

Jamie Tayar

Stellar Evolution – Stellar Physics
Stellar Rotation – Red Giants – Stellar Populations
Modeling – Asteroseismology – Spectroscopy

Institute for Astronomy, University of Hawaii
2680 Woodlawn Dr, Honolulu, HI, USA 96822
Email: jtayar@hawaii.edu
Website: <http://ifa.hawaii.edu/~jtayar/>

Education

Ohio State University, Columbus, Ohio, USA
Doctor of Philosophy, Astronomy, August 2018
Master of Science, Astronomy, December 2014
Thesis: Rotation in Red Giants
Advisor: Marc Pinsonneault

California Institute of Technology, Pasadena, California, USA
Bachelor of Science, Astrophysics, June 2012
Thesis: FU Orionis Stars
Advisor: Lynne Hillenbrand

Appointments

Hubble Fellow, Institute for Astronomy, University of Hawai'i 2018-Present

Grants and Fellowships Awarded

1. TESS Guest Investigator Cycle 3, PI: **J. Tayar**, A Library of 20 Second Light Curves, \$40,000.
2. TESS Guest Investigator Cycle 2, PI: **J. Tayar**, Subgiants as Precision Tests of Angular Momentum Evolution, \$50,000.
3. TESS Guest Investigator Cycle 1, PI: Pinsonneault, Science PI: **Tayar**, Subgiants as Precision Tests of Angular Momentum Evolution, \$50,000.
4. Hubble Fellowship 2018, Subgiants: Models, Rotation, Convection, and Planets, \$342,963.
5. NASA ADAP 2020, PI: D. Huber, Co-I: inc. **J. Tayar**, An All-Sky Catalog of Asteroseismic Benchmark Stars Observed by the TESS Mission, \$345,184.
6. Hubble Space Telescope Cycle 28, PI: J. Chisholm, Co-I: inc. **J. Tayar**, Digging deep into massive star variability: Do massive stars vary due to internal gravity waves or stellar winds?, awarded 26 orbits, \$138,235.
7. TESS Guest Investigator Cycle 3, PI: J. van Saders, Co-I: inc. **J. Tayar**, Maximizing the science yield for main sequence and subgiant stars in the TESS Southern Continuous Viewing Zone, \$200,000.

Publication Summary

55 total, 7 first author, 6 second author, 2 led by my students; 5274+ citations; h-index: 26

Leadership

Conference Coordinator, KITP: Transport In Stellar Interiors	Nov. 2021
Co-organizer, KITP Program: Probes of Transport in Stars	Oct.-Dec. 2021
APOGEE Stellar Astrophysics Sprint Lead	Jan. 2021
University of Hawai'i Telescope Allocation Committee	2020-Present
NASA Grant Panelist	2019
University of Hawai'i Colloquium Committee Member	2019-2020
Committee On Inclusiveness in the SDSS (COINS) Member	2016-2018
APOGEE- <i>Kepler</i> Catalog Manager	2014-Present

Students Advised

Ellis Avallone Graduate Student, Institute for Astronomy, University of Hawai'i
NSF GRFP Honorable Mention

Diego Godoy-Rivera	Graduate Student, Ohio State University
Erica Bufanda	Graduate Student, Institute for Astronomy, University of Hawai'i
	Awarded Best IfA second year project, Outstanding Research Presentation at SACNAS 2019
Don Dixon	Graduate Student, Fisk University, Vanderbilt University

Invited Talks and Colloquia

University of Florida, 2021	Colloquium
University of Alabama, 2021	Colloquium
University of Notre Dame, 2021	Colloquium
University of Utah, 2021	Colloquium
Boston University, 2021	Colloquium
Florida Institute of Technology, 2020	Colloquium
Mississippi State University, 2020	Colloquium
University of Pittsburgh, Astronomy Seminar, 2020	Colloquium
Richard and Patricia Wagner Seminar, Berea College, 2020	Invited Seminar
KASC-12/TASC-5, MIT, Cambridge, MA, 2019	Invited Talk
Planet-Star Connections in the Era of TESS and Gaia, KITP, 2019	Invited Talk
Better Stars, Better Planets, Kavli Institute for Theoretical Physics, 2019	Invited Talk
Institute for Astronomy, University of Hawaii- Manoa, 2018	Colloquium
The Metal-poor Galaxy, Ringberg Castle, Germany, 2018	Invited Talk
Exoplanets Orbiting Hot Stars, Vanderbilt University, 2018	Invited Talk
Physics and Astronomy Department Seminar, Rice University, 2018	Colloquium
Stellar Astrophysics Centre Seminar, Aarhus University, Denmark, 2018	Colloquium
Ohio State CCAPP Summer Seminar, Ohio State, Columbus, OH, 2016	Invited Talk
SDSS-IV Collaboration Meeting, Madison, WI, 2016	Invited Talk
Cool Stars 19, Uppsala, Sweden, 2016	Prize Talk (Best Graduate Poster)

