Curriculum Vitae

Takayuki Suzuki

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Intellectual Property and Technology Strategy Division, SCSK Corporation

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Positions

Nov. 2025 – present — Researcher, Intellectual Property and Technology Strategy Division, SCSK Corporation

Apr. 2024 – Oct. 2025 — Researcher, Macroscopic Quantum Physics Research Project, Quantum ICT Laboratory, National Institute of Information and Communications Technology (NICT)

Sep. 2024 – Sep. 2025 — Visiting Researcher, TRIP Headquarters, RIKEN

Apr. 2023 – Mar. 2024 — Researcher, Quantum ICT Collaboration Center, NICT

Oct. 2021 – Mar. 2022 — Intern, Quantum ICT Laboratory, NICT

Aug. 2018 – May 2020 — Research Intern, mercari R4D, Mercari Inc.

Apr. 2018 – Mar. 2023 — Graduate student, Nakazato group, Department of Pure and Applied Physics, Waseda University (Supervisor: Prof. Hiromichi Nakazato)

Apr. 2017 – Mar. 2018 — Undergraduate student, Nakazato group, Department of Physics, Waseda University (Supervisor: Prof. Hiromichi Nakazato)

Education

Jun. 2022 – Aug. 2022 — Visiting Student, Matematica e Informatica, Università degli Studi di Palermo

Apr. 2020 – Mar. 2023 — Ph.D. in Science, Department of Pure and Applied Physics, Waseda University. The SGU course of Mathematical and Physical Sciences.

Apr. 2018 – Mar. 2020 — Master of Science, Department of Pure and Applied Physics, Waseda University

Apr. 2013 – Mar. 2018 — Bachelor of Science, Department of Physics, Waseda University

Awards and Scholarships

Apr. 2021 – Mar. 2023 — Japan Society for the Promotion of Science, DC2 Research Fellowship. Project: Quantum Algorithm and Dynamics of Open Quantum System (KAKENHI 21J12952).

Apr. 2021 – Mar. 2023 — Scholarship for young doctoral students, Waseda University

Mar. 2021 – Mar. 2022 — Early Bird program, Waseda Research Institute for Science and Engineering

Apr. 2020 – Mar. 2021 — Public Trust Iwai Hisao Memorial Tokyo Scholarship Fund

Publications

Journal Articles

9. **Suzuki, T.**, "Analytical construction of $(n, n-1)$-quantum random access codes saturating the conjectured bound", *Phys. Rev. A* **114**, 012441 (2026). doi:10.1103/fcz5-2g3w, arXiv:2601.19190.

8. **Suzuki, T.**, “Optimal Control in Nearly-Adiabatic Two-Level Quantum Systems via Time-Dependent Resonance”, *Phys. Rev. A* **111**, L050201 (2025). doi:10.1103/PhysRevA.111.L050201.

7. Watanabe, A., Unoki, M., Nakazato, H., **Suzuki, T.**, “CP conditions for GKSL-like master equations”, *Open Systems & Information Dynamics* **31**, 2450017 (2024). doi:10.1142/S1230161224500173.

6. **Suzuki, T.**, “Exact survival probability of a time-dependent open Ising chain at zero temperature”, *Phys. Rev. Research* **6**, 043239 (2024). doi:10.1103/PhysRevResearch.6.043239.

5. Iwamura, K., **Suzuki, T.**, “Analytical derivation and extension of the anti-Kibble-Zurek scaling in the transverse field Ising model”, *Phys. Rev. B* **110**, 144102 (2024). doi:10.1103/PhysRevB.110.144102.

4. **Suzuki, T.**, Taniguchi, E., Iwamura, K., “Exact WKB analysis for adiabatic discrete-level Hamiltonians”, *Phys. Rev. A* **109**, 022225 (2024). doi:10.1103/PhysRevA.109.022225.

3. **Suzuki, T.**, Iwamura, K., “Kibble-Zurek scaling in the quantum Ising chain with a time-periodic perturbation”, *Phys. Rev. B* **108**, 014110 (2023). doi:10.1103/PhysRevB.108.014110.

2. **Suzuki, T.**, Nakazato, H., “Generalized Adiabatic Impulse Approximation”, *Phys. Rev. A* **105**, 022211 (2022). doi:10.1103/PhysRevA.105.022211.

1. **Suzuki, T.**, Nakazato, H., Grimaudo, R., Messina, A., “Analytic estimation of transition between instantaneous eigenstates of quantum two-level system”, *Sci. Rep.* **8**, 17433 (2018). doi:10.1038/s41598-018-35741-5.

Preprints

3. **Suzuki, T.**, “Decoder-Consistent Hamiltonians for POVM-Based Quantum Relaxations”, arXiv:2606.05604 (2026). arXiv:2606.05604.

2. Ichiki, K., Huang, X., Budiutama, G., Watanabe, M., Kawada, Y., Terasawa, R., Nishi, H., **Suzuki, T.**, Nagai, R., Matsushita, Y., “Problem-Specific Basis Quantum State Readout via Proper Orthogonal Decomposition”, arXiv:2605.27915 (2026). arXiv:2605.27915.

