiv:2111.02619](#)]
10. Vigna-Gómez, V.; Liu, B.; Aguilera-Dena, D.; Grishin, E.; Ramirez-Ruiz, E.; **Soares-Furtado, M.** *Mergers Prompted by Dynamical Resonances in Compact, Multiple-Star Systems: a Stellar-Reduction Case for the Massive Triple TIC 470710327*, 2022, Monthly Notices of the Royal Astronomical Society: Letters, 515, 1. [[arXiv:2204.10600](#)]
9. Grunblatt, S.; Saunders, N.; Sun, M.; Thaddeus, K.; Huber, D.; Chontos, A.; **Soares-Furtado, M.**; Eisner, N.; Pereira, F.; Collins, K.; Quinn, S.; Tronsgaard, R.; Zhou, G.; Nowak, G.; Ciardi, D.; Howard, A.; Buchhave, L.; Ricker, G.; Jenkins, J.; Latham, D.; Seager, S.; Vanderspek, R.; Winn, J. *Planets Orbiting Evolved TESS Stars (POETS) II: The Hottest Jupiters Orbiting Evolved Stars*, 2022, The Astrophysical Journal, 163, 3. [[arXiv:2201.04140](#)]
8. **Soares-Furtado, M.**, Cantiello, M.; MacLeod, M.; Ness, M. *Lithium Enrichment Signatures of Planetary Engulfment Events in Evolved Stars*, 2021, The Astrophysical Journal, 162, 6. [[arXiv:2002.05275](#)]
7. **Soares-Furtado, M.**; Hartman, J. D.; Bhatti, W.; Bouma, L. G.; Barna, T.; Bakos, G.Á. *A Catalog of Periodic Variables in Open Clusters M35 and NGC 2158*, 2020, The Astrophysical Journal Supplement, 246, 1. [[arXiv:1911.00832](#)]
6. Naiman, J.; **Soares-Furtado, M.**; Ramirez-Ruiz, E. *Modeling Gas Evacuation Mechanisms in present-Day Globular Clusters: Stellar Winds from Evolved Stars & Pulsar Heating*, 2019, Monthly Notices of the Royal Astronomical Society, 491, 4. [[arXiv:1310.8301](#)]
5. Rappaport, S.; Zhou, G.; Vanderburg, A.; Mann, A.; Kristiansen, M. H.; Oláh, K.; Jacobs, T. L.; Newton, E.; Omohundro, M. R.; LaCourse, D.; Schwengeler, H. M.; Terentev, I. A.; Latham, D. W.; Bieryla, A.; **Soares-Furtado, M.**; Bouma, L. G.; Ireland, M. J.; Irwin, J. *“Deep Long Asymmetric Occultation in EPIC 204376071”*, 2019, Monthly Notices of the Royal Astronomical Society, 485, 2. [[arXiv:1902.08152](#)]
4. MacLeod, M.; Cantiello, M.; **Soares-Furtado, M.** *Planetary Engulfment in the Hertzsprung-Russell Diagram*, 2018, The Astrophysical Journal Letters, 853, 1. [[arXiv:1801.04274](#)]
3. Zhu, Wei; Huang, C. X.; Udalski, A.; **Soares-Furtado, M.**; Poleski, R.; Skowron, J.; Mróz, P.; Szymański, M. K.; Soszyński, I.; Pietrukowicz, P.; Kozłowski, S.; Ulaczyk, K.; Pawlak, M. *Extracting Microlensing Signals from K2 Campaign 9*, 2017, Publications of the Astronomical Society of the Pacific, 129, 980. [[arXiv:1704.08692](#)]
2. **Soares-Furtado, M.**; Hartman, J. D.; Bakos, G.Á.; Huang, C. X.; Penev, K.; Bhatti, W. *Image Subtraction Reduction of Open Clusters M35 & NGC 2158 in the K2 Campaign 0 Super Stamps*, 2017, Publications of the Astronomical Society of the Pacific, 129, 974. [[arXiv:1703.00030](#)]

