

Tiger Lu

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EDUCATION

Yale University, New Haven, Connecticut, USA

- Ph.D. Candidate in Astronomy (**Expected Graduation: 2025**) Aug 2020 – Present
 - Adviser: Prof. Gregory Laughlin
 - Focus: Celestial Dynamics, Numerical Methods, Exoplanet Architectures
- Master of Science, Master of Philosophy in Astronomy Aug 2020 – Aug 2022

California Institute of Technology, Pasadena, California, USA

- Bachelor of Science in Astrophysics Aug 2016 – Jun 2020
- Minor in Computer Science

RESEARCH POSITIONS

Yale University, New Haven, Connecticut, USA

Graduate Researcher Aug 2020 – Present

University of California, Berkeley, Berkeley, California, USA

Summer Undergraduate Researcher May 2019 – Aug 2019

Carnegie Observatories, Pasadena, California, USA

Summer Undergraduate Researcher May 2018 – Aug 2018

California Institute of Technology, Pasadena, California, USA

Summer Undergraduate Researcher Jun 2017 – Jun 2020

PUBLICATIONS

23 total citations. **h**-index: 3.

FIRST-AUTHOR

- [4] **Lu, T.**, An, Q., Li, G., Millholland, S., Brandt, G. M. and Brandt, T. [Planet-Planet Scattering and ZLK Migration – the Dynamical History of HAT-P-11](#). Submitted to *ApJ* (2024)
- [3] **Lu, T.**, Hernandez, D. and Rein, H. [TRACE: a Time-Reversible Algorithm for Close Encounters](#). Submitted to *MNRAS* (2024)
- [2] **Lu, T.**, Rein, H., Tamayo, D., Hadden, S., Mardling, R., Millholland, S. and Laughlin, G. [Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework](#). *ApJ* **948**, 221 (2023)
- [1] **Lu, T.** and Laughlin, G. [Tilting Uranus via Secular Spin-Orbit Resonance with Planet 9](#). *PSJ* **3**, 221 (2022)

SECOND- OR THIRD- AUTHOR

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

OTHER CO-AUTHOR

- [1] Wang, N., Xu, J. Y., Liu, H. G., Chen, A. D., **Lu, T.**, Cui, A. R and Wang, J. K. [Development of Gravity Theories in the View of TRAPPIST-1e](#). Submitted to *RAA*

IN PREPARATION

- [4] **Lu, T.**, Li, G., Lin, D. and Cassese, B. [HIP-41378f May Have High Obliquity: Consequences for the Exoring Hypothesis](#). In Prep
- [3] Liu, Y., **Lu, T.** and Rice, M. [The Formation of Double Hot Jupiter Systems Through ZLK Migration](#). In Prep

- [2] Gerbig, K., **Lu, T.**, Rice, M., Reynoso, J., Dong, J., Householder, A. and Laughlin, G. Inclination Damping via Inelastic Planetesimal Collisions in Debris Disks with Binary Companions. In Prep
- [1] Cassese, B., Rice, M. and **Lu, T.** Tidal Deformation of WASP-121b as Seen by JWST. In Prep

NON-REFEREED PUBLICATIONS

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

AWARDS & FELLOWSHIPS

- Flipped Science Fair Best Poster Explanation 2024
- AAS International Travel Grant 2024
- Graduate Student Assembly Conference Travel Fellowship 2024
- National Science Foundation Graduate Student Research Fellowship Program Honorable Mention 2022
- Joan and Arnold Seidel Griffith Observer Science Writing Contest Second Place 2022
- Alan Porter Memorial Foundation Fellow 2019
- Summer Undergraduate Research Fellow 2018

ORAL PRESENTATIONS & TALKS

- REBOUND 24 Meeting* Virtual Jul 2024
Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework
- New York Area Exoplanets Meeting New York City, NY, USA May 2024
Super-Puffs may have High Obliquities - Implications for Tidal Inflation and Exorings
- The 55th Meeting of the Division of Dynamical Astronomy Toronto, Canada May 2024
TRACE: a Time-Reversible Algorithm for Close Encounters
- Makino Lab Seminar – Kobe University Kobe, Japan Jul 2023
TRACE: a Time-Reversible Algorithm for Close Encounters
- Exoplanet Seminar – Nanjing University Nanjing, PRC Jul 2023
Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework
- The 54th Meeting of the Division of Dynamical Astronomy East Lansing, MI, USA May 2023
Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework
- Exoplanet Lunch – Princeton University Princeton, NJ, USA Mar 2023
Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework
- Astronomy Seminar – Monash University Monash, Australia Feb 2023
Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework
- 240th American Astronomical Society Meeting Pasadena, CA, USA Jun 2022
Tilting Uranus via Secular Spin-Orbit Resonance with Planet 9

