

ISANN 2013
International Symposium on
Advanced Nanodevices and Nanotechnology
Dec. 8-13th, 2013
Poipu Beach, Kauai
Advance Program

December 8 (Sunday)

- 16:00 - Registration
18:00 - Get together

December 9 (Monday)

- 8:45 General welcome

Mon1: Special plenary session

- 9:00 Introduction
Stephen Goodnick
Arizona State University (U.S.A.)

- 9:20 Mon1-1 (Plenary) Self-assembled semiconductor quantum dots and core-shell nanowires
Gerhard Abstreiter
Walter Schottky Institute and Institute for Advanced Study, TU Munich (Germany)

- 10:10 Break

Mon2: Novel 2D materials 1

- 10:30 Mon2-1 (Invited) Optoelectronic properties of transition metal dichalcogenide 2D crystals
Goki Eda
National University of Singapore (Singapore)

- 11:00 Mon2-2 Quantum coherent transport and asymmetric scattering of electrons and holes in graphene pn junctions
Atikur Rahman, Janice Wynn Guikema, and Nina Markovic
Johns Hopkins University (U.S.A.)

- 11:20 Mon2-3 Low-Frequency 1/f Noise in Graphene
Alexander A. Balandin
University of California –Riverside (U.S.A.)

- 11:40 Mon2-4 Optical properties of colloidal graphene quantum dots
I. Ozfidan^{1,2}, M. Korkusinski¹, A. D. Guclu^{1,3}, J.A.McGuire⁴ and P. Hawrylak^{1,2}
¹National Research Council of Canada, ²University of Ottawa, ³Izmir Institute of Technology, ⁴Michigan State University (Canada)

- 12:00 Mon2-5 Theory of dual-probe STM: application to nanostructured graphene
Mikkel Settnes, Stephen Power, Dirch Hjorth Petersen, and Antti-Pekka Jauho
Technical University of Denmark (Denmark)

- 12:20 Mon2-6 Massless Electrons on Hexagonal Dangling Bond Network on Hydrogen Deposited Diamond (111) and Si(111) Surfaces
Susumu Okada¹ and Jun-ki Sone²
¹University of Tsukuba, ²Tokyo Institute of Technology (Japan)
- 12:40 Mon2-7 (Invited) Optical Generation and Electrical Control of Excitons and Valleys in Transition Metal Dichalcogenides
 Xiaodong Xu
 University of Washington (U.S.A.)
- 13:10 - 19:00 *Lunch and ad hoc discussions*
- Mon3: Nano energy*
- 19:00 Mon3-1 (Invited) Quantum dot superlattice for high-efficiency intermediate band solar cells
 Yoshitaka Okada
 The University of Tokyo (Japan)
- 19:30 Mon3-2 Ultrafast Carrier Dynamics in Hot Carrier Quantum Well Solar Cells
 Yongjie Zou, Christiana Honsberg and Stephen Goodnick
 Arizona State University (U.S.A.)
- 19:50 Mon3-3 Asymmetric dilute nitride quantum wells for high efficiency photovoltaics
Alex Freundlich, Gopi Vijaya, Andenet Alemu and Akhil Mehrotra
 University of Houston (U.S.A.)
- 20:10 Mon3-4 MBE-grown InGaP/GaAs/InGaAsP triple junction solar cells fabricated by advanced bonding using metal nanoparticle arrays
Takeyoshi Sugaya¹, Kikuo Makita¹, Hidenori Mizuno¹, Akihiro Takeda^{1,2}, Ryuji Oshima¹, Koji Matsubara¹, Yoshinobu Okano², and Shigeru Niki¹
¹National Institute of Advanced Industrial Science and Technology (AIST), ²Tokyo City University (Japan)
- 20:30 Mon3-5 Quantum process of exciton dissociation at semiconductor hetero-interfaces
Takashi Nakayama and Kosuke Sato
 Chiba University (Japan)

December 10 (Tuesday)

