

Tiger Lu

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APPOINTMENTS	Center for Computational Astrophysics , Flatiron Institute, New York, NY Flatiron Research Fellow	Sep 2025 – Present
	Yale University , New Haven, CT Graduate Research Assistant	Aug 2020 – May 2025
	University of California, Berkeley , Berkeley, CA Summer Undergraduate Researcher	May 2019 – Aug 2019
	Carnegie Observatories , Pasadena, CA Summer Undergraduate Researcher	May 2018 – Aug 2018
EDUCATION	Yale University , New Haven, Connecticut, USA <ul style="list-style-type: none">▪ Ph.D. in Astronomy with Distinction<ul style="list-style-type: none">• Thesis: Planets are not Points: the Profound Effect of Planetary Structure on Exoplanet System Architectures• Advisers: Prof. Gregory Laughlin, Prof. Malena Rice▪ M.S., M.Phil. in Astronomy	Aug 2020 – May 2025 Aug 2020 – Aug 2022
	California Institute of Technology , Pasadena, California, USA <ul style="list-style-type: none">▪ B.S. in Astrophysics▪ Minor in Computer Science	Aug 2016 – Jun 2020
PUBLICATIONS	124 citations. <i>h</i> -index = 8. <i>Italics</i> : Student directly supervised by T. Lu	
	FIRST-AUTHOR	
	[6] Lu, T. , Tajer, H., Hernandez, D.M., Rein, H., Liu, Y. and Rice, M., 2025. Collisional Fragmentation Support in TRACE . <i>RNAAS</i> 9 , 5	
	[5] Lu, T. , Li, G., Cassese, B., and Lin, D.N.C., 2025. The Dynamical History of HIP-41378 f - Oblique Exorings Masquerading as a Puffy Planet . <i>ApJ</i> 980 , 39	
	[4] Lu, T. , An, Q., Li, G., Millholland, S.C., Brandt, G.M. and Brandt, T., 2025. Planet-Planet Scattering and ZLK Migration – the Dynamical History of HAT-P-11 . <i>ApJ</i> 979 , 218	
	[3] Lu, T. , Hernandez, D.M. and Rein, H., 2024. TRACE: a Time-Reversible Algorithm for Close Encounters . <i>MNRAS</i> 533 , 3708	
	[2] Lu, T. , Rein, H., Tamayo, D., Hadden, S., Mardling, R., Millholland, S.C. and Laughlin, G., 2023. Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework . <i>ApJ</i> 948 , 41	
	[1] Lu, T. and Laughlin, G., 2022. Tilting Uranus via Secular Spin-Orbit Resonance with Planet 9 . <i>PSJ</i> 3 , 221	
	STUDENT-LEAD	
	[2] <i>Liu, Y., Lu, T.</i> and Rice, M. in review.	
	[1] <i>Liu, Y., Lu, T.</i> and Rice, M., 2025. The Formation of Double Hot Jupiter Systems Through ZLK Migration . <i>ApJ</i> 986 , 103	
	SIGNIFICANT CONTRIBUTION	
	[5] Yahalom, D.A., Lu, T. , Armitage, P., Bedell, M., Casey, A.R., Price-Whelan, A., and Rice, M., in review. The Astrometric Resoeccentric Degeneracy: Eccentric Single Planets Mimic 2:1 Resonant Planet Pairs in Astrometry	
	[4] Cassese, B., Rice, M. and Lu, T. , 2025. A High-Precision, Differentiable Code for Solar System Ephemerides . <i>PSJ</i> 6 , 252	

- [3] An, Q., **Lu, T.**, Brandt, G.M., Brandt, T. and Li, G., 2025. [Significant Mutual Inclinations Between the Stellar Spin and the Orbits of Both Planets in the HAT-P-11 System](#). *AJ* **169**, 22
- [2] Cassese, B., Vega, J., **Lu, T.**, Rice, M., Poddar, A. and Kipping, D., 2024. [squishyplanet: Modeling transits of non-spherical planets in JAX](#). *JOSS* **9**, 100
- [1] Wahl, S., Thorngren, D., **Lu, T.** and Militzer, B., 2021. [Tidal Response and Shape of Hot Jupiters](#). *ApJ* **921**, 105

