

**UNIVERSITY OF OTAGO
ŌTĀKOU WHAKAIHU WAKA**

JOB DESCRIPTION

JOB TITLE: Postdoctoral Fellow (Fixed-term, Full-time)
DEPARTMENT: Chemistry
DIVISION: Sciences

1. BRIEF DESCRIPTION:

The Royal Society of New Zealand Marsden Fund has awarded funding to the Ennis group to investigate the formation and structure of nitrogenous co-crystal minerals relevant to Titan's atmosphere and surface; including the study of possible astrochemical pathways toward higher-order organic molecules. This postdoctoral fellow position is to support and advance all objectives of this laboratory astrochemistry research project, including the coordination of overseas experiments with expert collaborators at ANSTO Sydney and at NASA Jet Propulsion Laboratory.

2. KEY TASKS:

- Synthesis, purification and handling of hazardous gaseous samples.
- The design and development of new laboratory capabilities including gas manifolds, photolysis and electron sources and mass spectrometry analytical platforms.
- Carrying out the optimisation and performing maintenance of synthesis lines, high vacuum equipment and cryogenic systems.
- Performing data analysis including vibrational spectroscopy, mass spectrometry, X-ray and neutron diffraction crystallography, as well as performing supporting DFT calculations.
- Contributing toward novel experiment design.
- Liaising with the international team to coordinate remote experiments.
- Preparing work for conference presentation, publication and assisting with the writing of manuscripts.

3. PERSON SPECIFICATION:

- PhD degree (in chemistry, physics, planetary science, or materials science).
- Previous experience with synthesis and purification of gas samples, including knowledge of safe handling and disposal procedures.
- Previous experience with laboratory high vacuum and cryogenic systems as applied to astrochemistry or surface science studies.
- Previous experience with powder x-ray and/or neutron diffraction and associated data analysis routines advantageous.

4. RELATIONSHIPS:

Directly responsible to: Dr Courtney Ennis, Department of Chemistry
Supervision of: N/A
Functional relationships with: Dr Helen Maynard-Casely (ANSTO, Sydney).
Dr Tuan Vu (NASA/JPL, USA).
Professor Stephen Moggach (University of Western Australia).
Members of the Ennis workgroup (University of Otago).

5. MĀORI STRATEGIC FRAMEWORK:

Act in a manner consistent with the principles and implications, as well as the University's commitment to the Treaty as articulated in the Māori Strategic Framework.

6. PACIFIC STRATEGIC FRAMEWORK:

Act in a manner consistent with the strategies and goals contained in the University's Pacific Strategic Framework, role-modelling and promoting Pacific values, equity and diversity principles and cultural safety practices.

7. HEALTH & SAFETY:

Act and work in a manner compliant with current health and safety at work legislation and University procedures, frameworks and guidelines. Role model safe behaviour and practices, share the responsibility to prevent harm and contribute to a safe campus and work environment, including raising workplace health and safety concerns for self, students, visitors and other staff.

8. SUSTAINABILITY:

Act in a manner consistent with the University's sustainability commitments; role-modelling sustainable practices, with a particular emphasis on minimising the environmental impact of day-to-day activities

9. EQUITY AND DIVERSITY:

Act in a manner consistent with the University's commitment to anti-racism and the co-creation of accessible, safe, respectful, and welcoming environments where all students and staff are supported to achieve their full potential.