

Full Program

Sunday, July 16	2
Registration	
Welcome Reception	
Monday, July 17	2
Opening Remarks	
Session Mo01: Graphene & 2D Materials I	
Session Mo02: Coherent Carrier Dynamics in Solids	
Session Mo03: Nonequilibrium Transport in Novel Devices I	
Session Mo04: Graphene & 2D Materials II	
Tuesday, July 18	4
Session Tu01: Terahertz Phenomena in Semiconductor Materials & Devices	
Session Tu02: Nonequilibrium Transport in Novel Devices II	
Session Tu03: Energy Transfer in Nanostructures	
Session Tu04: Organic Materials & Devices	
Special Session: Samindranath Mitra, Editor, Physical Review Letters	
Wednesday, July 19	6
Session We01: Graphene & 2D Materials III	
Session We02: Graphene & 2D Materials IV	
Conference Excursion	
Thursday, July 20	8
Session Th01: Mesoscopic Phenomena in Nanostructured Materials & Devices I	
Session Th02: Quantum Coherence in Mesoscopic Structures	
Session Th03: Thermal Transport and Phononic Structures	
Session Th04: Semiconductor Spintronics	
Banquet	
Friday, July 21	10
Session Fr01: Topological States of Matter	
Session Fr02: Mesoscopic Phenomena in Nanostructured Materials & Devices II	
Concluding Remarks	
Poster Sessions I & II	12, 15

SUNDAY, JULY 16th

Registration

16.00 – 19.00

Welcome Reception

19.00 – 21:00

MONDAY, JULY 17th

Registration

08.00 – 08.45

Opening Remarks

08.45 – 09.15: Jonathan Bird, General Chair

Session Mo01: Graphene & 2D Materials I (Chair: Eric Pop, Stanford University, USA)

09.15 – 10.15

09.15 – 09.45: P. Kim

Department of Physics, Harvard University, USA.

Electronics and optoelectronics in the van der Waals heterojunctions of 2-dimensional materials

09.45 – 10.00: S. Bhandari¹, G.-H. Lee¹, K. Wang¹, T. Taniguchi², K. Watanabe², P. Kim¹, and R. M. Westervelt¹

¹ School of Engineering & Applied Sciences and Department of Physics, Harvard University, USA,

² National Institute for Materials Science, Tsukuba, Japan

Imaging Electron Motion in 2D Materials

10:00 – 10.15: M. Mineharu¹, N. Matsumoto¹, M. Matsunaga¹, Y. Ochiai¹, G.-H. Kim², K. Watanabe³,
T. Taniguchi³, D. K. Ferry⁴, J. P. Bird^{1,5}, and N. Aoki¹

¹ Graduate School of Advanced Integration Science, Chiba University, Japan, ² School of Electronic Electrical Engineering and Sungkyunkwan Advanced Institute of Nanotechnology, Sungkyunkwan University, Korea,

³ National Institute for Materials Science, Tsukuba, Japan, ⁴ School of Electrical, Computer, and Energy Engineering, Arizona State University, USA, ⁵ Department of Electrical Engineering, University at Buffalo, USA

Anomalous conductance fluctuations in high-mobility BN/graphene/BN heterojunctions

Coffee, 10.15 – 10.45

Session Mo02: Coherent Carrier Dynamics in Solids (Chair: Rosella Brunetti, University of Modena, Italy)

10.45 – 12.30

10.45 – 11.15: M. Kira¹, U. Huttner^{1,2}, P. Hawkins^{1,2}, J. Steiner², S. W. Koch², F. Langer³, M. Hohenleutner³, and R. Huber³

¹ Electrical Engineering & Computer Science, University of Michigan, USA, ² Department of Physics, University of Marburg, Germany, ³ Department of Physics, University of Regensburg, Germany

Lightwave quantum electronics in semiconductors

11.15 – 11.30: T. Kuhn, S. Lüker, and D. E. Reiter

Institut für Festkörpertheorie, Westfälische Wilhelms-Universität Münster, Münster, Germany

The role of phonons for the optical control of bright and dark excitons in a semiconductor quantum dot

