

# Aylin Garcia Soto

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## EDUCATION

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### Dartmouth College

Ph.D., Department of Physics and Astronomy

M.S., Department of Physics and Astronomy

Hanover, NH

Sept. 2019 - Present

Mar. 2023

### Wesleyan University

B.A., Department of Astronomy

GPA: 3.55/4.00

Middletown, CT

May 2018

## APPOINTMENTS

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### Graduate Student Research, with Prof. Elisabeth Newton

*Department of Physics and Astronomy, Dartmouth College*

Hanover, NH

*Sept. 2019-present*

### Post-Baccalaureate Research, with Prof. William Herbst (Emeritus)

*Department of Astronomy, Wesleyan University*

Middletown, CT

*May 2018-Feb. 2020*

### McNair Undergrad Research - Honors Thesis, with Prof. Edward Moran

*Department of Astronomy, Wesleyan University*

Middletown, CT

*Mar. 2016-May 2018*

### Banneker & Aztlán Summer REU, with Prof. Joseph Rodriguez

*Harvard-Smithsonian Center for Astrophysics*

Cambridge, MA

*May 2017-Aug. 2017*

### KNAC Summer REU, with Dr. Steven Souza (Emeritus)

*Department of Astronomy, Williams College*

Williamstown, MA

*May 2015-Oct. 2015*

## PROFESSIONAL EXPERIENCE

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### NASA's Astrophysics Theory Program (ATP)

*Executive Secretary*

Virtual

Nov. 2023

- Composed extensive notes during the ATP23 for each proposal and assisted with vote tallies to facilitate smooth and efficient decision-making.

### Dartmouth College's Graduate Student Council

*Representative, Co-Chair CARE*

Hanover, NH

Oct. 2020 - July 2022

- Co-organized events for the student life committee and the Committee of Addressing Racism and Equity.
- Met with the Guarini School to address retention data.

### MIT's TOI Deputy Manager

*Employer: Prof. Sara Seager, TESS Science Office*

Cambridge, MA

Sept. 2018 - Aug. 2019

- Vetting TESS data and creation of corresponding documentation to contribute to planet candidate identification and TESS objects of interest (TOI) while managing public-facing MIT TESS websites and the creation of the first TESS science conference website.

## HONORS & AWARDS

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- Matt Johns Astronomy Graduate Student Fund** Jan. 2024  
*Awarded to Dartmouth graduate students with proposals for advancing their careers.*
- The Selamawit Tsehay Teaching Award** June 2021  
*Awarded to teaching assistants who show dedication to teaching.*
- NSF GRFP Honorable Mention** Mar. 2021  
*Awarded by the NSF to students with strong applications for the graduate fellowship.*
- E.E. Just Liftoff Fellow** Sept. 2019  
*awarded by Dartmouth's School of Graduate and Advanced Studies as part of E.E. Just Program.*
- Littell Prize** May 2018  
*awarded by the Wesleyan astronomy department for excellence in advanced astronomy classes.*
- McNair Scholar** Jan. 2015-May 2018  
*awarded to undergraduate students with the aspiration of pursuing a PhD.*
- NASA CT Space Grant Scholarship** Sept. 2015  
*awarded to undergraduates in science for assistance with financial aid.*
- Janey Scholar** Sept. 2014-May 2018  
*awarded high-achieving, low-income students pursuing higher education.*

## FIRST-AUTHOR PUBLICATIONS

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- García Soto, A.**, Newton, E. R., in prep.
- García Soto, A.**, Newton, E. R., Rackham, B. V., Rampalli, R., in prep.
- García Soto, A.**, Duvvuri, G. M., Howard, W., et al. 2025. The Astrophysical Journal, 982, 98.  
*Short-term Balmer Line Emission Variability in M Dwarfs.*
- García Soto, A.**, Newton, E. R., Douglas, S. T., et al. 2023. The Astronomical Journal, 165, 192.  
*Contemporaneous Observations of H $\alpha$  Luminosities and Photometric Amplitudes for M Dwarfs.*
- García Soto, A.**, Ali, A., Newmark, A., et al. 2020. The Astronomical Journal, 159, 135.  
*Evidence for Transparency and Clumps in the Circumbinary Ring of the T Tauri Star V582 Mon (KH 15D)*

## CO-AUTHOR PUBLICATIONS

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- Duvvuri, G. M., Pineda, J. S., **García Soto, A.**, et al., 2025., arXiv:2508.18459. *FUMES IV: An Optical and Far Ultraviolet Flare on GJ 4334.*
- Flury, S. R., Bustamante-Gonzalez, S., **García Soto, A.**, et al., 2025. Submitted. *Activity and Structure of Low Mass Stars: Rossby Number, Mass, and a New Diagnostic*

