

# Swiss-Japanese Quantum Symposium

**2024** June 5-7

A new symposium bringing  
together key actors in quantum  
science and technology from  
Switzerland and Japan

Yayoi Auditorium, The University of Tokyo  
1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-8657



<https://swissnex.org/event/ch-jp-quantum>

# Wednesday 5 June - Day 1

09:00 - 09:30	<b>Registration</b>
09:30 - 10:00	<b>Opening</b> Prof. Yasunobu Nakamura (Symposium co-chair) RIKEN   University of Tokyo
<b>Session 1</b>	<i>Chair: Prof. Yasunobu Nakamura</i>
10:00 - 10:30	Quantum Information Processing with Superconducting Circuits Prof. Andreas Wallraff, ETH Zurich
10:30 - 11:00	Quantum Optics with Giant Atoms: Decoherence-Free Interaction between Giant Atoms in Waveguide Quantum Electrodynamics Dr. Franco Nori, RIKEN
11:00 - 11:30	<b>Coffee break</b>
<b>Session 2</b>	<i>Chair: Prof. Hans Peter Büchler</i>
11:30 - 12:00	Ultrafast Quantum Computing with Ultracold Atom Arrays at Quantum Speed Limit Prof. Kenji Ohmori, Institute for Molecular Science
12:00 - 12:30	Quantum Metrology of Trapped Molecules Prof. Stefan Willitsch, University of Basel
12:30 - 13:30	<b>Lunch break</b>
13:30 - 14:30	Poster session

## Wednesday 5 June - Day 1

### **Session 3**

*Chair: Prof. Guido Burkard*

14:30 - 15:00

High Fidelity Multiqubit Devices in Silicon

**Prof. Seigo Tarucha, RIKEN**

15:00 - 15:30

Quantum Computing with Si and Ge Spins

**Prof. Dominik Zumbühl, University of Basel**

15:30 - 16:00

Quantum Computation with Hole Spin Qubits

**Dr. Stefano Bosco, University of Basel | TU Delft**

16:00 - 16:30

**Coffee break**

### **Session 4**

*Chair: Dr. Jelena Trbovic*

16:30 - 16:45

Towards the Future Quantum Economy

**Mr. Shunsuke Okada, Toshiba Corp. | Q-STAR**

16:45 - 17:00

The Swiss Quantum Landscape: Private and Public Approaches Jointly at Work

**Dr. Andreas Masuhr, Swiss Quantum Initiative**

17:00 - 17:15

Hardware and Software Efforts for Realizing Practical Quantum Computing

**Dr. Shintaro Sato, Fujitsu Ltd.**

17:15 - 17:30

IBM Quantum Computing Overview

**Dr. Heike Riel, IBM Research**

17:30 - 17:45

From NISQ Quantum Algorithms to Early Fault-Tolerant Quantum Computing: Advancements in Algorithm and Software Development

**Mr. Tennin Yan, QunaSys Inc.**

## Thursday 6 June - Day 2

09:00 - 09:30	<b>Registration</b>
<b>Session 1</b> 09:30 - 10:00	<i>Chair: Prof. Dominik Zumbühl</i> Quantum Circuits for Quantum Computation Using Electron Wave Packets <b>Prof. Michihisa Yamamoto, University of Tokyo   RIKEN</b>
10:00 - 10:30	High Impedance Superconducting Technology for Hybrid Devices <b>Prof. Pasquale Scarlino, EPFL</b>
10:30 - 11:00	<b>Coffee break</b>
<b>Session 2</b> 11:00 - 11:30	<i>Chair: Prof. Kenji Ohmori</i> Nanofiber Cavity Quantum Electrodynamics Systems for Distributed Quantum Computing <b>Prof. Takao Aoki, Waseda University</b>
11:30 - 12:00	Quantum Computation with Rydberg Atoms <b>Prof. Hans Peter Büchler, University of Stuttgart</b>
12:00 - 13:00	<b>Lunch break</b>
13:00 - 14:00	Poster session
<b>Session 3</b> 14:00 - 14:30	<i>Chair: Prof. Mio Murao</i> EarlyFTQC: Closing the Gap Between NISQ and FTQC <b>Prof. Keisuke Fujii, Osaka University   RIKEN</b>
14:30 - 15:00	Proof-of-principle Experiments for Quantum Error Correction <b>Dr. James Wootton IBM Zurich   University of Basel</b>

