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CURRICULUM VITAE

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Appointments

Professor of Planetary Science, Caltech, 2017-present
Assistant Professor of Planetary Science, Caltech, 2011-2017
Miller Fellow, University of California, Berkeley, 2009-2011
Graduate Research Fellow, Harvard University, 2004-2009

Research Interests

Composition, chemistry, and atmospheric dynamics of planets orbiting other stars
The role of gas giant planets in shaping planetary system architectures
Atmospheric mass loss from close-in planets
High-precision infrared photometry of dynamically interacting multi-planet systems

Education

Ph.D. in Astronomy, Harvard University, 2009, Advisor D. Charbonneau
"Portraits of Distant Worlds: Characterizing the Atmospheres of Extrasolar Planets"
A. M. in Astronomy, Harvard University, 2006
B.Sc. in Physics, Johns Hopkins University, 2004, departmental and university honors

Selected Awards

Paolo Farinella Prize, Europlanet Society, 2020
Presidential Early Career Award for Scientists and Engineers, 2019
Associated Students of Caltech Teaching Award, 2019
National Science Foundation CAREER (Faculty Early Career Development) Award, 2016
Newton Lacy Pierce Prize, American Astronomical Society, 2015
Alfred P. Sloan Research Fellow in Physics, 2015
Annie Jump Cannon Award, American Astronomical Society, 2013

Teaching and Mentoring

GE/ESE 150, "Planetary Atmospheres", 2021-2024
GE/AY 117, "Bayesian Statistics and Data Analysis", 2014-2024
GE/AY 133, "Formation and Evolution of Planetary Systems", 2012-2018

Currently Advisor to:

- *Postdocs:* Fei Dai, Jessica Spake
- *Graduate students:* Jonathan Gomez Barrientos, Michael Greklek-McKeon, Julie Inglis, Kim Paragas, Morgan Sidel

Previously Advisor to:

- *Postdocs:* Björn Benneke, Jean-Michel Desert, Courtney Dressing, BJ Fulton, Erik Petigura, Avi Shporer

- *Graduate students (*=PhD advisor)*: Danica Adams, Aida Behmard*, Marta Bryan*, Peter Buhler, Yayaati Chachan*, Ge Chen, Patrick Fischer, Jonathan Fraine (U. Maryland), Joshua Kammer, Michael Line, Henry Ngo*, Joseph O'Rourke, Danielle Piskorz, Nancy Thomas, Shreyas Vissapragada*, Nicole Wallack*, Ian Wong, Michael Zhang*
- *Undergraduates*: Ingrid Beerer, Madison Brady, Wenjun (Happy) Chang, Cayla Dedrick, Kimberly Paragas, Jorge Pérez González, Abigail Tumborang, Wenhao (Jerry) Xuan, Samuel Yee

Service Activities

- Academic Officer, Caltech Division of Geological and Planetary Sciences, 2022-present
- Keck Planet Finder Science Advisory Council, 2018-present
- JWST Users Committee, 2016-2019
- JPL Advisory Council, 2014-2016
- Spitzer Oversight Committee, 2012-2016
- Spitzer Users Panel, 2010-2012

Selected Talks (2020-present):

Invited Seminars and Colloquia

Princeton/IAS Joint Colloquium, Mar 28 2023
 University of Arizona Adam P. Showman Distinguished Visiting Lectureship, April 19 2022
 Queen's University Belfast Astrophysics Research Centre Seminar, Dec 1 2021
 University of Rochester Astro Seminar, Nov 29 2021
 Harvard Astronomy Colloquium, Jan 28 2021
 Penn State Astronomy & Astrophysics Colloquium, Dec 2 2020
 Princeton Exoplanet Lunch talk, Jun 29 2020

Conference Talks

Principal Lecturer at the Geophysical Fluid Dynamics Program, Woods Hole Oceanographic Institution, Jun 20-30 2023
 Palomar Science Meeting, Jun 1 2023
 Farinella Prize Lecture, Europlanet Science Congress, virtual conference, Sept 22 2020
 Celebrating the Legacy of the Spitzer Space Telescope, Pasadena, CA Feb 11 2020

Published Papers (196 Papers, 15,706 Citations). Selected publications:

Pérez González, J., Greklek-McKeon, M., Vissapragada, S., Saidel, M., **Knutson, H. A.**, Linssen, D., & Oklopčić, A. 2023, "Detection of an Atmospheric Outflow from the Young Hot Saturn TOI-1268b. AJ subm., arXiv:2307.09515