Teaching Experience

Guest Lecturer, Institute for Astronomy, University of Hawaii

Radiative Processes (Graduate Level), Spring 2020

Teaching Assistant, Astronomy Department, Ohio State

Astronomy Lab (General Education/Non-majors), Fall 2015, Fall 2016

Methods of Observational Astronomy & Data Analysis (Upper Division Majors), Fall 2016

Principles of Stellar Evolution & Nucleosynthesis (Upper Division Majors), Spring 2014

Introductory Astronomy (General Education/Non-majors), Fall 2012, Summer 2013, Fall 2014

Teaching Assistant, Astrophysics Department, Caltech

Introductory Astronomy (General Education/Non-majors), Spring 2011

Service and Outreach

Referee ApJ, A&A

Sigma Xi Science Café Invited Talk: Eclipse 2017

Public Talk, Astronomy on Tap, Columbus

Regular Volunteer, Ohio State Public Roof Nights and Star Parties

Breakfast of Science Champions Co-organizer 2016

Regularly Run Astronomy Demos at Schools, Libraries, and Camps

References

Marc Pinsonneault	The Ohio State University	pinsonneault.1@osu.edu
Daniel Huber	Institute for Astronomy, University of Hawai'i	huberd@hawaii.edu
Jennifer Johnson	The Ohio State University	johnson.3064@osu.edu

Additional References

Keivan Stassun	Vanderbilt University	keivan.stassun@vanderbilt.edu
Jennifer van Saders	Institute for Astronomy, University of Hawai'i	jivs@hawaii.edu
Rafael García	Département d'Astrophysique, IRFU/DRF/CEA Saclay	rafael.garcia@cea.fr

Publications

First Author Publications

1. **Tayar, Jamie**; Claytor, Zachary R.; Huber, Daniel; and van Saders, Jennifer. “*A Guide to Realistic Uncertainties on Fundamental Properties of Solar-type Exoplanet Host Stars*” Submitted.
2. **Tayar, Jamie**; Beck, Paul G.; Pinsonneault, Marc H. and 2 coauthors. “*Core-Envelope Coupling in Intermediate-Mass Core Helium Burning Stars*” 2019, ApJ, 887, 203.
3. **Tayar, Jamie**; Stassun, Keivan G.; Corsaro, Enrico. “*Predicting Granulation “Flicker” and Radial Velocity “Jitter” from Spectroscopic Observables*” 2019, ApJ, 883, 195.
4. **Tayar, Jamie**; Pinsonneault, Marc H.. “*Testing Angular Momentum Transport and Wind Loss in Intermediate Mass Core Helium Burning Stars*” 2018, ApJ, 868, 150.
5. **Tayar, Jamie**; Somers, Garrett; Pinsonneault, Marc H.; and 28 coauthors. “*The Correlation Between Mixing Length and Metallicity On the Giant Branch: Implications for Ages in the Gaia Era*” 2017, ApJ, 840, 17.
6. **Tayar, Jamie**; Ceillier, Tugdual; García-Hernández, D. A. and 17 coauthors. “*Rapid Rotation of Low-mass Red Giants Using APOKASC: A Measure of Interaction Rates on the Post-main-sequence*” 2015, ApJ, 807, 82.
7. **Tayar, Jamie**; Pinsonneault, Marc H.. “*Implications of Rapid Core Rotation in Red Giants for Internal Angular Momentum Transport in Stars*” 2013, ApJL, 775, 1.

