

Fujitsu and Science Tokyo launch joint research hub for quantum hardware advancement and talent development

Establishing a collaborative research cluster for practical quantum education and quantum-HPC fusion

Kawasaki and Tokyo, Japan, May 15, 2026 — Fujitsu Limited and Institute of Science Tokyo (Science Tokyo) today announced the establishment of the "Fujitsu Quantum and HPC Infrastructure Collaborative Research Cluster" at Science Tokyo. This collaborative research cluster aims to systematically and practically develop human resources with quantum hardware technology in Japan. The initiative is part of Fujitsu's "Fujitsu Small Research Lab" program ⁽¹⁾ and utilizes the Science Tokyo Collaborative Research Cluster System ⁽²⁾, with support from Open Innovation Office of the Center for Innovation Management ⁽³⁾. The new cluster will operate as a collaborative research cluster, expanding beyond traditional High Performance Computing (HPC) to include the quantum hardware field.

Through this collaborative research cluster, both parties will strengthen their technological capabilities by researching quantum hardware design, manufacturing, control, and evaluation technologies essential for realizing practical quantum computers. They will also foster talent to support next-generation quantum computing platforms and initiate efforts to pioneer new research areas that integrate HPC and quantum technologies.

Background

Quantum computers are expected to be a foundational technology that will transform society and industry across diverse fields such as materials development, drug discovery, finance, and manufacturing. However, realizing practical quantum computers requires implementing a large number of quantum bits that can be operated with high precision. Their development necessitates the continuous cultivation of highly specialized personnel capable of handling quantum hardware design, manufacturing, control, and evaluation. Furthermore, research and development in quantum hardware faces high barriers due to the need for a wide range of research infrastructure, including advanced facilities for quantum bit chips and manufacturing technology, large-scale cryocoolers for maintaining extremely low temperatures, and quantum bit control devices. Consequently, the number of personnel engaged in this field's R&D is limited, not only in Japan but globally.

Fujitsu and Science Tokyo have previously collaborated on establishing next-generation computing platforms beyond Science Tokyo's supercomputer "TSUBAME" and expanding the social application of such technologies through the "Fujitsu Next-Generation Computing Infrastructure Collaborative Research Cluster," a Fujitsu Small Research Lab. This new collaborative research cluster expands upon that research by incorporating quantum hardware research and talent development initiatives, aiming to pioneer new research areas that fuse HPC and quantum technologies.

Features of the Fujitsu Quantum and HPC Infrastructure Collaborative Research Cluster

1. Locations:

(1) Quantum Theme Hub:

Location: Room 1017, South Building 3, Ookayama Campus, Institute of Science Tokyo, 2-12-1 Ookayama, Meguro-ku, Tokyo

Research Content: Research on quantum computer control technology

Period of Establishment: April 1, 2026, to March 31, 2027 (continuation to be considered thereafter)

(2) HPC Theme Hub:

Location: Rooms 310 and 312, G2 Building, Yokohama Campus, Institute of Science Tokyo, 4259 Nagatsuta-cho, Midori-ku, Yokohama, Kanagawa

Research Content: Research on next-generation computing platform technologies for accelerating AI and HPC applications

Period of Establishment: October 20, 2022, to March 31, 2027 (continuation to be considered thereafter)

2. Overview of Initiatives:

This collaborative research cluster will undertake the following new initiatives:

(1) Joint research on quantum computer control and calibration technologies:

The aim is to establish control technologies that achieve high quantum operation fidelity and to promote the development of more efficient quantum gate calibration technologies utilizing AI. This will lead to the advancement and efficiency of technologies required for increasingly complex control and calibration as the number of quantum bits in quantum computers increases.

(2) Practical talent development in quantum hardware technology:

The cluster will provide theoretical education on quantum computers in conjunction with joint research. It will also offer students practical training opportunities that align with the actual research and development processes, including quantum bit chip design, manufacturing, control, and measurement. This aims to foster talent with systematic and practical expertise in quantum hardware technology.

Future Plans

Fujitsu and Science Tokyo will continue to promote talent development and research and development in quantum hardware technology through this collaborative research cluster. Furthermore, by combining Science Tokyo's HPC technology with quantum technology, they aim to create new fusion research areas and establish next-generation computing platform technologies that integrate classical and quantum computing.

Both parties will also contribute to strengthening Japan's competitiveness in quantum technology by accelerating the social implementation and industrial application of quantum computing through industry-academia collaboration in talent development and technology creation.

Notes

(1) Fujitsu Small Research Lab:

An initiative where Fujitsu researchers are stationed or stay long-term at universities to accelerate joint research, discover new themes, develop talent, and build medium- to long-term relationships with universities.

(2) Science Tokyo Collaborative Research Cluster System:

A system designed to "meet corporate needs" by establishing a "Research Planning Office" within the cluster to create new research themes beyond existing ones and realize a sustainable collaborative environment.

(3) Open Innovation Office of the Center for Innovation Management:

An organization at Science Tokyo that promotes large-scale joint research, primarily through the Collaborative Research Cluster System, aiming for comprehensive new business development and social implementation in close cooperation with industry.

Related Links

- Fujitsu Small Research Lab (<https://global.fujitsu/en-global/technology/research/srl>)

About Fujitsu

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About Science Tokyo

Institute of Science Tokyo (Science Tokyo) was established on October 1, 2024, following the merger between Tokyo Medical and Dental University (TMDU) and Tokyo Institute of Technology (Tokyo Tech), with the mission of "Advancing science and human wellbeing to create value for and with society."

Press Contacts

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