

ZIYAN XU

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EDUCATION

Peking University Ph.D in Astrophysics	<i>Beijing, China</i> 2015 - 2021
Peking University B.S. in Astronomy, specializing in Astrophysics	<i>Beijing, China</i> 2010 - 2015

RESEARCH EXPERIENCES

University of Copenhagen <i>Postdoctoral Researcher</i>	2024 - present <i>Supervisor: Prof. Anders Johansen</i>
· <i>Pebble accretion and volatile transport in convective envelopes of protoplanets</i> Collaborators: Prof. Anders Johansen	
École Normale Supérieure de Lyon <i>Postdoctoral Researcher</i>	2021 - 2024 <i>Supervisor: Prof. Guillaume Laibe</i>
· <i>Local spherical collapsing box in Athena++</i> Collaborators: Prof. Guillaume Laibe, Dr. Elliot Lynch (CRAL - ENS Lyon)	
· <i>Dust dynamics and planetesimal formation in dust rings in turbulent protoplanetary disks</i> Collaborator: Prof. Xue-Ning Bai (Tsinghua University)	
· <i>Implementation of COALA high-order dust coagulation algorithm in Athena++</i> Collaborators: Dr. Maxime Lombart (National Taiwan Normal Univ.), Prof. Guillaume Laibe	
· <i>Observational implications of dust feedback and planetesimal formation in protoplanetary disk rings</i> Collaborators: Prof. Xue-Ning Bai (Tsinghua Univ.), Prof. Cornelis Dullemond (Univ. of Heidelberg)	
Peking University <i>Ph.D Researcher</i>	2015 - 2021 <i>Advisor: Prof. Gregory Herczeg</i>
· <i>Probing protoplanetary disk wind with absorption line spectroscopy</i>	
· <i>Dust dynamics in MRI turbulent protoplanetary disks</i> Collaborator: Prof. Xuening Bai (Tsinghua University)	
· <i>Atmospheric dynamics and circulation in warm Jupiters</i> Collaborator: Prof. Adam Showman (University of Arizona / Peking University)	
University of California, Santa Barbara <i>Student Intern</i>	2014 - 2015 <i>Advisor: Prof. Ruth Murray-Clay</i>
· <i>The effect of MRI turbulence on pebble accretion - data analysis</i>	
Harvard-Smithsonian Center for Astrophysics <i>Student Researcher</i>	2014 - 2015 <i>Advisor: Prof. Xuening Bai</i>
· <i>The effect of MRI turbulence on pebble accretion - simulation setup</i>	

PUBLICATIONS [ADS Link]

2025 Can C. et al. (including **Xu Z.**), *Dust Growth in ALMA Rings: II. Dusty Rossby Wave Instability*, submitted to ApJ

- 2024 **Xu Z.** Lynch E. M., & Laibe, G., *Local spherical collapsing box in ATHENA++: Numerical implementation and benchmark tests*, A&A, 689, A96
- 2022 Fang M. et al. (including **Xu Z.**), *High-resolution [O I] line spectral mapping of TW Hya supportive of a magnetothermal wind*, Nature Astronomy, Volume 7, p. 905-912
- 2022 **Xu Z.** & Bai, X.-N., *Turbulent Dust-trapping Rings as Efficient Sites for Planetesimal Formation*, ApJL, 937, 4
- 2022 Espaillat C. C. et al. (including **Xu Z.**), *The ODYSSEUS Survey. Motivation and First Results: Accretion, Ejection, and Disk Irradiation of CVSO 109*, AJ, 163, 114
- 2022 **Xu Z.** & Bai, X.-N., *Dust Settling and Clumping in MRI-turbulent Outer Protoplanetary Disks*, ApJ, 924, 3
- 2021 **Xu Z.**, Herczeg G. J., et al., *Probing Protoplanetary Disk Winds with C II Absorption*, ApJ, 921, 181
- 2021 Lee Y.-H. et al. (including **Xu Z.**), *The JCMT Transient Survey: Four-year Summary of Monitoring the Submillimeter Variability of Protostars*, ApJ, 920, 119
- 2017 **Xu Z.**, Bai X.-N., & Murray-Clay R. A., *Pebble Accretion in Turbulent Protoplanetary Disks*, ApJ, 847, 52

SELECTED CONFERENCE PRESENTATIONS & SEMINARS

Simulating Physics in Celestial Ecosystems, Sendai, Japan, April 2024

- Contributed talk, *Microphysics in Star & Protoplanet Formation with Local Simulations*

