

## Contact

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## Education

- 2017 **Pennsylvania State University**, State College, PA  
Dual PhD, Astronomy and Astrophysics and Astrobiology  
“A Synergistic Approach to Interpreting Planetary Atmospheres”  
Supervised by James F. Kasting, Steinn Sigurdsson
- 2013 **Cornell University**, Ithaca, NY  
B.A., Physics  
**University of New South Wales**, Sydney, Australia  
Abroad Honors Thesis, Physics and Astronomy

## Appointments

- 2019-present **NASA Ames Research Center**, Moffett Field, CA  
Research Scientist
- 2018 **University of California Santa Cruz**, Santa Cruz, CA  
UC President’s Postdoctoral Fellowship
- 2017 **Space Telescope Science Institute**, Baltimore, MD  
Postdoctoral Fellow in Science Mission Office
- 2013 **Space Telescope Science Institute**, Baltimore, MD  
Space Astronomy Summer Program
- 2011 **Goddard Space Flight Center**, Greenbelt, MD  
Undergraduate Research Associates in Astrobiology
- 2009-2013 **Spacecraft Planetary Imaging Facility**, Ithaca, NY  
Assistant Manager

## Awards and Fellowships

- 2018 University of California President’s Postdoctoral Fellowship
- 2017 Ford Foundation Fellowship, Honorable Mention
- 2016-2017 Alfred P. Sloan Foundation’s Minority Graduate Scholarship
- 2016 Kavli Student Fellow
- 2015 NAI Early Career Collaboration Award
- 2015 Stephen B. Brumbach Graduate Fellowship in Astrophysics
- 2014-2017 National Science Foundation Graduate Research Fellowship
- 2013 STEM Scholar Graduate Fellow
- 2012 Douglas and Dorothy K. Wood Scholarship
- 2011 NASA/NY Space Grant Consortium

## 1st Author Publications

- 2019 **Batalha, N.E.**, Marley, M., Lewis, N.K., Fortney, J.J., *Exoplanet Reflected Light Spectroscopy with PICASO* ApJ, 878, 1, <https://arxiv.org/abs/1904.09355>,

- Batalha, N.E.**, Lewis, T., Fortney, J.J., Batalha, N.M., et al., *The Precision of Mass Measurements Required for Robust Atmospheric Characterization of Transiting Exoplanets*, *ApJL*, 885, 1, <https://arxiv.org/pdf/1910.00076.pdf>
- 2018 **Batalha, N.E.**, Smith, A., Lewis, N.K., Marley, M., Fortney, J. *Color Classification of Extrasolar Giant Planets: Prospects and Cautions*, *AJ*, 156, 158 <https://arxiv.org/abs/1807.08453>
- Batalha, N.E.**, Lewis, N.K., Line, M.R. et al. *Strategies for Constraining the Atmospheres of Temperate Terrestrial Planets with JWST*, *ApJL*, 856, 34 <https://arxiv.org/abs/1803.07983>
- Batalha, N.E.**, et al., *Reply to Shaw*. *EPSL*, 484, 415-417
- 2017 **Batalha, N.E.**, et al., *PandExo: A Community Tool for Exoplanet Science with the JWST and HST*. *PASP*, 129, 064501 <https://arxiv.org/abs/1702.01820>
- Batalha, N.E.**, Kempton, E., & Mbarek, R., *Challenges in Constraining Exoplanet Masses via Transmission Spectroscopy*, 2017, *ApJL*, 836, L5, <https://arxiv.org/abs/1701.00012>
- Batalha, N.E.**, & Line, M.R., *Information Content Analysis for Selection of Optimal JWST Observing Modes for Transiting Exoplanet Atmospheres*. *ApJ*, 153, 4, <https://arxiv.org/abs/1612.02085>
- 2016 **Batalha, N.E.**, et al., *Climate Cycling on Early Mars Caused by the Carbonate-Silicate Cycle*. *EPSL*, 455, 7-13 <https://arxiv.org/abs/1609.00602>
- 2015 **Batalha, N.E.**, et al., *Testing the Early Mars H<sub>2</sub>-CO<sub>2</sub> Greenhouse Hypothesis with a 1-D Photochemical Model*. *Icarus*, 258, 337-349 <https://arxiv.org/abs/1507.02569>
- 2014 **Batalha, N.E.**, et al. *Transiting Exoplanet Simulations with the James Webb Space Telescope*. *JWST White Paper*, <https://arxiv.org/abs/1507.02655>