- 11.30 – 11.45: R. Chen, X. Zheng, Z. Xu, Y. Tang, and T. Jiang
National University of Defense Technology, Changsha, China
Photo-induced excitonic bands renormalization and broadband absorption in atomically thin tungsten disulphide
- 11.45 – 12.00: S. Du¹, K. Yoshida¹, Y. Zhang¹, I. Hamada², and K. Hirakawa^{1,3}
¹ Center for Photonics Electronics Convergence, Institute of Industrial Science, University of Tokyo, Japan, ² Center for Green Research on Energy and Environmental Materials, National Institute for Materials Science, Tsukuba, Japan, ³ Institute for Nano Quantum Information Electronics, University of Tokyo, Japan
Terahertz dynamics of electron-vibron coupling in single molecules with tunable electrostatic potential
- 12.00 – 12.15: K. Wei, D. Yang, and T. Jiang
College of Optoelectronic Science and Engineering, National University of Defense Technology, Changsha, China
Observation of ultrafast exciton-exciton annihilation in CsPbBr₃ quantum dots
- 12.15 – 12.30: J. Bühler, C. Schmidt, J. Allerbeck, A.-C. Heinrich, D. Brida, and A. Leitenstorfer
Department of Physics and Center for Applied Photonics, University of Konstanz, Konstanz, Germany
Subcycle Wannier-Stark localization in Bulk GaAs induced by strong mid-infrared fields

Lunch, 12.30 – 14:30

Session Mo03: Nonequilibrium Transport in Novel Devices I (Chair: Tomás Gonzalez, University of Salamanca, Spain)

- 14.30 – 15.00: J. Encomendero¹, S. M. Islam¹, V. Protasenko, D. Jena^{1,2}, and H. Xing^{1,2}**
¹ School of Electrical and Computer Engineering, Cornell University, USA, ² Department of Materials Science and Engineering, Cornell University, USA
Decoding Reliable Oscillation and UV Light Emission in AlN/GaN Resonant Tunnel Diodes
- 15.00 – 15.15: D. M. Di Paola¹, A. V. Velichko¹, M. Bomers^{2,3}, N. Balakrishnan¹, O. Makarovskiy¹, M. Capizzi⁴, A. Polimeni⁴, M. Kesaria⁵, A. Krier⁵, L. Eaves¹, T. Taliercio^{2,3}, and A. Patané¹
¹ School of Physics and Astronomy, The University of Nottingham, UK, ² University of Montpellier and ³ CNRS, Montpellier, France, ⁴ Physics Department, Lancaster University, UK
Zero-dimensional Zener tunneling and plasmon resonances due to N- and H- incorporation in the narrow gap InAs
- 15.15 – 15.30: R. Yan¹, G. Khalsa², S. Vishwanath¹, Y. Han³, J. Wright², D. Muller³, H. Xing^{1,2}, S. Katzer⁴, N. Nepal⁴, B. Downey⁴, D. Meyer⁴, and D. Jena^{1,2}
¹ School of Electrical and Computer Engineering, Cornell University, USA, ² Department of Materials Science and Engineering, Cornell University, ³ School of Applied and Engineering Physics, Cornell University, ⁴ U.S. Naval Research Laboratory, Washington D.C., USA
Thermally-induced NDR in epitaxial superconductor Nb₂N/GaN/AlN heterojunctions
- 15.30 – 15.45: O. Kedem¹, B. Lau^{1,2}, and E. A. Weiss^{1,2}
¹ Center for Bio-Inspired Energy Science, Northwestern University, Chicago, Illinois, USA, ² Department of Chemistry, Northwestern University, USA
Ratcheting of photo-generated carriers in an organic bulk-heterojunction

Coffee, 15.45 – 16.15

Session Mo4: Graphene & 2D Materials II (Chair: Erik Einarsson, University at Buffalo, USA)
16.15 – 17.00

- 16.15 – 16.30: N. Balakrishnan¹, Z. R. Kudrynskyi¹, G. W. Mudd¹, O. Makarovskiy¹, Z. D. Kovalyuk², L. Eaves¹, P. H. Beton¹, and A. Patané¹
¹ School of Physics and Astronomy, The University of Nottingham, UK, ² Institute for Problems of Materials Science, National Academy of Sciences of Ukraine, Ukraine
InSe rediscovered: A van der Waals crystal for new electronic and opto-electronic devices
- 16.30 – 16.45: K. Ghosh and U. Singiseti
Department of Electrical Engineering, University at Buffalo, USA
Hot electrons in layered materials – a first principles perspective
- 16.45 – 17.00: K. K. H. Smithe, C. D. English, S. V. Suryavanshi, and E. Pop
Department of Electrical Engineering, Stanford University, USA
High-field transport and velocity saturation in CVD monolayer MoS₂

Poster Session I, with Wine & Beer, 17.15 – 19.30

TUESDAY, JULY 18th

Session Tu01: Terahertz Phenomena in Semiconductor Materials & Devices (Chair: L. Varani, University of Montpellier, France)
09.00 – 10.45

