

HQSN2025 Session Schedule

Oct. 27th (Mon.)

9:00 - 9:15 Opening

Quantum Nanodevices

9:15 - 9:45	III-V Nanostructures for Optoelectronic and Quantum Devices	Australia	Hoe Tan	Invite
9:45 - 10:15	Wide-range Density Control of Self-Assembled Semiconductor Quantum Dots for Quantum Applications	Japan	Kouichi Akahane	Invite
10:15 - 10:30	Strain Effects on the Electronic Structure of ZnSe/ZnS Core/Shell Quantum Dots: Tight-Binding Analysis	Japan	Jin Hyong Lim	Oral

10:30 - 11:00 Coffee Break

Nanostructure Transport

11:00 - 11:30	Bidirectional Nuclear Polarization through Electric Dipole Spin Resonance Enabled by Spin-Orbit Interaction in a Single-Heavy-Hole Planar Double Quantum Dot Device	Canada	David Guy Austing	Invite
11:30 - 11:45	Room-temperature Tunneling Transport Properties Dependent on a Single Spin of Deep Dopant in Silicon -Towards Room-temperature Qubit Implemented in Transistor-	Japan	Keiji Ono	Oral
11:45 - 12:00	Disentangling the Physics of Individual Junctions in Multi-Terminal Devices	Germany	Josua Thieme	Oral
12:00 - 12:15	Force-Induced Acceleration in Two-Dimensional Electron Gases with Off-Diagonal Effective Mass Tensor Components	Japan	Nobuya Mori	Oral

12:15 - 12:30 Conference Photo

12:30 - 13:30 Lunch

Optical and Terahertz Systems

13:30 - 14:00	Binary non-Hermitian systems and their realization in coupled-waveguide structures	Korea	Jae Woong Yoon	Invite
14:00 - 14:15	Semiclassical Theory of Strong Coupling between Emitters and Optical Resonators	France	Benjamin Rousseaux	Oral
14:15 - 14:30	Mid/near-infrared Triply Resonant Cavity toward Parametric Modulation of Molecular Vibrational Polaritons	Japan	Ryoko Sakuma	Oral
14:30 - 14:45	Electrical Detection of Ultrastrong Light-Matter Coupling with a Split Ring Resonator Dimer	Japan	Jing Huang	Oral
14:45 - 15:00	Landau-Zener-Stückelberg-Majorana transitions utilized for quantum sensing	Japan	Shintaro Nomura	Oral

15:00 - 15:30 Coffee Break

Nanomaterials

15:30 - 16:00	Engineering 2D Materials for Next-Generation Nanoelectronics	Taiwan	Yu-Lun Chueh	Invite
16:00 - 16:30	In-Materio Physical Reservoir Computing: AI Devices based on Random Network of Nanomaterials for Future Robot Application	Japan	Hirofumi Tanaka	Invite
16:30 - 16:45	Hybrid Coupling between Surface Acoustic Phonon and 2D Dirac Electron System in Graphene for Ultra-Highly Sensitive Gas Detection	Japan	Sankar Ganesh Ramaraj	Oral
16:45 - 17:00	Ortho-para Conversion of a H ₂ O Molecule Encapsulated in a Fullerene Induced by Single Electron Tunneling	China	Shaoqing Du	Oral
17:00 - 17:15	Single-mode wide waveguides in air-cladded photonic graphene structures	Japan	CHENGKUN ZHANG	Oral
17:15 - 17:30	Temporal Phonon Coherence in Two-dimensional Graphene/h-BN Superlattice	Japan	Xiaoyu Huang	Oral

17:45 - 19:30 Poster Session

Oct. 28th (Tue.)

Device Applications of Quantum Structures

9:00 - 9:30	Remote Epitaxy for Ultrahigh-Density Vertical-Stack Heterogeneous Integration of Micro-LED R/G/B Pixel Architectures (5,100 ppi)	Korea	Young Joon Hong	Invite
9:30 - 10:00	Hybrid Quantum Devices with Superconducting Microwave Circuits	Korea	Jinwoong Cha	Invite
10:00 - 10:15	Hybrid Quantum Devices of Magnon and Phonon Coupled by Electric-field via Dzyaloshinsky-Moriya Coupling	Japan	Hitoshi Tabata	Oral
10:15 - 10:30	Strained Germanium Quantum Wells for Quantum Device Applications	Japan	Tanbhir Hasan	Oral

