William Kennedy Misener

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EDUCATION

University of California, Los Angeles, 2018-2024
Ph.D., Planetary Science, June 2024
Master of Science, Geophysics and Space Physics, March 2021

University of Chicago, 2014-2018
Bachelor of Arts, Physics with Specialization in Astrophysics, June 2018

EMPLOYMENT

Carnegie Postdoctoral Fellow, starting September 2024
Carnegie Institution for Science
Earth & Planets Laboratory

Graduate Student Researcher, 2018-2024
University of California, Los Angeles
Department of Earth, Planetary, and Space Sciences
Thesis title: "Exploring the thermal and chemical coupling between the silicate cores and hydrogen atmospheres of super-Earth and sub-Neptune exoplanets"
Advisor: Professor Hilke Schlichting

Research Assistant, 2016-2018
University of Chicago
Department of the Geophysical Sciences
Thesis title: "Modeling Dust Grain Growth and Transport Coupling in a Protoplanetary Disk"
Advisor: Professor Fred Ciesla

HONORS AND FUNDING AWARDS

- UCLA Dissertation Year Fellowship, 2023-24
- AAS International Travel Grant, 2023
- Travel Support for Exoplanets in our Backyard 2 conference, 2022
- UCLA Graduate Division Doctoral Travel Grant
- EPSS Department Teaching Award, University of California, Los Angeles, 2020
- Graduate Division Fellowship, University of California, Los Angeles, 2018-2023
- 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

PUBLICATIONS

5. **W. Misener**, M. Schulik, H. Schlichting, and J. Owen 2024. "Blowin' in the non-isothermal wind: core-powered mass loss withhydrodynamic radiative transfer", *The Astrophysical Journal*, under review. arXiv: 2405.15221
4. **W. Misener**, H. Schlichting, and E. Young 2023. "Atmospheres as windows into sub-Neptune interiors: coupled chemistry and structure of hydrogen-silane-water envelopes", *Monthly Notices of the Royal Astronomical Society*, 524:981. DOI: 10.1093/mnras/stad1910 arXiv: 2303.09653
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

32. **Earth and Planetary Science Seminar, Harvard University**, "Magma-atmosphere interactions in sub-Neptunes", Cambridge, MA, USA [virtual], February 12, 2024
31. **Seminar, Density Matters 2024**, "Coupled chemistry and structure of hydrogen-silane-water atmospheres", Ringberg, Kreuth, Germany, February 7, 2024
30. **Dissertation Contributed Talk, AAS 243**, "Coupled chemistry and structure of sub-Neptune atmospheres: a window into the interior", New Orleans, LA, USA, January 8, 2024
29. **Invited Talk, ExSoCal 2023**, "A Window into sub-Neptune Interiors: Coupled Chemistry and Structure of Hydrogen-Silane-Water Atmospheres", Pasadena, CA, USA, December 12, 2023
28. **Planetary Science Seminar, California Institute of Technology**, "Magma-atmosphere interactions in sub-Neptunes", Pasadena, CA, USA, December 5, 2023
27. **Exoplanet Journal Club, University of Chicago**, "Magma-atmosphere interactions in sub-Neptunes", Chicago, IL, USA, October 30, 2023
26. **Exoplanet Pizza Lunch, Harvard-Smithsonian Center for Astrophysics**, "Magma-atmosphere interactions in sub-Neptunes", Cambridge, MA, USA, October 25, 2023
25. **Monday Afternoon Talk, Massachusetts Institute of Technology**, "Magma-atmosphere interactions in sub-Neptunes", Cambridge, MA, USA, October 23, 2023
24. **Exoplanet Journal Club, University of Maryland**, "Magma-atmosphere interactions in sub-Neptunes", College Park, MD, USA, September 19, 2023
23. **Astrophysics Coffee, Institute for Advanced Study**, "Magma-atmosphere interactions in sub-Neptunes", Princeton, NJ, USA, September 15, 2023
22. **Exoplanets and Stars Seminar, Yale University**, "Magma-atmosphere interactions in sub-Neptunes", New Haven, CT, USA, September 11, 2023

