Program

September 11 (Mon)

(8:30-8:45)
Opening Remarks

Session MO-A1: NV Centers

MO-A1-1 (8:45-9:15)
“Hybrid quantum systems for quantum limited sensing” (invited)
J. Wrachtrup
Institute for Quantum Science and Technology, University of Stuttgart

MO-A1-2 (9:15-9:30)
Electrical extension of spin coherence time of single electron spin in diamond
S. Kobayashi¹, Y. Matsuzaki², H. Morishita³, S. Miwa¹, Y. Suzuki¹, M. Fujiwara¹, and N. Mizuochi³
¹Graduate School of Engineering Science, Osaka University, ²NTT Basic Research Laboratories, NTT Corporation, ³Institute for Chemical Research, Kyoto University

MO-A1-3 (9:30-9:45)
Optical holonomic quantum gates over an NV spin in diamond
Y. Sekiguchi, N. Niikura, R. Kuroiwa, H. Kano and H. Kosaka
Yokohama National University

MO-A1-4 (9:45-10:00)
Hybrid quantum sensing using quantum virtual memories in single NV center in diamond
H. Morishita¹, T. Tashima², and N. Mizuochi³
¹Institute for Chemical Research, Kyoto University, ²Department of Electronic Science and Engineering, Kyoto University

MO-A1-5 (10:00-10:15)
Hybridization: a tool to explore nonlinear quantum phenomena
W. J. Munro¹, A. Angerer², S. Putz³, T. Astner², R. Glattauer³, D. O. Krimer¹, K. Nemoto⁴, S.
Rotter$^3$, J. Schmiedmayer$^2$, J. Majer$^2$
$^1$NTT Basic Research Laboratories, $^2$Vienna Center for Quantum Science and Technology, Atominstitut, TU Wien, $^3$Institute for Theoretical Physics, TU Wien, $^4$National Institute of Informatics

Coffee Break

Session MO-A2: Quantum Transport

MO-A2-1 (10:45-11:15)
Landau-Zener transitions as universal tool for studying the dynamics of coupled systems (invited)
S. Ludwig
Paul-Drude-Institut für Festkörperelektronik (PDI)

MO-A2-2 (11:15-11:30)
Anisotropic heavy-hole g-factors and relevance to photon-to-spin conversion schemes in semiconductor quantum dot circuits
A. Bogan,$^{1,2}$ S. A. Studenikin,$^1$ M. Korkusinski,$^1$ G. C. Aers,$^1$ L. Gaudreau,$^1$ P. Zawadski,$^1$ A. Kam,$^1$ A. S. Sachrajda,$^1$ D. G. Austing,$^1$ L. A. Tracy,$^3$ J. L. Reno,$^3$ and T. W. Hargett$^3$
$^1$Security and Disruptive Technologies Portfolio, National Research Council of Canada, $^2$Department of Physics and Astronomy, University of Waterloo, $^3$Sandia National Laboratories

MO-A2-3 (11:30-11:45)
Symmetry and selection rules in a qubit-oscillator coupled system
T. Fuse$^1$, F. Yoshihara$^3$, S. Ashhab$^2$, K. Kakuyanagi$^3$, S. Saito$^3$, K. Semba$^1$
$^1$National Institute of Information and Communication Technology, $^2$Qatar Environment and Energy Research Institute, $^3$NTT Basic Research Laboratories

MO-A2-4 (11:45-12:00)
Quantum algorithm for universal implementation of projective measurement of energy
S. Nakayama$^1$, A. Soeda$^{1,2}$ and M. Murao$^{1,3}$
$^1$Department of Physics, University of Tokyo, $^2$Centre for Quantum Technologies, National University of Singapore, $^3$Institute for Nano Quantum Information Electronics, University of Tokyo

Conference Photo
Lunch Break

Session MO-P1: Quantum Spin Systems

MO-P1-1 (13:15-13:45)
Towards nitrogen-vacancy colour centre lasers for high sensitivity magnetometry (invited)
A. Greentree
RMIT University

MO-P1-2 (13:45-14:00)
Magnetic-field sensing with quantum error detection under the effect of energy relaxation
Y. Matsuzaki\textsuperscript{1} and S. Benjamin\textsuperscript{2}
\textsuperscript{1}NTT Basic Research Laboratories, \textsuperscript{2}Department of Materials, University of Oxford,

