

# Chloe Elizabeth Fisher

Centre for Space and Habitability  
Gesellschaftsstrasse 6  
3012 Bern  
Switzerland

chloe.fisher@csh.unibe.ch

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**INTERESTS** I am working on developing atmospheric retrieval methods involving machine learning techniques for extrasolar planets. I also work on different aspects of the theory of transmission spectra, and analysing traditional methods of retrieval.

**EDUCATION** University of Bern, Switzerland Aug 2017 - present  
PhD candidate in Astrophysics

University of Cambridge, UK Oct 2012 - June 2016  
MSci., Natural Sciences, first class honours  
BA., Mathematics, upper second class honours

**PUBLICATIONS** *First Author Papers:*

**Fisher, C.** et al. 2020, AJ, 159, 192  
*Interpreting High-resolution Spectroscopy of Exoplanets using Cross-correlations and Supervised Machine Learning*

**Fisher, C.,** & Heng, K. 2019, ApJ, 881, 25  
*How much information does the sodium doublet encode? Retrieval analysis of Non-LTE sodium lines at low and high spectral resolutions*

**Fisher, C.,** & Heng, K. 2018, MNRAS, 481, 4698  
*Retrieval analysis of 38 WFC3 transmission spectra and resolution of the normalization degeneracy*

*Other works:*

Oreshenko, M., et al. 2020, AJ, 159, 6  
*Supervised Machine Learning for Intercomparison of Model Grids of Brown Dwarfs: Application to GJ 570D and the Epsilon Indi B Binary System*

Hoeijmakers, H. J., et al. 2019, A&A, 627, A165  
*A spectral survey of an ultra-hot Jupiter: Detection of metals in the transmission spectrum of KELT-9b*

Seidel, J. V., et al. 2019, A&A, 623, A166  
*Hot Exoplanet Atmospheres Resolved with Transit Spectroscopy (HEARTS) - II. A broadened sodium feature on the ultra-hot giant WASP-76b*

Márquez-Neila, P., **Fisher, C.**, Sznitman, R., & Heng, K. 2018, Nature Astronomy, 2, 719  
*Supervised machine learning for analysing spectra of exoplanetary atmospheres*

**FELLOWSHIPS AND AWARDS** 2017-Present: University of Bern International 2021 PhD Fellowship  
2016: Bundy Scholarship, University of Cambridge  
2016: Magdalene College Natural Sciences award, University of Cambridge

## PROFESSIONAL TALKS

- “*High-Resolution Atmospheric Retrieval for Exoplanets*”, CSH Symposium, Bern, Switzerland, 5<sup>th</sup> February, 2020
- “*Supervised Machine Learning for Exoplanet Atmospheric Retrieval*”, AMLD, Lausanne, Switzerland, 27<sup>th</sup> January, 2020
- “*Supervised Machine Learning for Analysing Spectra of Exoplanetary Atmospheres*”, DPS/EPSC, Geneva, Switzerland, 16<sup>th</sup> September, 2019
- “*Supervised Machine Learning for Analysing Spectra of Exoplanetary Atmospheres*”, Junior Researchers Assembly, Vitznau, Switzerland, 11<sup>th</sup> September, 2019
- “*HELA*”, ESP Summer School, Lenzerheide, Switzerland, 12<sup>th</sup> June 2019
- “*Supervised Machine Learning for Analysing Spectra of Exoplanetary Atmospheres*”, CSH Symposium, Bern, Switzerland, 24<sup>th</sup> January 2019
- “*Supervised Machine Learning for Analysing Spectra of Exoplanetary Atmospheres*”, Machine Learning series, Oxford, UK, 9<sup>th</sup> November 2018
- “*Retrieval Analysis of WFC3 Transmission Spectra of Exoplanets*”, SPI-MAX, Oxford, UK, 7<sup>th</sup> November 2018
- “*Supervised Machine Learning for Analysing Spectra of Exoplanetary Atmospheres*”, Bern Exoplanet Retreat, Monte Verita, Switzerland, 12<sup>th</sup> September, 2018
- “*Supervised Machine Learning for Analysing Spectra of Exoplanetary Atmospheres*”, Spectroscopy of Exoplanets, Windsor, UK, 10<sup>th</sup> July 2018
- “*Retrieval Analysis of WFC3 Transmission Spectra*”, DTU Workshop, Copenhagen, Denmark, 16<sup>th</sup> May 2018

## TEACHING AND MENTORING

- Mentor for visiting refugee high-school student, University of Bern, September 2018 - present
- Teaching assistant for “Advanced Statistical Methods for Physicists”, University of Bern, Spring 2019
- Physics support teacher, The Cherwell School, Oxford, May - July 2017
- Student mentor for Cambridge STEP School, University of Cambridge, April - June 2013 & August 2014