



Okinawa Institute of Science and Technology
Theory of hybrid quantum systems 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:

[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.

Position:

We are seeking talented researchers to perform theoretical research in the field of hybrid quantum machines. This can encompass but is not restricted to the following: quantum optics, optomechanics, electromechanics, diamond quantum systems, superconducting quantum systems, atomic quantum systems, mechanical quantum systems, quantum feedback systems, quantum sensing and metrology, and distributed quantum sensing.

Working Location:

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



Responsibilities:

1. Perform theoretical research related to the core focus of the Unit – Quantum Machines – developing innovative quantum devices – 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 an 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:

(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.

Term:

Full-time, fixed term appointment for 2 years. Contract initially with 3 month probationary period (inclusive). This contract may be renewed.

Working hours:

9:00-17:30

Compensation:

In accordance with the OIST Employee Compensation Regulations



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)

Submission Documents:

- Curriculum vita in English (and Japanese if available)
 - Cover letter in English (and Japanese if available)
 - Names and contact information of 3~5 referees, one of which should be a previous employer
- * Please be sure to indicate where you first saw the job advertisement.
- * Prior to the start of employment all new hires are required to successfully complete a background check. Personal information including employment history and academic background should be submitted to third-party administrators after a conditional offer of employment.

Starting Date:

As early as possible

Application Due Date:

Applications are due by May 29, 2022

Application Address:

Please submit all required application materials by email to:

Jason.twamley[at]oist.jp

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

Or send documents via post mail to:

Recruiting Team, HR Management Section

Okinawa Institute of Science and Technology Graduate University

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

Declaration:



- * 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).