21. **Invited Talk, ExoSS II, Jet Propulsion Laboratory**, "Magma-atmosphere interactions in sub-Neptunes", La Cañada Flintridge, CA, USA, August 30, 2023
20. **Invited Talk**, **EXCALIBUR Workshop,** "A Theorist's Quest for EXCALIBUR", Pasadena, CA, USA, July 29, 2023
19. **OWL Exoplanets Summer Program Seminar**, "Magma-atmopshere interactions in sub-Neptunes", Santa Cruz, CA, USA, July 19, 2023
18. **Contributed Talk**, **ExoClimes VI**, "Magma-atmopshere interactions in sub-Neptunes", Exeter, UK, June 28, 2023
17. **School of Mathematics Statistics and Physics Seminar, Newcastle University**, "A window into sub-Neptune interiors: coupled chemistry and structure of hydrogen-silane-water atmospheres", Newcastle upon Tyne, UK, June 23, 2023
16. **Contributed Talk, ERES Symposium**, "A window into sub-Neptune interiors: coupled chemistry and structure of hydrogen-silane-water atmospheres", New Haven, CT, USA, June 20, 2023
15. **Planetary Science Seminar, University of California, Los Angeles**, "Effects of silicate vapor on sub-Neptune atmospheres", Los Angeles, CA, USA, June 8, 2023
14. **AEThER Collaboration Workshop Flash Talk**, "Chemical equilibrium between magma oceans and hydrogen atmospheres", Washington, DC, USA January 18, 2023
13. **Astrophysics Group Seminar, Imperial College London**, "Effects of silicate vapour on sub-Neptune atmospheres", London, UK, October 13, 2022
12. **Contributed Talk**, **Bay Area Exoplanet Meeting #41**, "Effects of silicate vapor on sub-Neptune atmospheres", Santa Cruz, CA, USA, July 15, 2022
11. **Research Talk**, **MIAPbP Planet Formation Workshop**, "Formation and Evolution of Super-Earth and Sub-Neptune Atmospheres", Garching bei München, Germany, June 29, 2022
10. **Contributed Talk**, **Exoplanets IV Atmospheric Escape Splinter Session**, "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", Las Vegas, NV, USA, May 4, 2022
9. **Planetary Science Seminar, University of California, Los Angeles**, "The consequences of silicate vapor in determining the structure, radii, and evolution of sub-Neptunes", Los Angeles, CA, USA, February 24, 2022
8. **Contributed Talk, Bay Area Exoplanet Meeting #38**, "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", [virtual due to COVID-19], September 17, 2021
7. **Lightning Talk, 12th EPSS Student Research Symposium**, "Residual H/He Atmospheres of Super-Earths", May 14, 2021
6. **Planetary Science Seminar, University of California, Los Angeles**, "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", Los Angeles, CA, USA, April 23, 2021
5. **Panelist, Habitable Worlds 2021,** "Super-Earths", [virtual due to COVID-19], March 25, 2021
4. **Contributed Talk, Exoplanet Demographics,** "To Cool is to Keep: Residual H/He Atmospheres of Super-Earths", [virtual due to COVID-19], November 13, 2020
3. **Contributed Talk, ExSoCal 2020**, "Residual H/He Atmospheres of Super-Earths", [virtual due to COVID-19], September 15, 2020

2. **Planetary Science Seminar, University of California, Los Angeles,** "Dust Grain Growth and Transport in Protoplanetary Disks", Los Angeles, CA, USA, April 26, 2019
1. **Honors Bachelor's Thesis Defense, University of Chicago,** "Modeling Dust Grain Growth and Transport in the Protoplanetary Disk", Chicago, IL, USA, May 24, 2018

POSTERS

7. **W. Misener**, H. Schlichting, and E. Young, "Coupled chemistry and structure of hydrogen-silane-water sub-Neptune atmospheres", *STScI Spring Symposium*, Baltimore, MD, USA, May 18, 2023
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

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

Volunteer, *UCLA EPSS Eclipse Viewing Event*, 2023

Ran telescope observations and informed members of the public at an event for the October 2023 annular eclipse at a public park in Los Angeles.

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*, 2019-20, 2022-Present

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

Planetarium Talk, *UCLA Planetarium*, "Planetary Interiors", May 2023
Planetarium Talk, *UCLA Planetarium*, "Native American Astronomy and Constellations", February 2023
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

AEThER Team Workshop, June 2024.
EXCALIBUR Workshop, July 2023. *Organized by NASA Exoplanet Science Institute*.
Sagan Exoplanet Summer Workshop: Characterizing Exoplanet Atmospheres: The Next Twenty Years, July 2023. *Organized by NASA Exoplanet Science Institute*.
Other Worlds Laboratory Exoplanets Summer Program, July 2023. *Organized by the UC Santa Cruz Other Worlds Laboratory.*
AEThER Team Workshop, January 2023.
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*, 2020-2022.
Reviewer, *The Astrophysical Journal, The Astrophysical Journal Letters*.
Session Chair, *AEThER Team Workshop*, 2023.

COLLABORATION MEMBERSHIPS

AEThER, 2021-Present.