### Co-authored Publications

- 2019 Mayorga, L.C., **Batalha, N.E.**, Lewis, N.K., Marley, M., *Reflected Light Phase Curves in the TESS Era*. *AJ*, 158, 66,
- Wakeford, H.W., 6 others, **Batalha, N.E.**, et al. *Disentangling the Planet from the Star in Late-Type M Dwarfs: A Case Study of TRAPPIST-1g*, *AJ*, 157, 11 <https://arxiv.org/abs/1811.04877>
- 2018 Kempton, Eliza M.R., 13 others, **Batalha, N.E.** et al. *A Framework for Prioritizing the TESS Planetary Candidates Most Amenable to Atmospheric Characterization*, *PASP*, 130, 114401 <https://arxiv.org/abs/1805.03671>
- Moran, S.E., Horst, S.M., **Batalha, N.E.**, et al. *Limits on Clouds and Hazes for TRAPPIST-1 Planets*, *AJ*, 156, 252 <https://arxiv.org/abs/1810.05210>
- Bean, Jacob, 13 others, **Batalha, N.E.** et al., *The Transiting Exoplanet Community Early Release Science Program for JWST*. *PASP*, 130, 114402, <https://arxiv.org/abs/1803.04985>
- Blumenthal, S., Mandell, A., Herbrard, E., **Batalha, N.E.**, et al. *Comparison of Simulated JWST Observations Derived from Equilibrium and Non-Equilibrium Chemistry Models of Giant Exoplanets*, *ApJ*, 853, 138, <https://arxiv.org/abs/1712.01121>

- 2017 Kopparapu, R., Wolf, E., Arney, G., **Batalha, N.E.**, et al., *Habitable Moist Atmospheres on Terrestrial Planets Near the Inner Edge of the Habitable Zone around M-Dwarfs*. ApJ, 845, 5 <https://arxiv.org/abs/1705.10362>
- Christiansen, J., 27 others, **Batalha, N.E.**, et al., *Three's Company: An Additional Non-Transiting Super-Earth in the Bright HD 3167 System, and Masses for All Three Planets*, AJ, 154, 122 <https://arxiv.org/abs/1706.01892>
- 2016 Haqq-Misra, J., Kopparapu, R., **Batalha, N.E.**, et al. Limit Cycles Can Reduce the Width of the Habitable Zone, ApJ, 827, 120 <https://arxiv.org/abs/1605.07130>
- 2015 Cowan, N.B, Greene, T., Angerhausen., D., **Batalha, N.E.** et al. *Characterizing Transiting Planet Atmospheres Through 2025*. PASP, 127, 311 <https://arxiv.org/abs/1502.00004>
- 2011 Agueros, M., Covey, K., 3 others, **Batalha, N.E.** et al., *The Factory and the Beehive. I. Rotation Periods of Low-Mass Stars in Praesepe* Apj, 740, 110

### Funded Proposals

- 2019 Science PI, NASA Unsolicited Proposal 112818, *Community Tool for Computing, Manipulating and Visualizing Molecular and Atomic Opacities*
- 2017 Co-Investigator, HST-GO-14918 (10 orbits) *Definitive Measurement of WASP-17b's Water Abundance in Preparation of JWST*, PI: Wakeford

### Teaching & Mentoring

- 2018 Guest Lecturer, Undergraduate Level Planetary Atmospheres, John Hopkins Univ.
- 2017 K-12 Instructor at Project Favela Rocinha, Rio de Janeiro, Brazil
- 2013-2017 Mentored students from underserved backgrounds through Learn to Be Foundation 501(c)(3) nonprofit

### Education and Public Outreach

#### Involvement in Media and Online Content

- 2017 AAAS Catalyzing Advocacy in Science and Engineering  
<https://www.aaas.org/page/about-0e>
- 2014-2016 Astrobites Writer & Editor  
<http://astrobites.com/author/nbatalha>
- 2014-2015 NASA FameLab Science Communication  
<https://www.youtube.com/watch?v=ioNSVINsW9I>  
[https://www.youtube.com/watch?v=T\\_7wlmzbLCs](https://www.youtube.com/watch?v=T_7wlmzbLCs)  
<https://www.youtube.com/watch?v=dLrjPr6SFtA>
- 2014-2015 New York Film Academy Science Animation Advisor

#### Involvement with Groups Underrepresented in STEM

- 2014-2017 Instructor for Centre County Prison Society Education Program
- 2013-2017 Director of Programs, Learn to Be Foundation 501(c)(3) nonprofit
- 2014-2015 Graduate Women in Science Girl Scout Co-Chair
- 2014 McNair Scholar Graduate Student Panelist

#### Education & Outreach Talks

- Feb 2018 George Mason University Observatory, Fairfax, VA
- July 2015 High School and Middle School Teacher Workshop, State College, PA