MO-P1-3 (14:00-14:15)
Electron transport in quantum point contact with hyperfine interaction under finite magnetic field
T. Aono,\textsuperscript{1} M. Kawamura,\textsuperscript{2} P. Stano,\textsuperscript{2,3} K. Ono,\textsuperscript{2} and T. Komine\textsuperscript{1}
\textsuperscript{1}Faculty of Engineering, Ibaraki University, \textsuperscript{2}RIKEN Center for Emergent Matter Science, \textsuperscript{3}Institute of Physics, Slovak Academy of Sciences

MO-P1-4 (14:15-14:30)
Resistively detected NMR line shapes in a quasi-one-dimensional electron system
M. H. Fauzi\textsuperscript{1,2}, A. Singha\textsuperscript{3}, M. F. Sahdan\textsuperscript{1}, M. Takahashi\textsuperscript{1}, K. Sato\textsuperscript{1}, K. Nagase\textsuperscript{1}, B. Muralidharan\textsuperscript{1}, and Y. Hiyam\textsuperscript{1,2}
\textsuperscript{1}Department of Physics, Tohoku University, \textsuperscript{2}CSRN, Tohoku University, \textsuperscript{3}Department of Electrical Engineering, IIT-Bombay

MO-P1-5 (14:30-14:45)
Relaxation to negative temperatures in spin domain systems
Y. Hama,\textsuperscript{1} W. J. Munro,\textsuperscript{1,2} K. Nemoto\textsuperscript{1}
\textsuperscript{1}National Institute of Informatics, \textsuperscript{2}NTT Basic Research Laboratories

MO-P1-6 (14:45-15:00)
Nuclear spins in quantum dot spin qubits
P. Stano,\textsuperscript{1} T. Nakajima,\textsuperscript{1} T. Otsuka,\textsuperscript{1} J. Yoneda,\textsuperscript{1} L. Camenzind,\textsuperscript{2} L. Yu,\textsuperscript{2} D. Loss,\textsuperscript{1,2} S. Tarucha,\textsuperscript{1} D. Zumbühl\textsuperscript{2}
MO-P1-7 (15:00-15:15)
Real-space mapping of nuclear resonance spectroscopy in a quantum-Hall system
K. Hashimoto, T. Tomimatsu, and Y. Hirayama
Department of Physics, Tohoku University

Coffee Break

Session MO-P2: Quantum Manipulation

MO-P2-1 (15:45-16:15)
Andreev quantum dots (invited)
C. Urbina
CEA-Saclay

MO-P2-2 (16:15-16:30)
Microwave irradiation as an alternative method for controlling the energy detuning of a superconducting flux qubit
H. Toida, T. Ohrai, Y. Matsuzaki, K. Kakuyanagi, H. Yamaguchi, and S. Saito
NTT Basic Research Laboratories

MO-P2-3 (16:30-16:45)
Toward spin coupling of double QDs to superconducting coplanar waveguide cavities
R. Wang,1 R.S. Deacon,1,2 J. Sun,3 J. Yao,3 C.M. Lieber,4 D. Car,5 E.P.A.M. Bakkers,5 and K. Ishibashi1,2
1Advanced Device Laboratory, RIKEN, 2Center for Emergent Matter Science (CEMS), RIKEN,
3Department of Chemical Biology, Harvard University, 4Division of Engineering and Applied Sciences, Harvard University, 5Department of Applied Physics, Eindhoven University of Technology

MO-P2-4 (16:45-17:00)
Quantum transport assisted by non-Markovian environment
C. Uchiyama1, W. J. Munro2 and K. Nemoto3
1Graduate School of Interdisciplinary Research, Univ. of Yamanashi, 2NTT Basic Research Laboratories, 3National Institute of Informatics

MO-P2-5 (17:00-17:15)
Characteristic spectra of circuit quantum electrodynamics systems from the ultrastrong- to the deep-strong-coupling regime
F. Yoshihara,1 T. Fuse,1 S. Ashhab,2 K. Kakuyanagi,3 S. Saito,3 and K. Semba1
1National Institute of Information and Communications Technology, 2Qatar Environment and Energy Research Institute, 3NTT Basic Research Laboratories

