2025 Tokyo-Beijing-Sendai Joint Workshop on Quantum Matter

Venue: **TOKYO ELECTRON House of Creativity, Tohoku University Katahira Campus**

Dates: **October 2 – 6, 2025**

Time schedule

October 2 (Thursday)
Arrival day

October 3 (Friday)

8:30 - 9:00 Registration
9:00 - 9:10 Opening Remark
9:10 - 9:50 Takashi Mukaiyama (Institute of Science Tokyo)
Ultracold Fermi gases with strong p-wave interactions
9:50 - 10:30 Xiaopeng Li (Fudan University)
TBA
Break
10:50 - 11:30 Chengshu Li (Tsinghua University)
Emergent spacetime supersymmetry in a Rydberg atom ladder and its dynamical measurement
11:30 - 12:10 Nobuyuki Yoshioka (University of Tokyo)
Fault-tolerant quantum algorithms for quantum many-body simulation
Lunk Break
14:30 - 15:10 Takahiro Hiraki (Okayama University)
Nuclear laser spectroscopy of 229Th doped in CaF2
15:10 - 15:50 Shiqian Ding (Tsinghua University)
A continuous-wave laser at 148 nm for the Th-229 nuclear clock
Break
16:30 - 17:10 Shang Liu (Chinese Academy of Science)
Supersymmetric Critical Point in the Truncated Lattice Schwinger Model
17:10 - 17:50 Yuki Kawaguchi (Nagoya University)
Dynamical axion fields coupled with one-dimensional spinless fermions

18:30 – Conference Dinner

October 4 (Saturday)

9:00 - 9:40 Yusuke Nomura (Tohoku University)
TBA
9:40 - 10:20 Hongzheng Zhao (Peking University)
Engineering long-range and multi-body interactions via global kinetic constraints
Break
10:40 - 11:20 Wenlan Chen (Tsinghua University)

Observation of near-critical Kibble-Zurek scaling in Rydberg atom arrays

11:20 - 12:00 Yuma Nakamura (Yaqumo)
Dual-isotope ytterbium atom arrays for efficient mid-circuit measurements

Lunch Break

14:00 - 16:00 Poster session

Break

16:30 - 17:10 Giedrius Žlabys (Okinawa Institute of Science and Technology)
Topological effects in sub-wavelength barrier systems

17:10 - 17:50 Yuan Yao (Shanghai Jiao Tong University)
Non-perturbative approach to many-body physics by twisting operators

18:30 - Speaker & Organizer Dinner

October 5 (Sunday)

9:00 - 9:40 Weiyong Zhang (University of Science and Technology of China)
Scalable multipartite entanglement using ultracold atoms in optical lattices

9:40 - 10:20 Hikaru Tamura (Institute for Molecular Science)
Observation of many-body coherence in attractive Bose gases in lower dimensions

Break

10:40 - 11:20 Kazuki Yamamoto (Institute of Science Tokyo)
Towards postselection-free measurement-induced phenomena in quantum many-body dynamics

11:20 - 12:00 Zhi-Cheng Yang (Peking University)
Stabilizer Entanglement Enhances Magic Injection

12:00 - 12:10 Closing remark

October 6 (Monday)

Departure day

Poster Presentations

1. Xue Chen (Tsinghua University)
   Optimising quantum circuits via machine learning

2. Juntaro Fujii (Institute of Science Tokyo)
   Itinerant ferromagnetism in an SU(3) Fermi-Hubbard model at finite temperatures: A DMFT study

3. Koichiro Furutani (Nagoya University)
   Dissipative quantum phase transition in a head-to-tail atomic Josephson junction

4. Mengyuan Li (Tsinghua University)
   Subdimensional Entanglement Entropy

5. Kazuma Nagao (RIKEN)
   Discrete truncated Wigner approach for frustrated Bose gases in kagome and triangular optical lattices

6. Masaya Nakagawa (University of Tokyo)
   Topology of discrete quantum feedback control

7. Jose Carlos Pelayo (Kindai University)
   TBA

8. Yuta Sekino (RIKEN)
   Tunneling spin and heat transport in ultracold atomic systems

9. Soma Takemori (Institute of Science Tokyo)
   Nonequilibrium dynamical phase transition of fermionic superfluids in three-terminal Josephson junctions

10. Yoshihiro Yabuuchi (Osaka Metropolitan University)
    Effects of the long-range hopping on the superfluid critical velocity in hardcore bosons on a square lattice

11. Zhenhua Yu (Sun Yat-sen University)
    Feedback-induced nonlinear spin dynamics in an inhomogeneous magnetic field