Zhang, M., Dai, F., Bean, J. L., **Knutson, H. A.**, & Rescigno, F. 2023, "Outflowing Helium from a Mature Mini-Neptune," AJ in press, arXiv:2308.02002

Bello-Arufe, A., **Knutson, H. A.**, Mendonça, J. M., Zhang, M. M., Cabot, S. H. C., Rathcke, A. D., Ulla, A., Vissapragada, S., & Buchhave, L. A. 2023, "Transmission Spectroscopy of the Lowest-Density Gas Giant: Metals and a Potential Extended Outflow in HAT-P-67b," AJ 166, 69

Vissapragada, S., Chontos, A., Greklek-McKeon, M., **Knutson, H. A.**, Dai, F., Pérez González, J., Grunblatt, S., Huber, D., & Saunders, N. 2023, "The Possible Tidal Demise of Kepler's First Planetary System," ApJL 941, L31

Deming, D., Line, M. R., **Knutson, H. A.**, Crossfield, I. J. M., Kempton, E. M.-R., Komacek, T. D., Wallack, N., & Fu, G. 2023, "Emergent Spectral Fluxes of Hot Jupiters: an Abrupt Rise in Day Side Brightness Temperature Under Strong Irradiation," *AJ* 165, 104

Chachan, Y., **Knutson, H. A.**, Lothringer, J., & Blake, G. A. 2023, "Breaking Degeneracies in Formation Histories by Measuring Refractory Content in Gas Giants," *ApJ* 943, 112

Zhang, M., **Knutson, H. A.**, Dai, F., Wang, L., Ricker, G. R., Schwarz, R. P., Mann, C., & Collins, K. 2023, "Detection of Atmospheric Escape from Four Young Mini Neptunes," *AJ* 165, 62

Grekle-McKeon, M., **Knutson, H. A.**, Vissapragada, S., Jontof-Hutter, D., Chachan, Y., Thorngren, D., & Vasisht, G. 2023, "Constraining the Densities of the Three Kepler-289 Planets with Transit Timing Variations," *AJ* 165, 48

Zhang, M., Cauley, W. P., **Knutson, H. A.**, France, K., Kreidberg, L., Oklopčić, A., Redfield, S., Shkolnik, E. L. 2022, "More Evidence for Variable Helium Absorption from HD 189733b," *AJ* 164, 237

Vissapragada, S., **Knutson, H. A.**, Grekle-McKeon, M., Oklopčić, A., Dai, F., dos Santos, L. A., Jovanovic, N., Mawet, D., Millar-Blancher, M. A., Paragas, K., Spake, J. J., & Vasisht, G. 2022, "The Upper Edge of the Neptune Desert is Stable Against Photoevaporation," *AJ* 164, 234

Xuan, J. W., Wang, J., Ruffio, J.-B., **Knutson, H.**, Mawet, D., Molliere, P., Kolecki, J., Vigan, A., Mukherjee, S., Wallack, N., Wang, J., Baker, A., Bartos, R., Blake, G. A., Bond, C. Z., Bryan, M., et al. 2022, "A Clear View of a Cloudy Brown Dwarf Companion from High-Resolution Spectroscopy," *AJ* 937, 54

Wong, I., Chachan, Y., **Knutson, H. A.**, Henry, G. W., Adams, D., Kataria, T., Benneke, B., Gao, P., Deming, D., Lopez-Morales, M., Sing, D. K., Alam, M. K., Ballester, G. E., Barstow, J. K., Buchhave, L. A., et al. 2022, "The Hubble PanCET Program: A Featureless Transmission Spectrum for WASP-29b and Evidence of Enhanced Atmospheric Metallicity on WASP-80b," *AJ* 164, 30

Rosenthal, L. J., **Knutson, H. A.**, Chachan, Y., Dai, F., Howard, A. W., Fulton, B. J., Chontos, A., Crepp, J. R., Dalba, P. A., Henry, G. W., Kane, S. R., Petigura, E. A., Weiss, L. M., Wright, J. T. 2022, "The California Legacy Survey III. On the Shoulders of (Some) Giants: The Relationship Between Inner Small Planets and Outer Massive Planets," *ApJS* 262, 1

Vissapragada, S., **Knutson, H. A.**, dos Santos, L. A., Wang, L., & Dai, F. 2022, "The Maximum Mass-Loss Efficiency for a Photoionization-Driven Isothermal Parker Wind," *ApJ* 927, 96

Adams, D., Kataria, T., Batalha, N., Gao, P., **Knutson, H.** 2022, "Spatially Resolved Modeling of Optical Albedos for a Sample of Six Hot Jupiters," *ApJ* 926, 157

