

COLLIN CHERUBIM

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RESEARCH INTERESTS: I combine theory and observation to explore small-planet formation and evolution. Topics: Planetary climate, exoplanet discovery and characterization, small-planet formation and evolution, numerical modeling, atmospheric spectroscopy, atmospheric escape, magma ocean evolution, habitability, astrobiology.

EDUCATION

Harvard University – <i>Cambridge, MA</i>	2021 – Present
• Ph.D. Earth & Planetary Science (expected May 2026) • M.S. Earth & Planetary Science (2022) • Advisors: Robin Wordsworth, David Charbonneau	
Carnegie Mellon University – <i>Pittsburgh, PA</i>	2010 – 2015
• B.S. Chemistry with Honors • M.S. Chemistry with Honors • Advisor: Bruce Armitage	

RESEARCH APPOINTMENTS

Harvard Prize Graduate Fellow, Harvard University	2021 – Present
Research Scientist: Caltech, Andrew Howard’s group, mentored by Lee Rosenthal	2020 – 2021
Research Scientist: Harvard, mentored by Robin Wordsworth	2020 – 2021
Honors Research Program: Carnegie Mellon, Center for Nucleic Acids Science & Technology	2013 – 2015

AWARDS & TELESCOPE TIME

Co-PI: WINERED – Magellan Clay 6.5m (12 hours)	2025b
<i>The WINERED Helium Consortium: Investigating the Composition and Evolution of Sub-Neptunes</i>	
Co-PI: WINERED – Magellan Clay 6.5m (7 hours)	2024b
<i>The WINERED Helium Consortium: Investigating the Composition and Evolution of Sub-Neptunes</i>	
Co-I: JWST Cycle 3 GO Program (22.5 hours)	2025
<i>A Search for Exoplanet Satellites that are the Same Size as the Earth's Moon</i>	
Harvard Certificate of Student Recognition of Teaching	2023
Harvard James Mills Peirce Graduate Fellowship	2021
Harvard Prize Graduate Fellowship	2021
Staff Culture Award, Staff Achievement Award, Roxbury Prep High School	2018
University, college, and department honors, Carnegie Mellon University	2015
Jennings Brave Companions Award, Carnegie Mellon University	2013

PUBLICATIONS

- Cherubim, C.**, Vissapragada, S., Charbonneau, D., et al. Escaping helium atmosphere on a terrestrial planet in a nearby habitable zone (in review at *Science*).
- Cherubim, C.**, Wordsworth, R., Bower, D., Sossi, P., Adams, D., Hu, R. An Oxidation Gradient Straddling the Small Planet Radius Valley. *The Astrophysical Journal* (2025).
- Cherubim, C.**, Wordsworth, R., Hu, R., Shkolnik, E. Strong Fractionation of Deuterium and Helium in Sub-Neptune Atmospheres along the Radius Valley. *The Astrophysical Journal*, 967, 2 (2024).
- Cherubim, C.**, Cloutier, R., Charbonneau, D. et al. TOI-1695 b: A Water World Orbiting an Early-M Dwarf in the Planet Radius Valley. *The Astronomical Journal*, 165, 4 (2023).

Seager, S., **Cherubim, C.** et al. The Last Liquids Flowing: Formation and Persistence of Ionic Liquids on Rocky Exoplanets with Vanishingly Thin Atmospheres (in prep).

Wordsworth, R., **Cherubim, C.** et al. Applied Astrobiology: An Integrated Approach to the Future of Life in Space. *Astrobiology*, 25, 5 (2025).

Kuss, V., Wordsworth, R., Cmiel, J., **Cherubim, C.** Climates of rocky planets with He-dominated atmospheres (in prep).

Cloutier, R., Greklek-McKeon, M., Wurmser, S., **Cherubim, C.**, et al. Masses, revised radii, and a third planet candidate in the 'Inverted' planetary system around TOI-1266. *Monthly Notices of the Royal Astronomical Society*, 527, 3 (2024).

Cadieux, C., Plotnykov, M., Doyon, R., Valencia, D., Jahandar, F., Dang, L., Turbet, M., Fauchez, T., Cloutier, R., **Cherubim, C.**, et al. New Mass and Radius Constraints on the LHS 1140 Planets: LHS 1140 b Is either a Temperate Mini-Neptune or a Water World. *The Astrophysical Journal Letters*, 960, 1 (2024).