- 09.00 – 09.30: J. Kono**
Departments of Electrical & Computer Engineering, Physics & Astronomy, and Materials Science & NanoEngineering, Rice University, USA
Ultrastrong light-matter coupling in a high-Q terahertz cavity
- 09.30 – 09.45: J. Torres¹, M. Lechelon², I. Nardecchia², L. Varani¹, I. Donato³, M. Gori³, and M. Pettini³
¹ Institut d'Electronique et des Systemes, Universite de Montpellier, France, ² Centre d'Immunologie de Marseille-Luminy, Universite Aix-Marseille, France, ³ Centre de Physique Theorique de Marseille, Universite Aix-Marseille, France
Out-of-equilibrium proteins dynamic probed by THz spectroscopy: towards Frohlich's condensation
- 09.45 – 10.00: C. Consejo¹, D. B. But¹, S. S. Krishtopenko^{1,2}, N. Dyakonova¹, S. V. Morozov², V. I. Gavrilenko², N. N. Michailov³, S. A. Dvoretiskii³, L. Varani¹, F. Teppe¹, and W. Knap¹
¹ Laboratoire Charles Coulomb, University of Montpellier & CNRS, France, ² Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russia, ³ Institute of Semiconductor Physics, Siberian Branch RAS, 630090, Novosibirsk, Russia
Hot carriers and THz cyclotron emission from Dirac-like fermions in bulk HgCdTe alloys
- 10.00 – 10.15: J. A. Delgado Notario¹, E. Javadi^{1,2}, V. Clericò¹, K. Fobelets³, T. Otsuji⁴, E. Diez¹, J.E. Velázquez-Pérez¹, and Y.M. Meziani¹
¹ NanoLab, Salamanca University, Salamanca, Spain, ² School of ECE, College of Engineering, University of Tehran, Iran, ³ Department of Electrical and Electronic Engineering, Imperial College, UK, ⁴ Research Institute of Electrical Communication, Tohoku University, Sendai, Japan
Experimental and theoretical studies of Sub-THz detection using strained-Si FETs

- 10.15 – 10.30: J. Serafini¹, Y. Akbas¹, S. B. Trivedi², D. Kochanowska³, M. Wiktowska-Baran³, A. Mycielski³, M. Guzewicz⁴, R. Kruszka⁴, W. Słysz⁴, and R. Sobolewski¹
¹ University of Rochester, Rochester, USA, ² Brimrose Technology Corporation, Sparks, USA, ³ Institute of Physics, Polish Academy of Sciences, Warszawa, Poland, ⁴ Institute of Electron Technology, Warszawa, Poland
Characterization of (Cd,Mg)Te and (Cd,Mn)Te single crystals in the THz frequency range using integrated photoconductive and electro-optic effects
- 10.30 – 10.45: P. Q. Liu^{1,2}, Z. Zhu³, R. Haglund⁴, and I. Brener¹
¹ Center for Integrated Nanotechnologies, Sandia National Laboratories, Albuquerque, USA, ² Department of Electrical Engineering, University at Buffalo, USA, ³ Department of Electrical Engineering and Computer Science, Vanderbilt University, USA, ⁴ Department of Physics and Astronomy, Vanderbilt University, USA
Anomalous insulator-to-metal phase transition of VO₂ nanostructures embedded in terahertz antenna resonant with VO₂ optical phonons

Coffee, 10.45 – 11.15

Session Tu02: Nonequilibrium Transport in Novel Devices II (Chair: Masaya Kataoka, National Physical Laboratory, UK)

- 11.15 – 11.45: **K. Semba**
National Institute of Information and Communications Technology (NICT), Tokyo, Japan
New light-matter ground state in the deep strong coupling regime
- 11.45 – 12.00: C. Jacoboni¹, E. Piccinini², R. Brunetti¹, and M. Rudan²
¹ Dipartimento di Scienze Fisiche, Informatiche e Matematiche, Università di Modena e Reggio Emilia, Modena, Italy, ² Dipartimento di Ingegneria dell'Energia Elettrica e dell'Informazione "Guglielmo Marconi", Università degli Studi di Bologna, Bologna, Italy
Transport scaling limits of Ovonic devices: a simulative approach
- 12.00 – 12.15: G. Auton^{1,2}, D. But³, J. Zhang¹, E. Hill², D. Coquillat³, C. Consejo³, P. Nouvel⁴, L. Varani⁴, F. Teppe³, J. Torres⁴, and A. Song⁴
¹ School of Electrical and Electronic Engineering, University of Manchester, UK, ² Manchester Centre for Mesoscience and Nanotechnology, University of Manchester, UK, ³ Laboratoire Charles Coulomb, University of Montpellier, France, ⁴ Institut d'Electronique et des Systèmes, University of Montpellier, France
Out-of-equilibrium carrier rectification of RF-waves in ballistic graphene four-terminals devices
- 12.15 – 12.30: S. Sánchez-Martín¹, H. Sánchez-Martín¹, J. A. Novoa¹, S. Pérez¹, C. Gaquière², J. Mateos¹, T. González¹, and I. Íñiguez-de-la-Torre¹
¹ Applied Physics Department, Salamanca University, Salamanca 37008, Spain, ² Institut d'Electronique, de Microelectronique et de Nanotechnologie, University of Lille 1, France
Detection enhancement by gate control in GaN nanodiodes

