

Laura R. Kreidberg

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CURRENT POSITION

Junior Fellow, Society of Fellows, Harvard University	2016 - present
ITC Fellow, Astronomy Department, Harvard University	2016 - present

EDUCATION

University of Chicago

M.S. Astronomy and Astrophysics	2013
Ph.D. Astronomy and Astrophysics	2016
Advisor: Jacob Bean	

Yale University

B.S. Physics and Astronomy, with distinction	2011
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FELLOWSHIPS AND AWARDS

Paul Hertelendy (pH) Lecturer, Harvard-Smithsonian Center for Astrophysics	2018
International Astronomical Union Division F PhD Prize	2017
Hubble and Sagan Postdoctoral Fellowships (both declined)	2016
Rodger Doxsey Travel Prize, American Astronomical Society	2016
William Rainey Harper Dissertation Fellowship, University of Chicago	2015
Peter B. Wagner Memorial Award for Women in Atmospheric Sciences	2015
Plotnick Fellowship, University of Chicago Physical Sciences Division	2015
National Science Foundation Graduate Research Fellowship	2013 - 2016
Illinois Space Grant Fellowship	2012
George Beckwith Prize for excellence in astronomy, Yale Astronomy Department	2011

REFEREED PUBLICATIONS

First and second author:

1. “Global Climate and Atmospheric Composition of the Ultra-Hot Jupiter WASP-103b from HST and Spitzer Phase Curve Observations”
Kreidberg, Line, Parmentier et al., submitted to ApJ
2. “SPIDERMAN: an open-source code to model phase curves and secondary eclipses”
Louden and **Kreidberg**, MNRAS accepted, arXiv:1711.00494
3. “Water, Methane Depletion, and High Altitude Condensates in the Atmosphere of the Warm Neptune WASP-107b”
Kreidberg, Line, Thorngren et al. 2017, ApJL submitted, arXiv:1709.08635
4. “Exoplanet Atmosphere Measurements from Transmission Spectroscopy and other Planet-Star Combined Light Observations”
Kreidberg 2017, forthcoming in the Handbook of Exoplanets, arXiv:1709.05941

5. “Observing the Atmospheres of Known Temperate Earth-sized Planets with JWST”
Morley, **Kreidberg**, et al., *ApJ*, 850, 121
6. “Trends in Atmospheric Properties of Neptune-Size Exoplanets”
Crossfield and **Kreidberg**, *AJ*, 154, 261
7. “Prospects for Characterizing the Atmosphere of Proxima Centauri b”
Kreidberg & Loeb, 2016, *ApJL*, 832, 12
8. “A Detection of Water in the Transmission Spectrum of the Hot Jupiter WASP-12b and Implications for its Atmospheric Composition”
Kreidberg, Line, Bean, et al., 2015, *ApJ*, 814, 66
9. “batman: BASIC Transit Model cAlculationN in Python”
Kreidberg 2015, *PASP*, 127, 1161
10. “A Precise Water Abundance Measurement for the Hot Jupiter WASP-43”
Kreidberg, Bean, Désert, et al. 2014, *ApJL*, 793, 27
11. “Clouds in the Atmosphere of the Super-Earth Exoplanet GJ 1214b”
Kreidberg, Bean, Désert, et al. 2014, *Nature*, 505, 69
12. “Mass Measurements of Black Holes in X-Ray Transients: Is There a Mass Gap?”
Kreidberg, Bailyn, Farr, & Kalogera 2012, *ApJ*, 757, 36

Co-authored:

1. “A HST/WFC3 Thermal Emission Spectrum of the Hot Jupiter HAT-P-7B”
Mansfield, Bean, Line, et al. [including **Kreidberg**], submitted to *ApJ*
2. “H- Opacity and Water Dissociation in the Dayside Atmosphere of the Very Hot Gas Giant WASP-18b”
Arcangeli, Désert, et al. [including **Kreidberg**], *ApJL* accepted, arXiv:1801.02489
3. “An ultra-short period rocky super-Earth with a secondary eclipse and a Neptune-like companion around K2-141”
Malavolta, Mayo, et al. [including **Kreidberg**], *AJ* accepted, arXiv:1801.03502
4. “Quantifying the Impact of Spectral Coverage on the Retrieval of Molecular Abundances from Exoplanet Transmission Spectra”
Chapman, Zellem, Line, et al. [including **Kreidberg**], *PASP*, 129, 980
5. “Determining Empirical Stellar Masses and Radii Using Transits and Gaia Parallaxes as Illustrated by Spitzer Observations of KELT-11b”
Beatty, Stevens, Collins, et al. [including **Kreidberg**] 2017, *AJ*, 154, 25
6. “A Multi-planet System Transiting the $V = 9$ Rapidly Rotating F-Star HD 106315”
Rodriguez, Zhou, Vanderburg, et al. [including **Kreidberg**], *AJ*, 153, 256
7. “HELIOS: An Open-Source, GPU-Accelerated Radiative Transfer Code for Self-Consistent Exoplanetary Atmospheres”
Malik, Grosheintz, et al. [including **Kreidberg**], *AJ*, 153, 56
8. “Spitzer Phase Curve Constraints for WASP-43b at 3.6 and 4.5 microns”
Stevenson, Line, Bean, et al. [including **Kreidberg**] 2016, *AJ*, 153, 68
9. “Near-IR Emission Spectrum of WASP-103b using Hubble Space Telescope/Wide Field Camera 3”
Cartier, Beatty, Zhao, et al. [including **Kreidberg**] 2017, *AJ*, 153, 34
10. “No Thermal Inversion and a Solar Water Abundance for the Hot Jupiter HD 209458b from HST WFC3 Emission Spectroscopy”