Tue1: Hybrid nanosystems I

- 9:00 Tue1-1 (Invited) Coherent manipulation and lasing operation in micromechanical phonon cavities
H. Yamaguchi, I. Mahboob, H. Okamoto, and Y. Okazaki
 NTT Basic Research Laboratories (Japan)
- 9:30 Tue1-2 On-chip terahertz photon transmission using quantum electron transport
Kenji Ikushima¹, Atsushi Ito¹, Shun Okano¹, and Susumu Komiyama²
¹Tokyo University of A & T, ²University of Tokyo (Japan)

- 9:50 Tue1-3 Co-Percolating Conduction in Hybrid Graphene-Silver Nanowire Transparent Conducting Electrodes
David B. Janes¹, Suprem R. Das¹, Ruiyi Chen^{1,2}, Sajia Sadeque¹, Kerry Maize¹, Ali Shakouri¹, and Muhammad A. Alam¹
¹*Purdue University*, ²*Zhejiang University (U.S.A.)*
- 10:10 Tue1-4 (Invited) Adding New Capabilities to Silicon CMOS Integrated Circuits via Field-Assisted Directed Assembly of Nanowire and 2D Crystal Materials
Jie Li, Scott Levin, Donna Deng, Xiahua Zhong, Mingwei Li, Thomas Morrow, Du Sun, Raymond E. Schaak, Suman Datta, Christine D. Keating, Theresa S. Mayer
Penn State University (U.S.A.)
- 10:40 *Break*
- Tue2: Hybrid nanosystems 2*
- 11:00 Tue2-1 (Invited) Magnon quantum transducer
Koji Usami¹, Ryusuke Hisatomi¹, Rekishu Yamazaki¹, Seiichiro Ishino¹, Toyofumi Ishikawa¹, Yutaka Tabuchi¹ and Yasunobu Nakamura^{1,2}
¹*University of Tokyo*, ²*RIKEN Center for Emergent Matter Science (Japan)*
- 11:30 Tue2-2 Biological Cell Surgery via Magnetic Nanoparticles
F. Gertz¹, R. Azimov² and A. Khitun¹
¹*University of California Riverside*, ²*University of California Los Angeles (U.S.A.)*
- 11:50 Tue2-3 Biological Approach to Nanoscale Resistive Memory
Mutsunori Uenuma, Ichiro Yamashita, and Yukiharu Uraoka
Nara Institute of Science and Technology (Japan)
- 12:10 Tue2-4 Electron wave interference in individual single-wall Carbon nanotube rings
Akira Hida, and Koji Ishibashi
RIKEN (Japan)
- 12:30 Tue2-5 (Invited) Enhanced energy harvesting scheme utilizing hierarchical nanostructures
Yu-Lun Chueh
National Tsing Hua University (Taiwan)
- 13:00 - 19:00 *Lunch and ad hoc discussions*
- 19:00 - 21:00 *Poster session I*
- PI-1 Controlled synthesis of graphene containing isotopically modified heterostructures towards device applications
Yuki Anno, Kuniharu Takei, Seiji Akita, and Takayuki Arie
Osaka Prefecture University (Japan)
- PI-2 Electrical properties of hybrid memory structures with metal-oxide quantum dots and mono-layered graphene
Dong Uk Lee, Dongri Qiu, Kyoung Su Lee, and Eun Kyu Kim
Hanyang University (South Korea)