OTHER CO-AUTHOR

- [3] Tajer, H., Wang, J., Childs, C., et al. (inc. **Lu, T.**) in review. [Origins of Mercury's Big Heart of Iron: Exploring Pathways to Form High Core Mass Fraction \(CMF\) Planets via N-body Simulations](#).
- [2] Bardalez Gagliuffi, D.†, Balmer, W.†, Pueyo, L., et al. (inc. **Lu, T.**) 2025. [JWST Coronagraphic Images of 14 Her c: a Cold Giant Planet in a Dynamically Hot, Multi-planet System](#). *ApJL* **988**, L18
- [1] Wang, N., Lu, L.Y., Liu, H.G., et al. (inc. **Lu, T.**) 2025. [Development of Gravity Theories in the View of TRAPPIST-1e](#). *RAA* **25**, 015003

WHITEPAPERS

- [1] Levine, W. G., Gerbig, K., Louden, E., **Lu, T.**, Hsieh, C., O'Connor, C., Li, R. and Dong, J., 2024. [Emerging Researchers in Exoplanetary Science \(ERES\): Lessons Learned in Conference Organization for Early-Career Researchers](#). *Bulletin of the AAS* **56**, 2024i004

†: Joint first author

AWARDS & FELLOWSHIPS	<ul style="list-style-type: none"> ▪ DDA/AAS Raynor L. Duncombe Student Research Prize 2025 ▪ Flatiron Research Fellowship 2025 ▪ Flipped Science Fair Best Poster Explanation 2024 ▪ AAS International Travel Grant 2024 ▪ Graduate Student Assembly Conference Travel Fellowship 2024 ▪ National Science Foundation GRFP (<i>Honorable Mention</i>) 2022 ▪ Joan and Arnold Seidel Griffith Observer Science Writing Contest (<i>Second Place</i>) 2022 ▪ Alan Porter Memorial Foundation Fellow 2019 ▪ Summer Undergraduate Research Fellow 2018
ORAL PRESENTATIONS & TALKS	<ul style="list-style-type: none"> ▪ Powell Group Meeting, University of Chicago (<i>Chicago, IL</i>) Oct 2025 ▪ 246th AAS Meeting Dissertation Talk (<i>Anchorage, AK</i>) Jun 2025 ▪ Boston Area Planetary Science Meeting, MIT (<i>Cambridge, MA</i>) May 2025 ▪ New York Area Exoplanets Meeting II, CCA (<i>New York City, NY</i>) May 2025 ▪ 56th DDA Meeting, Georgia Institute of Technology (<i>Atlanta, GA</i>) May 2025 ▪ ML in Planetary Dynamics Workshop, CCA (<i>New York City, NY</i>) Apr 2025 ▪ Tea Talk, Indiana University (<i>Bloomington, IN</i>) Feb 2025 ▪ ITC Luncheon, Harvard University (<i>Cambridge, MA</i>) Jan 2025 ▪ Exoplanet Pizza Lunch, Harvard University (<i>Cambridge, MA</i>) Jan 2025 ▪ Exoplanet Seminar, Princeton University (<i>Princeton, NJ</i>) Nov 2024 ▪ Planetary Lunch Seminar, Massachusetts Institute of Technology (<i>Cambridge, MA</i>) Nov 2024 ▪ Astronomy Seminar, Columbia University (<i>New York City, NY</i>) Oct 2024 ▪ Astronomy Seminar, Stony Brook University (<i>Stony Brook, NY</i>) Oct 2024 ▪ CRA Seminar, Georgia Institute of Technology (<i>Atlanta, GA</i>) Oct 2024 ▪ Planetary Science Seminar, California Institute of Technology (<i>Pasadena, CA</i>) Oct 2024 ▪ Lunch Seminar, UCLA (<i>Los Angeles, CA</i>) Sep 2024 ▪ Exoplanet Group Meeting, UCSB (<i>Santa Barbara, CA</i>) Sep 2024 ▪ FLASH Talk, UCSC (<i>Santa Cruz, CA</i>) Sep 2024 ▪ Star and Planet Lunch, University of Hawai'i (<i>Honolulu, HI</i>) Aug 2024 ▪ CT Exoplanet Picnic, Wesleyan College (<i>Wesleyan, CT</i>) Jul 2024 ▪ Emerging Researchers in Exoplanet Science IX, Cornell University (<i>Ithaca, NY</i>) Jul 2024 ▪ REBOUND 24 Meeting* (<i>Virtual Arbitrary ODE Workshop</i>) Jul 2024 ▪ REBOUND 24 Meeting* (<i>Virtual tides_spin</i>) Jul 2024 ▪ New York Area Exoplanets Meeting I, CCA (<i>New York City, NY</i>) May 2024

