

PROGRAM

21st February, 2022 (Monday)

13:55 – 14:00 Opening

Session I: 2D materials and applied quantum systems

14:00 – 14:00 Mikoto Koshino [Invited Talk] (Osaka University)

“Physics of twisted 2D materials”

14:40 – 15:00 Yuya Shimazaki (RIKEN)

“Electrically tunable Feshbach resonances in twisted bilayer semiconductors”

15:00 – 15:20 Michihisa Yamamoto (RIKEN)

“Phase transitions in the correlated quantum Hall state of bilayer graphene”

15:20 – 15:40 Yuma Okazaki (AIST)

“Towards quantum resistance standard with a permanent magnet”

15:40 – 16:00 Yosuke Sato (RIKEN)

“Josephson supercurrent enhancement by quasi-particle trapping”

16:00 – 16:20 Break

Session II: Dynamics in quantum dots

16:20 – 16:40 Tokuro Hata (Tokyo Institute of Technology)

“Tunable tunnel-coupling in a double quantum antidot with cotunneling via a localized state”

16:40 – 17:00 Raisei Mizokuchi (Tokyo Institute of Technology)

“Sensitivity characteristics of RF charge sensors based on p-type silicon quantum dots”

17:00 – 17:20 Takumi Aizawa (Tohoku University)

“Real-time measurement of QCA charge transition in quantum dots by rf-reflectometry”

17:20 – 17:40 Yui Muto (Tohoku University)

“Noise-robust charge state recognition in quantum dots utilizing machine learning and preprocessing”

18:00 – 19:30 Dinner Restaurant “Kitora”

19:30 – Poster Session (oVice)

P1	Yi-Hsien Wu	“Effects of Different Kinds of Noise on Randomized Benchmarking Gate Fidelity”
P2	Juan Rojas Arias	“Charge noise in Si/SiGe quantum dot spin qubits”
P3	Yoshihiro Uehara	“Toward autotuning of spin qubits in semiconductor quantum dots”
P4	Hiroto Kasai	“”
P5	Takato Yoshii	“Fabrication of Ge Hole Quantum Dots”
P6	Takehiro Haruki	“Fabrication and evaluation of undoped GaAs quantum well in-plane p-n junction for photon-spin mutual quantum state conversion”

22nd February, 2022 (Tuesday)

Session III: Diamond NV centers and other vacancies

- 9:00 – 9:40 Taisuke Kageura [Invited Talk] (NIMS)
“Quantum sensing based on spin qubits in diamond”
- 9:40 – 10:00 Yuki Nakamura (Keio University/University of Tokyo)
“Optimizing optical readout of a nitrogen-vacancy center with spin relaxation model”
- 10:00 – 10:20 Shunsuke Nishimura (University of Tokyo)
“Demonstration of large amplitude Floquet engineering with diamond qubit”
- 10:20 – 10:40 Break
- 10:40 – 11:00 Shu Motoki
“Optically Detected Magnetic Resonance of Silicon Vacancies in 4H-SiC with Different Temperatures”
- 11:00 – 11:20 Takeshi Oshima
“Creation and application of quantum defects in wide bandgap semiconductors”

Session IV: Novel quantum systems

- 11:20 – 11:40 Ryo Kawaguchi (Tohoku University)
“Single molecule spin manipulation with scanning tunneling microscope”
- 11:40 – 12:00 Shintaro Takada (AIST)
“Heat-Driven Electron-Motion in a Nanoscale Electronic Circuit”
- 12:00 – 12:20 Shunsuke Ota (Tokyo Institute of Technology)
“Single Electron Transport with Chirp Surface Acoustic Wave”

12:20 – Free discussion

Session V: Nanophotonics

- 18:00 – 18:20 Wenbo Lin (University of Tokyo)
“Generation of optical skyrmion beams by nanophotonics-based manipulation of optical spin textures”
- 18:20 – 18:40 Sangmin Ji (University of Tokyo)
“Bull's-eye optical cavity for efficient Poincare interface using gate-defined quantum dots”
- 18:40 – 19:00 Akira Oiwa (Osaka University)
“Enhanced efficiency of single photoelectron trapping in a gate-defined quantum dot with a surface plasmon antenna”
- 19:30 – Dinner Restaurant “CoccoLARE” (buffet)

23rd February, 2022 (Wednesday)

Session VI: Quantum phenomenon theory

- 9:00 – 9:40 Tetsufumi Tanamoto [Invited Talk] (Teikyo University)
“Theoretical study on spin qubit integration based on conventional transistors”
- 9:40 – 10:00 Yasuhiro Tokura (University of Tsukuba)
“Characteristics of non-adiabatic and non-Markovian pump current”
- 10:00 – 10:20 Shunsuke Kamimura (University of Tsukuba)
“Quantum-enhanced heat engine based on superabsorption”
- 10:20 – 10:40 **Break**

Session VII: Spin qubit experiments

- 10:40 – 11:00 Sayyid Irsyadul Ibad (Tokyo Institute of Technology)
“Stabilizing method of a double quantum dot towards long-term spin-qubit operation”
- 11:00 – 11:20 Kenta Takeda (RIKEN)
“Quantum error correction with spins in silicon”
- 10:20 – 11:40 Yohei Kojima (RIKEN)
“Active suppression of low-frequency noise in exchange interaction between single-electron spin qubits”
- 11:40 – 12:00 Yuta Matsumoto (Osaka University)
“Fast single-spin qubit operation and its coherence time enhanced by quantum feedback”
- 12:00 – 12:10 **Closing**