

Dr. Rixin Li

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PROFESSIONAL APPOINTMENTS

- **Incoming Assistant Professor** 2027 –
Fudan Center for Astronomy and Astrophysics
Department of Physics, Fudan University (*offer accepted 2026*)
- **51 Pegasi b Postdoctoral Fellow** 2023 – 2027
Department of Astronomy & Astrophysics, University of California, San Diego 2026 – 2027
Department of Astronomy, University of California, Berkeley 2023 – 2026
- **Postdoctoral Research Associate** 2020 – 2023
The Cornell Center for Astrophysics and Planetary Science (CCAPS), Cornell University
- **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*
- B.Sc. in Astronomy, Peking University 2010 – 2014

RESEARCH INTERESTS

Planet formation; the solar system; dynamics of exoplanets, dusty protoplanetary disks, object-disk interactions, and gravitational wave sources; computational and theoretical astrophysics

HONORS AND AWARDS

- 51 Pegasi b Postdoctoral Fellowship, Heising-Simons Foundation (\$560k) 2023 – 2027
- Director's Postdoctoral Fellowship, Los Alamos National Laboratory (\$220k, declined) 2023
- Departmental Scholarship Award, College of Science, University of Arizona 2020
- NASA Earth and Space Science Fellowship (NESSF), NASA (\$99k) 2016 – 2019
- Theoretical Astrophysics Program Small Matching Grants, U. of Arizona (\$1.5k) 2015
- College of Science Fellowship, University of Arizona (\$17k) 2014 – 2015
- Study Abroad Scholarship for Excellent Students, China Scholarship Council 2013
- First Lin-Qiao Prize for Excellent Undergraduate Research, Peking University 2012

- National Creative Research Fund for Undergraduate Research, Peking University 2012
- Scholarship for Outstanding Students, National Astronomical Observatories of China 2011

SELECTED GRANTS AND PROGRAMS

- **Sci PI:** 2023 – 2027 51 Pegasi b Fellowship, Heising-Simons Foundation (\$560k)
Toward a Coherent Picture of Planet Formation
- **Co-I:** ALMA Cycle 13 (2026.1.00888.S, PI: Z. Guo)
Probing the Final Stages of Planet Formation: An ALMA Survey of 20-Myr-Old Protoplanetary Disks in Sco-Cen
- **PI:** 2024 – 2026 ACCESS Allocation (PHY240264, 4.5 Million CPU Hours)
Late Formation of the Cold Classical Kuiper Belt
- **Co-I:** ALMA Cycle 12 (2025.1.00444.S, PI: P. Pinilla)
Dust Leakage Through Gaps of Transition Disks and its Influence on the Inner Disk Composition
- **Co-I:** ALMA Cycle 11 (2024.1.00902.S, PI: F. Long)
Connecting Inner and Outer Disks around Very Low Mass Objects
- **Co-I:** NOIRlab 2024A (15.7 hours on WIYN/NEID, PI: C. Pittman)
Measuring the Propensity for In-Situ Terrestrial Planet Formation around Slowly-Accreting Stars
- **Co-I:** ALMA Cycle 10 (2023.1.00946.S, PI: F. Long)
Tracing the Evolution of Substructures: A High-resolution Survey of Old Upper Sco Disks
- **Co-I:** JWST Cycle 2 (GO-03153, PI: F. Long)
Why Do Some 50 Myr old Stars Still Accrete?
- **Co-I:** ALMA Cycle 9 (2022.1.00646.S, PI: F. Long)
Tracing the Evolution of Substructures: A High-resolution Survey of Old Upper Sco Disks
- **Co-I:** 2022 – 2023 ACCESS Allocation (AST120062, 29 Million CPU Hours, PI: J. Simon)
Numerical Simulations of Planetesimal Formation

