

Masaya SAKAKIBARA

Institute of Low Temperature Science, Hokkaido University, Japan

Postdoctoral Researcher (JSPS-PD)

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Education :

March 2025 Ph.D. in Department of Chemistry, School of Science, The University of Tokyo (Professor Eiichi Nakamura)

March 2022 M.S. in Department of Chemistry, School of Science, The University of Tokyo (Professor Eiichi Nakamura)

March 2020 B.S. in Department of Chemistry, School of Science, The University of Tokyo (Professor Eiichi Nakamura)

Major Research Interest :

Exploration of nanoscopic phase dynamics of inorganic compounds in phase transitions or chemical reaction through high-resolution electron microscopic observation.

Research Experience :

2025- Japan Society for the Promotion of Science Research Fellowship for Young Scientists JSPS PD (Professor Yuki Kimura, Hokkaido University)

2022-2025 Japan Society for the Promotion of Science Research Fellowship for Young Scientists JSPS DC1 (Professor Eiichi Nakamura, the University of Tokyo)

2020-2022 TAKUETSU Research Assistant, The Forefront Physics and Mathematics Program to Drive Transformation, The University of Tokyo (Professor Eiichi Nakamura, Professor Makiko Sasada)

Publications :

1. Capturing the Moment of Emergence of Crystal Nucleus from Disorder, Takayuki Nakamuro, Masaya Sakakibara, Hiroki Nada, Koji Harano, Eiichi Nakamura*, *J. Am. Chem. Soc.* **2021**, *143*, 1763-1767. (*Highlighted in JACS Spotlights, J. Am. Chem. Soc.* **2021**, *143*, 1681-1682.)
2. Cinematographic Recording of a Metastable Floating Island in Two- and Three-Dimensional Crystal Growth, Masaya Sakakibara, Hiroki Nada, Takayuki Nakamuro*, Eiichi Nakamura*, *ACS Cent. Sci.* **2022**, *8*, 1704-1710.
3. Melting entropy of crystals determined by electron-beam-induced configurational disordering, Dongxin Liu, Jiarui Fu, Oren Elishav, Masaya Sakakibara, Kaoru Yamanouchi, Barak Hirshberg*, Takayuki Nakamuro*, Eiichi Nakamura*, *Science* **2024**, *384*, 1212-1219.
4. Kinetic Exploration of Nanoscale Polymorphs through Interface Energy Adjustment, Masaya Sakakibara, Takayuki Nakamuro*, Eiichi Nakamura*, *ACS Nano* **2024**, *18*, 22325-22333.
5. Nondeterministic dynamics in the η -to- θ phase transition of alumina nanoparticles, Masaya Sakakibara, Minoru Hanaya, Takayuki Nakamuro*, Eiichi Nakamura*, *Science* **2025**, *387*, 522-527.

6. Stochastic Interface Formation in Nanoscale Heterostructures Visualized by Atomic-Resolution Microscopy, Miyuki Hanazawa[#], Masaya Sakakibara[#](co-first), Ryo Ishikawa, Naoya Shibata, Takayuki Nakamuro^{*}, Eiichi Nakamura^{*}, *J. Am. Chem. Soc.* **2025**, *147*, 34731-34741.

Invited Talks :

1. Masaya Sakakibara “Atomic-Scale Mechanisms of Polymorphism Selection and Size-Dependent Phase Stability Revealed by In Situ TEM Imaging”, MRS Spring Meeting 2026, CH03.04.03, Hawai’i, April 2026
2. Masaya Sakakibara “Exploration of Nano-specific Crystalline Phases through In-situ Observation of Crystal Formation by High-resolution TEM”, The 68th Symposium of the Japanese Society of Microscopy, 2pm_1F_V-06, Aichi, November 2025
3. Masaya Sakakibara, “Exploring the non-equilibrium dynamics in crystallization with atomic-resolution electron microscopy”, Japan Geoscience Union Meeting 2024, M-IS18, Chiba, May 2024
4. Masaya Sakakibara, Takayuki Nakamuro, “Visualization and Quantitative Analyses of Molecular Dynamics on Crystal Surfaces by Transmission Electron Microscopy”, Workshop for developments in in-situ observation and theory in phase transition dynamics at crystal surface, 2, Hokkaido, January 2024
5. Masaya Sakakibara, Takayuki Nakamuro, Eiichi Nakamura, ““Seeing is believing” Surface Catalysis in Crystal Nucleation and Epitaxy”, 20th International Conference on Crystal Growth and Epitaxy, 105, Naples, August 2023

Awards and honors :

1. The 23rd JACG Young Researcher Award (The Japanese Association for Crystal Growth, 2025)
2. Springer Theses Award (Springer Nature, 2025)
3. President’s Prize of the University of Tokyo (The University of Tokyo, 2025)
4. Dean’s Award of the Graduate School of Science (Graduate School of Science, the University of Tokyo, 2025)
5. Best Poster Award at the 2nd Meso-Hierarchy for Rising Generation Meeting (Materials Science of Meso-Hierarchy, 2024)
6. JACG Discussion Award at the 43rd Discussion Meeting on Crystal Growth (The Japanese Association for Crystal Growth, 2024)
7. JACG Young Researcher Poster Award at the 43rd Discussion Meeting on Crystal Growth (The Japanese Association for Crystal Growth, 2024)
8. CSJ Student Presentation Award, The 104th CSJ Annual Meeting (The Chemical Society of Japan, 2024)
9. JSPS HOPE fellow at the 15th HOPE Meeting (Japan Society for the Promotion of Science, 2024)
10. JACG Best Presentation Award at the 52nd Japan Conference on Crystal Growth (The Japanese Association for Crystal Growth, 2023)
11. Student Best Presentation Award at the 79th Annual Meeting of the Japanese Society of Microscopy (The Japanese Society of Microscopy, 2023)
12. Outstanding Presentation Award at the Forum for Graduate School Education Reform 2022 (Tohoku University, 2022)
13. Student Poster Award at the 51st Japan Conference on Crystal Growth (The Japanese Association

for Crystal Growth, 2022)

14. Best Discussion Award at the 62nd Tokai Young Ceramist Meeting (The Ceramic Society of Japan Tokai Branch, 2022)
15. Excellence Award at the 63rd Science and Technology Film/Video Festival (Japan Science Foundation, 2022)
16. Poster Prize at the 11th Subway Seminar (Subway Seminar Executive Committee, 2021)
17. Best Poster Award at the 77th Annual Meeting of the Japanese Society of Microscopy (The Japanese Society of Microscopy, 2021)