Dalba, P., Kane, S., Li, Z., MacDougall, M., Rosenthal, L., **Cherubim, C.** et al. Giant Outer Transiting Exoplanet Mass (GOT 'EM) Survey. II. Discovery of a Failed Hot Jupiter on a 2.7 Yr, Highly Eccentric Orbit. *The Astronomical Journal*, 162, 4 (2021).

Cherubim, C. “TEACHER VOICE: ‘Which police officer will see me not as an educator or a scientist, but as a suspect?’” The Hechinger Report, 30 June, 2020.

Oyaghire, S.N., **Cherubim, C.** et al. RNA G-Quadruplex Invasion and Translation Inhibition by Antisense γ -Peptide Nucleic Acid Oligomers. *Biochemistry*, 55, 13 (2016).

PRESENTATIONS

Talk – STScI AER Conference	Nov 2025
Talk (invited) – Lorentz Center Workshop, Leiden	Oct 2025
Talk (invited) – University of Chicago Special Seminar	Sep 2025
Talk – Exoclimates V Conference	Jul 2025
Talk (invited) – MIT Exoplanet Tea	May 2025
Talk – Origins of Life Initiative, Chalk Talk Lecture Series	Apr 2025
Talk – Technical University of Denmark Space, Journal Club	Mar 2025
Talk – NASA/JPL Colloquium	Jan 2025
Talk (invited) – Kapteyn Institute Groningen Exoplanets Symposium	Jun 2024
Talk – Technical University of Denmark Space, Buchhave group	Jun 2024
Talk – Imperial College London, Escape from Exoplanets Workshop	Jun 2024
Poster – Exoplanets V Conference	Jun 2024
Talk (invited) – Max Planck Institute for Astronomy Heidelberg, Exocoffee Meeting	Apr 2024
Poster – Extreme Solar Systems V Conference	Mar 2024
Talk – Harvard/MIT Exoplanet Scientist Gathering	Jan 2024
Public talk – Exeter Science Center	Jun 2023
Poster – Exoclimates VI Conference	Jun 2023
Public talk – Harvard Natural History Museum, Science Spotlight	Mar 2023
Poster – Rocky Worlds II Conference	Jul 2022
Talk – Rocky Worlds II Conference	Jul 2022
Poster – Exoplanets IV Conference	May 2022

TEACHING/MENTORING EXPERIENCE

Harvard University

- Senior Thesis Advisor (Logan Wilson, astrophysics undergraduate) Jul 2025 – May 2026
- Senior Thesis Advisor (Stephanie Yoshida, astrophysics undergraduate) Sep 2024 – May 2025
- Teaching Fellow for GENED 1184: Worlds Beyond Spring 2025
- Teaching Fellow for GENED 1018: How To Build a Habitable Planet Fall 2022, Fall 2023

International Tutors LLC

- Founder and tutor. Working to make top education universally accessible Jan 2023 – Present

Harvard/MIT Science Research Mentoring Program

- Mentored three secondary school students in year-long astro research project Sep 2021 – May 2022

Casablanca American School – Casablanca, Morocco

- IB Physics Teacher/Science Department Chair Aug 2019 – Aug 2021
- Astrophysics research mentor

Roxbury Preparatory Charter School – Boston, MA

- AP Chemistry Teacher Aug 2016 – Aug 2019
- Academic advisor

Carnegie Mellon University – Pittsburgh, PA

- Teaching Assistant for undergraduate chemistry lab Jan 2015 – May 2015
- Teaching Assistant for Biological Foundations of Behavior Aug 2011 – Dec 2011

OUTREACH & SERVICE

Harvard Museums of Science & Culture

- Science Education Partner Dec 2021 – Present
- Virtual Scientist in a Classroom

Harvard Science in the News

- Editor-in-Chief Sep 2023 – Present
- Short form and long form blog writer

Harvard University

- Planetary Journal Club co-organizer (Earth & Planetary Science/Center for Astrophysics) Sep 2021 – Dec 2024

[eta Earth Science Blog](#)

- Founder, writer, editor Apr 2020 – Present

Carnegie Mellon University

- DNAZone volunteer Mar 2015 – Aug 2015