- PI-3 Fracture Properties of Gadolinia Doped Ceria Electrolytes for Solid Oxide Fuel Cell
Shinichiro Saito, Ryota Sakanoi, Yuji Highchi, Nobuki Ozawa, Kazuhisa Sato, Toshiyuki Hashida, and Momojo Kubo
Tohoku University (Japan)
- PI-4 Photoconduction in Two-Dimensional Charge-Density-Wave Materials: Applications in Optical Detectors
 J. Renteria, R. Samnakay, Z. Yan, P. Goli, C. Jiang and A.A. Balandin
University of California –Riverside (U.S.A.)
- PI-5 On the connection of the zero-bias anomaly to the role of Kondo physics in quantum point contacts near pinch-off
Shaohua Xiang¹, Shiran Xiao², Kazutoshi Fujii¹, Kaoru Shibuya¹, Takashi Endo¹, Nobuyuki Aoki¹, Noboru Yumoto¹, Takahiro Morimoto¹, Jonathan P Bird² and Yuichi Ochiai¹
¹*Chiba University*, ²*University at Buffalo, the State University of New York (Japan)*
- PI-6 Instability in time domain response of graphene field-effect transistor by low channel resistance
Daewon Kim^{1,2}, Incheol Nam¹, Taegeun Kim^{1,2}, Unjeong Kim², Chan-Wook Baik², Sungwoo Hwang², and Sangsig Kim¹
¹*Korea University*, ²*Samsung Advanced Institute of Technology (South Korea)*
- PI-7 Catalytic Activity Analysis of Non-Noble Metal Surfaces for Ethylene Glycol Oxidation Based on First-Principles Calculation
Shigeki Chieda, Yuji Higuchi, Nobuki Ozawa, and Momoji Kubo
Tohoku University (Japan)
- PI-8 Non-perturbative microscopic description of charging effect on phase coherence of Cooper pair in Coulomb blockage regime
 Megumu Mihata¹, Yang Wang² and Shuichi Iwabuchi¹
¹*Nara Women's University*, ²*Lanzhou Jiaotong University (Japan)*
- PI-9 Spin Filtering in GaMnAs/GaAs and CrAs/GaAs heterostructures
 B. A. Stickler¹, C. Ertler¹, L. Chioncel², and W. Poetz¹
¹*University of Graz*, ²*University of Augsburg (Austria)*
- PI-10 Current-Induced Cleaning of Graphene and Graphene-Metal Contacts
H. Ramamoorthy, R. Somphonsane, and J. P. Bird
University at Buffalo (U.S.A.)
- PI-11 Direct Determination of Parasitic Gate Capacitance with Compensated Displacement Current in Silicon Nanowire FETs
 Incheol Nam¹, Daewon Kim^{1,2}, Chan-Wook Baik², Dong Myong Kim³, Sungwoo Hwang², and Sangsig Kim¹
¹*Korea University*, ²*Samsung Advanced Institute of Technology*, ³*Kookmin University (South Korea)*
- PI-12 Suppression of Drain-Induced Barrier Lowering using Trenched Silicon Nanowire Pseudo-MOSFETs
Jun-Eon Jin¹, Incheol Nam^{1,2}, Junhee Choi¹ and Gyu Tae Kim¹
¹*Korea University*, ²*Samsung Electronics Co. (South Korea)*

- PI-13 Enhanced stability of Pt monolayer films on doped graphene sheets
Yoko Tomita¹, Park Tea-uk², and Takashi Nakayama²
¹*University of Tsukuba*, ²*Chiba University (Japan)*
- PI-14 Tunable inter-Landau-level quantum cascade laser in resonant tunneling multiple quantum well structures
M.P.Telenkov^{1,2}, Yu.A.Mityagin^{1,3}, P.F.Kartsev³
¹*P.N.Lebedev Physical Institute*, ²*National University of Science and Technology "MISIS"*, ³*National Research Nuclear University "MEPhI" (Russia)*
- PI-15 Magnetic-Field Dependence of Hot-Carrier Relaxation in Graphene
R. Somphonsane¹, H. Ramamoorthy¹, D. K. Ferry², and J. P. Bird¹
¹*University at Buffalo*, ²*Arizona State University (U.S.A.)*
- PI-16 Impact of Surface Band Bending on Terahertz Radiation in GaSb/InAs Heterostructures: Monte Carlo Study
Kenji Nakamura¹ and Nobuya Mori^{1,2}
¹*Osaka University*, ²*CREST, Japan Science and Technology Agency (JST) (Japan)*
- PI-17 Dynamical Properties and Electronic Structure of C60 included [n]Cyclacene
Shota Kigure and Susumu Okada
University of Tsukuba (Japan)
- PI-18 A New Growth Mode of InP Nanowires in Selective-Area Metal-Organic Vapor-Phase Epitaxy
Shogo Yanase, Yoshinori Kohashi, Shinjiroh Hara, and Junichi Motohisa
Hokkaido University (Japan)
- PI-19 A Two-dimensional Carbon Network of Fused Pentagons: All Carbon Magnetic Sheet
Mina Maruyama and Susumu Okada
University of Tsukuba (Japan)
- PI-20 Hybrid Multiferroic Interconnects for Spintronics
Alexander Khitun
University of California Riverside (U.S.A.)
- PI-21 (Late news) The Electrical and Vibrational Properties of Rotated Graphene / Graphene, Graphene / BN, and Transition Metal Dichalcogenide Interfaces
Roger K. Lake, K. M. Masum Habib, Supeng Ge, Somaia Sylvia, Mahesh Neupane, Darshana Wickramaratne, and Shanshan Su
University of California Riverside (U.S.A.)