Contributing Author Publications: Significant Contribution

8. Jermyn, Adam; **Tayar, Jamie**; Fuller, Jim. “*Differential Rotation in Convective Envelopes: Constraints from Eclipsing Binaries*” 2020, MNRAS, 491, 690.
9. Shetrone, Matthew; **Tayar, Jamie**; Johnson, Jennifer A.; and 13 coauthors. “*Constraining Metallicity Dependent Mixing and Extra Mixing Using [C/N] in Alpha-rich Field Giants*” 2019, ApJ, 872, 137.
10. Ceillier, T.; **Tayar, J.**; Mathur, S.; and 7 coauthors. “*Surface rotation of Kepler red giant stars*” 2017, A&A, 605, 111.
11. Cody, Ann Marie; **Tayar, Jamie**, Hillenbrand, Lynne A.; and 2 coauthors. “*Precise High-cadence Time Series Observations of Five Variable Young Stars in Auriga with MOST*” 2013, AJ, 145, 79.

Papers Led By Graduate Students: Primary Advisor

12. Godoy-Rivera, Diego; **Tayar, Jamie**; Pinsonneault, Marc; and 6 coauthors. “*Testing the Limits of Precise Subgiant Characterization with APOGEE and Gaia: Opening a Window to Unprecedented Astrophysical Studies*” Submitted.
13. Dixon, Don; **Tayar, Jamie**; Stassun, Keivan. “*Rotationally Driven Ultraviolet Emission of Red Giant Stars*” 2020, AJ, 160, 12.

Papers Led By Graduate Students: Other

14. Nofi, Larissa A.; Johns-Krull, Christopher M.; López-Valdivia, Ricardo; and 11 coauthors. “*Projected Rotational Velocities and Fundamental Properties of Low-Mass Pre-Main Sequence Stars in the Taurus-Auriga Star Forming Region*” Accepted.
15. Hall, Oliver J.; Davies, Guy R. van Saders, Jennifer; and 9 coauthors. “*Asteroseismic rotation rates of 91 main sequence stars show strong agreement with weakened magnetic braking at late ages*” Accepted.
16. Berger, Travis A.; Huber, Daniel; van Saders, Jennifer L.; and 3 coauthors. “*The Gaia - Kepler Stellar Properties Catalog I: Homogeneous Fundamental Properties for 186,000 Kepler Stars*” 2020, AJ, 159, 280.
17. Claytor, Zach; van Saders, Jennifer; Santos, Ângela; and 5 coauthors. “*Chemical Evolution in the Milky Way: Rotation-based ages for APOGEE-Kepler cool dwarf stars*” 2020, ApJ, 888, 43.