Boudreaux, E. M., **García Soto, A.**, Chaboyer, B. C., 2024. The Astrophysical Journal, 965, 56. *Correlations between Ca II H and K Emission and the Gaia M Dwarf Gap.*

Fausnaugh, M., et al. (incl. **García Soto, A.**) 2021, Publications of the Astronomical Society of the Pacific, 133, 1027, 095002. *The TESS Mission Target Selection Procedure.*

Guerrero, N. M., et al. (incl. **García Soto, A.**), 2021. The Astrophysical Journal Supplement Series, 254, 39. *The TESS Objects of Interest Catalog from the TESS Prime Mission.*

Rowden, P., et al. (incl. **García Soto, A.**) 2020. The Astronomical Journal, 160, 76. *TIC 278956474: Two Close Binaries in One Young Quadruple System Identified by TESS.*

Parviainen, H., et al. (incl. **García Soto, A.**) 2020. Astronomy & Astrophysics, 633, A28. *MuSCAT2 multicolour validation of TESS candidates: an ultra-short-period substellar object around an M dwarf.*

Huber, D., et al. (incl. **García Soto, A.**) 2019. The Astronomical Journal, 157, 245. *A Hot Saturn Orbiting an Oscillating Late Subgiant Discovered by TESS.*

Rodriguez, J. E., et al. (incl. **García Soto, A.**) 2019. The Astronomical Journal, 157, 191. *An Eccentric Massive Jupiter Orbiting a Subgiant on a 9.5-day Period Discovered in the Transiting Exoplanet Survey Satellite Full Frame Images.*

Dragomir, D., et al. (incl. **García Soto, A.**) 2019. The Astrophysical Journal, 875, L7. *TESS Delivers Its First Earth-sized Planet and a Warm Sub-Neptune.*

## PRESENTATIONS

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- **Invited Talks**

“AAS Journal Author Series: Aylin Garcia Soto on 2025ApJ...982...98G” June 12, 2025.  
Black Space Week: AAS Journal Author Series ([Link](#)), García Soto, A., Host: Frank Timmes.

“Fully Convective M Dwarfs: Variability in Magnetically Sensitive Balmer Emission Lines.”  
García Soto, A., October 1, 2024. **University of Michigan APS Seminar**, Host: Prof. Lia Corrales.

“Simultaneous Observations with TESS and OSMOS: Magnetic Fields Activity on M-type Cool Stars.” García Soto, A., August 29, 2024. **University of Florida Astronomy Colloquium**, Host: Prof. Sarah Ballard.

“Contemporaneous Observations of H $\alpha$  Luminosities and Photometric Amplitudes for M dwarfs.” García Soto, A. et al. 2023. **University of Colorado Boulder, APS Seminar**, Host: Prof. Zachory Berta-Thompson.

“Contemporaneous Observations of H $\alpha$  Luminosities and Photometric Amplitudes for M Dwarfs.” 2023. *TESS Mission Update Meeting (Science Team Meeting)* MIT Building 6, Room 120.

- **Contributed Talks**

“Fully Convective M Dwarfs: Variability in Magnetically Sensitive Balmer Emission Lines.” **García Soto, A.** et al. 2024. *MIT Stellar Contamination Workshop*.

“Fully Convective M Dwarfs: Variability in Magnetically Sensitive Balmer Emission Lines.” **García Soto, A.**, et al. 2024. *TESS Science Conference 3 (TSC3)*. <https://zenodo.org/records/13136772>

- **Posters**

“M Dwarfs Variability in Magnetically Sensitive Balmer Emission Lines.” **García Soto, A.** et al. 2024. *Know Thy Star, Know Thy Planet 2 Conference, Ramo Hall on the Caltech Campus*.

“M Dwarfs Variability in Magnetically Sensitive Balmer Emission Lines.” **García Soto, A.** et al. 2024. *Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun*. 22. <https://zenodo.org/records/13118976>

“Contemporaneous Observations of H $\alpha$  Luminosities and Photometric Amplitudes for M dwarfs.” **García Soto, A.** et al. 2022. *Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun*. 21. <https://zenodo.org/record/7523687>

“Photometric Follow-up of Eclipsing Binary Candidates from KELT and Kepler”, **García Soto, A.** et al. 2018. *231st Meeting of the American Astronomical Society, National Harbor, MD*.

“Uncovering extreme AGN variability in serendipitous X-ray source surveys”, E. C. Moran, **García Soto, A.** et al. 2018. *231st Meeting of the American Astronomical Society, National Harbor, MD*.