### Presentations

*Invited Talks, Seminar, Panels & Colloquia*

Dec. 2019	Department of Astronomy, University of Michigan, Colloquium <i>Exoplanetary Atmospheres at the Onset of Next-Generation Missions</i>
Nov. 2019	Carnegie Observatory, Pasadena, Colloquium <i>Exoplanetary Atmospheres at the Onset of Next-Generation Missions</i>
Dec. 2018	Department of Astrobiology, University of Washington, Colloquium <i>Interpreting Terrestrial Exo-Atmospheres with JWST: Insights from Solar System Science</i>
Nov. 2018	Department of Space Sciences, Cornell University, Planetary Lunch Seminar <i>Interpreting Terrestrial Exo-Atmospheres with JWST: Insights from Solar System Science</i>
Nov. 2018	Harvard's Center for Astrophysics, Stars and Planets Seminar Series <i>Interpreting Terrestrial Exo-Atmospheres with JWST: Insights from Solar System Science</i>
Oct. 2018	Department of Astronomy & Astrophysics, UCSC, Colloquium <i>Interpreting Terrestrial Exo-Atmospheres with JWST: Insights from Solar System Science</i>
Oct. 2018	Department of Physics, University of California Merced, Colloquium <i>Interpreting Exoplanetary Atmospheres with the Next Generation Space-Based Telescope</i>
Jun. 2018	Emerging Researchers in Exoplanets Symposium, Panelist <i>Future of Exoplanet Research Panel</i>
Jun. 2018	Planetary Exploration Group, JHU Applied Physics Lab, Laurel, MD <i>Exoplanets in the Era of JWST and WFIRST</i>
Jul. 2017	Enabling Transiting Exoplanet Observations with JWST, STScI, Talk <i>Introduction to PandExo</i>
Feb. 2017	School of Earth and Space Exploration, Arizona State University, Seminar <i>Transiting Exoplanet Science with the James Webb Space Telescope</i>
Aug. 2016	Planetary Systems: A Synergistic View, Quy Nhon, Vietnam, Talk <i>Transiting Exoplanet Science with the James Webb Space Telescope</i>
Apr. 2016	Department of Terrestrial Magnetism, Carnegie Institute, Seminar <i>Transiting Exoplanet Science with the James Webb Space Telescope</i>
Mar. 2016	Goddard Space Flight Center, Greenbelt, MD, Seminar <i>A Community Tool for Exoplanet Science with JWST</i>
Mar. 2016	Center for Exoplanets and Habitable Worlds, Penn State, Seminar <i>A Community Tool for Exoplanet Science with JWST</i>
Feb. 2016	Jet Propulsion Laboratory, Seminar <i>Transiting Exoplanet Science with the James Webb Space Telescope</i>
May 2015	Penn State Board of Visitors, University Park, PA, Talk <i>How to search for life when we don't know what we are looking for</i>
May 2015	Penn State Dean of Eberly College of Science Advisory Committee, Talk <i>How to search for life when we don't know what we are looking for</i>
Mar. 2015	Center for Exoplanets and Habitable Worlds, Penn State University, Seminar <i>Testing the Early Mars H<sub>2</sub>-CO<sub>2</sub> Greenhouse Hypothesis</i>

Oct. 2012      Cornell Planet Lunch Series, Ithaca, NY, Seminar  
*Characterizing Transiting Exoplanet GJ1214b with KECK II*

### *Contributed Talks*

Sept. 2019      Bay Area Exoplanet Meeting, NASA Ames, CA  
*Precision of Mass Required for Robust Atmospheric Characterization of Transiting Planets*

Dec. 2018      Bay Area Exoplanet Meeting, NASA Ames, CA  
*Exoplanet Reflected Light Spectroscopy with PICASO*

Sept. 2018      Bay Area Exoplanet Meeting, NASA Ames, CA  
*Color Classification of Extrasolar Giant Planets*

Jul. 2018      Exoplanets II, Cambridge, UK  
*Color Classification of Extrasolar Giant Planets*

May. 2018      Chesapeake Bay Area Exoplanet Meeting, Carnegie DTM, MD  
*Color Classification of Extrasolar Giant Planets*

Jan. 2018      Winter AAS Conference, Washington DC  
*Optimal Strategies for Probing Terrestrial Atmospheres with JWST*

Jan. 2017      Winter AAS Conference, Grapevine, Texas  
*Key Exoplanets in the JWST Era*

Oct. 2016      Division of Planetary Sciences Conference, Pasadena, CA  
*Climate Cycling on Early Mars via the Carbonate Silicate Cycle*

Jan. 2014      Winter AAS Conference, Washington, DC  
*Transiting Exoplanet Simulations with JWST*

Aug. 2013      Space Telescope Science Institute  
*Using NIRISS and NIRSpec for Transiting Exoplanet Science*

### *Contributed Posters*

Mar. 2016      Linking Disks and Exoplanet Compositions Workshop, Baltimore, MD  
*A Community Tool for Exoplanet Characterization with JWST*

Mar. 2014      Exoplanet, Biosignatures & Instrumentation, Tucson, AZ  
*Warming Early Mars with H<sub>2</sub> and CO<sub>2</sub>*

Mar. 2014      Exoplanet, Biosignatures & Instrumentation, Tucson, AZ  
*Characterizing Exoplanets with JWST*

### Service

2017-present      Referee, ApJ, ApJL

2014      ExoPAG: Science Analysis Group 10: Characterizing Exoplanets through 2025

2014      Emerging Researchers in Exoplanets Science Symposium Organizing Committee

2014      Astrobiology Graduate Conference Organizing Committee