Lunch, 12.30 – 14:30

Session Tu03: Energy Transfer in Nanostructures (Chair: Stephen M. Goodnick, Arizona State University, USA)

- 14.30 – 15.00: **R. J. Nicholas¹, J. Tse-Wei Wang¹, R. Sutton¹, A. A. Haghighirad¹, H. J. Snaith¹, A. A. Mitoglu², A. Miyata^{1,2}, Z. Yang², K. Galkowski², A. Surrente², O. Portugall², D. K. Maude², and P. Plochocka²**
¹ University of Oxford, Clarendon Laboratory, Parks Road, Oxford, OX1 3PU, UK, ² Laboratoire National des Champs Magnétiques Intenses, Grenoble and Toulouse, France
Magneto-optical studies of excitons in the hybrid organic-inorganic perovskite family

- 15.00 – 15.15: H. Patel¹, K. Vogt¹, S. Shi², F. Wang², and M. W. Graham¹
¹ Department of Physics, Oregon State University, USA, ² Department of Physics, University of California, Berkeley, USA
Directing interlayer exciton photocurrent dynamics by twisting and stacking van der Waals materials
- 15.15 – 15.30: A. Kommini and Z. Aksamija
 Department of Electrical and Computer Engineering, University of Massachusetts-Amherst, USA
Thermoelectric properties of periodic quantum structures in the Wigner-Rode formalism
- 15.30 – 15.45: H. Esmailpour¹, J. Tang¹, H. P. Piyathilaka², V. R. Whiteside¹, S. Vijayaragunathan¹, T. D. Mishima¹, M. B. Santos¹, A. D. Bristow², and I. R. Sellers¹
¹ Homer L. Dodge Department of Physics & Astronomy, University of Oklahoma, USA, ² Department of Physics & Astronomy, West Virginia University, USA
Stable hot carriers at elevated temperatures and low excitation density in type-II quantum wells: a candidate system for practical hot carrier solar cells

Coffee, 15.45 – 16.15

Session Tu04: Organic Materials & Devices (Chair: Uttam Sengisetti, University at Buffalo, USA)
16:15 – 16.45

- 16.15 – 16.30: R. Hathwar¹, M. Saraniti¹, R. Nemanich², and S. M. Goodnick¹
¹ School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, USA,
² Department of Physics, Arizona State University, Tempe, USA
Full band Monte Carlo simulation of high field transport in diamond
- 16.30 – 16.45: J. G. Glusckhe¹, D. J. Carrad^{1,2}, J. B. W. Cochrane¹, S. Lehmann³, L. Samuelson³, and A. P. Micolich¹
¹ School of Physics, University of New South Wales, Sydney, Australia, ² Center for Quantum Devices, Nano-Science Center, Niels Bohr Institute, University of Copenhagen, Denmark, ³ Solid State Physics/NanoLund, Lund University Sweden
Using ultra-thin parylene films as an organic gate insulator in nanowire field-effect transistors

Special Seminar

16.45 – 17.15 Samindranath Mitra, Editor, Physical Review Letters

Poster Session II, with Wine & Beer, 17.30 – 19.45

WEDNESDAY, JULY 19th

Session We01: Graphene & 2D Materials III (Chair: Junichiro Kono, Rice University, USA)
09:00 – 10:30

- 09.00 – 09.30: K. M. Dani**
 Okinawa Institute of Science and Technology, Okinawa, Japan
Cinematography of charge: the art of making movies of electrons

