Dr. Rixin Li

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PROFESSIONAL APPOINTMENTS

\odot 51 Pegasi b Postdoctoral Fellow	08/2023 - Present
Department of Astronomy, University of California, Berkeley	
○ Postdoctoral Research Associate	2020 - 2023
The Cornell Center for Astrophysics and Planetary Science (CCAPS), Corn	nell University
\odot NASA Earth and Space Science Graduate Research Fellow	2016 - 2019
Department of Astronomy, University of Arizona	
Education	
○ Ph.D. in Astronomy & Astrophysics, University of Arizona	2014 - 2020
Advisor: Andrew Youdin	
Thesis: Simulating Planetesimal Formation in the Kuiper Belt and Beyond	
O B.Sc. in Astronomy, Peking University	2010 - 2014

Research Interests

Computational and theoretical astrophysics; star and planet formation; small bodies in the solar system; dusty accretion disks; object-disk interactions; gravitational wave sources

Honors and Awards

\odot 51 Pegasi b Postdoctoral Fellowship, Heising-Simons Foundation	2023 - 2026
○ Departmental Scholarship Award, College of Science, University of Arizona	2020
\odot NASA Earth and Space Science Fellowship (NESSF), NASA	2016 - 2019
○ College of Science Fellowship, University of Arizona	2014 - 2015
\odot Study Abroad Scholarship for Excellent Students, China Scholarship Council	2013
\odot First Lin-Qiao Prize for Excellent Undergraduate Research, Peking University	2012
\odot May Fourth Scholarship for Excellent Students, Peking University	2012
○ National Creative Research Fund for Undergraduate Research, Peking University	2012
O Scholarship for Outstanding Students, National Astronomical Observatories of Ch	nina 2011

Selected Oral Presentations

- \bigcirc 11/2023: Invited Seminar talk, the University of Michigan
- 10/2023: Invited talk, Bash Symposium 2023, the University of Texas at Austin
- 0 08/2023: Invited talk, 2023 51 Pegasi b Summit, California
- 0 05/2023: Seminar talk, Astrophysics Coffee, Institute for Advanced Study
- 04/2023: Seminar talk, Exoplanet Lunch, Princeton University
- 0 04/2023: Contributed talk, Cornell Exoplanet Conference, Cornell University
- 02/2023: Invited seminar talk, Yale University
- 0 02/2023: Invited seminar talk, Earth 2.0 Science Seminar Series (virtual)
- 11/2022: Invited seminar talk, Center for Relativistic Astrophysics, Georgia Tech
- 11/2022: Invited seminar talk, Iowa State University (virtual)
- 0 07/2022: Contributed Talk, OWL Exoplanet Summer Program, UC Santa Cruz
- 0 06/2022: Invited talk, Planets in the Desert A Streaming Instability Code Comparison (virtual)
- 0 06/2022: Invited seminar talk, The Center for Astrochemical Studies, MPE, Germany (virtual)
- 0 04/2022: Invited talk, The 53rd DDA Meeting, CCA, Flatiron Institute
- 04/2022: Invited discussion talk, Stellar and Black Hole Binary Accretion and Evolution, KITP
- 0 12/2021: Seminar talk, Astrophysical Lunch, CCAPS, Cornell University (virtual)
- 0 11/2020: Seminar talk, Planetary Lunch, CCAPS, Cornell University
- 12/2020: Seminar talk, Origins Seminar, University of Arizona (virtual)
- 0 11/2020: Invited talk, Planetesimal Formation Meeting, Lund University, Sweden (virtual)
- 0 10/2020: Invited talk, Earth 2.0 Transit Survey Space Mission Science Meeting, China (virtual)
- 01/2020: Contributed talk, 235th American Astronomical Society Meeting, Hawaii
- 0 11/2019: Invited colloquium talk, New Mexico State University
- 0 07/2019: Invited talk, Turbulence in PPDs Meeting, Ringberg, Germany
- 0 07/2019: Seminar talk, Planet and Star Formation Coffee, MPIA, Germany
- 0 06/2019: Contributed talk, From Star to Planet II, Gothenburg, Sweden
- 0 05/2019: Contributed talk, New Horizons in Planetary Systems, Victoria, Canada
- 0 02/2018: Contributed talk, Steward Observatory Internal Symposium, University of Arizona
- 0 08/2017: Contributed talk, Protoplanetary Disk Workshop, Los Alamos National Lab
- 0 05/2017: Seminar talk, ITA, ZAH, University of Heidelberg, Germany
- 0 03/2016: Contributed talk, Steward Observatory Internal Symposium, University of Arizona

Grants

- O Co-I: ACCESS Supercomp. Allocation (Anvil+Stampede2), 2022-2023, 29 Million CPU-Hours
- Co-I: ALMA Cycle 9, Tracing the Evolution of Substructures: A High-resolution Survey of Old Upper Sco Disks
- Co-I: JWST Cycle 2, Why do some 50 Myr old stars still accrete?