- Line, Stevenson, Bean, et al. [including **Kreidberg**], 2016, *AJ*, 152, 203
11. “The Impact of Non-uniform Thermal Structure on the Interpretation of Exoplanet Emission Spectra”
Feng, Line, Fortney, et al. [including **Kreidberg**], 2016, *ApJ*, 829, 52
 12. “Transiting Exoplanet Studies and Community Targets for JWST’s ERS Program”
Stevenson, Lewis, Bean, et al. [including **Kreidberg**], 2016, *PASP*, 128, 967
 13. “The Atmospheric Circulation of the Hot Jupiter WASP-43b”
Kataria, Showman, Fortney, et al. [including **Kreidberg**] 2015, *ApJ*, 801, 86
 14. “Observations of Transiting Exoplanets with the James Webb Space Telescope (JWST)”
Beichman, Benneke, Knutson, et al. [including **Kreidberg**] 2014, *PASP*, 126, 1134
 15. “Thermal structure of an exoplanet atmosphere from phase-resolved emission spectroscopy”
Stevenson, Désert, Line, et al. [including **Kreidberg**] 2014, *Science*, 346, 838
 16. “A Hubble Space Telescope Search for a Sub-Earth-sized Exoplanet in the GJ 436 System”
Stevenson, Bean, Fabrycky, & **Kreidberg** 2014, *ApJ*, 796, 32
 17. “HST Near-IR Transmission Spectroscopy of the Super-Earth HD 97658b”
Knutson, Dragomir, **Kreidberg**, et al. 2014, *ApJ*, 794, 155
 18. “Transmission Spectroscopy of the Hot Jupiter WASP-12b from 0.7 to 5 μm ”
Stevenson, Bean, Seifahrt, et al. [including **Kreidberg**] 2014, *AJ*, 147, 161
 19. “The Mass Distribution of Stellar-Mass Black Holes”
Farr, Sravan, Cantrell, **Kreidberg** et al. 2011, *ApJ*, 741, 103

ACCEPTED OBSERVING PROPOSALS (AS PI)

2017	<i>HST</i> : 127 orbits, GO 15333	“Atmospheric Diversity of Mini-Neptunes in Multi-planet Systems” (co-PI with I. Crossfield)
2017	<i>HST</i> : 6 orbits, GO 15110	“A Study of the UV Environment for Three Small Planets Transiting a Nearby M-Dwarf”
2017	<i>HST</i> : 5 orbits, GO 15109	“Caught Red-Handed: A Novel Search for the Culprit Behind Thermal Inversions in Exoplanet Atmospheres”
2017	<i>HST</i> : 9 orbits, GO 15255	“The KELT-11b Opportunity: Atmospheric Water Abundance for a Sub-Saturn-Mass Planet” (co-PI with K. Colon)
2017	<i>HST</i> : 5 orbits, GO 14915	“First Atmosphere Characterization of the Benchmark Exo-Neptune WASP-107b”
2017	<i>Spitzer</i> : 15 hours, PID 13167	“First Atmosphere Characterization of the Benchmark Exo-Neptune WASP-107b”
2016	<i>Spitzer</i> : 132 hrs, PID 13140 <i>HST</i> : 3 orbits, GO 14843	“Clouds in the Forecast? A Joint Spitzer and HST Investigation of Clouds and Hazes for Two Exo-Neptunes”
2014	<i>Spitzer</i> : 134 hrs, PID 11099 <i>HST</i> : 30 orbits, GO 14050	“Exploring the Frontier of Exoplanet Atmosphere Dynamics with NASA’s Great Observatories”

INVITED TALKS

Källén Symposium, Lund Observatory, Sweden	05/2018
Astronomy Colloquium, Yale University	04/2018
Astronomy Colloquium, Harvard University	03/2018
AAS Meeting 231, Special Session: A Roadmap to Detecting Biosignatures	01/2018

