

SARAH BLUMENTHAL

sarah.blumenthal@physics.ox.ac.uk

EDUCATION

- University of Oxford, Atmospheric, Oceanic, and Planetary Physics** *October 2019 - October 2022*
Postgraduate, Department of Physics
Supervisor: Raymond Pierrehumbert
College: St Edmund Hall
- University of Exeter, College of Engineering, Maths, and Physics** *January 2017 - April 2019*
Postgraduate, Department of Astrophysics (quit)
Supervisors: Éric Hébrard & Isabelle Baraffe
- University of Central Florida, College of Sciences** *January 2010 - December 2014*
Undergraduate, Department of Chemistry, Minor in Mathematics
- The Boston Conservatory, College of Music** *September 2007 - May 2008*
Undergraduate, Vocal Performance
- Florida State University, College of Music** *August 2005 - December 2007*
Undergraduate, Choral Music Education and Jazz Studies

SCIENTIFIC EXPERIENCE

- NASA GSFC Institute for Astrobiology** *January 2016 - December 2016*
Faculty Research Assistant, Supervisor: Avi Mandell
- NASA GSFC Institute for Astrobiology** *May 2015 - August 2015*
Summer Intern; Supervisor: Avi Mandell
- University of Central Florida, Department of Physics** *January 2015 - December 2015*
Staff Scientist, Supervisor: Joe Harrington
- University of Central Florida, Department of Physics** *June 2013 - December 2014*
Undergraduate Researcher, Supervisor: Joe Harrington
- University of Central Florida, Department of Chemistry** *January 2013 - May 2013*
Undergraduate Researcher (unpaid), Supervisor: Jim Harper
- University of Central Florida, Department of Chemistry** *August 2012 - May 2013*
Undergraduate Researcher (unpaid), Supervisor: Shengli Zou

PUBLICATIONS

Blumenthal, Sarah D.; Mandell, Avi M.; Hébrard, Éric; Batalha, Natasha E.; Cubillos, Patricio E.; Rugheimer, Sarah; Wakeford, Hannah R. 2018. A Comparison of Simulated JWST Observations Derived from Equilibrium and Non-equilibrium Chemistry Models of Giant Exoplanets. *ApJ*, 853, 138.

*Evans, Thomas M.; Sing, David K.; Goyal, Jayesh M.; Nikolov, Nikolay; Marley, Mark S.; Zahnle, Kevin; Henry, Gregory W.; Barstow, Joanna K.; Alam, Munazza K.; Sanz-Forcada, Jorge; Kataria, Tiffany; Lewis, Nikole K.; Lavvas, Panayotis; Ballester, Gilda E.; Ben-Jaffel, Lotfi; **Blumenthal, Sarah D.**; Bourrier, Vincent; Drummond, Benjamin; Garca Muoz, Antonio; Lopez-Morales, Mercedes;*

Tremblin, Pascal; Ehrenreich, David; Wakeford, Hannah R.; Buchhave, Lars A.; Lecavelier des Etangs, Alain; Hébrard, Éric; Williamson, Michael H. 2018. An Optical Transmission Spectrum for the Ultra-hot Jupiter WASP-121b Measured with the Hubble Space Telescope. *AJ*, 156, 283.

Spake, J. J.; Sing, D. K.; Evans, T. M.; Oklopi, A.; Bourrier, V.; Kreidberg, L.; Rackham, B. V.; Irwin, J.; Ehrenreich, D.; Wyttenbach, A.; Wakeford, H. R.; Zhou, Y.; Chubb, K. L.; Nikolov, N.; Goyal, J. M.; Henry, G. W.; Williamson, M. H.; **Blumenthal, S.**; Anderson, D. R.; Hellier, C.; Charbonneau, D.; Udry, S.; Madhusudhan, N. 2018. Helium in the eroding atmosphere of an exoplanet. *Nature*, 557, 68.