MO-P2-6 (17:15-17:30)
**Strong coupling between an electron in a quantum dot circuit and a photon in a cavity**
L.E Bruhat,1 T. Cubaynes,1 J.J. Viennot,2 M. C. Dartiaih,1 M.M. Desjardins,1 A. Cottet,1 and T. Kontos1
1Laboratoire Pierre Aigrain, Ecole Normale Supérieure-PSL Research University, CNRS, Université Pierre et Marie Curie-Sorbonne Universités, Université Paris Diderot-Sorbonne Paris Cité, 2JILA and Department of Physics, University of Colorado

MO-P2-7 (17:30-17:45)
**Quantum teleinteraction algorithm: Entanglement assisted LOCC protocol implementing multi-body interaction between spatially and chronologically distant systems**
S. Nakayama and K. Nemoto
National Institute of Informatics

MO-P2-8 (17:45-18:00)
**Giant Lamb shift observed in deep-strongly-coupled superconducting qubit-oscillator circuit**
Z. Ao,1,2 F. Yoshihara,2 T. Fuse,2 S. Ashhab,3 K. Kakuyanagi,4 S. Saito,4 T. Aoki,1 K. Semba2
1Waseda University, 2NICT, 3QEERI, 4NTT BRL

**Break**

**Poster Session** (18:15-20:15)
Session TU-A1: Phononic Structures

TU-A1-1 (8:30-9:00)
**Piezo-optomechanical transducers as a link between radio frequency, optical, and acoustic waves (invited)**
K. Srinivasan
NIST

TU-A1-2 (9:00-9:15)
**Heat flux engineering in Si membrane by phononic nanostructures**
M. Nomura, R. Anufriev, A. Ramiere, J. Maire, and R. Yanagisawa
1Institute of Industrial Science, The University of Tokyo, 2PRESTO, Japan Science and Technology Agency

TU-A1-3 (9:15-9:30)
**Dynamic coupling control of dark and bright bound excitons in a mechanical resonator**
R. Ohta, H. Okamoto, T. Tawara, H. Gotoh, and H. Yamaguchi
NTT Basic Research Laboratories, NTT Corporation

TU-A1-4 (9:30-9:45)
**Coherent control of the phonon density of states using phononic nanostructures**
R. Anufriev and M. Nomura
1Institute of Industrial Science, The University of Tokyo, 2PRESTO, Japan Science and Technology Agency

TU-A1-5 (9:45-10:00)
**Sub-10-nm pitch nanopore array in graphene by helium ion beam milling for heat phonon engineering**
M.E. Schmidt, T. Kanzaki, M. Haque, T. Iwasaki, M. Muruganathan, S. Ogawa, and H. Mizuta
1Japan Advanced Institute of Science and Technology, 2National Institute of Advanced Industrial Science and Technology

TU-A1-6 (10:00-10:15)
**Diameter and defect-density dependence of intermediate frequency Raman mode measured with single-walled carbon nanotubes**
T. Inaba, S. Konabe, and Y. Homma
Department of Physics, Tokyo University of Science, Research Institute of Science and Technology, Tokyo University of Science

Coffee Break

Session TU-A2: Optical Properties of Nanostructures

TU-A2-1 (10:45-11:00)
Circularly polarized spontaneous emission from quantum dots in three-dimensional semiconductor chiral photonic crystals
S. Takahashi, T. Tajiri, Y. Ota, J. Tatebayashi, S. Iwamoto, and Y. Arakawa
Institute for Nano Quantum Information Electronics, University of Tokyo, Kyoto Institute of Technology, Institute of Industrial Science, University of Tokyo

TU-A2-2 (11:00-11:15)
Carrier dynamics in hybrid structure of quantum dot and quantum well superlattice
National Institute of Information and Communications Technology, Aoyama Gakuin University

TU-A2-3 (11:15-11:30)
Optical probe of single Cr spin in a self-assembled CdTe dot
A. Lauente-Sampietro, H. Utsumi, M. Sunaga, L. Besombes, H. Boukari, and S. Kuroda
Institute of Materials Science, University of Tsukuba, Université Grenoble Alpes, Institut Neél, CNRS, Institut Neél

TU-A2-4 (11:30-11:45)
Λ-system initialization through spectral hole burning in $^{167}$Er$^{3+}$:Y$_2$SiO$_5$
M. Ispeert, G. Mariani, T. Tawara, K. Shimizu, H. Omi, S. Adachi, and H. Gotoh
NTT Basic Research Laboratories, NTT Nanophotonics Center, Hokkaido University