- 09.30 – 09.45: M. Eginligil^{1,2}, B. Cao², F. Hipólito^{3,4,5}, Z. Wang^{2,6}, X. Shen², V. M. Pereira^{3,4}, C. Soci^{2,6}, and T. Yu^{2,3}
¹ Key Laboratory of Flexible Electronics (KLOFE) & Institute of Advanced Materials (IAM), Jiangsu National Synergetic Innovation Center for Advanced Materials (SICAM), Nanjing Tech University, China, ² Division of Physics and Applied Physics, Nanyang Technological University, Singapore, ³ Department of Physics, National University of Singapore, Singapore, ⁴ Centre for Advanced 2D Materials and Graphene Research Centre, National University of Singapore, Singapore, ⁵ NUS Graduate School for Integrated Sciences and Engineering, Centre for Life Sciences, Singapore, ⁶ Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore
Light helicity dependent photocurrents in graphene and 2D semiconductors
- 09.45 – 10.00: A. Mitioglu^{1,2}, M. Ballottin¹, J. Buhot¹, S. Anghel², L. Kulyuk², and P. C. M. Christianen¹
¹ High Field Magnet Laboratory, Radboud University, Nijmegen, the Netherlands, ² Institute of Applied Physics, Republic of Moldova
Magneto-optical investigation of strained 2D WSe₂ monolayers
- 10.00 – 10.15: M. Massicotte¹, F. Violla¹, P. Schmidt¹, M. B. Lundberg¹, S. Latini², S. Haastrup², M. Danovich³, D. Davydovskaya¹, K. Watanabe⁴, T. Taniguchi⁴, V. I. Fal'ko³, K. S. Thygesen², T. G. Pedersen⁵, and F. H. L. Koppens¹
¹ ICFO, The Barcelona Institute of Science and Technology, Barcelona, Spain, ² Department of Physics, Center for Atomic-Scale Materials Design (CAMD), Technical University of Denmark, Denmark, ³ National Graphene Institute, University of Manchester, UK, ⁴ National Institute for Materials Science, Tsukuba, Japan, ⁵ Department of Physics and Nanotechnology, Aalborg University, Denmark and Center for Nanostructured Graphene (CNG), Aalborg, Denmark
Tunnel ionization of 2D excitons in monolayer WSe₂
- 10.15 – 10.30: F. Karimi and I. Knezevic
 Department of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, USA
Linear and nonlinear optical response of graphene nanoribbons

Coffee, 10.30 – 11.00

Session We02: Graphene & 2D Materials IV (Chair: Jean J. Heremans, Virginia Tech., USA)
 11.00 – 12.15

- 11.00 – 11.30: E. Pop^{1,2,3}, E. Yalon¹, M. Muñoz-Rojó¹, M. Mleczko¹, C. English¹, N. Wang¹, K. Smithe¹, S. Suryavanshi¹, I. Datye¹, C. McClellan¹, A. Gabourie¹, M. Chen², and V. Chen¹
¹ Department of Electrical Engineering, Stanford University, USA, ² Department of Materials Science & Engineering, Stanford University, USA, ³ Precourt Institute for Energy, Stanford University, USA
Hot carriers in devices based on graphene and 2D materials
- 11.30 – 11.45: S.-C. Lu, Y. Kim, M. J. Gilbert, and U. Ravaioli
 Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, USA
Layer-dependent performance of ultra-short asymmetric Black Phosphorus vertical TFETs without chemical doping
- 11.45 – 12.00: G. He¹, H. Ramamoorthy¹, C.-P. Kwan¹, J. Nathawat¹, R. Somphonsane², R. Vajtai³, P. M. Ajayan³, D. K. Ferry⁴, and J. P. Bird¹
¹ Department of Electrical Engineering, University at Buffalo, USA, ² Department of Physics, King Mongkut's Institute of Technology Ladkrabang, Thailand, ³ Department of Materials Science and Nano Engineering, Rice University, USA, ⁴ School of Electrical, Computer, and Energy Engineering, Arizona State University, USA
Negative differential conductance and hot-carrier avalanching in transition-metal-dichalcogenide field-effect transistors
- 12.00 – 12.15: D. K. Ferry
 School of Electrical, Computer, and Energy Engineering, Arizona State University, USA
High Field Transport in Some Transition Metal Di-Chalcogenides

Lunch, 12.15 – 14:30

Conference Excursion, 14.30 – 19.30

THURSDAY, JULY 20th

Session Th01: Mesoscopic Phenomena in Nanostructured Materials & Devices I (Chair: Stefan Ludwig, Paul Drude Institute, Germany)
09.00 – 10.15

