The 2nd International Symposium on Solid State Chemistry (ISSSC2025)

December 1–5, 2025, Shimane, Japan

Monday, Dec. 1, 2025

13:00–13:20	**Opening** Hiroshi Kageyama, Chair of ISSSC2025 (Kyoto University, Japan)

	Session 1, Solid State Chemistry 1 Chair: Masaki Azuma
I-1 13:20–13:55	Treasuring Trash: Plastic Upcycling Kenneth Poeppelmeier (Northwestern University, USA)
I-2 13:55–14:30	New Insights in the Chemistry of Transition Metal Nitride Materials Amparo Fuertes (ICMAB, Barcelona, Spain)
I-3 14:30–15:05	Controlling the Regioselectivity of Topochemical Reactions Michael Hayward (University of Oxford, UK)

	Session 2, Functional Materials 1 Chair: Kang Min Ok
I-4 15:35–16:10	Reservoir Computing with Disordered Metal–Organic Frameworks Andrew Goodwin (University of Oxford, UK)
I-5 16:10–16:45	Emphanisis: Local Off-Centering of Atoms with Warming Kanishka Biswas (JNCASR, Bangalore, India)

17:00–19:20	**Poster Session A (+ dinner)** Odd-Numbered Posters

19:20-19:50 Iwami Kagura (Shinto dance-drama)

Tuesday, Dec. 2, 2025

	Session 3, Electronic Properties 1 Chair: Andrew Goodwin
I-6 9:00–9:35	Correlated Quantum Materials for Memory Applications and Neurocomputing Laurent Cario (Nantes University, IMN, France)
I-7 9:35–10:10	Anti-Polar 2D-Metallicity with Tuneable Valence W^{x+} ($5 \leq x \leq 5.6$) in the Layered Monophosphate Tungsten Bronzes $[Ba(PO_4)_2]W_mO_{3m-3}$ Olivier Mentré (Université de Lille, France)

	Session 4, Functional Materials 2 Chair: Kiyofumi Katagiri
I-8 10:40–11:15	Gas-to-Solid Layer-by-Layer Synthesis of Functional Materials through ALD/MLD Maarit Karppinen (Aalto University, Finland)
I-9 11:15–11:50	Toward Small Molecule Conversion Reactions: Mixed-Anion Compounds and Beyond Kazuhiko Maeda (Institute of Science Tokyo, Japan)

11:50–13:00 Lunch and Tatara Movie

	Session 5, Batteries and Ion Transport Chair: Kenneth Poeppelmeier
I-10 13:00–13:35	Better Li(Na)-Ion Batteries through Chemistry Jean-Marie Tarascon (Collège de France, France)
I-11 13:35–14:10	Exploring Advanced Materials for Next-Generation Energy Storage and Conversion: Polymer Based Solid Electrolytes and Magnetocaloric Compounds Yang Ren (City University of Hong Kong, China)
I-12 14:10–14:45	Local Structures and Strain in Ionic Conductors – on Pressure and “Chemical Pressure” Wolfgang Zeier (University of Münster, Germany)

	Session 6, Atomic Arrangements in Solids Chair: Michael Hayward
I-13 15:15–15:50	Finding the Atoms that Matter in Functional Perovskites Joanne Etheridge (Monash University, Australia)
I-14 15:50–16:25	Long-Range Magnetic Order in Icosahedral Quasicrystals Ryuji Tamura (Tokyo University of Science, Japan)
I-15 16:25–17:00	Engineering Glass Structure for Extreme Transparency and Thermal Conductivity Control Madoka Ono (Tohoku University, Japan)

17:00–17:10 Conference Photo

19:00– Invited Speakers Dinner

Wednesday, Dec. 3, 2025

8:30–9:00 Mini-Tatara (Tatara Ironmaking Experience)