TU-A2-5 (11:45-12:00)
Nanofiber cavity QED systems coupled by an optical fiber
T. Aoki, S. Kato, and A. S. Parkins
Department of Applied Physics, Waseda University, PRESTO, JST, University of Auckland
**Session TU-P1: Nanomechanics and Nanoprobes**

**TU-P1-1 (13:00-13:30)**
Nanomechanics with graphene drums (invited)
M. Deshmukh
Tata Institute of Fundamental Research

**TU-P1-2 (13:30-13:45)**
The coupling between electron transport and mechanical motion in nanoelectromechanical systems with a two-dimensional electron gas
A. A. Shevyrin,1,2 A.G. Pogosov,1,2 A. K. Bakarov,1,2 and A. A. Shklyaev1,2
1Rzhanov Institute of Semiconductor Physics SB RAS, 2Novosibirsk State University

**TU-P1-3 (13:45-14:00)**
Terahertz spectroscopy of a single atom in a fullerene cage
S.Q. Du1, Y. Zhang1, K. Yoshida1, and K. Hirakawa1,2
1Institute of Industrial Science, University of Tokyo, 2Institute for Nano Quantum Information Electronics, University of Tokyo

**TU-P1-4 (14:00-14:15)**
A two-electron double quantum dot coupled with a coherent phonon field
T. Fujisawa1, Y. Sato1, J. C. H. Chen1, M. Hashisaka1, K. Muraki2
1Department of Physics, Tokyo Institute of Technology, 2NTT Basic Research Laboratories

**TU-P1-5 (14:15-14:30)**
Quantum state readout of individual quantum dots enabled by coupling to mechanical resonator with high quality factor
Y. Miyahara, A. Roy-Gobeil, and P. Grutter
Department of Physics, McGill University

**TU-P1-6 (14:30-14:45)**
Incompressible strips in quantum Hall system investigated by scanning gate microscopy
T. Tomimatsu, K. Hashimoto, S. Taninaka, K. Sato, and Y. Hirayama
Department of Physics, Tohoku University
Coffee Break

Session TU-P2: 2D Materials

TU-P2-1 (15:15-15:45)

Hybrid quantum systems based on two-dimensional van der Waals crystals (invited)
Amalia Patane
School of Physics and Astronomy, The University of Nottingham

TU-P2-2 (15:45-16:00)

Far- and mid-infrared photodetectors based on van der Waals/graphene heterostructures: concept and characteristics
V. Ryzhii1,2, T. Otsuji1, M. Ryzhii3, V. E. Karasik2, V. G. Leiman4, D. Svintsov4, V. Ya. Aleshkin5, A. A. Dubinov5, V. Mitin6, and M. S. Shur7
1Research Inst. for Electrical Communication, Tohoku University, 2Center of Photonics and Infrared Eng., Bauman Moscow State Technical University, 3Dept. of Computer Science and Eng., University of Aizu, 4Lab. of 2D Material's Optoelectronics, Moscow Institute of Physics and Technology, 5Inst. for Physics of Microstructures RAS and Lobachevsky State University, 6Dept. of Electrical Eng., University at Buffalo, SUNY, 7Dept. of Electrical, Computer, and Systems Eng., Rensselaer Polytechnic Institute

TU-P2-3 (16:00-16:15)

Spin-flip processes and radiative decay of dark intravalley excitons in transition metal dichalcogenide monolayers
A. O. Slobodeniuk1 and D. M. Basko2
1Laboratoire National des Champs Magnétiques Intenses, CNRS-UJF-UPS-INSA, 2Laboratoire de Physique et Modélisation des Milieux Condensés, Université de Grenoble-Alpes and CNRS

TU-P2-4 (16:15-16:30)

Topological properties in single-wall carbon nanotube: effective one-dimensional lattice model approach
R. Okuyama,1 W. Izumida,2 M. Eto1
1Faculty of Science and Technology, Keio University, 2Department of Physics, Tohoku University

TU-P2-5 (16:30-16:45)

Monte Carlo simulation of carrier transport in hybrid graphene-quantum dot transistors
N. Mori,1 L. Turyanska,2 O. Makarovskiy,2 A. Patane,2 and L. Eaves2
TU-P2-6 (16:45-17:00)
Fabrication and electrical properties of single layer graphene nanoribbons obtained by unzipping of single- or double-walled carbon nanotubes
Hirofumi Tanaka
Kyusyu Institute of Technology