December 11 (Wednesday)

Wed1: Novel 2D materials 2

- 9:00 Wed1-1 (Invited) 2-Dimensional Materials: From Doped Graphene to Chalcogenide Monolayers and van der Waals Solids
Mauricio Terrones
The Pennsylvania State University (U.S.A.)

- 9:30 Wed1-2 Effects of inter-graphene resistance on the electrical properties of carbon nanotube field effect transistors with graphene contacts
Takashi Mizutani^{1,2}, Masato Tamaoki¹, and Shigeru Kishimoto¹
¹*Nagoya University*, ²*Chubu University (Japan)*
- 9:50 Wed1-3 Quantitative extraction of barrier height between CNT network and graphene contacts
Tae Geun Kim^{1,3}, Un Jeong Kim¹, Si Young Lee³, Young Hee Lee², Sung Woo Hwang¹, and Sangsig Kim³
¹*Samsung Advanced Institute of Technology*, ²*Sungkyunkwan University*, ³*Korea University (South Korea)*
- 10:10 Wed1-4 (Invited) Enhanced energy relaxation of hot carriers near the Dirac point of graphene
R. Somphonsane¹, H. Ramamoorthy¹, G. Bohra¹, G. He¹, D. K. Ferry^{2,3}, Y. Ochiai³, N. Aoki³, and J. P. Bird^{1,3}
¹*University at Buffalo*, ²*Arizona State University*, ³*Chiba University (U.S.A.)*
- 10:40 *Break*
- Wed2: Mesoscopic systems*
- 11:00 Wed2-1 (Invited) Standards Ecosystem for Nanotechnologies: Key Components in the Bridge from R&D and to Manufacturing
Herbert S. Bennett
National Institute of Standards and Technology (U.S.A.)
- 11:30 Wed2-2 The Non-Universal Nature of Conductance Fluctuations in Mesoscopic Devices
Bobo Liu, R. Akis, and D. K. Ferry
Arizona State University (U.S.A.)
- 11:50 Wed2-3 An Investigation of Mesoscopic Fluctuations in Monolayer & Bilayer Graphene
Y. Iso¹, T. Ouchi¹, A. Mahjoub¹, S. Suzuki¹, N. Aoki¹, J. P. Bird², D. K. Ferry³, Y. Ochiai¹
¹*Chiba University*, ²*University at Buffalo*, ³*Arizona State University (Japan)*
- 12:10 Wed2-4 Universal Conductance Fluctuations in Metal Oxide Nanowires
Juhn-Jong Lin¹, Ping-Yu Yang¹, An-Shao Lien¹, and Lu-Yao Wang²
¹*National Chiao Tung University*, ²*Fu-Jen Catholic University (Taiwan)*
- 12:30 Wed2-5 All-Electrical Nonlinear Fano Resonance in Quantum Point Contacts
S. Xiao¹, J. Fransson², S. Xiang³, N. Aoki³, Y. Ochiai³, J. Reno⁴, & J. P. Bird^{1,3}
¹*University at Buffalo*, ²*Uppsala University*, ³*Chiba University*, ⁴*Sandia National Laboratories (U.S.A.)*
- 12:50 Wed2-6 Non-perturbative and non-equilibrium theory of quantum entanglement current in ultra-small solid state entangler
Megumu Mihata¹, Mayumi Yamamoto², Takeshi Inagaki³, Fujio Wakaya⁴ and Shuichi Iwabuchi¹
¹*Nara Women's University*, ²*TOSHIBA Corporation*, ³*Nara Institute of Science and Technology*, ⁴*Osaka University (Japan)*
- 13:10 -
19:00 *Lunch and ad hoc discussions*