Chachan, Y., Dalba, P. A., **Knutson, H. A.**, Fulton, B. J., Thorngren, D., Beichman, C., Ciardi, D. R., Howard, A. W., & Van Zandt, J. 2022, "Kepler-167e as a Probe of the Formation Histories of Cold Giants with Inner Super-Earths," *ApJ* 926, 62

Zhang, M., **Knutson, H. A.**, Wang, L., Dai, F., dos Santos, L. A., Fossati, L., Henry, G. W., Ehrenreich, D., Alibert, Y., Hoyer, S., Wilson, T. G., & Bonfanti, A. 2022, "Detection of Ongoing Mass Loss from HD 63433c, a Young Mini Neptune," *AJ* 163, 68

Zhang, M., **Knutson, H. A.**, Wang, L., Dai, F., & Barragán, O. 2022, "Escaping Helium from TOI 560.01, a Young Mini Neptune," *AJ* 163, 67

Vissapragada, S., Stefánsson, G., Grekle-McKeon, M., Oklopčić, A., **Knutson, H. A.**, et al. 2021, "A Search for Planetary Metastable Helium Absorption in the V1298 Tau System," *AJ* 162, 222

Chachan, Y., Lee, E. J., **Knutson, H. A.** 2021, "Radial Gradients in Dust Opacity Lead to Preferred Region for Giant Planet Formation," *ApJ* 919, 63

- Wallack, N. L., **Knutson, H. A.**, & Deming, D. 2021, “Trends in *Spitzer* Secondary Eclipses,” *AJ* 162, 36
- Zhang, M., **Knutson, H. A.**, Wang, L., Dai, F., Oklopčić, A., & Hu, Renyu. 2021, “No Escaping Helium from 55 Cnc e,” *AJ* 161, 181
- Paragas, K., Vissapragada, S., **Knutson, H. A.**, Oklopčić, A., Chachan, Y., Greklek-McKeon, M., Dai, F., Tinyanont, S., & Vasisht, G. 2021, “Metastable Helium Reveals an Extended Atmosphere for the Gas Giant HAT-P-18b,” *ApJL* 909, L10
- Dedrick, C. M., Fulton, B. J., **Knutson, H. A.**, Howard, A. W., Beatty, T. G., Cargile, P. A., Gaudi, B. S., Hirsch, L. A., Kuhn, R. B., Lund, M. B., James, D. J., Kosiarek, M. R., Pepper, J., Petigura, E. A., Rodriguez, J. E., Stassun, K. G., Stevens, D. J. 2021, “Two Planets Straddling the Habitable Zone of the Nearby K Dwarf GJ 414A,” *AJ* 161, 86
- Chachan, Y., Jontof-Hutter, D., **Knutson, H. A.**, Adams, D., Gao, P., Benneke, B., Berta-Thompson, Z., Dai, F., Deming, D., Ford, E., Lee, E. J., Libby—Roberts, J. E., Madhusudhan, N., Wakeford, H. R., & Wong, I. 2020, “A Featureless Infrared Transmission Spectrum for the Super-Puff Planet Kepler-79d,” *AJ* 160, 201
- Zhang, M., Chachan, Y., Kempton, E. M.-R., **Knutson, H. A.**, & Chang, W. 2020, “PLATON II: New Capabilities and a Comprehensive Retrieval on HD 189733b Transit and Eclipse Data,” *ApJ* 899, 27
- Vissapragada, S., **Knutson, H. A.**, Jovanovic, N., Harada, C. K., Oklopčić, Eriksen, J., Mawet, D., Millar-Blanchaer, M. A., Tinyanont, S., & Vasisht, G. 2020, “Constraints on Metastable Helium in the Atmospheres of WASP-69b and WASP-52b with Ultranarrowband Photometry,” *AJ* 159, 278
- Deming, D. & **Knutson, H. A.** 2020, “Highlights of Exoplanetary Science from *Spitzer*,” *Nature Astronomy* 4, 453
- Wong, I., Benneke, B., Gao, P., **Knutson, H. A.**, Chachan, Y., Henry, G. W., Deming, D., Kataria, T., Lee, G. K. H., Nikolov, N., Sing, D. K., Ballester, G. E., Baskin, N. J., Wakeford, H. R., & Williamson, M. H. 2020, “Optical to Near-infrared Transmission Spectrum of the Warm Sub-Saturn HAT-P-12b,” *AJ* 159, 234
- Vissapragada, S., Jontof-Hutter, D., Shporer, A., **Knutson, H. A.**, Liu, L., Thorngren, D., Lee, E. J., Chachan, Y., Mawet, D., Millar-Blanchaer, M. A., Nilsson, R., Tinyanont, S., Vashisht, G., & Wright, J. 2020, “Diffuser-Assisted Infrared Transit Photometry for Four Dynamically Interacting *Kepler* Systems,” *AJ* 159, 108
- Xuan, J. W., Bryan, M. L., **Knutson, H. A.**, Bowler, B. P., Morley, C. V., & Benneke, B. 2020, “A Rotation Rate for the Planetary-Mass Companion DH Tau b,” *AJ* 159, 97
- Yee, S. W., Winn, J. N., **Knutson, H. A.**, Patra, K. C., Vissapragada, S., Zhang, M. M., Holman, M. J., Shporer, A., & Wright, J. T. 2020, “The Orbit of WASP-12b is Decaying,” *AJ* 888, L5
- Chachan, Y., **Knutson, H. A.**, Gao, P., Kataria, T., Wong, I., Henry, G. W., Benneke, B., Zhang, M., Barstow, J., Bean, J. L., Mikal-Evans, T., Lewis, N. K., Mansfield, M., López-Morales, M., Nikolov, N., & Sing, D. K. 2019, “A *Hubble* PanCET Study of HAT-P-11b: A Cloudy Neptune with a Low Atmospheric Metallicity,” *AJ* 158, 244
- Wallack, N. L., **Knutson, H. A.**, Morley, C. V., Moses, J. I., Thomas, N. H., Thorngren, D. P., Deming, D., Desert, J.-M., Fortney, J. J., & Kammer, J. A. 2019, “Investigating Trends in Atmospheric Compositions of Cool Gas Giant Planets Using *Spitzer* Secondary Eclipses,” *AJ* 158, 217
- Benneke, B., **Knutson, H. A.**, Lothringer, J., Crossfield, I. J. M., Moses, J. I., Morley, C., Kreidberg, L., Fulton, B. J., Dragomir, D., Howard, A. W., Wong, I., Desert, J.-M., McCullough, P. R., Kempton, E. M.-R., Fortney, J., Gilliland, R., Deming, D., & Kammer, J. 2019, “A Sub-Neptune Exoplanet With a Low-

