

DR. HANNAH DIAMOND-LOWE

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Position

2020-now | Postdoc researcher, National Space Institute at the Technical University of Denmark (DTU Space)
2020 | Postdoc researcher, Harvard University

Education

2015-2020 | **Harvard University**, M.A. in Astronomy (May 2018), Ph.D. in Astronomy (May 2020)
2010-2014 | **University of Chicago**, B.S. in Geophysical Sciences, with general and departmental honors

Research Interest

I aim to characterize small exoplanet systems by using spectroscopy to investigate planetary atmospheres and the high-energy outputs of their host stars. I use ground- and space-based telescopes in my research.

Fellowships & Awards

2020 | Rodger Doxsey Travel Prize, AAS 235rd Meeting, Honolulu, HI
2019 | Certificate of Distinction in Teaching for Teaching Fellows, Harvard University
2016 | Certificate of Distinction in Teaching for Teaching Fellows, Harvard University
2015-2020 | National Science Foundation Graduate Research Fellowship
2014 | Best Poster Award, Exoclines III: The Diversity of Planetary Atmospheres, Davos, Switzerland

Publications

- (7) **Diamond-Lowe**, Charbonneau, Malik, Kempton, & Beletsky, “Optical Transmission Spectroscopy of the Terrestrial Exoplanet LHS 3844b from 13 Ground-Based Transit Observations,” 2020, *AJ*, 160, 188, doi:[10.3847/1538-3881/abaf4f](https://doi.org/10.3847/1538-3881/abaf4f)
- (6) **Diamond-Lowe**, Berta-Thompson, Charbonneau, Dittmann, & Kempton, “Simultaneous Optical Transmission Spectroscopy of a Terrestrial, Habitable-Zone Exoplanet with Two Ground-Based Multi-Object Spectrographs,” 2020, *AJ*, 160, 27, doi:[10.3847/1538-3881/ab935f](https://doi.org/10.3847/1538-3881/ab935f)
- (5) Winters, Medina, Irwin, Charbonneau, Astudillo-Defru, Horch, Eastman, Vrijmoet, Henry, **Diamond-Lowe**, Winston, Barclay, Bonfils, Ricker, Vanderspek, Latham, Seager, Winn, Jenkins, Udry, Twicken, Teske, Tenenbaum, Pepe, Murgas, Muirhead, Mink, Lovis, Levine, Lépine, Jao, Henze, Furész, Forveille, Figueira, Esquerdo, Dressing, Díaz, Delfosse, Burke, Bouchy, Berlind, Almenara, “Three Red Suns in the Sky: A Transiting, Terrestrial Planet in a Triple M Dwarf System at 6.9 Parsecs,” 2019, *AJ*, 158, 152, doi:[10.3847/1538-3881/ab364d](https://doi.org/10.3847/1538-3881/ab364d)
- (4) **Diamond-Lowe**, Berta-Thompson, Charbonneau, & Kempton, “Ground-based transmission spectroscopy of the small, rocky exoplanet GJ 1132b,” 2018, *AJ*, 156, 42, doi:[10.3847/1538-3881/aac6dd](https://doi.org/10.3847/1538-3881/aac6dd)
- (3) Line, Stevenson, Bean, Desert, Fortney, Kreidberg, Madhusudhan, Showman, & **Diamond-Lowe**, “No Thermal Inversion and a Solar Water Abundance for the Hot Jupiter HD209458b from HST WFC3 Emission Spectroscopy,” 2016, *AJ*, 152, 203, doi:[10.3847/0004-6256/152/6/203](https://doi.org/10.3847/0004-6256/152/6/203)
- (2) Ingalls, Krick, Carey, Stauffer, Lowrance, Grillmair, Buzasi, Deming, **Diamond-Lowe**, Evans, Morello, Stevenson, Wong, Capak, Glaccum, Laine, Surace, & Storrie-Lombardi, “Repeatability and Accuracy of Exoplanet Eclipse Depths Measured with Post-cryogenic Spitzer,” 2016, *AJ*, 152, 44, doi:[10.3847/0004-6256/152/2/44](https://doi.org/10.3847/0004-6256/152/2/44)

- (1) **Diamond-Lowe**, Stevenson, Bean, Line, & Fortney, “New Analysis Indicates No Thermal Inversion in the Atmosphere of HD 209458b,” 2014, *ApJ*, 796, 66, doi:[10.1088/0004-637X/796/1/66](https://doi.org/10.1088/0004-637X/796/1/66)

