

Tereza Constantinou

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Education

Institute of Astronomy, University of Cambridge, Trinity College Oct 2022 – Present

PhD in Astronomy; supervised by Prof. Oliver Shorttle and Dr Paul B. Rimmer

I focus on planetary science, exploring key questions around planetary habitability.

- Constrained Venus's past climate and interior water content by linking volcanic gas compositions to atmospheric chemistry, offering new support that Venus was never liquid-water habitable.
- Investigated Venus's atmospheric chemistry, searching for signatures of lightning.
- Developed a novel biosignature evaluation framework: by comparing observations to empirically defined abiotic baselines, potentially biotic anomalies can be flagged and assessed for their origin.
- Collaborating on: Venus's atmospheric and climatic evolution, Venus's surface-atmosphere interactions, and prebiotic atmospheric chemistry on early Earth.

University of Cambridge, Trinity College

Oct 2019 – Jun 2020

Master of Astrophysics (M.Sci.) — 1st Class Honours

- Research Project: “The Atmospheric Chemistry of Venus and Interactions with the Surface”, supervised by Dr Paul Rimmer and Dr Oliver Shorttle
- Specialisation: Planetary Science, Exoplanets, Computational Modelling, Relativistic Astrophysics

University of Cambridge, Trinity College

Oct 2016 – Jun 2019

Bachelor of Natural Sciences (B.A. Hons, M.A.)

- Research Review: “Using the Moon to Detect Nearby Supernovae” — 1st Class
- Research Project: “Python Investigation of the Ising Model of a Ferromagnet” — 1st Class
- 2nd and 3rd years: Theoretical Physics, Mathematics
- 1st year: Earth Sciences, Mathematics, Physics, Material Science

The English School, Nicosia, Cyprus

Sep 2009 – Jun 2016

High School Diploma

- Physics A*, Mathematics A*, Further Mathematics A*, Chemistry A*, Greek A, AS-Level Biology A

Publications

1 first author publication (+2 submitted), 3 co-author publications (+2 submitted)

• [Comparative Biosignatures](#)

T. Constantinou, O. Shorttle, M. Cranmer, P.B. Rimmer

MNRAS (submitted)

• [Abiotic Ozone in the Observable Atmospheres of Venus and Venus-like Exoplanets](#)

R. Calder, O. Shorttle, S. Jordan, P.B. Rimmer T. Constantinou

MNRAS (2025)

• [A dry Venusian interior constrained by atmospheric chemistry](#)

T. Constantinou, O. Shorttle, P.B. Rimmer

Nature Astronomy (2024)

• [Large Interferometer For Exoplanets \(LIFE\). XIV. Finding terrestrial protoplanets in the galactic neighborhood](#)

L. Cesario, T. Lichtenberg, E. Alei,..., T. Constantinou, the LIFE Collaboration

Astronomy & Astrophysics (2024)

• [Hydroxide Salts in the Clouds of Venus: Their Effect on the Sulfur Cycle and Cloud Droplet pH](#)

P.B. Rimmer, S. Jordan, T. Constantinou, P. Woitke, O. Shorttle, R. Hobbs, A. Paschodimas

The Planetary Science Journal (2021)

- **Photochemistry of Venus-like Planets Orbiting K- and M-dwarf Stars**
S. Jordan, P.B. Rimmer, O. Shorttle, **T. Constantinou**
The Astrophysical Journal (2021)

Awards and funding

- Travel sponsorship for Breakthrough Discuss Conference (£1200 from Breakthrough Initiatives), 2025
- **‘Best Presentation Award’**, Leverhulme Centre for Life in the Universe Annual Science Day, 2025
- **‘Murdin Prize’**, best publication by a Ph.D. student in Astronomy, University of Cambridge, 2024
- Travel funds for VeReDo Kick-Off Meeting (£1200 from VeReDo), 2025
- Travel funds for Life in the Universe II Conference (\$700 from Northeastern University), 2023
- Fee waiver for UK Exoplanet Conference (£200 from conference), 2023
- **STFC Studentship** for study towards a PhD in Cambridge (£85K), 2022-2026
- **‘Institute of Astronomy Project Prize’**, best master’s research project, 2020

