

The International Workshop on “Exotic Quantum Phases due to Unhappy Electrons”

Nov. 12–14, 2025, Hongo-Asano Campus, the University of Tokyo

Nov. 12 (Wed), 2025

9:30–9:40	Opening (T. Kimura)
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Oral Session 1 Chair: Y. Okamoto	
I-1 9:40–10:15	To have SOC, or not to have <i>Sang-Wook Cheong (Rutgers University, USA)</i>
O-1 10:15–10:40	Optical detection of symmetry breakings induced by electric fields in various ferroics <i>Tsuyoshi Kimura (University of Tokyo, Japan)</i>

Break (10:40-11:05)

Oral Session 2 Chair: K. Ohgushi	
I-2 11:05–11:40	Majorana-fermion origin for planar thermal Hall effect in Kitaev magnet α -RuCl ₃ <i>Yuji Matsuda (Los Alamos National Laboratory, USA)</i>
I-3 11:40–12:15	Electric and thermoelectric properties and the violation of the Wiedemann-Franz law in semimetals with electron-electron scattering <i>Masao Ogata (University of Tokyo, Japan)</i>

Lunch (12:15-14:00)

Oral Session 3 Chair: T. Kimura	
I-4 14:00–14:35	Emergent electromagnetic phenomena in spin chiral matter <i>Yoshinori Tokura (RIKEN, Japan)</i>
O-2 14:35–15:00	Hunting for new helimagnetic materials: <i>p</i> -wave magnets and Weyl helimagnets <i>Max Hirschberger (University of Tokyo, Japan)</i>
O-3 15:00–15:25	What can the tools of quantum information theory teach us about quantum magnets? <i>Nic Shannon (OIST, Japan)</i>

Break (15:25-15:50)

Oral Session 4 Chair: M. Nohara	
I-5 15:50–16:25	Superconductivity in layered nickelates <i>Harold Hwang (Stanford University, USA)</i>
O-4 16:25–16:50	Development of quantum sensing techniques under multi-extreme conditions for superconductivity and quantum magnetism research <i>Kentaro Kitagawa (University of Tokyo, Japan)</i>
O-5 16:50–17:15	Phase-sensitive determination of the superconducting-gap structure in tetragonal FeSe _{1-x} S _x <i>Tetsuo Hanaguri (RIKEN, Japan)</i>
I-6 17:20–17:55	Superconductivity in n- and p-doped cuprates: a transport perspective (online) <i>Nigel Hussey (University of Bristol, United Kingdom)</i>

18:30- Information Exchange Meeting (Invited Speakers Dinner)

Nov. 13 (Thu), 2025

	Oral Session 5 Chair: T. Katsufuji
I-7 9:00–9:25	Fluctuating loop currents as a mechanism for superconductivity in Kagome metal (video) <i>Yong Baek Kim (University of Toronto, Canada)</i>
I-8 9:25–10:00	Symmetry and topology in advanced electronic materials <i>Thomas Palstra (University of Twente, Netherlands)</i>
O-6 10:00–10:25	Anisotropic opto-phononic responses in van der Waals multilayers <i>Hiro Nakamura (University of Arkansas, USA)</i>
O-7 10:25–10:50	Molecular orbital degeneracy lifting in a flat-band metal NbSeI <i>Yoshihiko Okamoto (University of Tokyo, Japan)</i>

Break (11:00-11:25)

	Oral Session 6 Chair: N. Shannon
I-9 11:15–11:50	TBA <i>Bernhard Keimer (Max Planck Institute, Germany)</i>
I-10 11:50–12:25	Non-equilibrium multiband Bose condensate <i>Gabriel Aeppli (Paul Scherrer Institut, Switzerland)</i>
I-11 12:25–13:00	Pseudogap in electron-doped cuprates: thermal precursor to magnetism <i>Andrey Chubukov (University of Minnesota, USA)</i>

Lunch (13:00-14:10)

14:10–16:00	Poster Session
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	Oral Session 7 Chair: J. Matsuno
I-12 16:00–16:35	Unusual charge transitions in charge-spin-lattice coupled transition-metal oxides <i>Yuichi Shimakawa (Kyoto University, Japan)</i>
O-8 16:35–17:00	Gapless spin liquid and gapped magnetization plateau phases in a spin-1/2 perfect kagome antiferromagnet <i>Shota Suetsugu (University of Tokyo, Japan)</i>
O-9 17:00–17:25	Structural instability of the mixed-valence spinel compound CuIr ₂ S ₄ <i>Naoyuki Katayama (Okayama University, Japan)</i>
I-13 17:25–18:00	Heavy fermion oxide LiV ₂ O ₄ with new surprise in store <i>Hidenori Takagi (Max Planck Institute, Germany)</i>

18:30- Information Exchange Meeting
(Banquet at Sanjo Kaikan)

Nov. 14 (Fri), 2025

	Oral Session 8 Chair: T. Hanaguri
I-14 9:00–9:35	Quantum Noise Spectroscopy <i>J. C. Séamus Davis (University of Oxford, United Kingdom)</i>
I-15 9:35–10:10	Copper oxide superconductors revisited <i>Zenji Hiroi (University of Tokyo, Japan)</i>
O-10 10:10–10:35	Bond-breaking transition and negative thermal expansion in supra ceramics <i>Minoru Nohara (Hiroshima University, Japan)</i>

Break (10:35-11:00)

	Oral Session 9 Chair: T. Takayama
I-16 11:00–11:35	Quantum geometry of electrons in solids <i>Naoto Nagaosa (RIKEN, Japan)</i>
I-17 11:35–12:10	Raman circular dichroism: a probe of emergent phonon chirality <i>Natalia Perkins (University of Minnesota, USA)</i>
O-11 12:10–12:35	Unhappy electrons in the Starrydata thermoelectric materials dataset <i>Yukari Katsura (NIMS, Japan)</i>
O-12 12:35–13:00	High mobility hole gas on GeH / Ge(111) interface <i>Kazunori Ueno (University of Tokyo, Japan)</i>

13:00–13:10	Closing (Y. Okamoto)
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Lunch

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