SELECTED TALKS

- 09/2026: SPFG Seminar talk, University of Nevada, Las Vegas
- 06/2026: **Invited** talk, 3rd PFITS+ Meeting on Disks and Planet Formation, SETI Institute
- 12/2025: **Invited** talk, Exoplanets and Planet Formation (EPF 2025), Tsung-Dao Lee Institute
- 09/2025: Contributed talk, Bay Area Planetary Science meeting, Stanford University
- 08/2025: **Invited** talk, CIERA Fellows at 15, CIERA/Northwestern University
- 08/2025: **Invited** talk, 2025 51 Pegasi b Summit, Half Moon Bay, CA, USA
- 07/2025: Contributed talk, Detection and Dynamics of Exoplanets, University of Coimbra, Portugal
- 06/2025: **Invited** talk, Astrophysical Dynamics: Planets to Stars/Black Holes, Niels Bohr Institute

- 06/2025: Contributed talk, *Dynamics with Dissipation*, Cambridge, UK
- 05/2025: Contributed talk, *The 56th DDA Meeting*, Georgia Tech
- 05/2025: Contributed talk, *Planets on the Edge*, the Kavli Institute for Theoretical Physics (KITP)
- 02/2025: **Invited** colloquium talk, San Francisco State University
- 08/2024: **Invited** talk, *New Ideas on the Origin of Black Hole Mergers*, Niels Bohr Institute
- 08/2024: **Invited** talk, *2024 51 Pegasi b Summit*, San Francisco, CA, USA
- 06/2024: **Invited** colloquium talk, Peking University
- 06/2024: **Invited** seminar talk, Tsinghua University
- 04/2024: **Invited** IGPP seminar talk, UC Santa Cruz
- 03/2024: **Invited** seminar talk, CIERA/Northwestern University
- 01/2024: **Invited** colloquium talk, Xiamen University
- 12/2023: **Invited** talk, *RESCEU-NBIA Workshop on Gravitational-wave Sources*, Tokyo, Japan
- 11/2023: **Invited** seminar talks, the University of Michigan
- 11/2023: **Invited** talk, *TCAN Disk Hydro & Planet Formation Workshop*, University of Arizona
- 10/2023: **Invited** talk, *Bash Symposium 2023*, the University of Texas at Austin
- 08/2023: **Invited** talk, *2023 51 Pegasi b Summit*, San Francisco, CA, USA
- 05/2023: Seminar talk, *Astrophysics Coffee*, Institute for Advanced Study
- 04/2023: **Invited** seminar talk, *Exoplanet Lunch*, Princeton University
- 04/2023: Contributed talk, *Cornell Exoplanet Conference*, Cornell University
- 02/2023: **Invited** seminar talk, *Exoplanets & Stars Seminar*, Yale University
- 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)
- 07/2022: Contributed talk, *OWL Exoplanet Summer Program*, UC Santa Cruz
- 06/2022: **Invited** talk, *Planets in the Desert - A Streaming Instability Code Comparison* (virtual)
- 06/2022: **Invited** seminar talk, The Center for Astrochemical Studies, MPE, Germany (virtual)
- 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
- 11/2020: **Invited** talk, *Planetesimal Formation Meeting*, Lund University, Sweden (virtual)
- 10/2020: **Invited** talk, *Earth 2.0 Transit Survey Space Mission Science Meeting*, China (virtual)
- 11/2019: **Invited colloquium** talk, New Mexico State University
- 07/2019: **Invited** talk, *Turbulence in PPDs Meeting*, Ringberg, Germany
- 07/2019: Seminar talk, *Planet and Star Formation Coffee*, MPIA, Germany

- 06/2019: Contributed talk, *From Star to Planet II*, Gothenburg, Sweden
- 05/2019: Contributed talk, *New Horizons in Planetary Systems*, Victoria, Canada