TU-P2-7 (17:00-17:15)
Graphene strain engineering for band gap opening
H. Tomori,1,2 R. Hiraide,1 K. Nakamura,1 N. Hoshi,1 T. Kichikawa,1 T. Tanaka,1 K. Watanabe,3 T. Taniguchi,3 A. Kanda1
1Division of Physics and TIMS, University of Tsukuba, 2PRESTO, Japan Science and Technology Agency, 3National Institute for Materials Science (NIMS)

TU-P2-8 (17:15-17:30)
Band-like transport in highly crystalline graphene thin films from defective graphene oxide material
R. Negishi,1 M. Akabori,2 T. Ito,3,4 Y. Watanabe,5 and Y. Kobayashi1
1Graduate School of Engineering, Osaka University, 2Cetnet for Nano Materials and Technology, JAIST, 3Nagoya University Synchrotron Radiation Research Center (NUSR), 4Graduate School of Engineering, Nagoya University, 5Aichi Synchrotron Radiation Center

Break

Banquet
Session WE-A1: Hybrid Quantum Materials (1)

WE-A1-1 (8:30-9:00)
Topological Josephson junctions (invited)
A. Brinkman
University of Twente

WE-A1-2 (9:00-9:15)
Signatures of topological superconductivity in the dynamics of HgTe Josephson junctions
R.S. Deacon¹, J. Wiedenmann², E. Bocquillon³, F. Dominguez³, T. Klapwijk³, E.M. Hankiewicz³, S. Tarucha¹, L.W. Molenkamp³, and K. Ishibashi¹
¹RIKEN Center for Emergent Matter Science (CEMS), Wako, ²Physikalisches Institut (EP3), Universität Würzburg, ³Kavli Institute of Nanoscience, Faculty of Applied Sciences, Delft University of Technology, ⁴Department of Applied Physics, University of Tokyo

WE-A1-3 (9:15-9:30)
Topology of zero energy edge states in carbon nanotubes with proximity induced superconductivity
W. Izumida,¹,² M. Marganska,² L. Milz,² and M. Grifoni²
¹Department of Physics, Tohoku University, ²Institute of Theoretical Physics, University of Regensburg

WE-A1-4 (9:30-9:45)
Robust superconductivity of surface atomic layers with the Rashba effect
Takahshi Uchihashi¹ and Shunsuke Yoshizawa²
¹International Center for Materials Nanoarchitectonics (WPI-MANA), National Institute for Materials Science, ²International Center for Young Scientists (ICYS), National Institute for Materials Science

WE-A1-5 (9:45-10:00)
Tailoring magnetic heterostructures of topological insulators for quantum anomalous Hall effect and axion electrodynamics
M. Mogi,¹ M. Kawamura,² K. N. Okada,¹ R. Yoshimi,² A. Tsukazaki,³ K. S. Takahashi,² Y. Takahashi,¹ M. Kawasaki,¹,² and Y. Tokura¹,²
¹Department of Applied Physics, University of Tokyo, ²RIKEN CEMS, ³IMR, Tohoku University
Nuclear spin-induced edge resistance in two-dimensional topological insulators
C.-H. Hsu, P. Stano, J. Klinovaja, and D. Loss
RIKEN, Institute of Physics, Slovak Academy of Sciences, Department of Physics, University of Basel

Coffee Break

Session WE-A2: Hybrid Quantum Materials (II)

Imaging electron flow in atomically thin materials
Department of Physics and School of Engineering and Applied Sciences, Harvard University,
National Institute for Materials Science

Gate tunable spin-orbit coupling and weak antilocalization effect in an epitaxial
La$_{2/3}$Sr$_{1/3}$MnO$_3$ thin film
S.-P. Chiu, M. Yamanouchi, T. Oyamada, H. Ohta, and J.-J. Lin
Institute of Physics, National Chiao Tung University, Research Institute for Electronic Science, Hokkaido University, Institute of Materials Research, University of Tokyo, Department of Electrophysics, National Chiao Tung University

Strong coupling of spin and dipole in strain gradient hetero-structured garnet thin films
Graduate School of Engineering, University of Tokyo

Molecular beam epitaxy of remotely-doped Sb quantum-well structures
Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma

Anomalous quantum Hall skyrmion transition with long-range ordering
J. N. Moore,¹ J. Hayakawa,¹ H. Iwata,¹ T. Mano,² T. Noda,² G. Yusa¹
¹Department of Physics, Tohoku University, ²National Institute for Materials Science

