

# ZIYAN XU

CRAL, École Normale Supérieure de Lyon ◇ 46 Allée d'Italie ◇ 69007 Lyon, France

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## EDUCATION

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**Peking University**

Ph.D in Astrophysics

*Beijing, China*

*2015 - 2021*

**Peking University**

B.S. in Astronomy, specializing in Astrophysics

*Beijing, China*

*2010 - 2015*

## RESEARCH EXPERIENCES

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**École Normale Supérieure de Lyon**

*Postdoctoral Researcher*

*2021 - present*

*Supervisor: Prof. Guillaume Laibe*

- *Local spherical collapsing box in Athena++*  
Collaborators: Prof. Guillaume Laibe, Dr. Elliot Lynch (CRAL - ENS Lyon)
- *Dust dynamics and planetesimal formation in dust rings in turbulent protoplanetary Disk*  
Collaborator: Prof. Xue-Ning Bai (Tsinghua University)
- *Implementation of COALA high-order dust coagulation algorithm in Athena++*  
Collaborators: Dr. Maxime Lombart (National Taiwan Normal Univ.), Prof. Guillaume Laibe
- *Observational implications of dust feedback and planetesimal formation in protoplanetary disk rings*  
Collaborators: Prof. Xue-Ning Bai (Tsinghua Univ.), Prof. Cornelis Dullemond (Univ. of Heidelberg)

**Peking University**

*Ph.D Researcher*

*2015 - 2021*

*Advisor: Prof. Gregory Herczeg*

- *Probing protoplanetary disk wind with absorption line spectroscopy*
- *Dust dynamics in MRI turbulent protoplanetary disks*  
Collaborator: Prof. Xuening Bai (Tsinghua University)
- *Atmospheric dynamics and circulation in warm Jupiters*  
Collaborator: Prof. Adam Showman (University of Arizona / Peking University)

**University of California, Santa Barbara**

*Student Intern*

*2014 - 2015*

*Advisor: Prof. Ruth Murray-Clay*

- *The effect of MRI turbulence on pebble accretion - data analysis*

**Harvard-Smithsonian Center for Astrophysics**

*Student Researcher*

*2014 - 2015*

*Advisor: Prof. Xuening Bai*

- *The effect of MRI turbulence on pebble accretion - simulation setup*

## PUBLICATIONS [ADS Link]

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- 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, Advanced Online Publication
- 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

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### ***Athena++ Workshop*, New York, 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**

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**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**

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- *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**

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