Metallicity Methane-Depleted Atmosphere and Mie-Scattering Clouds,” *Nature Astronomy* 3, 813

Zhang, M., Chachan, Y., Kempton, E. M.-R., **Knutson, H. A.** 2019, “Forward Modelling and Retrievals With PLATON, A Fast Open Source Tool,” *PASP* 131, 034501

Bryan, M. L., **Knutson, H. A.**, Fulton, B.J., Lee, E. J., Batygin, K., Ngo, H., & Meshkat, T. 2019, “An Excess of Jupiter Analogs in Super-Earth Systems,” *AJ* 157, 52

Brady, M. T., Petigura, E. A., **Knutson, H. A.**, Sinukoff, E., Isaacson, H., Hirsch, L. A., Fulton, B. J., Kosiarek, M. R., & Howard, A. W. 2018, “Kepler-1656b: A Dense Sub-Saturn with an Extreme Eccentricity,” *AJ* 156, 147

Yee, S. W., Petigura, E. A., Fulton, B.J., **Knutson, H. A.**, Batygin, K., Bakos, G. A., Hartman, J. D., Hirsch, L. A., Howard, A. W., Isaacson, H., Kosiarek, M. R., Sinukoff, E., Weiss, L. M. 2018, “HAT-P-11: Discovery of a Second Planet and a Clue to Understanding Exoplanet Obliquities,” *AJ* 155, 255

Chen, G., **Knutson, H. A.**, Dressing, C. D., Morley, C. V., Werner, M., Gorjian, V., Beichman, C., Benneke, B., Christiansen, J. L., Ciardi, D., Crossfield, I., Howell, S. B., Krick, J. E., Livingston, J., Morales, F. Y., & Schleider, J. E. 2018, “An Improved Transit Measurement for a 2.4 R_{Earth} Planet Orbiting a Bright Mid-M Dwarf K2-28,” *AJ* 155, 223

Bryan, M. L., Benneke, B., **Knutson, H. A.**, Batygin, K., Bowler, B. P. 2018, “Constraints on the Spin Evolution of Young Planetary-Mass Companions,” *Nature Astronomy*, 2, 138