Blecic, Jasmina; Harrington, Joseph; Cubillos, Patricio E.; Bowman, M. Oliver; Rojo, Patricio M.; Stemm, Madison M.; Challener, Ryan C.; Foster, Austin J.; Dobbs-Dixon, Ian; Foster, Andrew S.D.; Lust, Nathaniel B.; **Blumenthal, Sarah D.**; Bruce, Dylan; Loredo, Thomas J. 2019. Open-Source Bayesian Atmospheric Radiative Transfer (BART) Code: III. Initialization, Atmospheric Profile Generator, Post-Processing Routines, and Application to Exoplanet WASP-43 b. *ApJ*, submitted

Cubillos, Patricio E.; Harrington, Joseph; Blecic, Jasmina; Himes, Michael D.; Rojo, Patricio M.; Loredo, Thomas J.; Lust, Nathaniel B.; Challener, Ryan C.; Foster, Austin J.; Stemm, Madison M.; Foster, Andrew S.D.; **Blumenthal, Sarah D.** 2019. Open-Source Bayesian Atmospheric Radiative Transfer (BART) Code: II. The TRANSIT Radiative Transfer Module and Retrieval of HAT-P-11b. *ApJ*, submitted

Harrington, Joseph; Himes, Michael D.; Cubillos, Patricio E.; Blecic, Jasmina; Rojo, Patricio M.; Challener, Ryan C.; Lust, Nathaniel B.; Bowman, M. Oliver; **Blumenthal, Sarah D.**; Dobbs-Dixon, Ian; Foster, Andrew S.D.; Foster, Austin J.; Green, M.R.; Loredo, Thomas J.; McIntyre, Kathleen J.; Stemm, Madison M. 2019. An Open-Source Bayesian Atmospheric Radiative Transfer (BART) Code: I. Design, Tests, and Application to Exoplanet HD 189733b. *ApJ*, submitted

PRESENTATIONS

Invited Talks

Chemical Disequilibrium Signatures Exoplanet Seminar, Institute of Astronomy, University of Cambridge, Cambridge, UK, 30 April 2019

Modelling in Hot to Warm Exoplanet Atmospheres Ray Pierrehumbert's Group Meeting, University of Oxford, Oxford, UK, 13 December 2018

Means and Motivation for the Consistent Modelling of Exoplanet Atmospheres and the Application of Different Chemical Networks Seminar for Center for Space and Habitability Seminar, University of Bern, Bern, Switzerland, 19 October 2018

Contributed Talks

Long-chain Carbon Chemical Scheme Application for the Consistent Modelling of Photochemical Haze Precursors European Week of Astronomy and Space Science, Liverpool, UK, 5 April 2018

A Comparison of Simulated JWST Observations Derived from Equilibrium and Non-equilibrium Chemistry Models of Giant Exoplanets Exoplanets Seminar, NASA Goddard Space Flight Center, Greenbelt, MD, 8 November 2016

Exploring Chemical Equilibrium in Hot Jovians American Astronomical Society Meeting, Orlando, FL, USA, 5 January 2016

Exploring Equilibrium Chemistry for Hot Exoplanets Division for Planetary Sciences Meeting, National Harbor, MD, USA, 13 November 2015

Disequilibrium in Hot to Warm Planets Thermodynamics, Disequilibrium, and Evolution Meeting
(NASA Focus Group) Nice, France, 14 October 2015

TEACHING EXPERIENCE

**Postgraduate Teaching Assistant,
Frontiers in Science for Second Year Natural Sciences** *September 2017 - May 2019*
University of Exeter, College for Engineering, Maths, and Physical Sciences

**Postgraduate Teaching Assistant,
Science Communication Skills for First Year Physicists** *October 2017 & October 2018*
University of Exeter, Department of Physics

**Postgraduate Teaching Assistant,
Second Year Maths for Physicists** *January 2017 - April 2017*
University of Exeter, Department of Physics

**Teaching Assistant,
Astronomical Data Analysis** *January 2015 - May 2015*
University of Central Florida, Department of Physics

Private Piano and Voice Tutor *January 2006 - Present*
Freelance

OUTREACH HIGHLIGHTS

St Edmund Hall *October 2020 - Present*
Access Officer in MCR

Explainables *January 2017 - Present*
Science Communicator
CEO: Daniel Angerhausen

St Edmund Hall *March 2020 - September 2020*
Organizing Committee for Access Summer School

Pint of Science 2018 *November 2017 - May 2018*
Organizer, Planet Earth Sessions

Women of the World Bites Session: Women in STEM WOW Exeter, Exeter, UK, 13 October 2018