SELECTED SERVICES

- Referee for Nature Astronomy, AAS Journals (ApJ, ApJL), MNRAS, MNRAS Letters, Astronomy & Astrophysics, and Icarus, 24 papers in total
- Reviewer for 11 NASA panels, including Exoplanet Research Program (XRP), Emerging Worlds (EW), FINESST Fellowship, and a mission-related program
- Panelist for *Hubble Space Telescope* and *James Webb Space Telescope* proposal reviews
- Theoretical Astrophysics Center Seminar Committee Member at UC Berkeley (2024 – 2026)
- Organizing Committee Member for *Emerging Researchers in Exoplanetary Science 2023 & 2024* (See our *Bulletin of the AAS* article on [Lessons Learned in Conference Organization](#))
- External Member for 2023 Graduate Admission Committee, Cornell University
- Local Organizing Committee Member for *Star and Planet Formation in the Southwest 2* in 2018
- Steward Observatory *Astro-ph Science Coffee* discussion host for 2016 – 2019

TEACHING EXPERIENCE

- Astronomy 7A, Fall 2023 — *Introduction to Astrophysics: Stars & Planets* UC Berkeley
Guest Lecturer for a 90-min lower division class
- ASTRO 6531, Spring 2023 — *Astrophysical Fluid Dynamics* Cornell University
Guest Lecturer for a 75-min graduate-level class
- ASTR 400B, Spring 2020 — *Galactic, Extra-Galactic Astronomy & Cosmology* U. of Arizona
Teaching Assistant
Duties: 1) gave a 75-min lecture; 2) advised term projects; 3) grading; 4) led computational labs
- PHYS 105A, Fall 2015 — *Introduction to Scientific Computation* U. of Arizona
Teaching Assistant for two sessions
Duties: 1) grading; 2) led computational labs

STUDENT MENTORING

- Konstantin Gerbig, previous graduate student at Yale University
One student-led paper published: [Gerbig & Li \(2023\)](#).
- J. T. Laune, previous graduate student at Cornell University
One student-led paper published: [Laune, Li & Lai \(2024\)](#).
- Sabina Sagynbayeva, graduate student at Stony Brook University
One student-led paper published: [Sagynbayeva, Li, et al. \(2025\)](#).
- Philip Kirkeberg, graduate student at University of Copenhagen
One student-led paper published: [Kirkeberg, Li & Pessah \(2026\)](#).

- Yi-Xian Chen, graduate student at Princeton University (previously undergrad at Tsinghua Univ.)
Two student co-authored papers published: [Li, Chen & Lin \(2022, 2024\)](#)

SELECTED OUTREACH

- Mentor of the 2024 Astronomy Mentorship Program for Upcoming Postdocs ([AMP-UP](#))
- Outreach talk: *Fun, Interactive, and Sharable Scientific Visualization* in 08/2023
- Fuertes Observatory Public Lecture Series in 03/2023: *[The Story of Minor Planets](#)*
- Member of the Cornell Astronomical Society, attending public viewing open house 2021 – 2023
- Member of Tucson Initiative for Minority Engagement in Science and TEchnology Program (TIMESTEP) for 2018 – 2020

PUBLICATIONS

11 first-author papers, 4 student-led papers, 33 total publications (as of Sept 2026).

h-index: 19 (ADS), 21 (Google); total citations: 1777 (ADS), 2150 (Google)

 [ADS](#),  [Google Scholar](#),  [ORCID: 0000-0001-9222-4367](#)

(*: graduate/undergraduate student whom I mentored)