## Thursday 6 June - Day 2

- 15:00 - 15:30      Basic Synthesis Tools and Applications in Quantum Computing  
*Prof. Naoki Yamamoto, Keio University*
- 15:30 - 16:00      **Coffee break**
- Session 4**                      *Chair: Dr. Shinichi Yorozu*
- 16:00 - 16:15      Enabling the Second Quantum Revolution with Classical Instrumentation  
*Dr. Moritz Kirste, Zurich Instruments AG*
- 16:15 - 16:30      Scalable Qubit Controller  
*Mr. Yosuke Ito, QuEL Inc.*
- 16:30 - 16:45      Accelerating the Development of Quantum Computers through Automation  
*Dr. Jelena Trbovic, QuantrolOx Ltd.*
- 16:45 - 17:00      Quantum Computing at Hitachi  
*Dr. Normann Mertig, Hitachi Cambridge Laboratory*
- 17:00 - 17:15      Erste Group Bank Quantum Prototypes  
*Dr. Filippo Fratini, Erste Digital GmbH*
- 17:15 - 17:30      Next Generation of RF Connectivity for Superconducting Quantum Computers  
*Mr. Ian Bland, Huber+Suhner AG*

## Friday 7 June - Day 3

09:00 - 09:30

**Registration**

### **Session 1**

*Chair: Prof. Keisuke Fujii*

09:30 - 10:00

Topological Superconductivity due to Magnons

**Prof. Jelena Klinovaja, University of Basel**

10:00 - 10:30

Characterizing Ultimate Potential of Quantum Information Processing via Quantum Resources

**Prof. Ryuji Takagi, University of Tokyo**

10:30 - 11:00

Higher-order Quantum Computation

**Prof. Mio Murao, University of Tokyo | RIKEN**

11:00 - 11:30

**Coffee break**

### **Session 2**

*Chair: Prof. Michihisa Yamamoto*

11:30 - 12:00

Diamond Spin Qubits for Quantum C&C

**Prof. Hideo Kosaka, Yokohama National University**

12:00 - 12:30

Quantum Theory of Valleys in Semiconductor Quantum Dots with Applications for Quantum Computing

**Prof. Guido Burkard, University of Konstanz | NCCR SPIN**

12:30 - 14:00

**Lunch break**

## Friday 7 June - Day 3

### **Session 3**

*Chair: Prof. Andreas Wallraff*

14:00 - 14:30

Bosonic Quantum Information Processing with  
Schrödinger Cat Qubits

**Dr. Alexander Grimm, Paul Scherrer Institute**

14:30 - 15:00

Hybrid Technologies with Superconducting Circuits

**Prof. Atsushi Noguchi, University of Tokyo | RIKEN**

15:00 - 15:30

Double-transmon Coupler and Many-hypercube Codes

**Dr. Hayato Goto, Toshiba Corp. | RIKEN**

15:30 - 16:00

**Coffee break**

### **Session 4**

*Chair: Prof. Daniel Loss*

16:00 - 16:30

Research Activities on Superconducting Devices for  
Quantum Information and Communications  
Technology at NICT

**Dr. Hirotaka Terai, NICT**

16:30 - 17:00

Quantum Devices in Graphene

**Mr. Max Ruckriegel (Ensslin Group), ETH Zurich**

17:00 - 17:30

Optical Quantum Computers with Quantum  
Teleportation

**Prof. Akira Furusawa, University of Tokyo | RIKEN**

17:30 - 18:00

**Closing remarks**

**Prof. Daniel Loss (Symposium co-chair)**

**University of Basel | NCCR SPIN | RIKEN**

18:00 - 19:00

**Networking apéro**

## Co-organizers and Sponsors