1. Aliu, E.; Archambault, S.; Arlen, T.; Aune, T.; Beilicke, M.; Benbow, W.; Bird, R.; Bouvier, A.; Buckley, J. H.; Bugaev, V.; Cesarini, A.; Ciupik, L.; Connolly, M. P.; Cui, W.; Dumm, J.; Errando, M.; Falcone, A.; Federici, S.; Feng, Q.; Finley, J. P. Fortin, P.; Fortson, L.; Furniss, A.; Galante, N.; Gérard, L.; Gillanders, G. H.; Griffin, S.; Grube, J.; Gyuk, G.; Hanna, D.; Holder, J.; Hughes, G.; Humensky, T. B.; Kaaret, P.; Kertzman, M.; Khassen, Y.; Kieda, D.; Krawczynski, H.; Krennrich, F.; Lang, M. J.; Madhavan, A. S.; Maier, G.; Majumdar, P.; McArthur, S.; McCann, A.; Moriarty, P.; Mukherjee, R.; Nieto, D.; O’Faoláin de Bhróithe, A.; Ong, R. A.; Orr, M.; Otte, A. N.; Park, N.; Perkins, J. S.; Pohl, M.; Popkow, A.; Prokoph, H.; Quinn, J.; Ragan, K.; Reyes, L. C.; Reynolds, P. T.; Richards, G. T.; Roache, E.; Saxon, D. B.; Sembroski, G. H.; Skole, C.; Smith, A. W.; **Soares-Furtado, M.**; Staszak, D.; Telezhinsky, I.; Tešić, G.; Theiling, M.; Varlotta, A.; Vassiliev, V. V.; Vincent, S.; Wakely, S. P.; Weekes, T. C.; Weinstein, A.; Welsing, R.; Williams, D. A.; Zitzer, B.; VERITAS Collaboration; Böttcher, M.; Fumagalli, M.; Jadhav, J. *Long Term Observations of B2 1215+30 with VERITAS*, 2013, *The Astrophysical Journal*, 779, 2. [[arXiv:1310.6498](https://arxiv.org/abs/1310.6498)]

## OTHER PUBLICATIONS

\* *Mentored students are underlined*

3. Hinkel, N.; Youngblood, A.; **Soares-Furtado, M.** *Host Stars and How Their Compositions Influence Exoplanets*, in press with *Reviews in Mineralogy and Geochemistry*, Volume 88.
2. Howell, S.; Howell, A.; Street, R.; **Soares-Furtado, M.**; Jackson, B.; Greene, T. *The Dynamic Universe: Realizing the Potential of Classical Time Domain and Multimessenger Astrophysics*, submitted to the *Frontiers in Astronomy and Space Sciences*.
1. **Soares-Furtado, M.**; Kubiak, S. *Aging Ungracefully*, Jan 2023, *Sky and Telescope*, Vol. 145, Issue 1, p.14 [[article](#)]

## SELECTED FELLOWSHIPS, GRANTS, & AWARDS

Postdoctoral Excellence in Mentoring Award, University of Wisconsin-Madison	2023
NASA Topical Workshops, Symposia, and Conferences Award, Total budget: \$69,550	2023
PI: E. Zweibel, Science-PI: M. Soares-Furtado	
NASA Hubble Fellowship, Total budget: \$364,527	2021–2024
TESS DDT Proposal, Principal Investigator	2021
<i>Asteroseismic Investigation of Pulsating Blue Stragglers in M67</i>	
TESS DDT Proposal, Principal Investigator	2021
<i>Asteroseismic Investigation of Pulsating Blue Stragglers in NGC 6819</i>	
NASA Postdoctoral Program Fellowship ( <i>declined</i> ), Total budget: \$237,162	2020
First Place Poster, Kepler & K2 Science Conference V	2019
National Science Foundation Graduate Research Fellowship, Total budget: \$102,000	2015–2018
TESS Cycle 1 Guest Investigator Program, Total budget: \$200,000	2018
PI: J. Hartman, Co-I: M. Soares-Furtado	
Permanent Exhibit Selection, <i>Art of Science</i> , Princeton University	2017
Kenneth & Ann Thimann Scholarship, UCSC	2014
SLUG Fellowship, UCSC	2013
Lamat Fellowship, UCSC	2013
First Place Oral presentation, AAAS National ERN Conference	2012
Steven Chu Award for Undergraduate Research, APS Annual Conference	2011
Ron Ruby Memorial Scholarship for Teaching Excellence, UCSC	2010
Regents Scholarship, UCSC	2008–2010

## SELECTED SCIENTIFIC PRESENTATIONS

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I have given **59 talks**, including **40 invited** colloquia, seminars, and conference talks.