WE-A2-6 (12:00-12:30)

Majorana fermions and Andreev bound states in hybrid superconductor-semiconductor
nanostructure quantum systems (invited)
H. Q. Xu
Peking University

(12:30-13:00)

Closing

Excursion (optional)
P1
**High-temperature spin qubit in silicon tunnel field-effect transistor**
Keiji Ono, Takahiro Mori, and Satoshi Moriyama
1RIKEN, 2AIST, 3NIMS

P2
**Improvement of generation efficiency of photon echo from inhomogeneous quantum dot ensemble using chirped pulse**
N. Aonuma, Y. Sato, K. Akahane, and J. Ishi-Hayase
1School of Fundamental Science and Technology, Keio University, 2National Institute of Information and Communications Technology (NICT)

P3
**Towards quantum control of ultracold atoms in an optical lattice by optical means**
Department of Physics, Graduate School of Science, Kyoto University

P4
**Alternative Leggett-Garg test in a superconducting flux qubit**
1NTT Basic Research Laboratories, NTT Corporation, 2Department of Physics, University of Illinois at Urbana-Champaign

P5
**Observation of singlet-triplet oscillation of nuclear spins of ultracold neutral atoms in an optical super-lattice**
H. Ozawa, S. Taie, H. Shiotsu, T. Yagami, Y. Fukushima, Y. Takasu, Y. Takahashi
Graduate School of Science, Kyoto University

P6
**Superconducting flux qubits in a 3D cavity**
S. Saito, I. Mahboob, H. Toida, Y. Matsuzaki, K. Kakuyanagi, W. J. Munro, Y. Nakamura, and H. Yamaguchi
1NTT BRL, 2RCAST-UTokyo, 3CEMS-RIKEN
P7

Electronic states in quantum point contacts with flat potential barriers
T. Aono
Faculty of Engineering, Ibaraki University

P8

Dynamical mechanisms and role of the edge states on the nuclear spin polarization in the \( \nu = 2/3 \) quantum Hall states
A. Fukuda,¹ D. Terasawa,¹ Y. Sasaki,² Y. Hashimoto,³ and S. Katsumoto³
¹Physics Department, Hyogo College of Medicine, ²Graduate School of Science, Kyoto University, ³Institute for Solid State Physics, The University of Tokyo

P9

Characterization and control of hole spin states in Ge/Si core/shell nanowires
R. Wang,¹ R. S. Deacon,¹,² J. Yao,³ C. M. Lieber³,⁴ and K. Ishibashi¹,²
¹Advanced Device Lab., RIKEN, ²CEMS, RIKEN, ³Department of Chemistry and Chemical Biology, Harvard University, ⁴School of Engineering and Applied Sciences, Harvard University

P10

Assessment of InGaAs/InAlAs double quantum wells as an enhancing module for the Edelstein effect
K. Okamoto,¹ J. C. Egues,² and T. Koga¹
¹Graduate School of Information Science and Technology, Hokkaido University, ²Instituto de Fisica de Sao Carlos, Universidade de Sao Paulo

P11

Modeling of weak localization-antilocalization in quasi-two-dimensional electron system using predetermined return trajectories
A. Sawada, K. Okamoto and T. Koga
Graduate School of Information Science and Technology, Hokkaido University

P12

Prediction of the enhanced Edelstein effect in InGaAs/InAlAs double quantum well by the Boltzmann equation approach
K. Okamoto¹, J. C. Egues,² and T. Koga¹
¹Graduate School of Information Science and Technology, Hokkaido University, ²Instituto de Fisica de Sao Carlos, Universidade de Sao Paulo

P13

Optical currents induced by surface plasmon fields nearby a metallic nano-complex
N. Yokoshi, M. Hoshina, and H. Ishihara
1Department of Physics and Electronics, Osaka Prefecture University, 2Department of Materials Engineering Science, Osaka University

P14
**Amplification of photon echo signal from quantum dots using optical resonator**
R. Ide, K. Akahane, and J. Ishi-Hayase
1School of Fundamental Science and Technology, Keio University, 2National Institute of Information and Communications Technology (NICT)

P15
**Superfluorescence from emitters on a fiber**
H. Hisamune, N. Yokoshi, and H. Ishihara
1Department of Physics and Electronics, Osaka Prefecture University, 2Department of Materials Engineering Science, Osaka University