10:30 - 11:00 Coffee Break

Material Characterization

11:00 - 11:30	Mapping Electronic Phase Transition Domains and Spin-Polarized Bands at the Atomic Frontier with Photoelectron Momentum Microscopy	Japan	Fumihiko Matsui	Invite
11:30 - 11:45	Local Electrostatic and Dissipative Properties of Superconducting Channels in $\text{LaAlO}_3/\text{SrTiO}_3$	Japan	Dilek YILDIZ	Oral
11:45 - 12:00	In Situ Synchrotron X-ray Diffraction Analysis of III-Nitride Surfaces, Interfaces, and Nanostructures	Japan	Takuo Sasaki	Oral
12:00 - 12:15	Three-Dimensional Atomic Structural Analysis for Dopants and Semiconductor interfaces	Japan	Tomohiro Matsushita	Oral
12:15 - 12:30	Operando X-Ray Topographic Observation of Lattice Defects in Ga_2O_3 Schottky Barrier Diodes Using Synchrotron Radiation X-Ray Source	Japan	Yongzhao Yao	Oral

12:30 - 13:30 Lunch

Topological Insulators and Quantum Transport

13:30 - 14:00	Superconductive Coupling and Josephson Diode Effect in Multi-Terminal Hybrid Structures based on Topological Insulators	Germany	Thomas Schäpers	Invite
14:00 - 14:15	Anomalous Hall Effect in Magnetic Topological Insulator/Superconductor Heterostructures	Japan	Minoru Kawamura	Oral
14:15 - 14:30	Weak Anti-Localization Effect in In-Doped SnTe Thin Films	Japan	Tomosuke Aono	Oral
14:30 - 14:45	Probing Sz-Conserving Intrinsic Spin-Orbit Coupling in Graphene via Angle-Resolved RDESR	Japan	Katsushi Hashimoto	Oral
14:45 - 15:00	Superconducting Diode Using Double Quantum Dot	Japan	Mikio Eto	Oral

15:00 - 15:30 Coffee Break

Biological Systems

15:30 - 16:00	Investigation of Cell Functions under Physical Microenvironment Using Electrochemical Scanning Probe Microscopy	China	Fei Li	Invite
16:00 - 16:30	Development of Imaging Diagnosis and Treatment Technologies using Nano Quantum Sensors and Their Medical Applications	Japan	Hiroshi Yukawa	Invite
16:30 - 16:45	Single-Nanoparticle Characterization Technology toward Exosome Medicine	Japan	Takanori Ichiki	Oral
16:45 - 17:00	Doxorubicin-Induced Toxicity and Bisoprolol Protective Efficacy for Cardiomyocytes Monitored by Scanning Electrochemical Microscopy	China	Jingjing Song	Oral
17:00 - 17:15	Microfluidic Devices for Two and Three-Dimensional Microphysiological Systems (MPS)	Japan	Ryuji Yokokawa	Oral

18:00 - 20:00 Banquet

Oct. 29th (Wed.)

Future Device Technologies

9:00 - 9:30	The Government Role on Semiconductor and Emerging Tech (AI and Quantum): Pros and Cons	Taiwan	J Andrew Yeh	Invite
9:30 - 10:00	Reconfigurable Nonlinear Computing in Silicon	Netherlands	Wilfred G. van der Wiel	Invite
10:00 - 10:30	Quantum Sensing with Spins in Diamond	Japan	Norikazu Mizuochi	Invite

10:30 - 11:00 Coffee Break

Novel Device Concepts

11:00 - 11:30	Diamond optomechanical crystal for superconducting-optical hybrid quantum computer	Japan	Hideo Kosaka	Invite
11:30 - 12:00	Design of Semiconducting Oxide Channels Leveraging Quantum Confinement for High-Performance Memory Devices	Korea	Jae Kyeong Jeong	Invite
12:00 - 12:15	Phonon-Lasing-Like Oscillation via Internal Resonance in a Doubly-clamped MEMS Beam Resonator	Japan	Ya Zhang	Oral
12:15 - 12:30	Optically Induced Mechanical Damping in an Optomechanical Resonator	Japan	Hideki Arahari	Oral

12:30 - 13:30 Lunch

Physics and Application of Color Centers and Quantum Dots

13:30 - 13:45	A Near-Quantum-Limited Maser Amplifier using Spins in Diamond	Japan	Yuimaru Kubo	Oral
13:45 - 14:00	Room-Temperature Electrical Detection of Single Spins in Silicon Carbide	Japan	Tetsuri Nishikawa	Oral
14:00 - 14:15	Enhanced Light Extraction Efficiency from Color Centers in Diamond Using a SiN Bull's-eye Structure on the Surface	Japan	Ziyi Chen	Oral
14:15 - 14:30	Coherent Storage of Femtosecond Weak Signals in InAs Quantum Dots and Time Resolving Measurement via Frequency Up-conversion	Japan	Yuta Kochi	Oral

14:30 - 14:45 Closing