19:00 - 21:00 *Poster session II*

- PII-1 Towards the realization of Graphene Nano-sensor for THz detection
Akram Mahjoub¹, S. Suzuki¹, Y. Iso¹, T. Ouchi¹, N. Aoki¹, K. Miyamoto¹,
T. Yamaguchi², T. Omatsu¹, J. P. Bird³, D. K. Ferry⁴, K. Ishibashi², Y. Ochiai¹
¹Chiba University, ²RIKEN, ³University at Buffalo, SUNY, ⁴ASU (Japan)
- PII-2 Chemical Reaction Analysis in Lithium-Ion Battery Cathode/Electrolyte Surface
by Quantum Chemical Molecular Dynamics Method
Kosuke Nakamura, Yuji Higuchi, Nobuki Ozawa, and Momoji Kubo
Tohoku University (Japan)
- PII-3 Effect of energy barrier on the hysteresis of graphene field-effect transistors
Dong Hoon Hwang^{1,2}, Incheol Nam^{1,3}, Chan-Wook Baik², Sung Woo Hwang², and
Sangsig Kim¹
¹Korea University, ²Samsung Advanced Institute of Technology, ³Samsung
Electronics Co. (South Korea)
- PII-4 Effect of Electric Field in Multi-Electron Wave Packet Dynamics in Channel of
Nanoscale devices
G. Fujita¹, T. Shiokawa¹, Y. Takada², S. Konabe^{1,5}, M. Muraguchi^{3,5}, T. Yamamoto²,
T. Endoh^{3,5}, Y. Hatsugai^{1,3} and K. Shiraishi^{1,4}
¹University of Tsukuba, ²Tokyo University of Science, ³Tohoku University, ⁴Nagoya
University, ⁵CREST, Japan Science and Technology Agency (Japan)
- PII-5 Chemical Reactions of Silicon Carbide Surface Sliding in Water: First-Principles
and Tight-Binding Quantum Chemical Molecular Dynamics Study
Yoshihiko Kobayashi, Seiichiro Sato, Shandan Bai, Yuji Higuchi, Nobuki Ozawa,
Koshi Adachi, and Momoji Kubo
Tohoku University (Japan)
- PII-6 Self-aligned graphene passivation method for flexible device
In-yeal Lee, Hyung-Youl Park, Jin-Hong Park, and Gil-Ho Kim
*Sungkyunkwan Advanced Institute of Nanotechnology (SAINT) and Sungkyunkwan
University (South Korea)*
- PII-7 Efficient charge self-consistent quantum transport simulation in complex geometry
devices
Denis Mamaluy, Suzey Gao, Erik Nielsen, Richard P. Muller, Ralph W. Young,
Nathaniel C. Bishop, Michael P. Lilly, Malcolm S. Carroll
Sandia National Laboratories (U.S.A.)
- PII-8 STM/STS and transport measurements in adsorbate-induced two-dimensional
electron systems
Ryuichi Masutomi and Tohru Okamoto
University of Tokyo (Japan)
- PII-9 A tunable spin-valve device based on graphene nanoislands
Weidong Sheng and Kaikai Luo
Fudan University (China)
- PII-10 Resonant tunneling multiple quantum well structures in p-i-n photovoltaic element
M.P.Telenkov^{1,2}, Yu.A.Mityagin^{1,3}, P.F.Kartsev³, A.A.Kutsevol²
¹P.N.Lebedev Physical Institute, ²National University of Science and Technology
"MISIS", ³National Research Nuclear University "MEPhI" (Russia)