P16
**Nanocavity laser and photonic waveguides integrated in three-dimensional photonic crystals**
T. Tajiri, S. Takahashi, Y. Ota, K. Watanabe, S. Iwamoto, and Y. Arakawa
1Institute of Industrial Science, University of Tokyo, 2Kyoto Institute of Technology, 3Institute of Nano Quantum Information Electronics, University of Tokyo

P17
**A numerical investigation on the directional emission from a quantum dot ensemble embedded in an asymmetric optical waveguide**
W. Lin, Y. Ota, S. Iwamoto, and Y. Arakawa
1Institute of Industrial Science, the University of Tokyo, 2Institute for Nano Quantum Information Electronics (NanoQuine), the University of Tokyo

P18
**AC magnetic field sensing using continuous-wave optically detected magnetic resonance of NV centers in diamond**
S. Saijo, Y. Matsuzaki, S. Saito, H. Watanabe, N. Mizuochi, and J. Ishi-Hayase
1Keio University, 2NTT Basic Research Laboratories, 3AIST, 4Kyoto University

P19
**Electrical detection of nitrogen nuclear spins in NV centers in diamond**
Institute for Chemical Research, Kyoto University, Japan. ²JST-CREST, Japan Science and Technology Agency, Japan. ³Energy Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan

P20

Temperature sensing with an ensemble of nitrogen vacancy centers
K. Hayashi¹²³, Y. Matsuzaki³, T. Shimo-Oka¹, I. Nakamura²†, H. Morishita¹, M. Fujiwara¹, S. Saito,³ and N. Mizuochi¹
¹Institute for Chemical Research, Kyoto University, ²Graduate School of Engineering Science, Osaka University, ³NTT Basic Research Laboratories, NTT Corporation, †Present address: Center for Emergent Matter Science, RIKEN

P21

Teleportation-based quantum media conversion from a photon to a nucleon in diamond
H. Kano, R. Kuroiwa, Y. Sekiguchi, and H. Kosaka
Yokohama National University

P22

Deterministic measurement of a nuclear spin in diamond under a zero field
R. Enyo, T. Nakamura, T. Ishizaka, Y. Sekiguchi, and H. Kosaka
Yokohama National University

P23

A focusing resonator for surface acoustic waves on GaAs
Y. Sato, R. Takasu, and T. Fujisawa
Department of Physics, Tokyo Institute of Technology

P24

Hexagonal ¹²C/¹³C graphene phononic crystal
Y. Notani, Y. Anno, K. Takei, S. Akita, and T. Arie
Department of Physics and Electronics, Osaka Prefecture University

P25

Effects of boundary condition on phonon transport in two-dimensional harmonic lattice
A. Ueno and N. Mori
Graduate School of Engineering, Osaka University

P26

Coupled electron-phonon transport simulation of 1D nanostructures
Y. Kajiwara and N. Mori
Graduate School of Engineering, Osaka University

P27
Enhanced sensitivity of MEMS bolometers by introducing two-dimensional phononic crystal structures
Y. Zhang¹, B. Qiu¹, N. Nagai¹, M. Nomura¹,², and K. Hirakawa¹,²
¹Institute of Industrial Science, University of Tokyo, ²INQIE, University of Tokyo

P28
Topologically protected elastic waves in one-dimensional periodic structure
I. Kim¹, S. Iwamoto¹,² and Y. Arakawa¹,²
¹IIS, University of Tokyo, ²NanoQuine, University of Tokyo

P29
Growth of CeO₂ on Si (111) substrates as a magnetically purified host crystal for Er³⁺ dopants
T. Inaba¹, T. Tawara¹,², H. Omi¹,², H. Yamamoto¹, and H. Gotoh¹
¹NTT Basic Research Laboratories, ²NTT Nanophotonics Center

P30
Effect of radical initiator or polymerization inhibitor in fabrication of single layer graphene nanoribbon by unzipping of single- or double-walled carbon nanotubes
M. Fukumori¹, T. Ogawa¹, and H. Tanaka¹
¹Department of Chemistry, Graduate School of Science, Osaka University, ²Department of Human Intelligence Systems, Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology

P31
Phonon engineering of graphene by induced strain
Y. Imakita, Y. Anno, H. Kawata, K. Takei, S. Akita, and T. Arie
Department of Physics and Electronics, Osaka Prefecture University