“Dramatic X-ray Variability in AGNs: New Insights into Black Hole Fueling.” **García Soto, A.**, and Moran, E. C. 2017, *APS Conference for Undergraduate Women in Physics at Harvard University, Cambridge, MA*.

“Hour-Scale Variability in NGC 663 and NGC 1960”, Souza, S. P., **García Soto, A.**, and Wong H. 2016. *228th Meeting of the American Astronomical Society, San Diego, CA*.

## **AWARDED PROPOSALS AND OBSERVING TIME**

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<b>TESS Guest Investigator Proposal</b>	Nov. 2024
Filling In The Spots: Multi-color Analysis Of M Dwarf Photospheres (PI William Waalkes)	
<b>Observing Time</b>	2019-2024
MDM McGraw-Hill 1.3m Telescope (Dartmouth College)	29 Nights
MDM Hiltner 2.4m Telescope (Dartmouth College)	32 Nights

## **SOFTWARE CONTRIBUTIONS**

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- <https://github.com/agarciasoto18/starrotate>
- <https://github.com/christopherburke/TESS-ExoClass>
- <https://github.com/raynarampalli/protify>

## TEACHING EXPERIENCE

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**Course - Astro 1 - Week 8 Day 1 - Exoplanet Techniques Lecture**

**Course - Astro 1 - Week 8 Day 3 - Astrobiology Lecture**

## SERVICE AND OUTREACH EXPERIENCE

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**Graduate Student Mentor for GSEC**

Sept. 2024 - Present

*Dartmouth College*

- Mentored for the Cientfico Latino Graduate School and Engagement Community (GSEC), guiding and supporting first-year graduate students through monthly meetings, office hours, and open email communication.

**Public Outreach Event Organizer**

Sept. 2019 - Present

*Dartmouth College*

- Planned educational activities on the electromagnetic spectrum and stellar spectra for Science Day and the first Public Observing Astronomy Kick-Off Event.
- Co-lead the Montshire Museum of Science, creating activities for children in the Vermont and New Hampshire area during the yearly Astronomy Science Day.

**Penpal for Letters for Pre-Scientist (LPS)**

Sept. 2023 - present

*Dartmouth College*

- Wrote letters for the Pre-Scientist Mentor program, where I corresponded with a middle school in California to explain my career in STEM and encouraged my pen pal to explore similar interests.

**Telescope Operator and Trainer**

Sept. 2019 - Feb 2024

*Dartmouth College*

- I operated the 14-inch Meade telescope for public observation nights while teaching the public about space and my research.
- Trained group members and undergraduates how to observe using the MDM Hiltner 2.4m spectrograph, OSMOS, and the MDM McGraw-Hill 1.3m spectrograph, MODSPEC. MDM Hiltner 2.4m Telescope (Dartmouth College) - 2 Nights. MDM McGraw-Hill 1.3m Telescope (Dartmouth College) - 11 Nights

**Wikipedia Page KH 15D (V 582 Mon)**

June 2018

*Wesleyan University*

- Created and populated the wikipedia page for the T Tauri Binary System KH 15D or V 582 Mon ([Link](#))

**Public Outreach Organizer for Kids' Night and Space Night**

Sept. 2018 - Aug. 2019

*Wesleyan University*

- Organized Astronomical presentations—16 Kids' Nights and 4 Space Nights—operation of the 16-inch Meade Telescope and the 24-inch Perkin Telescope.
- Created hands-on activities for children and/or for the Middletown community and their families to help improve Scientific literacy.

**Teaching Assistant/Co-Coordinator for Wesleyan Science Outreach**

June 2018 - Apr. 2020

*Wesleyan University*

- Co-instructed the pedagogical course CHEM242, including organizing the class schedule and preparing lesson plans and demos.
- Prepared the students or club leaders responsible for creating lesson plans, and the recruitment of volunteers for school visits and Science Saturday.

**REFERENCES**

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Elisabeth R. Newton (email: [Elisabeth.R.Newton@dartmouth.edu](mailto:Elisabeth.R.Newton@dartmouth.edu))

Assistant Professor of Physics and Astronomy

Dartmouth College

Stephanie T. Douglas (email: [StephanieTDouglas@gmail.com](mailto:StephanieTDouglas@gmail.com))

Assistant Professor of Physics

Lafayette College

Zachory Berta-Thompson (email: [zach.bertathompson@colorado.edu](mailto:zach.bertathompson@colorado.edu))

Professor of Astrophysics and Planetary Science

University of Colorado, Boulder