Talks and Posters

- **Co-hosted seminar:** “*Habitability of Icy Moons*”
LCLU Coffee Meetings, Cambridge, UK, April 2025
- **Talk:** “*Comparative Biosignatures*” – Best Presentation Award
LCLU Science Day, Cambridge, UK, March 2025
- **Invited talk:** “*Was Venus Ever Habitable?*”
VeReDo Kick-off Meeting, Graz, Austria, November 2024
- **Invited Poster:** “*Comparative Biosignatures*”
Origins Federation, Cambridge, UK, September 2024
- **Invited Seminar:** “*Link Between Geochemistry and Atmospheres*”
LCLU Coffee Meetings, Cambridge, UK, January 2024
- **Talk:** “*Was Venus Ever Habitable?*”
Rocky Worlds III, Zurich, Switzerland, January 2024
- **Talk:** “*Was Venus Ever Habitable?*”
IoA Wednesday Seminar, Cambridge, UK, October 2023
- **Invited Poster:** “*Was Venus Ever Habitable?*”
Life in the Universe II, Boston, US, September 2023
- **Talk:** “*Was Venus Ever Habitable?*”
UKEXOM 2023, London, UK, August 2023
- **Talk:** “*Was Venus Ever Habitable?*”
LCLU Science Day, Cambridge, UK, March 2023
- **Invited talk:** “*Venus as Candidate for Constraining Volcanism and Surface Conditions*”
RAS Specialist Discussion Meeting: Abiotic baselines in astrobiology, London, UK, January 2023

Outreach and Publicity

- Over 750 international pieces of media coverage for “*A dry Venusian interior constrained by atmospheric chemistry*” ; including [The Guardian](#) , [Reuters](#) , [Daily Mail](#) , [Independent](#) , and [Sky News](#) .
- [Podcast interview](#) with BBC World Service - Science in Action about my work on Venus (2024)
- [Podcast interview](#) about my work on Venus with BBC Cambridge’s The Naked Scientists (2024)
- [Youtube interview](#) with EarthSky about my work on Venus (2024)
- Hosted star-gazing for Public Open Evenings (2022-2023)
- Organised and ran Venus-themed workshop for departmental Public Open Day (>1000 attendees, 2024)

Teaching

- ‘Topics in Astrophysics’ Supervisor for Astronomy Part II (2024-2025)
- ‘Reading Group’ Supervisor for the Planetary Science and Life in the Universe MPhil (2024-2025)
- Supervised a summer intern on the formation and composition of Mercury (2023)
- Private tutor for Physics, Maths, and Oxbridge interview prep (2020-present)

Academic service

- Co-ran breakout session for Life in the Universe III Conference (2024)
- Co-organised Conference: Leverhulme Centre for Life in the Universe Annual Science Day, Cambridge (2024)
- Reviewed 1 research paper, 1 book proposal (2023-present)
- Wellbeing Advocate, Institute of Astronomy (2022-present)
- Exoplanet Journal Club Organiser, Cambridge (2022-present)
- Work-life balance Focus Group Member, EDI Committee (2022-present)
- International Women’s Day Co-Organiser, Institute of Astronomy (2022-2024)
- Student Representative, Cavendish Laboratory & Institute of Astronomy (through undergrad, masters & PhD)

Other Work Experience

DocMe (BioTech Startup), London, UK

Jun 2021 – Sep 2021

Lead ML/AI Engineer

- Created company management structure, led product roadmap, and managed 4-person ML team.
- Conducted competitor analysis and business plan refinement, resulting in three £10,000 pilot contracts.

Machine Learning Engineer

Jan 2021 – Jun 2021

- Designed medical-grade algorithms to measure SpO₂, heart rate, respiratory rate, and HRV from selfie videos.

Diverium (VR Tech Startup), London, UK

Sep 2020 – Dec 2020

Team Founding Member / Lead Software Engineer

- Built two backend REST APIs with Django and Docker using TDD on Ubuntu, and linked Unity3D mobile app to backend via C# and JSON.

Education Partnerships Africa (Charity), Kisii, Kenya

Jul 2019 – Sep 2019

Volunteer Project Worker

- Raised £4,000 for in-situ development work in rural Kenya through online fundraising.
- Led 7 concurrent projects, incl. water collection and purification, hygiene programs, and facility renovations.

Procter & Gamble (P&G), Newcastle, UK

Jul 2018 – Sep 2018

R&D Intern – Product Research

- Developed and implemented a laboratory method for testing new laundry detergent scents, adopted as a SOP.
- Designed a consumer testing app and presented data analysis findings to senior stakeholders.

BP Institute for Multiphase Flow, University of Cambridge, UK

Jun 2017 – Jul 2017

Geophysics Research Assistant

- Designed and executed laboratory experiments; analysed results with MATLAB video processing.
- Built a model for gravity currents in V-shaped valleys, relevant to seabed and volcanic canals

Technical skills

Technologies: Python, Git, Jupyter (advanced); Fortran, MATLAB, C++, Django, Unity (intermediate)

Languages: English (fluent), Greek (native), French (intermediate)

Lisences: EU Driving License, Open Water Diver, Working towards: ‘Solo’ BGA Gliding Certificate, Small Boat/Zodiacs License