Athena++ Workshop, New York, NY, May 2023

- Contributed talk, *Dust Coagulation in Athena++*
- Poster, *Local Collapsing Boxes*

Protostars and Planets VII, Kyoto, Japan, April 2023

- Poster, *Turbulent Dust-trapping Rings as Efficient Sites for Planetesimal Formation*

MIAPP Workshop, Garching, Germany, June 2022

- Contributed talk, *Dust Dynamics and Planetesimal Formation in Ring-like Disk Substructures*

Lorentz Center Workshop, (Virtual), September 2021

- Contributed talk, *Dust Dynamics and Planetesimal Formation in Turbulent Protoplanetary Disks and Dust Rings*

National Conference of Planetary Science, Suzhou, China, June 2021

- Contributed talk, *Dust Dynamics and Implications for Planetesimal Formation in Turbulent Protoplanetary Disks*

Five Years after HL Tau: a New Era in Planet Formation, (Virtual), December 2020

- Poster, *Dust Dynamics and Planetesimal Formation in MRI Turbulent Protoplanetary Disks*

5th Workshop of the Network of Ultraviolet Astronomy, (Virtual), October 2020

- Contributed talk, *Probing Protoplanetary Disk Winds with FUV Absorption Lines*

Planet Formation Workshop, Tokyo, Japan, November 2019

- Contributed talk, *Dust Settling and Clumping in MRI Turbulent Protoplanetary Disks*

Great Barriers in Planet Formation, Palm Cove, Australia, July 2019

- Contributed talk, *Probing Protoplanetary Disk Wind with Absorption Line Spectroscopy*
- Poster, *Dust Settling and Clumping in MRI Turbulent Protoplanetary Disks*

Formation and Evolution of Solar System and Exoplanetary Systems, Urumqi, China, July 2019

- Poster, *Dust Settling and Clumping in MRI Turbulent Protoplanetary Disks*

East Asian Observatory, Hilo, Hawaii, March 2019

- EAO Seminar Talk, *Absorption Lines as a Possible Probe of Protoplanetary Disk Wind*

Astrochemistry: Past, Present and Future, CalTech, CA, July 2018

- Poster, *C II Absorption Lines as a Possible Probe of Disk Photoevaporative Wind*

University of New South Wales, Sydney, Australia, March 2018

- Astro Seminar Talk, *Physical Processes in Protoplanetary Disks: Pebble Accretion and Disk Photoevaporation*

Exoplanets and Planet Formation, Shanghai, China, December 2017

- Poster, *Pebble Accretion in Turbulent Protoplanetary Disks*

OWL Summer Program, University of California, Santa Cruz, CA, July 2017

- Contributed talk, *Pebble Accretion in Turbulent Protoplanetary Disks*

Stanford University, CA, July 2017

- KIPAC Tea Talk, *Pebble Accretion in Turbulent Protoplanetary Disks*

SELECTED OBSERVING, TEACHING & OUTREACH EXPERIENCES

James Clerk Maxwell Telescope, Mauna Kea, Hawaii

- Observer, 4 nights (February 2019)

Peking University

- Teaching assistant, *Modern Astronomy* (Fall 2019 & Spring 2019)
- Teaching assistant, *Stellar Structure and Evolution* (Fall 2017)
- Volunteered at The China-US Universities Astronomy Collaboration Summit (June 2016)

Xinglong Station of National Astronomical Observatory, China

- Short-term visit to Xinglong Station of National Astronomical Observatory and The Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST) (April 2011)

AWARDS

- *Outstanding Graduates of Ordinary Higher Education Institutions* of Beijing (July 2021)
- *Outstanding Graduates*, Peking University (July 2021)
- *Specialty Scholarship (academic award)*, Peking University (December 2019)

- *Presidential Scholarship*, Peking University (December 2018)
- *National Scholarship* of China (December 2017)
- *Student Award for Outstanding Scientific Research*, Peking University (2016 & 2017)
- *May 4th Scholarship*, Peking University (December 2016)

TECHNICAL STRENGTHS

Astrophysical	Athena/Athena++, RADMC-3D, MITgcm, VisIt, DS9, IRAF
Programming	Python, C/C++, Fortran, MATLAB, shell, LaTeX
Language Skills	Mandarin (native), English (fluent), French (basic)