Zhang, M., **Knutson, H. A.**, Kataria, T., Schwartz, J. C., Cowan, N. B., Showman, A. P., Burrows, A., Fortney, J. J., Todorov, K., Desert, J.-M., Agol, E., Deming, D. 2018, “Phase Curves of WASP-33b and HD 149026b and a New Correlation Between Phase Curve offset and Irradiation Temperature”, *AJ* 155, 83

Fu, G., Deming, D., **Knutson, H.**, Madhusudhan, N., Mandell, A., & Fraine, J. 2017, “Statistical Analysis of Hubble/WFC3 Transit Spectroscopy of Extrasolar Planets,” *ApJ*, 847, L22

Ngo, H., **Knutson, H. A.**, Bryan, M., Blunt, S., Nielsen, E. L., Batygin, K., Bowler, B. P., Crepp, J. R., Hinkley, S., Howard, A. W., & Mawet, D. 2017, “No Difference in Orbital Parameters of RV-Detected Giant Planets Between 0.1-5 AU in Single vs Multi-Stellar Systems,” *AJ*, 153, 242

De Wit, J., Lewis, N. K., **Knutson, H. A.**, Fuller, J., Antoci, V., Fulton, B. J., Laughlin, G., Deming, D., Shporer, A., Batygin, K., Cowan, N. B., Agol, E., Burrows, A. S., Fortney, J. J., Langton, J., & Showman, A. P. 2017, “Planet-Induced Stellar Pulsations in HAT-P-2’s Eccentric System,” *ApJ*, 836, L17

Morley, C. V., **Knutson, H. A.**, Line, M., Fortney, J. J., Marley, M. S., Teal, D., & Lupu, R. 2017, “Forward and Inverse Modeling of the Emission and Transmission Spectrum of GJ 436b: Investigating Metal Enrichment, Tidal Heating, and Clouds,” *AJ* 153, 86

Bryan, M. L., Bowler, B. P., **Knutson, H. A.**, Kraus, A. L., Hinkley, S., Mawet, D., Nielsen, E. L., & Blunt, S. C. 2016, “Searching for Scatterers: High-Contrast Imaging of Young Stars Hosting Wide-Separation Planetary-Mass Companions,” *ApJ*, 827, 2

Ngo, H., **Knutson, H. A.**, Hinkley, S., Bryan, M., Crepp, J. R., Batygin, K., Crossfield, I., Hansen, B., Howard, A. W., Johnson, J. A., Mawet, D., Morton, T. D., Muirhead, P. S., & Wang, J. 2016, “Friends of Hot Jupiters. IV. Stellar Companions Beyond 50 AU Might Facilitate Gas Giant Planet Formation, But Are Unlikely to Cause Kozai-Lidov Migration in Most Systems,” *ApJ*, 827, 1

Fischer, P. D., **Knutson, H. A.**, Sing, D. K., Henry, G. W., Williamson, M. W., Fortney, J. J., Burrows, A. S., Kataria, T., Nikolov, N., Showman, A. P., Ballester, G. E., Desert, J.-M., Aigrain, S., Deming, D., Lecavelier des Etangs, A., & Vidal-Madjar, A. 2016, “HST Hot-Jupiter Transmission Spectral Survey: Clear Skies for Cool Saturn WASP-39b,” *ApJ*, 827, 19

Wong, I., **Knutson, H. A.**, Kataria, T., Lewis, N. K., Burrows, A., Fortney, J. J., Schwartz, J., Shporer, A., Agol, E., Cowan, N. B., Deming, D., Desert, J.-M., Fulton, B. J., Howard, A. W., Langton, J., Laughlin, G., Showman, A. P., & Todorov, K. 2016, "3.6 and 4.5 μm Phase Curves of the Highly-Irradiated Hot Jupiters WASP-19b and HAT-P-7b," *ApJ*, 823, 122

Bryan, M. L., **Knutson, H. A.**, Howard, A. W., Ngo, H., Batygin, K., Crepp, J. R., Fulton, B. J., Hinkley, S., Isaacson, H., Johnson, J. A., Marcy, G. W., & Wright, J. T. 2016, "Statistics of Long Period Gas Giant Planets in Known Planetary Systems," *ApJ*, 821, 89

Buhler, P. B., **Knutson, H. A.**, Batygin, K., Fulton, B. J., Fortney, J., Burrows, A., & Wong, I. 2016, "Dynamical Constraints on the Core Mass of Hot Jupiter HAT-P-13b," *ApJ* 821, 26