### Colloquia:

University of Colorado Boulder	2023
University of Nevada, Las Vegas	2023
University of Illinois Urbana-Champaign (2x)	2022 & 2023
Harvard Institute for Theory and Computation	2023
University of Wisconsin–Madison, Department of Physics	2022
Massachusetts Institute of Technology Kavli Institute for Astrophysics and Space Research	2022
University of California, Los Angeles	2022
NASA Goddard Space Flight Center	2021
Astrophysics Research Centre of the Queen’s University, Belfast	2021
University of California, Santa Barbara Kavli Institute for Theoretical Physics	2021
University of Wisconsin–Madison, Department of Astronomy (2x)	2019 & 2020
Pomona College	2019
University of the Virgin Islands	2019

### Recent Invited Seminars:

CIERA, Northwestern University (2x)	2021 & 2023
MIT Planetary Lunch Colloquium Series (PICS)	2022
Penn State Center for Exoplanets and Habitable Worlds	2022
Presentation, NASA Hubble Fellowship Program Symposium (3x)	2021, 2022, 2023
Harvard University Exoplanet Lunch Series (3)	2016, 2019, 2022
Probes of Transport in Stars—Kavli Institute for Theoretical Physics	2021
Michigan State University	2021
Carnegie Earth and Planets Laboratory	2021
Division on Dynamical Astronomy of the AAS	2021
UCLA–UCSC Joint Astrophysics Seminar Series	2021
American Museum of Natural History	2020
Carnegie Department of Terrestrial Magnetism	2019
Harvard University Stars & Planets Seminar Series	2019
Princeton University Envision Conference—Ethics & Space Policy	2019
Harvard University Institute for Theory and Computation	2017

### Recent Invited Conference Presentations:

33rd Annual Wisconsin Space Conference	2023
Probes of Transport in Stars, UCSB Kavli Institute for Theoretical Physics	2021
NASA’s Kepler & K2 SciCon V	2019

## OBSERVATIONAL EXPERIENCE

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WIYN 3.5-M telescope at Kitt Peak National Observatory (4 nights)
Australian National University 2.3-m telescope at Siding Spring Observatory (15 nights)
Magellan Telescopes (Walter Baade 6.5-m) at Las Campanas Observatory (2 nights)
VERITAS at Whipple Observatory (12 nights)

## TEACHING EXPERIENCE

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Summer Instructor, Lamat REU Program (NSF #1852393)	Summer 2021, 2022, & 2023
Guest Instructor, Pomona College <i>Stellar Structure &amp; Evolution</i> (ASTR 123)	2019
Assistant Instructor, Princeton University <i>The Universe</i> (AST 205)	2015
Head Instructor, Mount Madonna School <i>AP Physics, AP Calculus, &amp; Python Programming</i>	2012–2013
Physics Section Leader & Lecturer, UCSC Academic Excellence Program <i>Introduction to Waves &amp; Optics, Introduction to Elementary Mechanics,</i> <i>Introduction to Electricity &amp; Magnetism</i>	2009–2011

## ADVISING EXPERIENCE

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I have served as the primary advisor or co-advisor(\*) for **eighteen** students. † denotes that a publication has resulted from our collaboration. ‡ denotes that a publication is underway and has yet to be submitted.

### Graduate Students:

Julia K. Sheffler (University of Wisconsin–Madison)	2023–present
Erin Motherway* (University of Wisconsin–Madison)	2023–present
Benjamin Capistrant*† (University of Florida)	2022–present
Anne Noer Kolbrog*† (University of California, Santa Cruz)	2021–present
Ricardo Yarza*† (FINESST Fellow; University of California, Santa Cruz)	2021–present
Mary Anne Limbach*† (Texas A&M)	2021–2023
Updated role: Assistant Research Scientist at the University of Michigan	
Rachel McClure*‡ (NSF GRFP Fellow; University of Wisconsin–Madison)	2020–2022

### Postbaccalaureate Students

Lily Robinthal* (University of Wisconsin–Madison)	Summer 2022
Updated role: Graduate student at Arizona State University	
Benjamin Capistrant*† (University of Wisconsin–Madison)	2021–2022
Updated role: Graduate student at the University of Florida	

### Undergraduate Students

Nicholas Marston‡ (University of Wisconsin–Madison)	2023–present
Brooke Kotten*‡ (University of Wisconsin–Madison)	2023–present
Alyssa Jankowski† (University of Wisconsin–Madison)	2022–2023
Sara Kubiak† (University of Wisconsin–Madison)	Summer 2022
Updated role: Graduate student at Colorado State University	
Evan Bauer* (University of Wisconsin–Madison)	2021–2022
Rianna Kuenzi‡ (University of Wisconsin–Madison)	2021–2022
Tyler Barna† (Rutgers University)	2018–2019
Updated role: Graduate student at Minnesota State University	
Jose Lopez (University of California, Santa Cruz)	2014–2015
Updated role: Software engineer	

### High School Students

Atirath Dhara (West Windsor Plainsboro High School)	2017–2019
Updated role: Regent Scholar; Graduate student at UCSC	

