Jingxuan Yang

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Education

University of Oxford - PhD Physics   2020 − 2025
- Constrained the composition of exoplanet atmospheres using space telescope data
- Performed high-dimensional Bayesian inference on noisy spectra using computer clusters
- Developed an open-source Python software for atmospheric inference (NASA ↗/GitHub ↗)

University College London - MSc Planetary Science   2019 − 2020
- Grade: Distinction
- Designed and coded exoplanet cloud models for the European Space Agency's Ariel mission

University of Cambridge - MSci Natural Sciences (Astrophysics)   2015 − 2019
- Grade: First Class
- Used N-body simulations to study impact-driven atmospheric evolution on exoplanets
- Recipient of the Rowley Mainhood Prize for outstanding academic performance

Experience

University of Oxford - Tutor & Lab Demonstrator   2021 − 2024
- Taught small-group tutorials for courses including Mathematical Methods and Probability & Statistics
- Supervised undergraduate students for the Atmospheric Physics Lab practicals

Menlo Security - Software Engineer Intern (UK Office, Two Summers)   2020 − 2021
- Developed Python APIs to integrate third-party functionalities for content inspection
- Improved inter-process communication with FIFO pipes

Projects

NEMESISPY: A Python Package for Exoplanets   GitHub ↗
- Developed a software to analyse spectra of exoplanet atmospheres
- Listed on the NASA Exoplanet Modeling and Analysis Center (EMAC ↗)
- Used by the astrophysics community to study the composition of three exoplanets

Characterising the hot Jupiter WASP-43b   Thesis ↗
- Led an international collaboration to study the composition of the exoplanet WASP-43b
- Analysed data from the Hubble Space Telescope and the James Webb Space Telescope
- Revealed that WASP-43b has a surprisingly high-metallicity and carbon-to-oxygen ratio atmosphere
- Concluded that WASP-43b likely formed in a metal-rich environment with enhanced carbon content

Selected First Author Publications

- "NEMESISPY: A Python package for simulating and retrieving exoplanetary spectra", JOSS ↗, 2024
- "Simultaneous retrieval of orbital phase resolved JWST/MIRI emission spectra of the hot Jupiter WASP-43b: evidence of water, ammonia, and carbon monoxide", MNRAS ↗, 2024