

Tohoku University NEXUS Postdoctoral Research Fellow Program

Application Guidelines

Position

Postdoctoral Research Fellow (NEXUS Postdoctoral Fellowship Program)

Affiliation

Quantum Lab, Frontier Research Institute for Interdisciplinary Sciences (FRIS), Tohoku University, Japan

Job Description

- Conduct cutting-edge research in one or more of the following fields:
 - Variational quantum algorithms (VQAs, e.g., quantum compilation for quantum process tomography (collaborate with a photonic experiment Lab))
 - Foundational quantum physics (e.g., develop VQAs for network nonlocality, entanglement detection,...)
 - Quantum metrology and sensing (using squeezing, entanglement, as well as VQAs for time-dependent metrology, and develop quantum control techniques such as GRAPE, Krotov's method, and dynamical decoupling.)
 - Quantum algorithms for high-energy physics (using VQE for strong CP problem (collaborate with high-energy physicists))
- Collaborate with interdisciplinary teams.
- Participate in scientific dissemination, including mentoring students and presenting research at conferences.

Eligibility Requirements

- Ph.D. in Physics, Quantum Information Science, Computer Science, or a related field by the start date.
- Demonstrated expertise in one or more of the research areas listed above.
- Strong academic record and publication achievements.
- High motivation for independent research and international collaboration.
- Proficiency in English.

Start of Employment

October 1, 2025 or later.

Employment Status

- Full-time postdoctoral fellow (non-tenured)
- Initial contract for up to 3 years, with a possible extension to 5 years based on performance and project alignment.

Application Deadline

July 25, 2025 (Friday), 17:00 anywhere on Earth

Selection Schedule

- **Interview notification:** Early August 2025
- **Final result:** Mid-August 2025

Working Conditions and Benefits


- Annual salary and research support up to **7.3 million JPY** (6.3 million for salary and 1 million for research), including relocation support.
- Access to computational and experimental resources at Tohoku University.
- Full integration into the international research network under the NEXUS Fellowship framework.

Required Documents

1. Cover Letter
2. Curriculum Vitae
3. List of Publications
4. Research Statement (past achievements and future plans, max 2 pages)
5. Ph.D. Certificate or an official letter of expected graduation
6. Contact information of two **References**

All documents must be in English and submitted via email.

Submission Guidelines

- **By Email:**
 - Combine all documents into a single ZIP file.
 - Use the email subject:
“Application for Postdoctoral Position – Quantum Lab (NEXUS Fellowship)”
 - Send to:
 binho@fris.tohoku.ac.jp


• **Or you can upload your files:**

- Combine all documents into a single ZIP file, and name the file using your full name.
- Upload your file at: <https://quantumlab.onrender.com/users/upload/>

Contact Information

For inquiries related to the position or application process:

Quantum Lab, FRIS, Tohoku University

 binho@fris.tohoku.ac.jp

 <https://quantumlab.onrender.com/>