- 55th DDA Meeting, University of Toronto (*Toronto, Canada*) May 2024
- Makino Lab Seminar, Kobe University (*Kobe, Japan*) Jul 2023
- Exoplanet Seminar, Nanjing University (*Nanjing, China*) Jul 2023
- 54th DDA Meeting, Michigan State University (*East Lansing, MI*) May 2023
- Exoplanet Seminar, Princeton University (*Princeton, NJ*) Mar 2023
- Astronomy Seminar, Monash University (*Monash, Australia*) Feb 2023
- 240th AAS Meeting (*Pasadena, CA*) Jun 2022

**Invited Talk*

POSTER PRESENTATIONS	<ul style="list-style-type: none"> ▪ Emerging Researchers in Exoplanet Science, Princeton University (<i>Princeton, NJ</i>) Jun 2025 ▪ Exoplanets V Meeting (<i>Leiden, The Netherlands</i>) Jun 2024 ▪ Extreme Solar Systems (<i>Christchurch, New Zealand</i>) Jun 2024 ▪ 2022 AGU Meeting (<i>Chicago, IL</i>) Dec 2022 ▪ Exoplanets IV Meeting (<i>Las Vegas, NV</i>) May 2022 ▪ 2019 AGU Meeting (<i>San Francisco, CA</i>) Dec 2019 ▪ 233rd AAS Meeting (<i>Seattle, Washington</i>) Jan 2019
TEACHING	<p>ASTR 210: Stars and Their Evolution Yale University Teaching Fellow</p> <p>ASTR 160: Frontiers and Controversies in Astrophysics Yale University Teaching Fellow</p> <p>ASTR 160: Frontiers and Controversies in Astrophysics Yale University Teaching Fellow</p> <p>ASTR 155: Introduction to Astronomical Observing Yale University Teaching Fellow</p> <p>Dean's Tutor Tutoring Caltech students in Physics, Astronomy and Computer Science</p>
OUTREACH	<p>Warrior-Scholar Program Research Project Leader <i>One week intensive boot camp preparing military veterans for undergraduate degrees</i></p> <p>Yale OpenLabs Local outreach organization dedicated to educating middle school children on STEM topics. Recipient of the Seton Elm-Ivy Award.</p> <ul style="list-style-type: none"> ▪ Public Relations Officer 2023 ▪ Regular Outreach Speaker 2022 – 2025 <ul style="list-style-type: none"> • Science Cafe 2024 Speaker: <i>What if 'Cotton Candy' Planet are Actually Ring Pops?</i> • Flipped Science Fair Best Poster Explanation: <i>Probing the Shapes of Planets</i> • Science Cafe 2022 Speaker: <i>How We Discover Exoplanets</i> <p>Astronomy on Tap New Haven branch of outreach program aimed at engaging local community with astronomy research</p> <ul style="list-style-type: none"> ▪ Social Media Director 2022 <p>Science in the News Local outreach organization dedicated to educating the greater community on STEM topics.</p> <ul style="list-style-type: none"> ▪ Outreach Speaker 2021 <ul style="list-style-type: none"> • <i>Hidden Things: Pulling Back the Veil on the Universe</i>
RESEARCH MENTORING	<p>Haedam Im* Dorrit Hofflein Undergraduate Research Fellow Project: <i>Hunting for a Hidden Planet in the GJ 436 System</i></p> <p>Yurou (Nina) Liu* Alexander P. Hixon Summer Undergraduate Research Fellow Project: <i>The Formation of Double Hot Jupiter Systems Through ZLK Migration</i></p>

