

DR. BRONWYN (BONNIE) TEECE, CV

b.teece@cornell.edu | [Google Scholar](#)

NARRATIVE OF RESEARCH EXPERIENCE

I am an organic geochemist and astrobiologist studying how organic molecules are preserved, altered, and transported in extreme environments. My research addresses (1) what factors control organic molecule preservation during diagenesis over deep time, (2) how migration and diagenesis affect biogeochemical signals in hydrothermal deposits, and (3) how patchy preservation across the geological record biases our ability to interpret ancient and extraterrestrial biosignatures. I combine field analog work with laboratory hydrothermal simulations using gas chromatography-mass spectrometry (GC-MS), Raman spectroscopy, Fourier Transform Infrared spectroscopy (FTIR), and other space flight mission relevant techniques. At NASA JPL, I extended this work into mission-relevant sample science as lead author of the Sample Safety Assessment Protocol for Mars Sample Return and as a contributing member of the Mars Sample Return Campaign Science Group. My current and planned research at Cornell builds an astrobiology laboratory bridging geobiology and astronomy, developing analysis techniques for organic matter delivery to planetary hydrothermal environments, and preparing analytical strategies for the coming era of extraterrestrial sample return.

PROFESSIONAL EXPERIENCE

Tenure Track Assistant Professor, Cornell University, New York, USA

July 2026-Current

Assistant Research Professor, Cornell University

Jan 2026-July 2026

NASA Jet Propulsion Laboratory (JPL), California Institute of Technology

At JPL, I worked across two primary roles described below:

Staff Scientist in the Joint Science Office for the Mars Sample Receiving Project

2023–2025

I worked in a team of five with the Project Scientist and Deputy Project Scientist at NASA and their counterparts at ESA to plan science and logistics for Mars Sample Return (MSR).

Postdoctoral Fellow in the Origins & Habitability Laboratory

2022–2025

I worked as a postdoctoral researcher conducting research on life detection on planetary bodies.

Educator and Learning Developer, Powerhouse Museum

2022

Project Officer, Online Learning and Innovation Community of Practice, UNSW

2021–2022

I managed a community of practice comprising of ~180 staff across all UNSW faculties.

Chief Investigator for the Communication and Dissemination Workpackage, COALA

2022–2024

Copernicus for sustainable agriculture in Australia (COALA) was an €1.8 million EU Horizon 2020 project which used remote sensing to support farmers. I was responsible for communication and dissemination.

Co-Founder and Deputy Director, Praxical

2020–2022

I co-founded Praxical due to a gap in science education. Many people stop learning science after high school and do not have many ready-made opportunities to engage with scientific data.

Project Manager, UNSW, Sydney

2019

I organised a week long field trip for 20 Mars Rover instrument scientists from NASA and ESA, while concurrently organising and running an astrobiological field camp for regional high school students.

EDUCATION

PhD in Geology, UNSW Sydney

2018–2022

Master of Research in Earth and Planetary Science, high distinction, Macquarie University

2016–2017

Bachelor of Arts and Science, Macquarie University

2012–2016

Special Tertiary Entrance Program, Wollongong College

2010

COMMITTEES AND ADVISORY GROUPS

*indicates a group that I helped lead and organise

Mars Science Scope Prior to the Arrival of Humans* , Astrobiology Group Co-lead	2026
NASA Decadal Astrobiology Research and Exploration Strategy (DARES), Task Force 2	2026
General Member, FA5: Detecting Signs of Living Environments and Living Worlds	
General Member, FA6: Astrobiology-Focused Mission Approaches and Technology Development	
Search for Life Science Analysis Group (SFL SAG)* , Executive Team	2024-2025
Mars Sample Return Campaign Science Group (MCSG)	2023-2025
Mars Sample Return Analog Sample Library Allocation Panel (ASAP)	2023-2025
Mars Definition Team-1 (MDT-1)	2023-2024
Sample Safety Assessment Tiger Team (SSAP-TT)* , Executive Team	2023-2024
Sample Receiving Facility Contamination Panel (SCP)	2023-2024

SELECT FUNDING, SCHOLARSHIPS AND HONOURS

PCCW Affinito-Stewart grant	2026
NASA Group Achievement Award for SSAP-TT and MDT-1	2024-2025
Winner of the Voisey Medal, Geological Society of Australia	2023
Big Questions Institute Fellow	2022
Fellow of the Higher Education Academy	2022
The sole recipient of the Geological Society of Australia's PhD Endowment Fund	2019
Short-term research grant German Academic Exchange Service (DAAD)	2019
Australian Government Research Training Program Scholarship (RTP)	2018

KEY PUBLICATIONS

10 first author papers, 18 coauthor papers, 4 reports, 1 white paper, 1 book chapter

- Teece, B.L.*** et al. (2025) 'Hydrothermal vents through space and time: experimentally simulating dynamic flow-through systems on Earth and other worlds'. *Earth Science Reviews*, 271, 105311
- Teece, B.L.*** et al. (2025) 'The abiotic background as a central component of a Sample Safety Assessment Protocol for Sample Return'. *Astrobiology*, 25(10), 671-693
- Teece, B.L.*** et al. (2024) 'Geochemical context for hydrothermal organic molecules in terrestrial Mars analog samples'. *Nature Astronomy*, 8, 1513-1520
- Teece, B. L.*** et al. (2022), 'Exceptional molecular preservation in the late Jurassic Claudia palaeogeothermal field'. *Organic Geochemistry*, 173, p.104504
- Teece, B.L.*** et al. (2021), 'Making it happen: An experience of using earth observation-based research outputs for engaging high school students in novel technologies for sustainable agriculture.' *Geographical Education*, 34, (Peer-reviewed Teacher's Journal)
- Teece, B.L.*** et al. (2020), 'Mars rover techniques and lower-middle Cambrian microbialites from South Australia: Construction, biofacies and biogeochemistry'. *Astrobiology*, 20(5)
- Teece, B.L.*** et al. (2020), 'Biomolecules from fossilized hot-spring sinters: Implications for the search for life on Mars'. *Astrobiology*, 20(4)

SOCIETY MEMBERSHIP

AGU Member	2026–Current
Network for Life Detection (NfoLD)	2020–Current
Early Career Council Lead	2023–2025
Geological Society of Australia (GSA)	2018–Current
Co-Chair Education and Outreach Steering Committee	2022–2025
Early Career Advisory Panel member	2021–2023