P32
Superconducting transition of thin layered superconductor NbSe₂: influence of device structures
D. Yabe¹, K. Yarimizu¹, H. Sonoda¹, H. Tomori¹,² K. Watanabe,³ T. Taniguchi,³ A. Kanda¹
¹Division of Physics and TIMS, University of Tsukuba, ²PRESTO, Japan Science and Technology Agency, ³NIMS, National Institute for Materials Science
Simplified estimation of crystallographic orientation of strained graphene by micro-Raman spectroscopy
K. Nakamura,1 H. Tomori,1,2 and A. Kanda1
1Division of Physics and TIMS, University of Tsukuba, 2PRESTO, Japan Science and Technology Agency

P34
Fabrication of tunnel barriers in multi-wall carbon nanotube by Ga focused ion beam irradiation
N. M. Ghazali1,2, H. Tomizawa1, N. Hagiwara1, K. Suzuki1, A. M. Hashim1,2, T. Yamaguchi1, S. Akita3, K. Ishibashi1,4
1Advanced Device Laboratory, RIKEN, 2Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia, 3Osaka Prefecture University, Osaka, 4RIKEN Center for Emergent Matter Science (CEMS)

P35
Layer-by-layer assembly of graphene heterostructures using direct growth method
K. Okuyama, Y. Anno, Y. Mochizuki, K. Takei, S. Akita, and T. Arie
Department of Physics and Electronics, Osaka Prefecture University

P36
Polarizability of Raman spectra from suspended single-walled carbon nanotubes
Y. Tanaka,1 T. Kato,1 K. Yoshino,1 S. Chiashi,2 and Y. Homma1
1Department of Physics, Tokyo University of Science, 2Department of Mechanical Engineering, The University of Tokyo

P37
Ballistic electron transport in coupled graphene nanoribbons
F. Hashimoto and N. Mori
Osaka University

P38
Raman analysis on nanocarbon materials formation by isotope labelling toward 13C position control in graphitic lattice
A. Ohata, X. Xizhao, T. Ishida, and Y. Kobayashi
Department of Applied Physics, Osaka University

P39
Synthesis of turbostratic multilayer graphene film from graphene oxides by ultrahigh temperature process
S. Nakamura¹, T. Ishida¹, Y. Nishina² and Y. Kobayashi¹
¹Department of Applied Physics, Osaka University, ²Research Core for Interdisciplinary Sciences, Okayama University

P40
Localisation length analysis of quantum anomalous Hall state in a ferromagnetic topological insulator
M. Kawamura¹, R. Yoshimi¹, A. Tsukazaki², K. S. Takahashi¹, M. Kawasaki¹,³ and Y. Tokura¹,³
¹RIKEN Center for Emergent Matter Science, ²Tohoku University, ³University of Tokyo

P41
Observation of surface state of topological crystalline insulator (Pb,Sn)Te thin films
Y. Otaki¹, T. Yamaguchi¹, H. Itoh¹, R. Ishikawa¹, S. Kuroda¹, R. Nakanishi², D. Fan², R. Akiyama², S. Hasegawa², K. Miyamoto³, H. Sato³, A. Kimura⁴
¹Institute of Materials Science, University of Tsukuba, ²Department of Physics, University of Tokyo, ³Hiroshima Synchrotron Radiation Center (HiSOR), Hiroshima University, ⁴Graduate School of Science, Hiroshima University
Late News Posters

LN1
Terahertz spectroscopy of carbon nanotube quantum dots performed by detecting THz-induced photocurrent in the single electron transistor geometry
T. Tsurugaya¹, K. Yoshida¹, F. Yajima², M. Shimizu², Y. Homma³, S. Q. Du¹, Y. Zhang¹, and K. Hirakawa¹
¹Institute of Industrial Science, University of Tokyo, ²Department of Physics, Tokyo University of Science

LN2
What limits the observability of resistively detected-NMR (RD-NMR) in quantum point contact (QPC)?
¹Department of Physics, Tohoku University, ²CSRN, Tohoku University

LN3
Practical requirements of quantum information processing with the silicon-vacancy center in diamond
M. Hanks, K. Nemoto, and W. J. Munro
¹Department of Informatics, School of Multidisciplinary Sciences, Sokendai (The Graduate University for Advanced Studies), ²National Institute of Informatics, ³NTT Basic Research Laboratories, ⁴NTT Research Center for Theoretical Quantum Physics
Abstracts