ASPIRE 先端国際共同研究推進事業
Adopting Sustainable Partnerships for Innovative Research Ecosystem

ASPIRE Workshop on Quantum and Topological Materials

Date: October 21–22, 2025

Venue:
Tohoku University, Department of Materials Science and Engineering
Education and Research Bldg.
6-6-02 Aramaki-aza Aoba, Aoba-ku, Sendai, Miyagi 980-8579, JAPAN

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Day 1 – October 21 (Tue)

Morning Session: Quantum materials and device applications

10:00 – 10:30 Makoto Kohda (Tohoku Univ.)

Department of Materials Science and Engineering, Tohoku University

About ASPIRE program and its progress

10:30 – 11:00 Thomas Schäpers (Germany)

Peter Grünberg Institut 9, Forschungszentrum Jülich

Quantum Transport in GaAs/InAs Core/Shell Nanowire Based Structure

11:00 – 11:30 Dan Buca (Germany)

Peter Grünberg Institut 9, Forschungszentrum Jülich

Group IV alloys epitaxy and future applications

11:30 – 13:00 Lunch Break

Afternoon Session: Spin dynamics and topological phenomena

13:00 – 13:30 Bernd Beschoten (Germany)

RWTH Aachen University

Gate-tunable Josephson diodes in twisted bilayer graphene

13:30 – 14:00 Haruki Sanada (NTT)

Basic Research Laboratories, NTT, Inc.

14:00 – 14:30 Russell Deacon (RIKEN)

RIKEN, Advanced Device Laboratory

14:30 – 15:00 Minoru Kawamura (RIKEN)

RIKEN Center for Emergent Matter Science

Charge transport in topological insulator/superconductor hybrid system

Charge transport in topological insulator/superconductor hybrid system

15:00 – 15:30 Sadashige Matsuo (Science Tokyo)

Department of physics, ISCT

Superconducting transport and spectroscopy of Andreev molecules in coupled Josephson junctions

15:30 – 16:00 Coffee Break

16:00 – 17:30 Lab Tour (Tohoku University facilities)

17:30 – 19:30 Reception / Networking Dinner
Venue: (nearby restaurant / campus facility, details to be announced)

Day 2 – October 22 (Wed)

Morning Session: Magneto-transport in 2D and topological materials

9:30 – 10:00 Jan Karthein (Germany)

Peter Grünberg Institute (PGI-9), Forschungszentrum Jülich

Optimization of magnetic topological insulators for superconducting applications

10:00 – 10:30 Katsushi Hashimoto (Tohoku University)

Graduate School of Sciences, Tohoku University

Resistively-Detected ESR Studies on Topological and Topological-Candidate 2D Materials

10:30 – 11:00 Josua Theime (Germany)

Peter Grünberg Institute (PGI-9), Forschungszentrum Jülich

Individual Josephson junction physics in multi-terminal devices

11:00 – 11:30 Jonas Buchhorn (Germany)

Peter Grünberg Institute (PGI-9), Forschungszentrum Jülich

Magnetotransport of high mobility Bi2Te3 thin films

11:30 – 13:00 Lunch Break

Afternoon Session: Semiconductor nanostructures

13:00 – 13:30 Takeshi Oshima (QST)

National Institutes for Quantum Science and Technology

13:30 – 14:00 Prateek Kaul (Germany)

Forschungzentrum Juelich and RWTH Aachen, PGI-9

Towards 1-D conduction in gate-defined quantum point contacts on GeSn quantum wells

14:00 – 14:30 Keiko Takase (TUAT)

Tokyo University of Agriculture and Technology

Strain engineering for low-dimensional quantum devices

14:30 – 15:00 Michael Randle (NTT)

NTT Basic Research Laboratory

Evidence of an Anisotropic Chiral Anomaly in Alloys of GeSnC

15:00 – 15:30 Coffee Break

15:30 – 17:00 Discussion for future collaborations