- PII-11 Low cost broadband (2-7 μm) infrared circular polarizer based on Ti doped Ag chiral nanorod structures
 Jitto Titus¹, George Larsen², Yiping Zhao² and A G Unil Perera¹
¹Georgia State University, ²University of Georgia (U.S.A.)
- PII-12 In-situ observation of Carbon nanocoil growth by optical microscopy
Takehiro Gohara, Kuniharu Takei, Takayuki Arie, and Seiji Akita
 Osaka Prefecture University (Japan)
- PII-13 Spontaneous Emission of Terahertz Waves from Resonant Tunneling Diodes
Masahiro Asada, Hidetoshi Kanaya, and Safumi Suzuki
 Tokyo Institute of Technology (Japan)
- PII-14 Edge states of silicene ribbons with several types of termination
Sho Tanaya¹, Satoru Konabe^{1,3}, Kenji Shiraishi^{1,2} and Yasuhiro Hatsugai^{1,4}
¹University of Tsukuba, ²Nagoya University, ³CREST, Japan Science and Technology Agency, ⁴TIMS, Tsukuba research center for Interdisciplinary Material Science (Japan)
- PII-15 Bias-Field-Free Spin-Torque Oscillator Based on Two MgO-MTJs with a Shared Free Layer: Micromagnetic Modeling
 Alexander Makarov, Viktor Sverdloy, and Siegfried Selberherr
 TU Wien (Austria)
- PII-16 Local magnetic sensor for a single ferromagnetic dot by using a ballistic two-dimensional electron gas
 Yuhsuke Kanda¹, Takashi Kimura², and Masahiro Hara¹
¹Kumamoto University, ²Kyushu University (Japan)
- PII-17 Electronic Properties of Graphene under an Electric Field
Ayaka Yamanaka, Susumu Okada
 University of Tsukuba (Japan)
- PII-18 Effect of electron beam irradiation on Raman spectra and transport properties in graphene
 H. Tomori, R. Hiraide, H. Tanaka, Y. Ootuka, A. Kanda
 University of Tsukuba (Japan)
- PII-19 Electron Transport in Ultra-thin Gold Nanowires as Quantum Dots
Satoshi Moriyama¹, Masanori Yoshihira², Yoshifumi Morita³, Hoël Guerin⁴, Yusuke Ochi², Hiroaki Kura⁵, Tomoyuki Ogawa⁵, Tetsuya Sato² and Hideyuki Maki²
¹National Institute for Materials Science (NIMS), ²Keio University, ³Gunma University, ⁴École Polytechnique Fédérale de Lausanne (EPFL), ⁵Tohoku University (Japan)
- PII-20 Selective area growth of GaN by RF-plasma assisted Molecular Beam Epitaxy
Aya Onodera, Ayana Yamamoto, and Junichi Motohisa
 Hokkaido Univ. (Japan)

December 12 (Thursday)