Piskorz, D., **Knutson, H. A.**, Ngo, H., Muirhead, P. S., Batygin, K., Crepp, J. R., Hinkley, S., & Morton, T. D. 2015, "Friends of Hot Jupiters. III. An Infrared Spectroscopic Search for Low-Mass Stellar Companions," *ApJ*, 814, 148

Wong, I., **Knutson, H. A.**, Lewis, N. K., Kataria, T., Burrows, A., Fortney, J. J., Schwartz, J., Agol, E., Cowan, N. B., Deming, D., Desert, J.-M., Fulton, B. J., Howard, A. W., Langton, J., Laughlin, G., Showman, A. P., Todorov, . 2015, "3.6 and 4.5 μm Phase Curves of the Highly-Irradiated Eccentric Hot Jupiter WASP-14b," *ApJ*, 811, 122

Kammer, J. A., **Knutson, H. A.**, Line, M. R., Fortney, J. J., Deming, D., Burrows, A., Triaud, A. H. M. J., Agol, E., Cowan, N. B., Desert, J.-M., Howard, A. W., Langton, J., Laughlin, G. P., Lewis, N. K., Morley, C. V., Moses, J. I., Showman, A. P., Todorov, K. O. 2015, "Spitzer Secondary Eclipse Observations of Three Cool Gas Giant Planets and Empirical Trends in Cool Planet Emission Spectra," *ApJ*, 810, 118

Deming, D., **Knutson, H. A.**, Kammer, J., Fulton, B. J., Ingalls, J., Carey, S., Burrows, A., Fortney, J. J., Todorov, K., Agol, E., Cowan, N., Desert, J.-M., Fraine, J., Langton, J., Morley, C., & Showman, A. P. 2015, "Spitzer Secondary Eclipses of the Dense, Modestly-Irradiated Giant Exoplanet HAT-P-20b Using Pixel-Level Decorrelation," *ApJ* 805, 132

Ngo, H., **Knutson, H. A.**, Hinkley, S., Crepp, J. R., Bechter, E. B., Batygin, K., Howard, A. W., Johnson, J. A., Morton, T. D., & Muirhead, P. S. 2015, "Friends of Hot Jupiters II: No Correspondence Between Hot Jupiter Spin-Orbit Misalignment and the Incidence of Directly Imaged Stellar Companions," *ApJ* 800, 138

Wong, I., **Knutson, H. A.**, Cowan, N. B., Lewis, N. K., Agol, E., Burrows, A., Deming, D., Fortney, J. J., Fulton, B. J., Langton, J., Laughlin, G., & Showman, A. P. 2014, "Constraints on the Atmospheric Circulation and Variability of the Eccentric Hot Jupiter XO-3b," *ApJ*, 794, 134

Knutson, H. A., Dragomir, D., Kreidberg, L., Kempton, E. M.-R., McCullough, P. R., Fortney, J. J., Bean, J. L., Gillon, M., Homeier, D., & Howard, A. W. 2014, "Hubble Space Telescope Near-IR Transmission Spectroscopy of the Super-Earth HD 97658b," *ApJ*, 794, 155

Zellem, R. T., Lewis, N. K., **Knutson, H. A.**, Griffith, C. A., Showman, A. P., Fortney, J. J., Cowan, N. B., Agol, E., Burrows, A., Charbonneau, D., Deming, D., Laughlin, G., & Langton, J. 2014, "The 4.5 μm Full-Orbit Phase Curve of the Hot Jupiter HD 209458b," *ApJ*, 790, 53

Shporer, A., O'Rourke, J., **Knutson, H. A.**, Szabo, G., Zhao, M., Burrows, A., Fortney, J., Agol, E., Cowan, N. B., Desert, J.-M., Lewis, N. A., Showman, A. P., & Todorov, K. O. 2014, "Atmospheric Characterization of the Hot Jupiter Kepler-13Ab," *ApJ*, 788, 92

Knutson, H. A., Fulton, B. J., Montet, B. T., Kao, M., Ngo, H., Howard, A. W., Crepp, J. R., Hinkley, S., Bakos, G. A., Batygin, K., Johnson, J. A., Morton, T. D., & Muirhead, P. S. 2014, "Friends of Hot Jupiters I: A Radial Velocity Search for Massive, Long-Period Companions in Hot Jupiter Systems," *ApJ*, 785, 126