09.00 – 09.30: N. Johnson^{1,2}, J. D. Fletcher¹, P. See¹, C. Emary³, S. Ryu⁴, H.-S. Sim⁴, J. P. Griffiths⁵, G. A. C. Jones⁵, I. Farrer⁵, D. A. Ritchie⁵, M. Pepper², T. J. B. M. Janssen¹, and M. Kataoka¹
¹ National Physical Laboratory, Teddington, UK, ² London Centre for Nanotechnology, and Department of Electronic & Electrical Engineering, University College London, UK, ³ Joint Quantum Centre Durham-Newcastle, School of Mathematics and Statistics, Newcastle University, UK, ⁴ Department of Physics, Korea Advanced Institute of Science and Technology, Republic of Korea, ⁵ Cavendish Laboratory, University of Cambridge, UK

Single-hot-electron transport in quantum hall edge states

09.30 – 09.45: L. Bellentani¹, A. Beggi¹, P. Bordone^{1,2}, and A. Bertoni²
¹ Dipartimento di Scienze Fisiche, Informatiche, Matematiche, Università degli studi di Modena e Reggio Emilia, Modena, Italy, ² CNR-Istituto Nanoscienze, Modena, Italy

Dynamics of copropagating edge states in a multichannel Mach Zender interferometer

09.45 – 10.00: Z. Su¹, H. Wu¹, M. Hocevar², D. Car³, S. R. Plissard⁴, E. P. A. M. Bakkers³, D. Pekker¹, and S. M. Frolov¹
¹ Department of Physics and Astronomy, University of Pittsburgh, USA, ² CNRS, Institut Neel, Grenoble, France, ³ Department of Applied Physics, Eindhoven University of Technology, the Netherlands, ⁴ LAAS CNRS, Université de Toulouse, Toulouse, France

Kitaev model with quantum dot chains in semiconductor nanowires

10.00 – 10.15: J. Li¹, C. Aron^{2,3}, G. Kotliar⁴, and J. E. Han¹
¹ Department of Physics, University at Buffalo, USA, ² Laboratoire de Physique Théorique, École Normale Supérieure, CNRS, Sorbonne Universités, France, ³ Instituut voor Theoretische Fysica, KU Leuven, Belgium, ⁴ Department of Physics, Rutgers University, New Jersey, USA

Microscopic theory of resistive switching in ordered insulators: electronic vs. thermal mechanism

Coffee, 10.15 – 10.45

Session Th02: Quantum Coherence in Mesoscopic Structures (Chair: Pawel Hawrylak, University of Ottawa, Canada)
10.45 – 12.15

10.45 – 11.15: F. Forster¹, S. Kohler², and S. Ludwig³
¹ Center for NanoScience & Fakultät für Physik, LMU-Munich, Germany, ² Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain, ³ Paul-Drude-Institut für Festkörperphysik, Berlin, Germany
Coherence and symmetries in a driven double quantum dot: Landau-Zener-Stückelberg-Majorana interferometry

11.15 – 11.30: D. Finkelstein-Shapiro
Chemical Physics, Lund University, Sweden
Dissipative dynamics in Fano models

- 11.30 – 11.45: A. Bogan¹, S. Studenikin¹, M. Korkusinski¹, G. Aers¹, L. Gaudreau¹, P. Zawadzki¹, A. Sachrajda¹, L. Tracy², J. Reno², and T. Hargett²
¹ Security and Disruptive Technologies, National Research Council, Ottawa, Canada, ² Sandia National Laboratories, Albuquerque, New Mexico, USA
Hole hybrid qubit in a gated double quantum dot – spin-flip tunneling, anisotropic g- factor, and spin coherence time of a single hole
- 11.45 – 12.00: D. Wigger, D. E. Reiter, and T. Kuhn
 Institut für Festkörpertheorie, Universität Münster, Germany
Control of quantum dot laser emission by coherent phonon wave packets
- 12.00 – 12.15: L. Mourokh¹, A. Wixforth², F. Beil³, M. Bichler⁴, W. Wegscheider⁵, and R. H. Blick⁶
¹ Physics Department, Queens College of CUNY, USA, ² Physics Department, University of Augsburg, Augsburg, Germany ³ Ludwigs-Maximilians-Universität-München, München, Germany, ⁴ Walter-Schottky-Institute, Garching, Germany, ⁵ Laboratory for Solid State Physics, ETH Zurich, Switzerland, ⁶ Center for Hybrid Nanostructures and Institutes of Nanostructure and Solid State Physics, University of Hamburg, Germany
Dynamic Rabi oscillations in a quantum dot embedded to a nanobridge in the presence of surface acoustic waves

Lunch, 12.15 – 14:30

Session Th03: Thermal Transport and Phononic Structures (Chair: Robin Nicholas, Oxford University, UK)
14.30 – 15.15

