Curriculum Vitae - Jessica J. Spake

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Department of Earth & Planetary Sciences
Johns Hopkins University, Baltimore

Primary research interests

Using observations of helium in the extended atmospheres of exoplanets to ask: how quickly do planets lose their atmospheres? How strong are their magnetic fields? Analysis of transiting exoplanet observations with the Hubble Space Telescope, Spitzer Space Telescope, and ground-based, high-resolution spectrographs.

Education

University of Exeter - Ph.D. Astronomy - expected April 2019
University of Warwick - M.Sc. Physics - June 2015
Imperial College London - M.Sci. Physics - June 2013

Employment

51 Pegasi b Fellow : October 2019 to October 2022
Division of Geological and Planetary Science, California Institute of Technology, USA

Postdoctoral Fellow : May 2019 to September 2019
Dept. of Earth and Planetary Sciences, Johns Hopkins University, USA

Research Experience

Visiting Graduate Scholar : September 2018 to April 2019
Dept. of Earth and Planetary Sciences, Johns Hopkins University, USA
Supervised by Prof. David Sing

Graduate Student : September 2015 to present
Department of Physics and Astronomy, University of Exeter, UK
Supervised by Prof. David Sing

Masters Research Student : September 2014 - June 2015
Astronomy and Astrophysics Group, University of Warwick, UK
Supervised by Prof. Don Pollacco

Research Assistant : February - May 2014
Cavendish Astrophysics Group, University of Cambridge, UK
Supervised by Prof. Didier Queloz

Undergraduate Research Program Fellow : Summer 2013
Space and Atmospheric Physics Group, Imperial College London, UK
Supervised by Chris Carr

Selected publications

Water, sodium, lithium, potassium, and carbon-bearing species in the atmosphere of WASP-127b
J. J. Spake (in preparation)

A Hubble Space Telescope/WFC3 phase-curve of the hot exoplanet WASP-19b
J. J. Spake (in preparation)

Resolved helium absorption signature from the extended atmosphere of a warm Neptune
R. Allart, V. Bourrier, C. Lovis, D. Ehrenreich, **J. J. Spake** et al., *Science*, in press

Helium in the eroding atmosphere of an exoplanet
J. J. Spake, D. K. Sing, T. M. Evans, A. Oklopcic, V. Bourrier et al., 2018, *Nature*, 557, 68-70

WASP-135b: a highly irradiated, inflated hot Jupiter orbiting a G5V star
J. J. Spake, D. J. A. Brown, A. P. Doyle, G. Hébrard, J. McCormac et al., 2016, *Publ. Astron. Soc. Pac.*, 128, 960

Selected observing time awarded

Hubble Space Telescope - Probing methane chemistry in a newly-discovered warm gas giant before JWST
P.I. **J. J. Spake**, Cycle 24 (Mid-cycle), GO-14916, 5 Orbits (8 hours)

Hubble Space Telescope - Characterising the atmosphere of a uniquely low-density, sub-Saturn mass planet (Joint HST/Spitzer proposal)
P.I. **J. J. Spake**, Cycle 24, GO-14619, 15 Orbits (23 hours)

Spitzer Space Telescope - Characterising the atmosphere of a uniquely low-density, sub-Saturn mass planet (Joint HST/Spitzer proposal)
P.I. **J. J. Spake**, Cycle 13, GO-13150, 18 hours

W. M. Keck Obervatory - Helium 10830 A in Escaping Exoplanet Atmospheres
P.I. L. Hillenbrand, Co-Is: **J. J. Spake**, A. Oklopcic, T. David, 2018B, PROGID-C272, two half-nights

Seminars and conference talks

Astrophysics seminar, July 2018, Imperial College London
Exoplanet lunchtime talk, June 2018, California Institute of Technology
Astrophysics seminar, June 2018, NASA Jet Propulsion Lab
Bay Area Exoplanet Meeting, June 2018, NASA Ames Research Centre
UK Exoplanet meeting, March 2018, Oxford University
UK Exoplanet meeting, March 2017, University of St Andrews
Astrophysics seminar, December 2016, University of Exeter
UK Exoplanet meeting, March 2015, University of Warwick

Teaching experience

Guest lecturer, February 2018, Waves & Optics 1st year, University of Exeter
Lead Tutor, Physics problems class 1st year, 2017-2018, University of Exeter
Guest lecturer, November 2017, Natural Sciences 1st year, University of Exeter
Guest lecturer, February 2017, Waves & Optics 1st year, University of Exeter
Tutor, Physics problems class 1st year, 2016-2017, University of Exeter
Guest lecturer, November 2016, Natural Sciences 1st year, University of Exeter
Lab demonstrator, Physics 1st year 2016 - 2017, University of Exeter
Astrophysics skills demonstrator, Physics 1st year 2015 - 2016, University of Exeter
Lab demonstrator, Physics 2nd year 2015 - 2016, University of Exeter

Other academic experience

- Reviewer for Publications of the Astronomical Society of the Pacific (PASP)
- Co-Investigator for James Webb Space Telescope Early Release Science proposal, submitted by international transiting exoplanet community, 2017
- Two nights observing with UVES on the VLT: high-resolution transmission spectroscopy of exoplanets, 25 December 2016 and 3 January 2017
- Nine nights observing with SOPHIE at the Observatoire de Haute-Provence: radial velocity follow-up of exoplanet candidates. April 13-22, 2015

Public engagement	BBC Radio 4 Inside Science interview guest, helium in exoplanets, August 2018 BBC Radio World Service Science Hour interview, helium in exoplanets, Aug. 2018 Extensive press coverage for helium detection including UK, French, Spanish, and Russian national news Voice of 3D exoplanet virtual reality video by We the Curious Exocast podcast, guest speaker, July 2018 Nature Communications 'Behind the Paper' blogger, May 2018
School outreach & Widening Participation	Girls into Physics Days, Dec. 2015 & 2016; University of Exeter Festival of Physics demonstration stall, UoE, Nov. 2015 Stargazing LIVE party demonstration stall, UoE, Jan. 2016 Science Speed Networking at Widening Participation (WP) school, March 2016 Hands-on exoplanet workshop (1hr) for Widening Participation students, UoE, March 2016 Co-recipient of competitive Postgrad & Early Career Engagement Award (£2,000), UoE, May 2016 Westgate Science Club demonstrator, Nov 2015; Nov 2016; Nov 2017 Talks for Astroscouts at Norman Lockyer Observatory, May 2016; April 2017 Demonstrator, STEM stall at Exeter Pride Festival, May 2018