- Line, M. R., **Knutson, H.**, Wolf, A., Yung, Y. 2014, "A Systematic Retrieval Analysis of Secondary Eclipse Spectra II: A Uniform Analysis of Eight Planets and Their C to O Ratios," *ApJ*, 783, 70
- Knutson, H. A.**, Benneke, B., Deming, D., & Homeier, D. 2014, "A featureless transmission spectrum for the Neptune-mass exoplanet GJ 436b," *Nature* 505, 66
- Kammer, J. A., **Knutson, H. A.**, Howard, A. W., Laughlin, G. P., Deming, D., Todorov, K. O., Desert, J.-M., Agol, E., Burrows, A., Fortney, J. J., Showman, A. P., & Lewis, N. K. 2014, "A Spitzer Search for Transits of Radial Velocity Detected Super-Earths," *ApJ* 781, 103
- O'Rourke, J. G., **Knutson, H. A.**, Zhao, M., Fortney, J. J., Burrows, A., Agol, E., Deming, D., Desert, J.-M., Howard, A. W., Lewis, N. K., Showman, A. P., & Todorov, K. O. 2014, "Warm Spitzer and Palomar Near-IR Secondary Eclipse Photometry of Two Hot Jupiters: WASP-48b and HAT-P-23b," *ApJ* 781, 109
- Line, M. R., **Knutson, H.**, Deming, D., Wilkins, A., & Desert, J.-M. 2013, "A Near-Infrared Transmission Spectrum for the Warm Saturn HAT-P-12b," *ApJ* 778, 183
- Baskin, N. J., **Knutson, H. A.**, Burrows, A., Fortney, J. J., Lewis, N. K., Agol, E., Charbonneau, D., Cowan, N. B., Deming, D., Desert, J.-M., Langton, J., Laughlin, G., & Showman, A. P. 2013, "Secondary Eclipse Photometry of the Exoplanet WASP-5b with Warm Spitzer," *ApJ*, 773, 124
- Todorov, K. O., Deming, D., **Knutson, H. A.**, Burrows, A., Sada, P. V., Cowan, N. B., Agol, E., Desert, J.-M., Fortney, J. J., Charbonneau, D., Laughlin, G., Langton, J., Showman, A. P., Lewis, N. K. 2013, "Warm Spitzer Photometry of Three Hot Jupiters: HAT-P-3b, HAT-P-4b, and HAT-P-12b," *ApJ*, 770, 102
- Lewis, N. K., **Knutson, H. A.**, Showman, A. P., Fortney, J. J., Mighell, K. J., Agol, E., Burrows, A., Charbonneau, D., Cowan, N. B., Desert, J.-M., Langton, J., & Laughlin, G. 2013, "Orbital Phase Variations of the Eccentric Giant Planet HAT-P-2b at 3.6 and 4.5 Microns," *ApJ*, 766, 95
- Knutson, H. A.**, Lewis, N., Fortney, J. J., Burrows, A., Showman, A. P., Cowan, N. B., Agol, E., Aigrain, S., Charbonneau, D., Deming, D., Desert, J.-M., Henry, G. W., Langton, J., & Laughlin, G. 2012, "3.6 and 4.5 μm Phase Curves and Evidence for Non-Equilibrium Chemistry in the Atmosphere of Extrasolar Planet HD 189733b," *ApJ*, 754, 22
- Crossfield, I. J. M., **Knutson, H. A.**, Fortney, J., Showman, A. P., Cowan, N. B., & Deming, D. 2012, "Spitzer/MIPS 24 μm Observations of HD 209458b: 3 Eclipses, 2.5 Transits, and a Phase Curve Corrupted by Instrumental Sensitivity Variations," *ApJ*, 752, 81
- Todorov, K. O., Deming, L. D., **Knutson, H. A.**, Burrows, A., Sada, P. V., Agol, E., Desert, J.-M., Fortney, J. J., Charbonneau, D., Cowan, N. B., Laughlin, G., Langton, J., Showman, A. P., & Lewis, N. K. 2012, "Warm Spitzer Observations of Three Hot Exoplanets: XO-4b, HAT-P-6b, and HAT-P-8b," *ApJ*, 746, 111
- Knutson, H. A.**, Madhusudhan, N., Cowan, N. B., Christiansen, J. L., Agol, E., Deming, D., Desert, J.-M., Charbonneau, D., Henry, G. W., Homeier, D., Langton, J., Laughlin, G., Seager, S. 2011, "A Spitzer Transmission Spectrum for the Exoplanet GJ 436b, Evidence for Stellar Variability, and Constraints on Dayside Flux Variations," *ApJ*, 735, 27
- Beerer, I. M., **Knutson, H. A.**, Burrows, A., Fortney, J. J., Agol, E., Charbonneau, D., Cowan, N. B., Deming, D., Desert, J.-M., Langton, J., Laughlin, G., Lewis, N. K., Showman, A. P. 2011, "Secondary Eclipse Photometry of WASP-4b with Warm Spitzer," *ApJ*, 727, 23
- Deming, D., **Knutson, H. A.**, Agol, E., Desert, J.-M., Burrows, A., Fortney, J. J., Charbonneau, D., Cowan, N. B., Laughlin, G., Langton, J., Showman, A. P., Lewis, N. K., 2011, "Warm Spitzer Photometry of the Transiting Exoplanets CoRoT-1 and CoRoT-2 at Secondary Eclipse," *ApJ*, 726, 95

