



Okinawa Institute of Science and Technology
Postdoctoral Scholar Positions in Quantum Machines Unit

The Okinawa Institute of Science and Technology Graduate University (OIST; see www.oist.jp) is a dynamic new graduate university of science and technology in Okinawa Prefecture, Japan. The university is located on 85 hectares of protected forestland overlooking beautiful shoreline and coral reefs. The campus is striking architecturally, and the facilities are outstanding ([OIST campus video tour](#)). There are no academic departments, which facilitates multidisciplinary research. Outstanding resources and equipment are provided and managed to encourage easy access and collaboration. English is the official language of the University, and the university research community is fully international, with more than 50 countries represented. OIST is rapidly gaining recognition in the worldwide academic community as a model for excellence in education and research.

Position summary:

There are several openings for postdoctoral researchers, both theoretical and experimental, in the newly established [Quantum Machines Unit \(QMU\)](#), at the Okinawa Institute for Science and Technology (OIST).

The Quantum Machines Unit seeks to develop hybrid quantum devices – where different types of quantum technologies are married together to build devices with unique functionality e.g. quantum sensors, quantum interfaces, probing the fundamentals of quantum mechanics, novel quantum computing architectures etc. Quantum Machines studied within the Unit can incorporate a wide variety of quantum technological platforms including superconducting quantum circuits, quantum optical, neutral atoms, solid-state, and mechanical quantum systems. In addition to theoretical work the Unit is focused on developing experimental quantum technology based on the preparation of quantum states of motion using magnetic levitation of small objects in vacuum. Such levitated nanoparticles may prove useful for the investigation of macroscopic Schrodinger Cats – which are useful for precision sensing and probing the fundamental links between gravity and quantum mechanics.

This Unit is headed by Prof Jason Twamley and will begin operation in OIST from mid-2020. The Unit will operate with close communications between the theory and experimental sub-teams and Postdoctoral Researchers will be given the opportunity to assist in the education and training of PhD students, Rotation students and Intern students.

Working Location:



1919-1 Tancha, Onna-son, Okinawa, Japan 904-0495

Responsibilities:

1. Perform research related to the core focus of the Unit – Quantum Machines – developing innovative quantum devices – either theoretical or experimental based research – under the direction of the Head of the Unit, Prof Jason Twamley and the dissemination of these research results via publication of journal articles, participation in national and international conferences, media releases and other output channels.
2. Contribute towards building a inclusive, dynamic and respectful research ethos within the Quantum Machines Unit including participation in: Unit Seminar Programs, Unit meetings, Unit mentoring of graduate/intern students, Unit Journal Club etc.
3. Postdoctoral Researchers are encouraged to pursue their own independent research while working at OIST. It is the responsibility of the researcher and the Head of the Unit Prof Twamley, to ensure that any additional projects they take on have no conflict with their responsibilities within the QM group and with others within OIST.

Qualifications:

For roles with a primary theory focus:

(Required)

1. PhD in physics or a related discipline.
2. Proficiency in spoken and written English.

(Preferred)

1. Prior experience in research related to theoretical hybrid quantum systems e.g. diamond, superconducting, neutral atom, ion, etc. relevant to quantum science and technology.
2. Prior experience in numerical methods related to quantum science and technology e.g. Mathematica, python, Matlab etc.

For roles with a primary experimental focus:

(Required)

1. PhD in physics or a related discipline.
2. Proficiency in spoken and written English.
3. Prior experience in experimental research involving ultra-high-vacuum setups.

(Preferred)

1. Prior experience in experimental research involving cryogenic setups.
2. Prior experience in experimental research involving optical setups.



Report to:

Professor Jason Twamley, Quantum Machines Unit

Starting Date:

As early as possible.

Term & Working hours:

Full-time, fixed term appointment for 2 years in the first instance. This contract may be renewed.

Working hours: Discretionary

Compensation & Benefits:

Compensation in accordance with the OIST Employee Compensation Regulations

<https://www.oist.jp/policy-library/34.3.5>

Benefits:

- Relocation, housing and commuting allowances
- Annual paid leave and summer holidays
- Health insurance (Private School Mutual Aid <http://www.shigakukyosai.jp/>)
- Welfare pension insurance (kousei-nenkin)
- Worker's accident compensation insurance (roudousha-saigai-hoshou-hoken)

How to Apply:

Apply by emailing your Submission Documents to:

Jason-twamley1@oist.jp

(Please replace [at] with @ before using this email address)

Submission Documents:

- Cover letter (1-2 pages), stating your motivation to apply, your research interests and goals,
- Curriculum vitae, including publication list, in English
- BSc, MSc and PhD certificates, including grades,
- Contact information of at least 3 referees, one of which should be a previous employer.

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* Please be sure to indicate where you first saw the job advertisement.



Application Due Date:

Applications will be considered until the posts are filled.

- * OIST Graduate University is an equal opportunity, affirmative action educator and employer and is committed to increasing the diversity of its faculty, students and staff. The University strongly encourages women and minority candidates to apply.
- * Information provided by applicants or references will be kept confidential, documents will not be returned. All applicants will be notified regarding the status of their applications.
- * Please view our policy for rules on external professional activities
(<https://groups.oist.jp/acd/information-disclosure/>).
- * Further details about the University can be viewed on our website (www.oist.jp).