	Jeremiah Reynoso Summer Undergraduate Research Fellow Project: <i>Dissipation due to Inelastic Planetesimal Collisions in Differentially Precessing Debris Disks</i> *Primary Research Advisor	Jun 2023 – Oct 2023 Morehouse College
INFORMAL MENTORING	Chris Santiago Astro Sibs Kylyn Smith Astro Sibs Sally Jiang (current Ph.D. Candidate, Columbia University) Astro Sibs	2022 – 2024 Yale University 2023 – 2024 Yale University 2022 – 2023 Yale University
TELESCOPE PROPOSALS (CO-I)	Keck Observatory (KPF) – 0.5 nights <i>Directly Probing the Migration History of WASP-53 with Precise Orbital Constraints</i> Keck Observatory (KPF) – 2 nights <i>The Search for Double Hot Jupiter Systems</i> Keck Observatory (HIRES) – 2 nights <i>Probing the Exoplanet Mass Discrepancy Between the Radial Velocity and Transit Timing Methods with the Anomalously Low Density Planet Sample and Keck-HIRES (Phase 2)</i> Keck Observatory (HIRES) – 2 nights <i>Probing the Exoplanet Mass Discrepancy Between the Radial Velocity and Transit Timing Methods with the Anomalously Low Density Planet Sample and Keck-HIRES (Phase 1)</i>	Yale 2026A Yale 2024B Yale 2023A Yale 2022B
PROFESSIONAL SERVICE	Science Organizing Committee – 57th DDA Meeting <i>Division of Dynamical Astronomy, University of Chicago</i> Science Organizing Committee Chair – DSPS <i>A Dynamical Synthesis of Planetary Systems, New Haven</i> Organizing Committee – ERES X <i>Emerging Researchers in Exoplanet Science Symposium, Princeton University</i> Science Organizing Committee – ERES VIII <i>Emerging Researchers in Exoplanet Science Symposium, Yale University</i> Reviewer <i>NASA Solar System Workings Panel, A&A, AJ, ApJ, MNRAS</i> Main Co-Organizer – Yale Exoplanets and Stars Seminar <i>Weekly Seminar Series</i> Committee Member – ACDC <i>Yale University Astronomy Climate and Diversity Committee</i>	June 2026 Jan 2026 July 2025 June 2023 2024 – Present 2023 – 2025 2022 – 2025
MEDIA	Yale Daily News New study offers a double dose of ‘hot Jupiters’ Popular Science What if ‘cotton candy’ planets are actually Ring Pops? AAS Author Journal Series Tilting Uranus via Secular Spin-Orbit Resonance with Planet 9	Jun 2025 Oct 2024 Nov 2022
COMMUNITY ENGAGEMENT	New Haven Road Runners – New Haven, CT, USA <i>Local USATF sanctioned running club</i> <ul style="list-style-type: none">▪ Public Relations Officer▪ Racing Team Director / Elite Athlete Coordinator NCAA Athlete – Pasadena, CA, USA <i>NCAA Division III Cross Country/Track & Field at Caltech</i> Avery House – Pasadena, CA, USA <i>Student Government</i>	Jul 2023 – Jul 2024 Jul 2022 – Jun 2025 2016 – 2020

- Athletics Manager
- Underclassmen Counselor

2017 – 2018
2017 – 2020

[CV compiled on 2025-12-02]