- 14.30 – 14.45: J. D. G. Greener¹, A. V. Akimov¹, R. Beardsley¹, Z. R. Kudrynskyi¹, A. J. Kent¹, P. H. Beton¹, Z. D. Kovalyuk², T. Taniguchi³, K. Watanabe³, and A. Patané¹
¹ School of Physics and Astronomy, The University of Nottingham, Nottingham, UK, ² Institute for Problems of Materials Science, The National Academy of Sciences of Ukraine, Ukraine, ³ The National Institute for Materials Science, Tsukuba, Japan
Opto-nanomechanical properties of 2D van der Waals layers and heterostructures
- 14.45 – 15.00: M. Nomura^{1,2,3}, J. Maire¹, R. Yanagisawa¹, A. Ramiere¹, and R. Anufriev¹
¹ Institute of Industrial Science, the University of Tokyo, Japan, ² PRESTO, Japan Science and Technology Agency, Japan, ³ Institute for Nano Quantum Information Electronics, the University of Tokyo, Japan
Heat conduction control by phonon band engineering
- 15.00 – 15.15: R. Anufriev¹, A. Ramiere², R. Yanagisawa¹, J. Maire¹, and M. Nomura^{1,3}
¹ Institute of Industrial Science, the University of Tokyo, Japan, ² LIMMS/CNRS-IIS, the University of Tokyo, Japan, ³ PRESTO, Japan Science and Technology Agency, Japan
Creating and focusing directional heat fluxes using phononic nanostructures

Coffee, 15.15 – 15.45

Session Th04: Semiconductor Spintronics (Chair: Andrew Sachrajda, National Research Council of Canada, Canada)
15.45 – 17.45

- 15.45 – 16.15: P. Wadley¹, S. Reimers¹, C. Andrews¹, M. Grzybowski², K. Olejnik³, R. Campion¹, V. Novak³, A. Rushforth¹, K. Edmonds¹, B. L. Gallagher¹, J. Zelezny³, and T. Jungwirth^{1,3}
¹ The University of Nottingham, UK, ² Institute of Physics, Warsaw, Poland, ³ Institute of Physics ASCR, Prague, Czech Republic
Current induced switching of an antiferromagnet
- 16.15 – 16.30: S. Anghel¹, F. Passmann¹, A. Singh², N. Moore³, G. Yusa³, T. Mano⁴, T. Noda⁴, X. Li⁵, and M. Betz¹
¹ Technische Universität Dortmund, Dortmund, Germany, ² Department of Material Science and Engineering, Massachusetts Institute of Technology, USA, ³ Department of Physics, Tohoku University,

Sendai, Japan, ⁴ National Institute for Materials Science, Tsukuba, Japan, ⁵ Texas Materials Institute, University of Texas at Austin, USA

Gate control of the spin-orbit coupling in a modulation-doped GaAs quantum well

16.30 – 16.45: P. Hawrylak¹ and M. Korkusinski²

¹ Physics Department, University of Ottawa, Canada, ² Quantum Theory Group, Security and Disruptive Technologies, National Research Council, Ottawa, Canada

Toward nuclear spintronics: interaction of nuclear and electron spins in a magnetic domain wall of a quantum hall ferromagnet

Banquet, 18.00 – 22.00

FRIDAY, JULY 21st

Session Fr01: Topological States of Matter (Chair: Jonas Fransson, Uppsala University, Sweden)
09.00 – 10.15

09.00 – 09.30: R. S. Deacon^{1,2}, E. Bocquillon³, J. Wiedenmann³, F. Dominguez³, T. Klapwijk⁴, K. Ishibashi^{1,2}, and L. W. Molenkamp³

¹ Advanced Device Laboratory, RIKEN, Saitama, Japan, ² RIKEN Center for Emergent Matter Science (CEMS), Saitama, Japan, ³ Physikalisches Institut, Universität Würzburg, Germany, ⁴ Kavli Institute of Nanoscience, Faculty of Applied Sciences, Delft, the Netherlands

Signatures of topological superconductivity in HgTe based Josephson junctions

09.30 – 09.45: P. Yu¹, J. Chen¹, J. Stenger², M. Hocevar³, D. Car⁴, S. R. Plissard⁵, E. Bakkers⁴, T. D. Stanescu², and S. M. Frolov¹

¹ Department of Physics and Astronomy, University of Pittsburgh, USA, ² Department of Physics and Astronomy, West Virginia University, USA, ³ Institut Néel CNRS, Grenoble, France, ⁴ Eindhoven University of Technology, the Netherlands, ⁵ LAAS CNRS, Toulouse, France

Phase diagram of a topological superconductor in an InSb nanowire

09.45 – 10.00: M. L. Savchenko^{1,2}, D. A. Kozlov^{1,2}, J. Ziegler³, Z. D. Kvon^{1,2}, N. N. Mikhailov², and D. Weiss³