Selected Services

- Referee for the Astrophysical Journal, the Astrophysical Journal Letters, and Monthly Notices of the Royal Astronomical Society
- Subject-matter expert reviewer in *five* NASA grant panels (XRP, EW, FINESST) since 2017
- O Organizing Committee Member for Emerging Researchers in Exoplanetary Science 2023
- O External Member for Graduate Admission Committee, Cornell University
- O Local Organizing Committee Member for Star and Planet Formation in the Southwest 2
- Steward Observatory Astro-ph Science Coffee Discussion Host for 2016 2019
- O Discussion Leader for Astro Code Coffee at Steward Observatory in 2018

Selected Outreach

- Fuertes Observatory Public Lecture Series in 03/2023: The Story of Minor Planets
- O Member of the Cornell Astronomical Society, attending public viewing open house since 2021
- Member of Tucson Initiative for Minority Engagement in Science and TEchnology Program (TIMESTEP) for 2018 – 2020
- Senita Valley Elementary School Family Science Night in Tucson, AZ in 2015
- Volunteer at the International Astronomical Union 28th General Assembly, Beijing in 2012

TEACHING EXPERIENCE

• ASTRO 6531 — Astrophysical Fluid Dynamics	Spring 2023
Guest Lecturer	Cornell University
• PHYS 105A — Introduction to Scientific Computation	Fall 2015
Teaching Assistant	University of Arizona
O ASTR 400B — Theoretical Astrophysics	Spring 2020
Teaching Assistant	University of Arizona

PUBLICATIONS

See the full list on the SAO/NASA Astrophysics Data System (ADS) or on Google Scholar. As of Aug 25, 2023, h-index is 11 by ADS & Google Scholar. The number of total citations is 827 by ADS, or 903 by Google Scholar.

First- and Second-Author Articles

(*: graduate/undergraduate student)

- Li, R. & Lai, D., *Hydrodynamical Evolution of Black-Hole Binaries Embedded in AGN Discs: III. The Effects of Viscosity*, 2023, arXiv:2303.12207, 1st revision on Monthly Notices of the Royal Astronomical Society
- 9. *Gerbig K. & Li, R., *Planetesimal Initial Mass Functions following Diffusion Regulated Gravitational Collapse*, 2023, the Astrophysical Journal, 949, 81
- 8. Li, R. & Lai, D., *Hydrodynamical Evolution of Black-Hole Binaries Embedded in AGN Discs: II. Dependence on Equation of State, Binary Mass, and Separation Scales*, 2023, Monthly Notices of the Royal Astronomical Society, 522, 1881
- 7. Li, R. & Lai, D., *Hydrodynamical Evolution of Binaries embedded in Accretion Discs*, 2023, Monthly Notices of the Royal Astronomical Society, 517, 1602
- Li, R., *Chen, Y.-X., & Lin, D., Dust Accumulation near the Magnetospheric Truncation of Protoplanetary Discs around T Tauri Stars, 2022, Monthly Notices of the Royal Astronomical Society, 510, 5246
- 5. Li, R. & Youdin, A., *Thresholds for Particle Clumping by the Streaming Instability*, 2021, the Astrophysical Journal, 919, 107
- 4. Nesvorný, D., Li, R., Simon, J., Youdin, A., Richardson, D., Marschall, R., & Grundy, W., *Binary Planetesimal Formation from Gravitationally Collapsing Pebble Clouds*, 2021, the Planetary Science Journal, 2, 27
- 3. Li, R., Youdin, A., & Simon, J., *Demographics of Planetesimals Formed by the Streaming Instability*, 2019, the Astrophysical Journal, 855, 69
- Nesvorný, D., Li, R., Youdin, A., Simon, J., & Grundy, W., *Trans-Neptunian Binaries as Evidence for Planetesimal Formation by the Streaming Instability*, 2019, Nature Astronomy, 3, 808 (my simulation visualization was also featured on the issue cover)
- 1. Li, R., Youdin, A. N., & Simon, J. B., On the Numerical Robustness of the Streaming Instability: Particle Concentration and Gas Dynamics in Protoplanetary Disks, 2018, the Astrophysical Journal, 862, 14

Other Co-Authored Articles

- 5. Carrera, D., Simon, J., Li, R., Kretke, K., & Klahr, H., *Protoplanetary Disk Rings as Sites for Planetesimal Formation*, 2021, the Astronomical Journal, 161, 96
- 4. Gole, D., Simon, J. B., Li, R., Youdin, A., & Armitage, P., Turbulence Regulates the Rate

of Planetesimal Formation via Gravitational Collapse, 2020, the Astrophysical Journal, 904, 132

- 3. Abod, C., Simon, J., Li, R., Armitage, P., Youdin, A., Kretke, K., *The Mass and Size Distribution of Planetesimals Formed by the Streaming Instability. II. The Effect of the Radial Gas Pressure Gradient*, 2019, the Astrophysical Journal, 883, 192
- 2. Simon, J., Armitage, P., Youdin, A., and Li, R., *Evidence for Universality in the Initial Planetesimal Mass Function*, 2017, the Astrophysical Journal Letters, 847, 12
- 1. Simon, J., Armitage, P., Li, R., and Youdin, A., *The Initial Mass and Size Distribution of Planetesimals. I. The Role of Self-gravity*, 2016, the Astrophysical Journal, 822, 55

Published Sole-author Open Source Softwares in Astrophysics Source Code Library

- 2. Rubble: Simulating Dust Size Distributions in Protoplanetary Disks, 2021, ascl:2109.011
- 1. PLAN: A Clump-finder for Planetesimal Formation Simulations, 2019, ascl:1911.001