Thu1: Nanoscale devices

- 9:00 Thu1-1 Step Tunneling Enhanced Metal-Insulator-Insulator-Metal (MIIM) Tunnel Diodes
John F. Conley, Jr. and N. Alimardani
Oregon State University (U.S.A.)
- 9:20 Thu1-2 Multi-Electron Wave Packets Dynamics under MOSFET-like Potentials
Taro Shiokawa¹, Genki Fujita¹, Yukihiro Takada², Satoru Konabe^{1,5}, Masakazu Muraguchi^{3,5}, Takahiro Yamamoto², Tetsuo Endoh^{3,5}, Yasuhiro Hatsugai^{1,3}, and Kenji Shiraishi^{1,4}
¹*University of Tsukuba*, ²*Tokyo University of Science*, ³*Tohoku University*, ⁴*Nagoya University*, ⁵*CREST, Japan Science and Technology Agency (Japan)*
- 9:40 Thu1-3 Silicon double quantum dots in metal-oxide-semiconductor structures
Tetsuo Koderu^{1,2,3}, Tomohiro Kambara¹, Ko Yamada¹, Kosuke Horibe¹, Yasuhiko Arakawa², and Shunri Oda¹
¹*Tokyo Institute of Technology*, ²*The University of Tokyo*, ³*PRESTO, Japan Science and Technology Agency (JST) (Japan)*
- 10:00 Thu1-4 Modeling of GaN HEMTs
Dragica Vasileska
Arizona State University (U.S.A.)
- 10:20 Thu1-5 Towards the realization of quantum memories for superconducting qubits
Shiro Saito¹, Xiaobo Zhu¹, Robert Amsüss^{1,2}, Yuichiro Matsuzaki¹, Kosuke Kakuyanagi¹, Takaaki Shimo-Oka³, Norikazu Mizuochi³, Kae Nemoto⁴, William J. Munro¹, and Kouichi Semba^{1,4}
¹*NTT Basic Research Laboratories*, ²*TU Wien*, ³*Osaka University*, ⁴*National Institute of Informatics (Japan)*
- 10:40 Thu1-6 Fragment antibody based biosensors using graphene field-effect transistor
Yasuhide Ohno, Shogo Okamoto, Kenzo Maehashi, and Kazuhiko Matsumoto
The Institute of Scientific and Industrial Research, Osaka University (Japan)
- 11:00 *Break*

Thu2: Optical nanosystems

- 11:20 Thu2-1 (Invited) Graphene and Quantum Nanoplasmonics
Harry Atwater
California Institute of Technology (U.S.A.)
- 11:50 Thu2-2 Terahertz inter-sublevel transitions in single self-assembled InAs quantum dots
Y. Zhang¹, K. Shibata¹, N. Nagai¹, C. Ndebeka-Bandou^{1,2}, and K. Hirakawa¹
¹*University of Tokyo*, ²*LPA, Ecole Normale Supérieure (Japan)*
- 12:10 Thu2-3 Investigation of Shape-Engineered Single-Metal Thermocouples for Infrared Detection
G. P. Szakmany¹, C. Preiss², A. O. Orlov¹, G. H. Bernstein¹, and Wolfgang Porod¹
¹*University of Notre Dame*, ²*University of the German Federal Armed Forces Munich (USA)*

- 12:30 Thu2-4 Scanning near-field optical spectroscopy of nanoscale band potential variations in nonpolar and semipolar InGaN quantum wells
Saulius Marcinkevičius¹, Kathryn M. Kelchner², Yuji Zhao², Shuji Nakamura², Steven P. DenBaars², and James S. Speck²
¹*KTH Royal Institute of Technology*, ²*University of California (Sweden)*
- 12:50 Thu2-5 Composition-dependent Growth Dynamics of InGaAs Nanowires in Selective-area Metal-organic Vapor-phase Epitaxy
Yoshinori Kohashi, Shinjiroh Hara, and Junichi Motohisa
Hokkaido University (Japan)
- 13:10 - 14:40 *Lunch*
- Thu3: Topological insulators*
- 14:40 Thu3-1 (Invited) Topological quantum computing with Majoranas
 Roman Lutchyn
Station Q, Microsoft Research (U.S.A.)
- 15:10 Thu3-2 Understanding the Interplay between Topology and Superconductivity
 Brian Dellabetta, Chen Fang, and Matthew J. Gilbert
University of Illinois –Urbana-Champaign (U.S.A.)
- 15:30 Thu3-3 Identification of topological superconductivity in Sr₂RuO₄ by tunneling effects
Satoshi Kashiwaya¹, Hiromi Kashiwaya¹, Kohta Saitoh¹, Yukio Tanaka², and Yoshiteru¹ Maeno³
¹*National Institute of Advanced Industrial Science and Technology (AIST)*,
²*Nagoya University*, ³*Kyoto University (Japan)*
- 15:50 Thu3-4 Electronic Properties and Response of Topological Semi-Metals in Bulk and Low-Dimensional Materials
 Srinidhi Ramamurthy and Taylor L. Hughes
University of Illinois at Urbana-Champaign (U.S.A.)
- 16:10 Thu3-5 Electrical detection of spin-momentum locking in the topological insulator Bi₂Se₃
Berend T. Jonker¹, C.H. Li¹, O.M.J. van't Erve¹, Y. Liu² and L. Li²
¹*Naval Research Laboratory*, ²*University of Wisconsin (U.S.A.)*
- 16:30 Thu3-6 Dirac Fermion Dynamics in Electro-Magnetic Textures
 R. Hammer and W. Poetz
University of Graz (Austria)
- 16:50 Thu3-7 (Invited) Topological materials beyond time-reversal
 Andrei Bernevig
Princeton University (U.S.A.)
- 17:20 - 18:00 *Break*
- 18:00 *Banquet*

