



Quantum Information Research Center | The Institute of Advanced Sciences Specially Appointed Assistant Professor (non-tenure)

The Quantum Information Research Center (QIC) strives to build an environment where talented researchers in quantum information and related fields from Yokohama National University and elsewhere can gather, exchange information, create ideas on a day-to-day basis, and persistently launch high-value joint research projects at the perfect timing. The Center was founded as a global research center to promote practical research and build a reputation for carrying out world-class, large-scale research projects by participating as a core organization in national and joint international projects.

Job profile

Do you have a passion for quantum communication and want to take the next step to build a safe and reliable quantum network for future society?

In our Laboratory led by the QIC's Center Director Hideo Kosaka, you will get the opportunity to work on national R&D projects to develop innovative ICT Technologies. Our research involves experimental R&D, including measurements and equipment development. Field expertise is not required, and we welcome all experimentalists who are familiar with quantum mechanics. To be a successful candidate, you should be willing to expand your knowledge and explore new methodology with the team.

We encourage you to explore the physics concepts of quantum mechanics and regularly publish your findings as articles for academic journals and give lectures to add to your research achievements. QIC will offer you an inspiring environment for new ideas and the facility to turn theories into experiments with our project members. This position is research focussed and does not include any teaching responsibilities.

Your research responsibilities

You will be assigned to the Moonshot R&D Program (Goal 6): "Development of Quantum Interfaces for Building Quantum Computer Networks" (<https://moonshot.ynu.ac.jp/en/>)

You will also join the project team Quantum Repeater Technology, part of the "Research and Development for the Construction of Global Quantum Cryptographic Communication Network" issued by the Ministry of Internal Affairs and Communications. (<https://qurep.ynu.ac.jp/english/>)

Contract terms

- ◆ Non-tenure
- ◆ Starting date: from October 1, 2022, or later. The earliest possible start date will be negotiated.
- ◆ Contract until March 31, 2023
Beyond this date, the contract can be renewed yearly with a max duration of November 30, 2025. (When a project gets extended, this limit might be re-evaluated until up to March 31, 2031. The contract term is subject to change depending on budget and research progress.)
 - * Renewal depends on your performance and the University's staffing needs and budget.
 - * You will be notified of contract extension 30 days in advance. The trial period is six months.
- ◆ Annual salary system: estimated between 5.4 million yen and 6.6 million yen (including benefits and commuting expenses). Our final offer will depend on your experience. The salary will be paid monthly.
- ◆ Full-time position (38 hours and 45 minutes/week.)

Candidate profile

- ◆ You have a doctoral degree or expect to obtain it before employment.
- ◆ You are passionate about developing state-of-the-art quantum information technologies. Any background in experimental research in the fields of nanotechnology, quantum optics, and quantum electronics is seen as an asset.
- ◆ You have excellent English communication skills in both speaking and writing.
- ◆ Knowing Japanese is unnecessary, but any knowledge or intention to learn is a plus.

Message from Hideo Kosaka – QIC Center Director

"We look forward to receiving applications from motivated and experimental researchers. Be sure to check out our innovative projects and make sure to apply if you would like to join the team."



Let's encrypt the future!

Join us in our mission to build the Quantum Future at Kosaka Laboratory where we research and develop cutting-edge quantum interfaces and quantum repeater technologies for the realization of fault-tolerant quantum computers.



For the JST Moonshot R&D program (Goal 6), the team at Kosaka Laboratory is developing a quantum interface in which a quantum memory is combined with an optomechanical crystal. This way we can connect the superconducting qubit with a communication photon and contribute toward the realization of a large-scale superconducting quantum computer network by 2050.

Find out more at: <https://moonshot.ynu.ac.jp/en/>



The Ministry of Internal Affairs and Communications (MIC) assigned our team to establish a quantum repeater technology. We aim to develop quantum memory technologies and peripheral technologies that can upkeep the quantum state at the repeater point of the network. This will allow us to achieve long-distance quantum cryptographic communication with cryptographic keys that are more secure than trusted nodes.

Find out more at: <https://qurep.ynu.ac.jp/english/>

The interview process

After the initial document screening, successful candidates will be invited to an interview. Web interviews are available upon request. If there is no suitable candidate, the final candidate may not be selected (transportation expenses, accommodation expenses, etc., to attend the interview will be the applicant's burden).

Documents to submit

1. Resume (with photo)
2. Achievement list (Indicate 3 of your significant publications with ○)
3. Research summary and future research aspirations (one to two A4-sheets)
4. Two references (optional): name, position, relation, and contact details (phone number/e-mail)

Deadline

February 13, 2023 (Application will be closed as soon as we hire the qualified candidates)

Application by post

Hideo Kosaka, Professor/Director
Quantum Information Research Center, Institute of Advanced Sciences, Yokohama National University
79-5 Tokiwadai, Hodogaya-ku, Yokohama 240-8501, Japan

Application by e-mail

All application documents must be submitted by the FileSender service of the National Institute of Informatics (NII). Please send an application e-mail so we can send you the FileSender link to upload your documents safely.

Contact details

Feel free to contact us with questions about this position or inquire about other jobs if you want to work with us.



Websites:

Kosaka Laboratory:
<https://kosaka-lab.ynu.ac.jp/>
The Quantum Information Research Center:
<https://qic.ynu.ac.jp/en/>
The Institute of Advanced Sciences:
<https://ias.ynu.ac.jp/en/>



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