Contributing Author Publications: Work Uses My APOGEE-Kepler Catalog

18. Ahumada, Romina; Allende Prieto, Carlos; Almeida, Andres; and 310 coauthors. “*The Sixteenth Data Release of the Sloan Digital Sky Surveys: First Release from the APOGEE-2 Southern Survey and Full Release of eBOSS Spectra*” 2020, ApJS, 249, 3.
19. Lian, Jianhui; Thomas, Daniel; Maraston, Claudia; and 6 coauthors. “*Age-chemical abundance structure of the Galaxy I: Evidence for a late accretion event in the outer disc at $z \sim 0.6$* ” 2020, MNRAS, 494, 2561.
20. Elsworth, Yvonne; Hekker, Saskia; Johnson, Jennifer; and 10 coauthors. “*Insights from the APOKASC Determination of the Evolutionary State of Red-Giant Stars by consolidation of different methods*” 2019, MNRAS, 489, 4641.
21. Mackereth, J. Ted; Bovy, Jo; Leung, Henry W.; and 14 coauthors. “*Dynamical heating across the Milky Way disc using APOGEE and Gaia*” 2019, MNRAS, 489, 176.
22. Aguado, D. S.; Ahumada, Romina; Almeida, Andres; and 231 coauthors. “*The Fifteenth Data Release of the Sloan Digital Sky Surveys: First Release of MaNGA Derived Quantities, Data Visualization Tools and Stellar Library*” 2019, ApJS, 240, 23.
23. Pinsonneault, Marc H.; Elsworth, Yvonne P.; **Tayar, Jamie**; and 33 coauthors. “*The Second APOKASC Catalog: The Empirical Approach*” 2018, ApJS, 239, 32.
24. Holtzman, Jon A.; Hasselquist, Sten; Shetrone, Matthew; Cunha, Katia; and 22 coauthors. “*APOGEE Data Releases 13 and 14: Data and Analysis*” 2018, AJ, 156, 125.
25. Silva Aguirre, V.; Bojsen-Hansen, M.; Slumstrup, D.; and 21 coauthors. “*Confirming chemical clocks: asteroseismic age dissection of the Milky Way disk(s)*” 2018, MNRAS, 475, 5487.
26. Abolfathi, Bela; Aguado, D. S.; Aguilar, Gabriela; and 324 coauthors. “*The Fourteenth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the extended Baryon Oscillation Sky Survey and from the second phase of the Apache Point Observatory Galactic Evolution Experiment*” 2018, ApJS, 235, 42.
27. Johnson, Marshall C.; Rodriguez, Joseph E.; Zhou, George; and 63 coauthors. “*KELT-21b: A Hot Jupiter Transiting The Rapidly-Rotating Metal-Poor Late-A Primary of a Likely Hierarchical Triple System*” 2018, AJ, 155, 100.
28. Albareti, Franco D.; Allende Prieto, Carlos; Almeida, Andres; and 341 coauthors. “*The Thirteenth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the SDSS-IV Survey Mapping Nearby Galaxies at Apache Point Observatory*” 2017, ApJS, 233, 25.
29. Serenelli, Aldo; Johnson, Jennifer; Huber, Daniel; and 23 coauthors. “*The First APOKASC Catalog of Kepler Dwarf and Subgiant Stars*” 2017, ApJS, 233, 23.
30. Bossini, D.; Miglio, A.; Salaris, M.; and 9 coauthors. “*Kepler red-clump stars in the field and in open clusters: constraints on core mixing*” 2017, MNRAS, 469, 4718.
31. Zasowski, G.; Cohen, R. E.; Chojnowski, S. D.; and 32 coauthors. “*Target Selection for the SDSS-IV APOGEE-2 Survey*” 2017, AJ, 154, 198.
32. Huber, Daniel; Zinn, Joel; Bojsen-Hansen, Mathias; and 17 coauthors. “*Asteroseismology and Gaia: Testing Scaling Relations Using 2200 Kepler Stars with TGAS Parallaxes*” 2017, ApJ, 844, 102.
33. Corsaro, E.; Mathur, S.; Garca, R. A.; and 9 coauthors. “*Metallicity effect on stellar granulation detected from oscillating red giants in open clusters*” 2017, A&A 605, 3.
34. Blanton, Michael R.; Bershady, Matthew A.; Abolfathi, Bela; and 350 coauthors. “*Sloan Digital Sky Survey IV: Mapping the Milky Way, Nearby Galaxies and the Distant Universe*” 2017, AJ, 154, 28.
35. Alam, Shadab; Albareti, Franco D.; Allende Prieto, Carlos; and 301 coauthors. “*The Eleventh and Twelfth Data Releases of the Sloan Digital Sky Survey: Final Data from SDSS-III*” 2015, ApJS, 219, 12.

Contributing Author Publications: Contributed Data Analysis and/or Model Interpretation