*Invited Talk

POSTER PRESENTATIONS

- Exoplanets V Meeting Leiden, The Netherlands Jun 2024
TRACE: a Time-Reversible Algorithm for Close Encounters
- 2022 American Geophysical Union Fall Meeting Chicago, IL, USA Dec 2022
Tilting Uranus via Secular Spin-Orbit Resonance with Planet 9
- Exoplanets IV Meeting Las Vegas, NV, USA May 2022
Self-Consistent Spin, Tidal and Dynamical Equations of Motion in the REBOUNDx Framework
- 2019 American Geophysical Union Fall Meeting San Francisco, CA, USA Dec 2019
Tidal Distortions of Hot Jupiters Characterized by Numerical Methods
- 233rd American Astronomical Society Meeting Seattle, WA, USA Jan 2019
Investigating the Slow Neutron-Capture Process

TEACHING

- **Warrior-Scholar Program** New Haven, CT, USA Summer 2023
Research Project Leader
One week intensive boot camp preparing military veterans for undergraduate degrees
- **ASTR 210: Stars and Their Evolution** New Haven, CT, USA Spring 2023
Yale University Teaching Fellow
- **ASTR 160: Frontiers and Controversies in Astrophysics** New Haven, CT, USA Fall 2022
Yale University Teaching Fellow
- **ASTR 160: Frontiers and Controversies in Astrophysics** New Haven, CT, USA

	Yale University Teaching Fellow	Spring 2021
	Introduction to Astronomical Observing	New Haven, CT, USA
	Yale University Teaching Fellow	Fall 2021
	Dean's Tutor	Pasadena, CA, USA
	Tutoring Caltech students in Physics, Astronomy and Computer Science	2017-2020
OUTREACH	Yale OpenLabs	
	Local outreach organization dedicated to educating middle school children on STEM topics. Receipt of the Seton Elm-Ivy Award.	
	<ul style="list-style-type: none"> ▪ Public Relations Officer 2023 ▪ Regular Outreach Speaker 2022 – Present <ul style="list-style-type: none"> • Science Cafe 2022 Speaker: How We Discover Exoplanets 	
	Astronomy on Tap	
	New Haven branch of outreach program aimed at engaging local community with astronomy research	
	<ul style="list-style-type: none"> ▪ Social Media Director 2022 	
	Science in the News	
	Local outreach organization dedicated to educating the greater community on STEM topics.	
	<ul style="list-style-type: none"> ▪ Outreach Speaker 2021 <ul style="list-style-type: none"> • Hidden Things: Pulling Back the Veil on the Universe 	
MENTORING	Yurou (Nina) Liu*	2023 – Present
	Undergraduate Researcher	Yale University
	Project: <i>The Formation of Double Hot Jupiter Systems Through ZLK Migration</i>	
	Jeremiah Reynoso	2023 – Present
	Summer Undergraduate Research Fellow	Morehouse College
	Project: <i>Dissipation due to Inelastic Planesimal Collisions in Differentially Precessing Debris Disks</i>	
	Chris Santiago	2022 – Present
	Astro Sibbs	Yale University
	Kylyn Smith	2023 – Present
	Astro Sibbs	Yale University
	Sally Jiang (current PhD Candidate, University of Washington)	2022 – 2023
	Astro Sibbs	Yale University
	* Primary Research Advisor	
TELESCOPE PROPOSALS (CO-I)	Keck Observatory (HIRES) – 2 nights	Yale 2023A
	<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	Yale 2022B
	<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>	
PROFESSIONAL SERVICE	Science Organizing Committee – ERES VIII	Spring 2023
	<i>Emerging Researchers in Exoplanet Science Conference at Yale University</i>	
	Main Co-Organizer – Yale Exoplanets and Stars Seminar	2023 – Present
	<i>Weekly Seminar Series</i>	
	Committee Member – ACDC	2022 – Present
	<i>Yale University Astronomy Committee for Diversity and Climate</i>	
MEDIA	AAS Author Journal Series	Nov 2022
	Tilting Uranus via Secular Spin-Orbit Resonance with Planet 9	
COMMUNITY ENGAGEMENT	New Haven Road Runners – New Haven, CT, USA	
	<i>Local USATF sanctioned running club</i>	

- Public Relations Officer Jul 2023 – Present
 - Racing Team Director / Elite Athlete Coordinator Jul 2022 – Jul 2023
- NCAA Athlete** – Pasadena, CA, USA 2016 – 2020
NCAA Division III Cross Country/Track & Field at Caltech
- Avery House** – Pasadena, CA, USA
Student Government
- Athletics Manager 2017 – 2018
 - Underclassmen Counselor 2017 – 2020

[CV compiled on 2024-06-09]