- Knutson, H. A.**, Howard, A. W., & Isaacson, H. 2010, "A Correlation Between Stellar Activity and Hot Jupiter Emission Spectra," *ApJ*, 720, 1569
- Fressin, F., **Knutson, H. A.**, Charbonneau, D., O'Donovan, F. T., Burrows, A., Deming, D., Mandushev, G., Spiegel, D. 2010, "The Broadband Infrared Emission Spectrum of the Exoplanet TrES-3," *ApJ*, 711, 374
- Agol, E., Cowan, N. B., **Knutson, H. A.**, Deming, D., Steffen, J. H., Henry, G. W., Charbonneau, D. 2010, "The Climate of HD 189733b from Fourteen Transits and Eclipses Measured by Spitzer," *ApJ*, 721, 1861
- Knutson, H. A.**, Charbonneau, D., Cowan, N. B., Fortney, J. J., Showman, A. P., Agol, E., & Henry, G. W. 2009, "The 8 μm Phase Variation of the Hot Saturn HD 149026b," *ApJ*, 703, 769
- Knutson, H. A.**, Charbonneau, D., Burrows, A., O'Donovan, F. T., & Mandushev, G. 2009, "Detection of a Temperature Inversion in the Broadband Infrared Emission Spectrum of TrES-4", *ApJ*, 691, 866
- Pont, F., Gilliland, R. L., **Knutson, H. A.**, Holman, M., & Charbonneau, D. 2009, "Transit Spectroscopy of the hot Neptune Around GJ 436 with the HST", *MNRAS*, 393, L6
- Knutson, H. A.**, Charbonneau, D., Cowan, N. B., Agol, E., Showman, A. P., Fortney, J. J., Henry, G. W., Everett, M. E., Allen, L. E. 2009, "Multi-Wavelength Constraints on the Day-Night Circulation Patterns of HD 189733b", *ApJ*, 690, 822
- Charbonneau, D., **Knutson, H. A.**, Barman, T., Allen, L. E., Mayor, M. S., Megeath, S. T., Queloz, D., & Udry, S. 2008, "The Broadband Infrared Emission Spectrum of the Exoplanet HD 189733b", *ApJ*, 686, 1341
- Pont, F., **Knutson, H. A.**, Gilliland, R. L., Moutou, C., & Charbonneau, D. 2008, "Detection of an Atmospheric Haze on an Extrasolar Planet: The 0.55-1.05 μm Transmission Spectrum of HD 189733b", *MNRAS*, 385, 109
- Knutson, H. A.**, Charbonneau, D., Allen, L. E., Burrows, A., & Megeath, S. T. 2008, "The 3.6-8.0 μm Broadband Emission Spectrum of HD 209458b: Evidence for an Atmospheric Temperature Inversion", *ApJ*, 673, 576
- Knutson, H. A.**, Charbonneau, D., Deming, D., & Richardson, L. J. 2007, "A Ground-Based Search for Thermal Emission from the Exoplanet TrES-1", *PASP*, 119, 616
- Knutson, H. A.**, Charbonneau, D., Allen, L. E., Fortney, J. J., Agol, E., Cowan, N. B., Showman, A. P., Cooper, C. S., & Megeath, S. T. 2007, "A Map of the Day-Night Contrast of the Extrasolar Planet HD 189733b", *Nature*, 447, 183
- Knutson, H. A.**, Charbonneau, D., Noyes, R. W., Brown, T. M., & Gilliland, R. L. 2007, "Using Stellar Limb-Darkening to Refine the Properties of HD 209458b," *ApJ*, 655, 564
- Bakos, G. A., **Knutson, H.**, Pont, F., Moutou, C., Charbonneau, D., Shporer, A., Bouchy, F., Everett, M., Hergenrother, C., Latham, D. W., Mayor, M., Mazeh, T., Noyes, R. W., Queloz, D., Pal, A., & Udry, S. 2006, "Refined Parameters of the Planet Orbiting HD 189733," *ApJ*, 650, 1160