Accepted Observing Proposals

- 2019 “Investigating the atmosphere of LTT 1445Ab, a terrestrial world at 6.9 pc” *Magellan Telescope* 2020B semester, 2.5 nights, PI: Charbonneau, Co-Is: **Diamond-Lowe**, Irwin, Winters
- 2019 “Transmission spectroscopy of a terrestrial exoplanet 6.87 parsecs away.” *Magellan Telescope* 2019B semester, 3.125 nights, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Irwin, Winters
- 2019 “A First Opportunity to Test Models of Atmospheric Escape for a Terrestrial Exoplanet,” *Hubble Space Telescope* Mid-Cycle 26, 10 orbits, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Kreidberg, Winters, Youngblood
- 2018 “Investigating the short-period exo-Earth LHS 3844b,” *Magellan Telescope* 2019A semester, 2 nights, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Irwin
- 2018 “Exploring a habitable zone terrestrial exoplanet with LDSS3C & IMACS,” *Magellan Telescope* 2018B semester, 1 night, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Irwin, Dittmann, Newton, Berta-Thompson, Kempton
- 2017 “Exploring a habitable zone terrestrial exoplanet with LDSS3C & IMACS,” *Magellan Telescope* 2017B semester, 1 night, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Irwin, Dittmann, Newton, Berta-Thompson, Jenkins, Ramirez, Wordsworth, Morley, Kempton, Schaefer
- 2017 “Initial Reconnaissance of a Transiting Rocky Planet in a Nearby M-Dwarf’s Habitable Zone,” *Hubble Space Telescope* Cycle 24, 10 orbits, PI: Jason Dittmann, Co-Is: Astudillo-Defru, Berta-Thompson, Bonfils, Charbonneau, **Diamond-Lowe**, Irwin, Newton
- 2016 “The Hydrogen Content of a Rocky Earth-Size Exoplanet,” *Hubble Space Telescope* Cycle 24, 20 orbits, PI: Berta-Thompson, Co-Is: Charbonneau, **Diamond-Lowe**, Dittmann, Irwin, Kempton, Newton
- 2016 “Star spot double take: Constraining spin-orbit alignment and star spot temperatures for a young, cool M dwarf,” *Magellan Telescope* 2016B semester, 4 nights, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Newton
- 2015 “The First Exploration of a Terrestrial Exoplanet,” *Magellan Telescope* 2016A semester, 8 nights, PI: **Diamond-Lowe**, Co-Is: Charbonneau, Berta-Thompson, Irwin, Newton, Dittmann

Talks & Posters

- 2021 Contributed talk: “The LHS 3844 system: Ground-based transmission spectroscopy of LHS 3844b and an HST/COS high-energy spectrum of LHS 3844,” Special Session: Atmospheric Characterization of TESS Exoplanets, AAS 237th Meeting, Virtually, Anywhere
- 2020 Contributed talk: “Reconnaissance of terrestrial exoplanet atmospheres from the ground in advance of JWST,” Exo-Webb Summer Series (virtual meeting), The Transiting Exoplanet Community Early Release Science Program
- 2020 Invited talk: “Observational constraints on the atmospheres of terrestrial planets orbiting M dwarfs,” What makes a planet uninhabitable? (virtual meeting), University of Chicago, Chicago, IL
- 2020 Invited talk: “Investigating the atmospheres of terrestrial exoplanets with ground-based optical transmission spectroscopy,” Yale Exoplanet Seminar, New Haven, CT
- 2020 Contributed talk: “A first look at the atmospheres of four terrestrial exoplanets with ground-based optical transmission spectroscopy,” Exoplanets: Atmospheres IV, AAS 235th Meeting, Honolulu, HI
- 2019 Invited talk: “Ground-based transmission spectroscopy of nearby terrestrial exoplanets,” ITC Lunch, Center for Astrophysics | Harvard & Smithsonian, Cambridge, MA
- 2019 Poster: “Simultaneous optical transmission spectroscopy of a terrestrial, habitable-zone exoplanet with two ground-based multi-object spectrographs,” Extreme Solar Systems IV, Reykjavík, Iceland
- 2019 Contributed talk: “Ground-based transmission spectroscopy of LHS 1140b,” Extrasolar Planets: Characterization & Theory Track 1: I. Measurements and Models of Giant Atmospheres A, AAS 233rd Meeting, Seattle, WA

- 2018 Contributed talk: “Ground-based transmission spectroscopy of the terrestrial exoplanets GJ 1132b and LHS 1140b,” Cloud Academy, École de Physique, Les Houches, FR
- 2018 Poster: “Ground-based transmission spectroscopy of the terrestrial exoplanets GJ 1132b and LHS 1140b,” Exoplanets II, Cambridge, UK
- 2018 Invited talk: “Ground-based transmission spectroscopy of terrestrial exoplanets,” Brown Astrophysics Seminar Series, Providence, RI
- 2017 Invited talk: “Transiting exoplanet observations of GJ 1132b & LHS 1140b with JWST,” Enabling Transiting Exoplanet Observations with JWST, STScI, Baltimore, MD
- 2017 Contributed talk: “Ground-based spectroscopy of the rocky exoplanet GJ 1132b,” Extrasolar Planets: Characterization & Theory IV, AAS 229th Meeting, Grapevine, TX
- 2016 Poster: “Investigating the atmosphere of the terrestrial exoplanet GJ 1132b,” Exoclines IV, Squamish, British Columbia
- 2014 Invited talk: “New analysis indicates no thermal inversion in the atmosphere of HD 209458b,” Undergraduate Research Symposium, University of Chicago, Chicago, IL

Teaching & Outreach

- 2019-2020 Peer mentor, Harvard Astronomy Department Peer Mentoring Program
- 2019 Panelist, Grad School from the Grad Student POV, SAO Solar Physics REU
- 2019 Teaching Fellow, *ASTRON 209: Exoplanet Systems*, Harvard University
- 2019 “Worlds around other stars: the past, present, and future of exoplanets,” Beacon Hill Seminar Series, *Unveiling the Cosmos*, Boston, MA
- 2017, 2018 Presenter and panelist, E³ Mentoring Program in Physical Sciences
- 2017 Panelist, Wellesley College Science Center Summer Research Program
- 2016 Astronomy workshop leader, Harvard Science Research Conference
- 2016 Teaching Fellow, *SPU-30: Life as a Planetary Phenomenon*, Harvard University
- 2015-2016 Mentor, Harvard College Women in Science, Technology, Engineering, and Math Mentor Program

Service

- 2020 Global Organizing Committee Member, Exoplanets III (virtual meeting), Heidelberg, Germany
- 2020 Referee for *Astronomy & Astrophysics*
- 2019 Committee chair, Astronomy Graduate Student Mental Health Survey, Harvard University
- 2016-2020 Co-organizer, Planetary Journal Club, Harvard University