First-author articles

11. **Li, R.** & Chiang, E., *[The Edges of Planetary Systems: Falling Off the Kuiper Cliff in a Dissipating Gas Disk](#)*, **2026**, ApJ, 1008, 5
10. **Li, R.** & Chiang, E., *[In-Situ Formation of the Cold Classical Kuiper Belt](#)*, **2025**, ApJ, 995, 214
9. **Li, R.**, Chiang, E., Choksi, N., & Dai, F., *[The Resonant Remains of Broken Chains from Major and Minor Mergers](#)*, **2025**, AJ, 169, 323
8. **Li, R.**, *Chen, Y.-X., & Lin, D., *[Dust Accumulation near the Magnetospheric Truncation of Protoplanetary Discs: II. The Effects of Opacity and Thermal Evolution](#)*, 2024, MNRAS, 529, 893
7. **Li, R.** & Lai, D., *[Hydrodynamical Evolution of Black-Hole Binaries Embedded in AGN Discs: III. The Effects of Viscosity](#)*, 2024, MNRAS, 529, 348
6. **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, MNRAS, 522, 1881
5. **Li, R.** & Lai, D., *[Hydrodynamical Evolution of Black Hole Binaries embedded in AGN Discs](#)*, 2022, MNRAS, 517, 1602
4. **Li, R.**, *Chen, Y.-X., & Lin, D., *[Dust Accumulation near the Magnetospheric Truncation of Protoplanetary Discs around T Tauri Stars](#)*, 2022, MNRAS, 510, 5246

3. **Li, R.** & Youdin, A., *Thresholds for Particle Clumping by the Streaming Instability*, 2021, ApJ, 919, 107
2. **Li, R.**, Youdin, A., & Simon, J., *Demographics of Planetesimals Formed by the Streaming Instability*, 2019, ApJ, 885, 69
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, ApJ, 862, 14

Second- or third-author, including student-led articles

13. Lim, J., Simon, J., **Li, R.**, Carrera, D., Baronett, S., Youdin, A., Lyra, W., & Yang, C.-C., *The Streaming Instability in 3D: Conditions for Strong Clumping*, **2026**, ApJ, 1000, 156
12. *Kirkeberg, P., **Li, R.**, & Pessah, M., *On the Evolution of Disk Embedded Binaries: Framing Local Models in Global Context*, **2026**, ApJ, 999, 91
11. *Sagynbayeva, S., **Li, R.**, Kuznetsova, A., Zhu, Z., Jiang, Y.-F., & Armitage, P., *Circumplanetary Gas Disks are Rare: A Parameter Survey of Flow Morphology around Giant Planets*, **2025**, ApJ, 987, 216
10. Lim, J., Simon, J., **Li, R.**, Carrera, D., Baronett, S., Youdin, A., Lyra, W., & Yang, C.-C., *Probing Conditions for Strong Clumping by the Streaming Instability: Small Dust Grains and Low Dust-to-Gas Density Ratio*, **2025**, ApJ, 981, 160
9. *Laune, J. T., **Li, R.**, & Lai, D., *Migration of Accreting Planets and Black Holes in Disks*, 2024, ApJ, 975, 296
8. Lim, J., Simon, J., **Li, R.**, Armitage, P., Carrera, D., Rea, D., & Youdin, A., *Streaming Instability and Turbulence: Conditions for Planetesimal Formation*, 2024, ApJ, 969, 130
7. *Gerbig, K. & **Li, R.**, *Planetesimal Initial Mass Functions following Diffusion Regulated Gravitational Collapse*, 2023, ApJ, 949, 81
6. Nesvorný, D., **Li, R.**, Simon, J., Youdin, A., Richardson, D., Marschall, R., & Grundy, W., *Binary Planetesimal Formation from Gravitationally Collapsing Pebble Clouds*, 2021, PSJ, 2, 27
5. Carrera, D., Simon, J., **Li, R.**, Kretke, K., & Klahr, H., *Protoplanetary Disk Rings as Sites for Planetesimal Formation*, 2021, AJ, 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, ApJ, 904, 132
3. 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)
2. 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, ApJ, 883, 192

1. Simon, J., Armitage, P., **Li, R.**, & Youdin, A., *The Initial Mass and Size Distribution of Planetesimals. I. The Role of Self-gravity*, 2016, ApJ, 822, 55