	Session 7, Solid State Chemistry 2 Chair: Efrain E. Rodriguez
I-16 9:00–9:35	Understanding Synergies between Structural Distortions, Chemical Ordering, and the Physical Properties of Perovskites Patrick Woodward (Ohio State University, USA)
I-17 9:35–10:10	Evaluating the Synthesis and Synthesizability of Computationally-Predicted Materials Wenhao Sun (University of Michigan, USA)

	Session 8, Functional Materials 3 Chair: Maarit Karppinen
I-18 10:40–11:15	Strategic Design of Noncentrosymmetric Solid-State Materials Kang Min Ok (Sogang University, Korea)
O-1 11:15–11:40	Successive Phase Transitions in Perovskite-type $RbNbO_3$ Ferroelectrics Triggered by Temperature, Pressure, and Composition Ayako Yamamoto (Shibaura Institute of Technology, Japan)

11:40–13:00 Lunch, Mini-Tatara, and Tatara Movie

	Session 9, Functional Materials 4 Chair: Takafumi Yamamoto
I-20 13:00–13:35	Single-Crystal Halide Perovskite Heterostructures Hemamala Karunadasa (Stanford University, USA)
I-21 13:35–14:10	Bulk Tuning of Solid-State Materials for Heterogeneous Catalysis Yoji Kobayashi (KAUST, Saudi Arabia)

14:10–14:40 Break and Mini-Tatara

	Session 10, Electronic Properties 2 Chair: Laurent Cario
I-22 14:40–15:15	Magnetic Skrymion and Hedgehog Materials Yoshinori Tokura (RIKEN, Japan)
I-23 15:15–15:50	Ferromagnetism and Altermagnetism in Layered Transition Metal Chalcogenides Efrain E. Rodriguez (University of Maryland, USA)
O-2 15:50–16:15	Discovering New Superconductors through Arsenic Chemistry Minoru Nohara (Hiroshima University, Japan)

16:15–16:55 Break and Mini-Tatara

17:00–19:20	**Poster Session B (+ dinner)** Even-Numbered Posters

19:20-19:50 Yasugibushi (Folk song & dance from Shimane)

Thursday, Dec. 4, 2025

	Session 11, High Pressure Synthesis Chair: Shintaro Ishiwata
I-25 9:00–9:35	New Oxide and Nitride Materials from High Pressure Paul Attfield (University of Edinburgh, UK)
I-26 9:35–10:10	Diamond and Boron Nitride Single Crystals and Their Quantum Applications Takashi Taniguchi (National Institute for Materials Science, Japan)

	Session 12, Solid State Chemistry 3 Chair: Patrick Woodward
I-27 10:35–11:10	Fluorine as a Key Element in Solid State Chemistry of Mixed Anions 3d-Transition Metal-Based Materials Alain Demourgues (University of Bordeaux, France)
I-28 11:10–11:45	Modern Solid-State Chemistry: Complex Anions and Chemical Bonding Richard Dronskowski (RWTH Aachen University, Germany)

11:45–12:05 Lunch

12:05– Excursion

Group A: Izumo Grand Shrine, Kojindani Archaeological Site

Groups B & C: Izumo Grand Shrine

Banquet

Groups A & B: Yuushien Garden

Group C: Ryoma

Friday, Dec. 5, 2025

	Session 13, Chemistry and Physics of Oxides 1 Chair: Paul Attfield
I-29 9:00–9:35	Towards higher-T_c superconductors Zenji Hiroi (the University of Tokyo, Japan)
O-3 9:35–10:00	van der Waals chalcohalides: from 2D to 1D Sara A. Lopez Paz (University of Copenhagen, Denmark) (Abstract: P77 in Poster Session)

	Session 14, Chemistry and Physics of Oxides 2 Chair: Yoshihiko Okamoto
I-31 10:30–11:05	Computationally Guided High-Pressure Synthesis of New Metastable Oxides Shintaro Ishiwata (Osaka University, Japan)
I-32 11:05–11:40	Two-Dimensional Materials Created by Exfoliating Ultrathin Epitaxial Films Daisuke Kan (Osaka University, Japan)

11:40–12:00	**Closing**