## SELECTED PROFESSIONAL SERVICE EXPERIENCE

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Lead Organizer, Aspen Center for Physics 2023 winter conference <i>Exoplanet Systems and Stellar Life Cycles: Late-Stage and Post-MS Systems</i>	2022–2023
Reviewer, NASA Astrophysics Decadal Survey Precursor Science	2023
Reviewer, NASA Astrophysics Decadal Survey Precursor Science Inclusion Review	2023
Referee for the scientific journal <i>Monthly Notices of the Royal Astronomical Society</i>	2022
Referee for the scientific journal <i>Nature</i>	2021
Advisory Board Member, Lamat Institute	2021–present
Co-organizer & host of the TESS (TSC2) Splinter Session “Ultra Short Period Planets”	2021
Co-Division for Dynamical Astronomy Session Chair, “How Gaia Reveals the Galaxy’s Secrets”	2021
Member of the TESS Follow-Up Working Group	2021–present
LAMAT REU Admissions Committee Member	2021–2022

## SELECTED DEPARTMENTAL SERVICE EXPERIENCE

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UW–Madison Graduate Admissions Committee Member	2021, 2022, & 2023
Presenter, UW–Madison Board of Visitors	2022
UW–Madison Graduate Application Advice Panel	2021 & 2022
Co-organizer, UW–Madison Sherry Hour	2021–present
Co-organizer, UW–Madison Monday Science Seminar	2020–present
Graduate Applicant Recruiter, SACNAS & NSBP Conferences	2020–2021
Presenter, Princeton Advisory Council	2020
Session Chair, Princeton Research Day	2017
Co-organizer, Princeton Thunch Speaker Series	2015

## SELECTED OUTREACH SERVICE EXPERIENCE

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I have given **62 talks**, including **51 invited** presentations.

### Invited Service:

Speaker, Lamat REU Mentor Speaker Series	2020–present
Presenter, <i>Learn With An Expert</i> , Milwaukee Public Museum	2023
Presenter, <i>Science on Tap</i> , Milwaukee Public Museum	2023
Presenter, <i>Astronomy on Tap</i> , UNLV, UPenn, Princeton, UW–Madison (4x)	2018–2023
Speaker, UW Space Place	2023
Instructor, Lamat REU Professional Development Workshops	2021–2023
Speaker, Society of Physics Students, UNLV, UCSC (2x)	2015–2023
Speaker, Madison Astronomical Society	2022
Panelist for the Committee on the Status of Women in Astronomy	2021
Speaker, European Astronomical Society Annual Meeting “The Value of Building Social Support Networks for Mothers in Astronomy”	2021
Speaker, NSF NoirLab DEI Seminar	2021
Speaker, AeroSTEM Academy	2021
Speaker, The National Society of Black Physicists, University of the Virgin Islands	2019
Keynote Speaker & Co-organizer, National Chemistry Week “Life Beyond Earth” (932 attendees)	2018
Keynote Speaker, Gavilan Community College Graduation	2014

## Contributed Service

SETI Institute's NASA Community College Network Committee Member	2022
Organizer & Speaker, <i>Solar System Annual Science Workshop</i> , Lincoln Elementary School	2022
NASA Hubble Fellowship Program SOC Symposium Committee Member	2021
Panelist for the NASA Hubble Fellowship Program Application Workshop	2021
Founder and organizer, The Astrono-Mom Conversation Series	2020–present
Organizer & Mentor, Mastering the Graduate School Application Process	2018–present
*I have provided guidance for more than 100 URM graduate school applicants	
Co-founder & Co-organizer, Astronomy on Tap Trenton chapter	2019–2020
Co-organizer, Young Women's Conference in STEM, Princeton University	2017

## MEDIA & PRESS

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*Lights Out! Eclipses: Whys, Wonders, & Wows*. Directed by Bob Bonadurer, 2023. A planetarium film discussing the science of total eclipses.

[Lithium Enrichment Signatures of Planetary Engulfment Events in Evolved Stars](#), AAS YouTube Series: Video Chats with Journal Authors, 2022.

[Devoured Worlds: Lessons From Planet-Ingesting Stars](#), Badger Talks, 2023.

[The New York Times, The Juicy Secrets of Stars That Eat Their Planets](#), B. Ferreira, 2022.

[Scientific American Magazine, Women Are Creating a New Culture for Astronomy](#), A. Finkbeiner, 2022.

[Princeton University Press, Astronomy on Tap Brings Astrophysicists & the Community Together at a Trenton Pub](#), L. Wright, 2019.

[New Scientist Magazine, Stars That Devour Their Planets Get Brighter & Faster](#), J. Wenz, 2018.

[Mount Madonna School News, Astrophysics Researcher Joins MMS Faculty](#), L. Clifton, 2012.