1. **Suzuki, T.**, Nakazato, H., “A proposal of noise suppression for quantum annealing”, arXiv:2006.13440 (2020). arXiv:2006.13440.

Presentations

Oral Presentations

7. Suzuki, T., “Analytical construction of $(n, n-1)$-quantum random access codes” (in Japanese), JPS 2026 Spring Meeting, The Physical Society of Japan, Mar. 23–26, 2026 (online).

6. Suzuki, T., “Analysis of Dynamics under Optimal Control in the Adiabatic Regime and its Application to QAOA”, APS Global Physics Summit 2025, Mar. 16–21, 2025, Anaheim, USA.

5. Suzuki, T., Taniguchi, E., Iwamura, K., “Exact WKB analysis for adiabatic processes in discrete-level systems” (in Japanese), JPS 2024 Spring Meeting, Mar. 18–21, 2024 (online).

4. Suzuki, T., “Kibble-Zurek mechanism of the quantum Ising model under a time-periodic perturbation” (in Japanese), Thermal Field Theory and Its Applications, Aug. 28–30, 2023, KEK.

3. Suzuki, T., Nakazato, H., “Exact WKB analysis of the Landau-Zener grid model and its applications” (in Japanese), JPS 2021 Autumn Meeting, Sep. 20–23, 2021 (online).

2. Suzuki, T., Nakazato, H., “Noise suppression in quantum annealing using XY interaction” (in Japanese), JPS 2020 Autumn Meeting, Sep. 8–11, 2020, Kumamoto University (online).

1. Suzuki, T., Nagayama, S., “Analysis of solution freezing in quantum annealing” (in Japanese), 75th JPS Annual Meeting, Mar. 16–19, 2020, Nagoya University (cancelled due to COVID-19).

Poster Presentations

8. Suzuki, T., “Decoder-Consistent Hamiltonians for POVM-Based Quantum Relaxations”, 26th Asian Quantum Information Science Conference (AQIS 2026), Aug. 24–28, 2026, KAIST Auditorium, Daejeon, Korea. Poster P1-034, Poster Session I (Aug. 24, 16:30–18:30).

7. Suzuki, T., “Efficient Ground State Preparation: Balancing Quantum Circuit Depth and Classical Optimization”, ISNTT 2024, Dec. 2–6, 2024, Atsugi, Japan.

6. Suzuki, T., “Analysis of dynamics under optimal control in the adiabatic regime” (in Japanese), 51st Quantum Information Technology Symposium, Nov. 26–28, 2024, Takamatsu, Japan.

5. Suzuki, T., “Relation between adiabatic/nonadiabatic processes and phases in multilevel parabolic models” (in Japanese), Aspects of Quantum Information and Foundations of Quantum Theory, Feb. 9–10, 2023, University of Tokyo.

4. Suzuki, T., Nakazato, H., “Exact WKB analysis of the Landau-Zener grid model” (in Japanese), 44th Quantum Information Technology Symposium, May 24–25, 2021 (online).

3. Suzuki, T., Nakazato, H., “Implementation of Multi-body Interaction for Quantum Annealing”, 20th Asian Quantum Information Science Conference, Dec. 7–9, 2020, Sydney, Australia (online).

2. Suzuki, T., Nagayama, S., “Analysis of quantum annealing based on the quantum adiabatic master equation” (in Japanese), 41st Quantum Information Technology Symposium, Nov. 18–19, 2019, Gakushuin University.

1. Suzuki, T., “Randomness of quantum annealing solutions in regular graph generation problems” (in Japanese), 39th Quantum Information Technology Symposium, Nov. 26–27, 2018, University of Tokyo.

Seminars

3. Suzuki, T., “Exact WKB Analysis of Discrete Quantum Systems and Its Applications to Optimal Control”, Seminar at Nishida Laboratory, May 17, 2025, Institute of Science Tokyo.

2. Suzuki, T., “Analysis of adiabatic quantum systems using exact WKB analysis” (in Japanese), 71st Q-LEAP Quantum AI Seminar, Jan. 7, 2025 (online).

1. Suzuki, T., “A proposal of noise suppression for quantum annealing”, SGU Special Online Seminars/Lectures on Quantum Physics, Jul. 18, 2020, Waseda University (online).

Session Chair

2. Quantum Information Theory (Quantum Simulation, Open Systems), Division 1, JPS 2026 Spring Meeting, Mar. 23–26, 2026 (online).

1. Foundations of Quantum Theory, Non-Hermitian Systems, Division 11, JPS 2024 Spring Meeting, Mar. 18–21, 2024 (online).

Teaching

Apr. 2018 – Mar. 2019 — Basic Physics A/B (Physics Q&A), Waseda University

Skills

Languages and tools — Python (NumPy, SciPy, QuTiP), Julia, Mathematica, LaTeX, Typst, Git, Markdown

Research areas — Quantum optimization (QUBO, MaxCut, QRAO/RQRAO, QAOA), quantum dynamics and optimal control, exact WKB and asymptotic analysis, open quantum systems and master equations

Other Activities

Sep. 2020 – Mar. 2021 — NICT Quantum Camp