William Kennedy Misener

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RESEARCH INTERESTS

The physics of the formation and evolution of planets, planetary atmospheres, and planetary systems

EDUCATION

University of California, Los Angeles, 2018-Present
Ph.D. candidate, Planetary Science
Master of Science, Geophysics and Space Physics, March 2021

University of Chicago, 2014-2018
Bachelor of Arts, Physics with Specialization in Astrophysics, June 2018
With General and Departmental Honors

RESEARCH EXPERIENCE

Graduate Student Researcher, 2018-Present
Advisor: Professor Hilke Schlichting
Department of Earth, Planetary, and Space Sciences, University of California, Los Angeles

- Investigating formation, structure, and evolution of super-Earth and sub-Neptune atmospheres and their effects on surface chemistry and observability of exoplanet atmospheres

Research Assistant, 2016-2018
Advisor: Professor Fred Ciesla
Department of the Geophysical Sciences, University of Chicago

- Investigated solid material transport dynamics and grain growth via Monte Carlo simulation of protoplanetary disk conditions

PUBLICATIONS

3. **W. Misener** and H. Schlichting, 2022. "The importance of silicate vapour in determining the structure, radii, and envelope mass fractions of sub-Neptunes", *Monthly Notices of the Royal Astronomical Society*, 514:6025. DOI: 10.1093/mnras/stac1732 arXiv: 2201.04299
2. **W. Misener** and H. Schlichting, 2021. "To cool is to keep: residual H/He atmospheres of super-Earths and sub-Neptunes", *Monthly Notices of the Royal Astronomical Society* 503:5658. DOI: 10.1093/mnras/stab895 arXiv: 2103.09212
1. **W. Misener**, S. Krijt, and F. Ciesla, 2019. "Tracking Dust Grains During Transport and Growth in Protoplanetary Disks", *The Astrophysical Journal* 885:118. DOI: 10.3847/1538-4357/ab4a13 arXiv: 1910.00609

SEMINARS & TALKS

13. **Seminar**, "Effects of silicate vapour on sub-Neptune atmospheres", *Astrophysics Group, Imperial College London*, London, UK, October 13, 2022

12. **Contributed Talk**, "Effects of silicate vapor on sub-Neptune atmospheres", *Bay Area Exoplanet Meeting #41*, Santa Cruz, CA, USA, July 15, 2022
11. **Research Talk**, "Formation and Evolution of Super-Earth and Sub-Neptune Atmospheres", *MIAPbP Planet Formation Workshop*, Garching bei München, Germany, June 29, 2022
10. **Contributed Talk**, "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", *Exoplanets IV Atmospheric Escape Splinter Session*, Las Vegas, NV, USA, May 4, 2022
9. **Seminar**, "The consequences of silicate vapor in determining the structure, radii, and evolution of sub-Neptunes", *Planetary Science Seminar, University of California, Los Angeles*, Los Angeles, CA, USA, February 24, 2022
8. **Contributed Talk,** "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", *Bay Area Exoplanet Meeting #38* [virtual due to COVID-19], September 17, 2021
7. **Lightning Talk,** "Residual H/He Atmospheres of Super-Earths", *EPSS 12th Student Research Symposium*, May 14, 2021
6. **Seminar**, "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", *Planetary Science Seminar, University of California, Los Angeles*, Los Angeles, CA, USA, April 23, 2021
5. **Panelist,** "Super-Earths", *Habitable Worlds 2021,* [virtual due to COVID-19], March 25, 2021
4. **Contributed Talk,** "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", *Exoplanet Demographics*, [virtual due to COVID-19], November 13, 2020
3. **Contributed Talk,** "Residual H/He Atmospheres of Super-Earths", *Exoplanets in Southern California*, [virtual due to COVID-19], September 15, 2020
2. **Seminar,** "Dust Grain Growth and Transport in Protoplanetary Disks", *Planetary Science Seminar, University of California, Los Angeles*, Los Angeles, CA, USA, April 26, 2019
1. **Honors Bachelor's Thesis Defense,** "Modeling Dust Grain Growth and Transport in the Protoplanetary Disk", *University of Chicago*, Chicago, IL, USA, May 24, 2018