December 13 (Friday)

Fri1: Spintronics

- 9:00 Fri1-1 (Invited) Manipulation of electron spin coherence using acoustically induced moving dots in semiconductors
Haruki Sanada¹, Yoji Kunihashi¹, Hideki Gotoh¹, Koji Onomitsu¹, Makoto Kohda², Junsaku Nitta², Paulo V. Santos³, and Tetsuomi Sogawa¹
¹NTT Basic Research Laboratories, ²Tohoku University, ³Paul-Drude-Institut für Festkörperelektronik (Japan)
- 9:30 Fri1-2 Efficient thermal spin injection using CoFeAl spin injector
Hu Shaojie¹, and Takashi Kimura^{1,2}
¹Kyushu University, ²CREST, Japan Science and Technology Agency (Japan)
- 9:50 Fri1-3 Emergent spin electromagnetism induced by magnetization textures in the presence of spin-orbit interaction
Gen Tatara
RIKEN Center for Emergent Matter Science (CEMS) (Japan)
- 10:10 Fri1-4 Nonequilibrium Spin Current and Three-terminal Probing in a Non-magnetic Spin-orbit Interferometer
Nobuhiko Taniguchi
University of Tsukuba (Japan)
- 10:30 Fri1-5 Spin Lifetime Enhancement in Strained Thin Silicon Films
Dmitri Osintsev, Viktor Sverdloy, and Siegfried Selberherr
TU Wien (Austria)
- 10:50 Break

Fri2: Novel 2D materials and quantum hall systems

- 11:10 Fri2-1 Near-field scanning optical microscope imaging of spin-resolved quantum Hall chiral edge states
S. Nomura¹, S. Mamyouda¹, H. Ito¹, Y. Shibata¹, Y. Ootuka¹, S. Kashiwaya², M. Yamaguchi³, H. Tamura³ and T. Akazaki³
¹University of Tsukuba, ²National Institute of Advanced Industrial Science and Technology, ³NTT Basic Research Laboratories (Japan)
- 11:30 Fri2-2 Magneto-Raman spectroscopy of graphene and graphite
Dmitry Smirnov
National High Magnetic Field Laboratory (U.S.A.)
- 11:50 Fri2-3 Photovoltaic infrared photoresponse due to cyclotron resonance in graphene/h-BN quantum Hall systems
Tomoki Machida¹, Satoru Masubuchi¹, Masahiro Onuki¹, Reina Kashiwagi¹, Miho Arai¹, Kenji Watanabe², and Takashi Taniguchi²
¹Institute of Industrial Science, University of Tokyo, ²National Institute for Materials Science (Japan)

- 12:10 Fri2-4 Generation of Graphene Structure in Diamond Surface by Si-Doping:
First-Principles Calculations
Shandan Bai¹, Yoshihiko Kobayashi¹, Seiichiro Sato¹, Yuji Higuchi¹, Nobuki
Ozawa¹, Koshi Adachi¹, Jean Michel Martin², and Momoji Kubo¹
¹*Tohoku University*, ²*Ecole Centrale de Lyon (Japan)*
- 12:30 Fri2-5 Double injection in graphene layer p-i-n structures for laser applications
V. Ryzhii^{1,3}, M. Ryzhii², N. Ryabova^{2,3}, and T. Otsuji¹
¹*Tohoku University*, ²*University of Aizu*, ³*Bauman Moscow State Technical
University (Japan)*
- 12:50 *Closing*