Chloe Elizabeth Fisher

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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 transimission 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:

Guzmán Mesa, A., et al. 2020, AJ, 160, 15
Information content of JWST-NIRSPEC transmission spectra of warm Neptunes

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

TEACHING AND MENTORING

- Mentor for visiting refugee high-school student, University of Bern, September 2018 - present
- Physics lab assistant, University of Bern, Spring 2020
- 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

OTHER SKILLS

- Programming:
  - Python
  - Matlab
- Languages:
  - English (native)
  - German (B1 level)
  - French (AS level)
  - Spanish (AS level)