Koenigstuhl Colloquium, Max Planck Institute for Astronomy	12/2017
School of Earth and Space Exploration Seminar, Arizona State University	11/2017
Habitable Worlds Conference, M-Dwarf breakout session	11/2017
Astrophysics Seminar, Brown University	10/2017
Astrophysics Seminar, University of Massachusetts Lowell	10/2017
Astronomy Colloquium, University of Michigan	09/2017
Astronomy Seminar, Michigan State University	09/2017
Review Talk, Transiting Exoplanets Conference, Keele, UK	07/2017
Invited Talk, Enabling Transiting Exoplanets with JWST Workshop, Baltimore, MD	07/2017
Astronomy Colloquium, University of California Santa Cruz	05/2017
Seminar, Southwest Research Institute	05/2017
Invited Talk, Breakthrough Discuss Conference	04/2017
Astronomy Seminar, American Museum of Natural History, NY	04/2017
Astronomy Colloquium, University of Illinois at Urbana-Champaign	03/2017
Astronomy Colloquium, The Ohio State University	02/2017
Planetary Seminar, Georgia Institute of Technology	11/2016
ITC Lunch, Harvard University	10/2016
Opportunity M, Harvard University	08/2016
Center for Space and Habitability Colloquium, University of Bern	04/2016
Grinnell Physics Department Seminar	02/2016
Astronomy Department Colloquium, Columbia University	12/2015
SciFoo Camp; led session on “Prospects for Detecting Alien Life”	06/2015
Harvard Center for Astrophysics SSP Seminar	02/2015
225th AAS special session: “From Hot Jupiters to Scorched Earths”	01/2015
Gemini Planet Imager collaboration meeting	09/2014
Chicago Center for Cosmochemistry	04/2014
Planning Meeting on Transit Observing with JWST	03/2014

SERVICE

Member of the TESS Atmosphere Characterization Working Group	2018 - present
Member of the science team for FINESSE, an Explorer-class atmosphere characterization mission recently selected by NASA to proceed to Phase A	2016-present
Chair of the MIRI working group and member of the science council for the JWST Transiting Exoplanet Community Early Release Science Program	2017- present
Spitzer Time Allocation Committee	2018
Reviewer for Hubble Mid-Cycle Proposals	2017, 2018
Member of the Breakthrough Starshot science team	2016 - present
Reviewer for NASA Exoplanet Research Program (XRP) proposals	2016
Reviewer for NASA Earth and Space Science Fellowship	2016
Referee for ApJ, ApJL, MNRAS, Nature	2015 - present
Student representative, Undergraduate Curriculum Committee	2014 - 2015
Student representative, Dean’s Student Advisory Committee	2013 - 2015
Co-organizer, Exoplanet Journal Club	2013 - 2014
Speaker Engagement Coordinator for colloquia	2012 - 2013

Student representative, Brinson Lectureship Committee 2012, 2014

TEACHING AND MENTORING

Student advisor

- Tom Loudon, graduate student at Kavli Program in Astrophysics 2016
Project: *"SPIDERMAN: a fast code to map the surfaces of exoplanets"*
- George McDonald, graduate student at Kavli Program in Astrophysics 2016
Project: *"Exploring the super-Earth desert"*
- Lily Zhao, U. Chicago undergraduate 2015 - 2016
Project: *"HST/STIS transmission spectroscopy for the hot Jupiter WASP-12b"*

Mentor, U. Chicago MGC Mentoring Program 2014-2016

Mentor, U. Chicago Women in Physics and Astronomy 2014-2015

Guest lecturer, DePaul University "Science and SETI" course 2015, 2016

Teaching Assistant, University of Chicago

- Astronomy 282: Exoplanets 2013
- Physical Science 119: Stellar Astronomy 2012
- Astronomy 241: Physics of Stars and Stellar Systems 2011

OUTREACH

Co-founder, Astronomy on Tap Chicago 2016

Research featured in an episode of PBS's "The Good Stuff" 11/2015

Public lecture on "Prospects for Detecting Alien Life in the Next Decade" 2014-2015
given at ORD Camp, Truborn Gallery Art of Science, UofC Carl Sagan Day,
the Roycemore School, & Renaissance Court and Harbor Point Senior Centers

Invited panelist, PyLadiesChicago discussion on Python in scientific research 04/2015

Press coverage includes Time, Scientific American, NPR, National Geographic 2013 - present

Participant in Hubble Hangout: The Thermal Map of Exoplanet WASP-43b 11/2014

YouTube video "A Weather Map for the Hot Jupiter WASP-43b" (5k views) 10/2014

YouTube video "Clouds on the Super-Earth Exoplanet GJ 1214b" (20k views) 12/2013

Invited panelist, Northeast Conference for Undergraduate Women in Physics 01/2012