36. Mackereth, J. Ted; Miglio, Andrea; Elsworth, Yvonne; and 29 coauthors. “*Prospects for Galactic and stellar astrophysics with asteroseismology of giant stars in the TESS Continuous Viewing Zones and beyond*” Accepted, ArXiv.
37. Thompson, Todd A.; Kochanek, Christopher S.; Stanek, Krzysztof Z.; and 7 coauthors. “*Response to Comment on ‘A noninteracting low-mass black hole–giant star binary system’*” 2020, *Science*, 368, 4356.
38. Silva Aguirre, Victor; Stello, Dennis; Stokholm, Amalie; and 75 coauthors. “*Detection and characterisation of oscillating red giants: first results from the TESS satellite*” 2020, *ApJ*, 889, 34.
39. Chaplin, William J.; Serenelli, Aldo; Miglio, Andrea; and 82 coauthors. “*Age dating of an early Milky Way merger via asteroseismology of the naked-eye star ν Indi*” 2020, *Nature Astronomy*, 4, 382.
40. Thompson, Todd A.; Kochanek, Christopher S.; Stanek, Krzysztof Z.; and 13 coauthors. “*A noninteracting low-mass black hole–giant star binary system*” 2019, *Science*, 366, 637.
41. Huber, Daniel; Chaplin, William J.; Chontos, Ashley; and 138 coauthors. “*A Hot Saturn Orbiting An Oscillating Late Subgiant Discovered by TESS*” 2019, *AJ*, 157, 245.
42. Hasselquist, Sten; Holtzman, Jon A.; Shetrone, Matthew; **Tayar, Jamie**, and 13 coauthors. “*APOGEE [C/N] Abundances Across the Galaxy: Migration and Infall from Red Giant Ages*” 2019, *ApJ*, 871, 181.
43. Sandquist, Eric L.; Mathieu, Robert D.; Quinn, Samuel N.; and 16 coauthors. “*The K2 M67 Study: A Curiously Young Star in an Eclipsing Binary in an Old Open Cluster*” 2018, *AJ*, 155, 152.
44. Ceillier, T.; van Saders, J.; Garcia, R. A.; and 7 coauthors. “*Rotation periods and seismic ages of KOIs - comparison with stars without detected planets from Kepler observations*” 2015, *MNRAS*, 456, 119.
45. Martig, Marie; Rix, Hans-Walter; Aguirre, Victor Silva; and 30 coauthors. “*Young α -enriched giant stars in the solar neighbourhood*” 2015, *MNRAS*, 451, 2230.
46. Pinsonneault, Marc H.; Elsworth, Yvonne; Epstein, Courtney; and 42 coauthors. “*The APOKASC Catalog: An Asteroseismic and Spectroscopic Joint Survey of Targets in the Kepler Fields*” 2014, *ApJS*, 215, 19.
47. Epstein, Courtney R.; Elsworth, Yvonne P.; Johnson, Jennifer A.; and 29 coauthors. “*Testing the Asteroseismic Mass Scale Using Metal-poor Stars Characterized with APOGEE and Kepler*” 2014, *ApJL*, 785, 28.

Contributing Author Publications: Contributed Observational Data

48. Williams, P.R.; Pancoast, A.; Treu, T.; and 155 coauthors. “*Space Telescope and Optical Reverberation Mapping Project. XII. Broad-line Region Modeling of NGC 5548*” 2020, *ApJ*, 902, 74.
49. Horne, Keith; De Rosa, G.; Peterson, B. M.; and 155 coauthors. “*Space Telescope and Optical Reverberation Mapping Project. IX. Velocity-Delay Maps for Broad Emission Lines in NGC 5548*” Submitted, ArXiv.
50. Kriss, G.A.; De Rosa, G.; Ely, J.; and 164 coauthors. “*Space Telescope and Optical Reverberation Mapping Project. VIII. Time Variability of Emission and Absorption in NGC 5548 Based on Modeling the Ultraviolet Spectrum*” 2019, *ApJ*, 881, 153.
51. De Rosa, G.; Fausnaugh, M.M.; Grier, C.J.; and 99 coauthors. “*Velocity-Resolved Reverberation Mapping of Five Bright Seyfert 1 Galaxies*” 2018, *ApJ*, 866, 133.
52. Fausnaugh, M. M.; Starkey, D. A.; Horne, K.; and 69 coauthors. “*Continuum Reverberation Mapping of the Accretion Disks in Two Seyfert 1 Galaxies*” 2018, *ApJ*, 854, 107.
53. Fausnaugh, M. M.; Grier, C. J.; Bentz, M. C.; and 69 coauthors. “*Reverberation Mapping of Optical Emission Lines in Five Active Galaxies*” 2017, *ApJ*, 840, 97.

54. Mathur, S.; Gupta, A.; Page, K.; and 147 coauthors . “*Space Telescope and Optical Reverberation Mapping Project. VII. Understanding the UV anomaly in NGC 5548 with X-Ray Spectroscopy*” 2017, ApJ, 846, 55.
55. Pei, L.; Fausnaugh, M. M.; Barth, A. J.; and 153 coauthors. “*Space Telescope and Optical Reverberation Mapping Project. V. Optical Spectroscopic Campaign and Emission-Line Analysis for NGC 5548*” 2017, ApJ, 837, 131.