Other co-authored articles

9. Yang, J., Wang, L., Li, X. & **Li, R.**, *From Inspiral to Expansion: The Wake-Driven Torque on Binary Black Holes in Gaseous Medium*, **2026**, submitted to ApJ, arXiv:2608.27970
8. Choksi, N., Lithwick, Y., Chiang, E. & **Li, R.**, *Two-Stage Disruption of Resonant Chains*, **2026**, accepted to MNRAS, in press
7. Baronett, S., Lyra, W., Aly, H., Brouillette, O., Carrera, D., De Cun, V., Eriksson, L., Flock, M., Huang, P., Krapp, L., Lesur, G., **Li, R.**, Li, S., Lim, J., Paardekooper, S.-J., Rea, D., Sengupta, D., Simon, J., Sudarshan, P., Umurhan, O., Yang, C.-C., & Youdin, A., *A Comparative Study of the Streaming Instability: Unstratified Models with Marginally Coupled Grains*, **2026**, accepted to ApJ, in press
6. Lin, D., Lim, J., Simon, J., Li, Z.-Y., Carrera, D., Fernández-López, M., Harrison, R., **Li, R.**, Looney, L., Stephens, I., & Yang, H., *Azimuthal Dust Polarization from Aerodynamically Aligned Grains as Evidence for the Streaming Instability in Protoplanetary Disks*, **2026**, ApJ, 1006, 95
5. Li, J., Close, L. M., Long, F., Males, J. R., Haffert, S. Y., Weinberger, A., Follette, K., Andrews, S., Carpenter, J., Foster, W. B., Van Gorkom, K., Hedglen, A. D., Herczeg, G. J., Johnson, P. T., Kautz, M. Y., Kueny, J. K., **Li, R.**, Liberman, J., Long, J. D., Lumbres, J., Marino, S., Matrà, L., McEwen, E. A., Guyon, O., Pearce, L. A., Pérez, L. M., Pinilla, P., Schatz, L., Shi, Y., Twitchell, K., Wagner, K., Wilner, D., Wu, Y.-L., Zhang, S., & Zhu, Z., *Discovery of H α Emission from a Protoplanet Candidate around the Young Star 2MASS J16120668-3010270 with MagAO-X*, **2025**, ApJL, 990, L70
4. Cui, C., Gerbig, K., Li, Y.-P., Xu, Z., **Li, R.**, Yu, C., Lin, M.-K., & Yuan, F., *Dust Growth in ALMA Rings. II. Dusty Rossby Wave Instability*, **2025**, ApJ, 986, 86
3. Long, F., Pascucci, I., Houge, A., Banzatti, A., Pontoppidan, K., Najita, J., Krijt, S., Xie, C., Williams, J., Herczeg, G., Andrews, S., Bergin, E., Blake, G., Colmenares, M., Harsono, D., Muñoz-Romero, C., **Li, R.**, Lu, C., Pinilla, P., Wilner, D., Vioque, M., & Zhang, K., *The First JWST View of a 40-Myr-old Protoplanetary Disk: the Late-stage Carbon-rich Phase*, **2025**, ApJL, 978, L30
2. Dai, F., Goldberg, M., Batygin, K., van Saders, J., Chiang, E., Choksi, N., **Li, R.**, Petigura, E., Gilbert, G., Millholland, S., Dai, Y.-Z., Bouma, L., Weiss, L., & Winn, J., *The Prevalence of Resonance Among Young, Close-in Planets*, 2024, AJ, 168, 239
1. Simon, J., Armitage, P., Youdin, A., & **Li, R.**, *Evidence for Universality in the Initial Planetesimal Mass Function*, 2017, ApJL, 847, 12

Published open source software

3. DustPy-GPU: [GitHub](#), [Method Paper](#), [PyPI](#), [Doc](#)

2. Rubble: [GitHub](#), [Method Paper](#), [ASCL](#)
1. PLAN: [GitHub](#), [Method Paper](#), [ASCL](#)