POSTERS & PRESENTATIONS

6. **W. Misener** and H. Schlichting, "Silicate vapor in sub-Neptune atmospheres", *Exoplanets in our Backyard 2*, Albuquerque, NM, USA, November 2, 2022
5. **W. Misener** and H. Schlichting, "Silicate vapor in sub-Neptune atmospheres", *Exoplanets IV*, Las Vegas, NV, USA, May 2, 2022
4. **W. Misener** and H. Schlichting, "Residual H/He Atmospheres of Super-Earths", *TESS Science Conference II* [virtual due to COVID-19], August 2, 2021
3. **W. Misener** and H. Schlichting, "Residual H/He Atmospheres of Super-Earths", *Sagan Summer Workshop* [virtual due to COVID-19], July 19, 2021
2. **W. Misener** and H. Schlichting, "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", *Habitable Worlds 2021*, [virtual due to COVID-19], March 22, 2021
1. **W. Misener** and H. Schlichting, "Residual H/He Atmospheres of Super-Earths", *Exoplanets III*, [virtual due to COVID-19], July 27, 2020

HONORS

- Travel Support for Exoplanets in our Backyard 2 conference, 2022
- Honorarium for attending Planet Formation: From Dust Coagulation to Final Orbit Assembly workshop
- EPSS Department Teaching Award, University of California, Los Angeles, 2020
- Graduate Division Fellowship, University of California, Los Angeles, 2018-2020
- Alumni Scholarship, University of California, Los Angeles, 2018
- General and Physics Departmental Honors, University of Chicago, 2018
- Dean's List, University of Chicago, 2015-2018
- University Scholar, University of Chicago, 2014
- University National Merit Scholarship, University of Chicago, 2014

TEACHING EXPERIENCE

Teaching Assistant, *University of California, Los Angeles*

EPS SCI 9: Solar System and Planets, Fall Quarter 2019, 2020, 2021

Ran weekly lab/discussion sections, expanded on topics related to general lecture and ran lab demonstrations for 80 non-major students

OUTREACH ACTIVITIES

Demonstrator, *UCLA AstroLive*, 2020

Demonstrated astrophysical concepts including relativity and rocket launching to 5th grade students visiting campus

Letter Writer, *Letters to a Pre-Scientist*, 2019-2020, 2022-2023

Exchanged a series of letters with a middle school student emphasizing careers in STEM fields and my experiences

Volunteer, *Exploring Your Universe*, 2018-2020

Demonstrated exoplanet observation techniques and answered questions from public about exoplanetary science at public science festival which draws over 7,000 people

President, *Ryerson Astronomical Society*, 2017-2018

Led the University of Chicago's student-run amateur astronomy organization, which organized events and trips and ran weekly observation nights

PUBLIC OUTREACH TALKS

Research in Space Fields, *ConnectEd Research Student Organization*, February 2022
Planetarium Talk, *UCLA Planetarium*, "Super-Earths", October 2021
WISRD Fall Lecture, *Wildwood School*, "Fantastic Trans-Neptunian Objects and What They Tell Us about Our Origin", November 4th, 2019
Planetarium Talk, *UCLA Planetarium*, "Exoplanets", September 2019
Meeting Talks, *Ryerson Astronomical Society*, various topics including "Planetary Atmospheres", "Pluto", "Life in the Solar System", "The James Webb Space Telescope", and "Planet Formation", among others, 2015-2018

TECHNICAL WORKSHOPS ATTENDED

Formation, evolution & dispersal of protoplanetary discs, October 2022. *Organized by the Royal Astronomical Society.*
Planet Formation: From Dust Coagulation to Final Orbit Assembly, June 2022. *Organized by Munich Institute for Astro-, Particle, and BioPhysics (MIAPbP)*
Sagan Exoplanet Summer Workshop: Astrobiology for Astronomers, July 2019.

Organized by NASA Exoplanet Science Institute.
Communicating Science Effectively in Today's World, May 2019.
Organized by UCLA Department of Earth, Planetary, and Space Sciences and UCLA Division of Physical Sciences.

UNDERGRADUATE STUDENT SUPERVISED

Manasa Lakshmi Narasimhan, 2021-2022

SERVICE ACTIVITIES

Graduate Student Representative, *UCLA EPSS Curriculum Committee*, 2020-Present.
Reviewer, *The Astrophysical Journal.*