

**UNIVERSITY OF OTAGO
ŌTĀKOU WHAKAIHU WAKA**

JOB DESCRIPTION

ROLE TITLE: Postdoctoral Fellow in Ultra-cold Atoms (experimental)

DEPARTMENT: Physics

SCHOOL / DIVISION: Sciences Division

REPORTS TO: Head Of Department

DIRECT REPORTS (FTE): Nil

1. PRIMARY PURPOSE OF THE ROLE:

- To perform original experimental research on dysprosium atoms in optical tweezers (experimental). The Postdoctoral Fellow will work closely with Mikkel F. Andersen.

2. ACCOUNTABILITIES:

- Conduct investigations into dysprosium atoms trapped with light.
- Study how dysprosium's large magnetic moment can be utilized to enhance magnetic field sensors.
- Investigate how dysprosium's large magnetic moment can facilitate studies of precursors for exotic quantum phases of matter.
- Assist in the development of graduate student skills and assist in supervising research students.
- Maintain effective collaborative working relationships with other members of the research group, the Department of Physics and the Dodd-Walls centre.

3. EXPECTED OUTCOMES:

- Regular collaborative contributions as part of a diverse research team.
- Regular and comprehensive liaison with supervisor.
- Reports on research results written clearly, comprehensively, and on time.
- Administration and record keeping completed accurately and efficiently.

4. KEY RELATIONSHIPS:

Supervision by:

- Mikkel F. Andersen

Functional relationships:

- Collaborate with staff and students in Physics Department and Dodd-Walls centre.
- Maintain working relationships with general and technical staff in the Physics Department

5. QUALIFICATIONS AND EXPERIENCE

- A Doctorate in Physics.
- Extensive experience with experimental atomic and optical physics, including experience with laser cooling.

- A solid grounding in quantum optics and light–matter interaction.
- High motivation, curiosity, and a passion for research.
- Experience with programming FPGA's.
- Excellent interpersonal and communication skills.

6. DIRECT BUDGET ACCOUNTABILITY:

Over an agreed limit, purchases are to be authorised by supervisor.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.