¹ Novosibirsk State University, Novosibirsk, Russia, ² Rzhzanov Institute of Semiconductor Physics, Novosibirsk, Russia, ³ Experimental and Applied Physics, University of Regensburg, Germany

Dirac fermions density of states in HgTe quantum well

10.00 – 10.15: T. M. Philip¹, M. R. Hirsbrunner^{1,2}, M. J. Park², and M. J. Gilbert¹

¹ Department of Electrical Engineering, University of Illinois at Urbana-Champaign, USA, ² Department of Physics, University of Illinois at Urbana-Champaign, USA

Performance of topological insulator interconnects

Coffee, 10.15 – 10.45

Session Fr02: Mesoscopic Phenomena in Nanostructured Materials & Devices II (Chair: Roman Sobolewski, University of Rochester, USA)
10.45 – 11.30

10.45 – 11.00: E. G. Idrisov¹, I. P. Levkivskyi², and E. V. Sukhorukov¹

¹ Département de Physique Théorique, Université de Genève, Genève, Switzerland, ² Theoretische Physik, ETH Zurich, Zurich, Switzerland

Thermal decay of charge fluctuations in mesoscopic circuits

- 11.00 – 11.15: J. J. Heremans¹, Y. Xie¹, and C. Le Priol²
¹ Department of Physics, Virginia Tech, Virginia, USA, ² Department of Physics, Ecole Polytechnique, Palaiseau, France
Geometrical dependence of quantum decoherence by electron-electron scattering in InGaAs mesoscopic systems
- 11.15 – 11.30: J. D. Vasquez Jaramillo, H. Hammar, and J. Fransson
Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden
Magnetic non-equilibrium control of heat and charge transport properties in paramagnetic molecular dimer

Concluding Remarks, 11.30 – 12.15

POSTER SESSION I: MONDAY, JULY 17th, 17:15 – 19:30

- MoP01:** T. Hoshino and N. Mori
Division of Electronic and Information Engineering, Osaka University, Osaka, Japan
Effects of dipole scattering on electron transport in gallium nitride-based HEMT
- MoP02:** G. I. Syngayivska¹, V. V. Korotyeyev¹, V. A. Kochelap¹, and L. Varani²
¹ Institute of Semiconductor Physics, NAS of Ukraine, Ukraine, ² Institut d'Electronique et des Systèmes (CNRS UMR 5214), University of Montpellier, Montpellier, France
Drift and diffusion high-field magneto-transport in GaN
- MoP03:** A. L. Asatryan, A. G. Stepanyan, and A. L. Vartanian
Department of Solid State Physics, Yerevan State University, Yerevan, Armenia
Influence of electric field on the energy-loss rate of hot electrons via confined acoustic phonon modes in an embedded cylindrical quantum wire
- MoP04:** O. Muscato
Department of Mathematics and Computer Science, University of Catania, Catania, Italy
Efficient Monte Carlo-based algorithms for the Wigner transport equation
- MoP05:** H. Li^{1,3,4}, Z. Zhang², Y. Liu^{1,3,4}, X. Zheng^{5,6}, and T. Jiang^{1,3,4,5}
¹ National University of Defense Technology, Changsha, China, ² Center for Nanochemistry (CNC), Beijing National Laboratory for Molecular Sciences, Peking University, Beijing, China, ³ Hunan Provincial Key Laboratory of High Energy Laser Technology, Changsha, China, ⁴ Hunan Provincial Collaborative Innovation Center of High Power Fiber Laser, Changsha, China, ⁵ Interdisciplinary Center of Quantum Information, National University of Defense Technology, Changsha, China, ⁶ State Key Laboratory of High Performance Computing, National University of Defense Technology, China
Ultrafast interfacial energy transfer and interlayer excitons between monolayer WS₂ and CsPbBr₃ quantum dots
- MoP06:** V. A. Petrov and A. V. Nikitin
Institute of Radio Engineering and Electronics, Russian Academy of Science, Moscow, Russia
Influence of electron interference effects on reflection of electron waves from potential barrier in 2D semiconductor nanostructures
- MoP07:** J. Larroque, B. Davier, P. Dollfus, and J. Saint-Martin
C2N UMR 9001, CNRS, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France
"Full-band" modeling of phonon transport in polytype cubic/hexagonal Ge and Si structures
- MoP08:** Y. Akbas¹, T. Plecenik², P. Ďurina², A. Plecenik², G. Wicks¹, and R. Sobolewski¹
¹ University of Rochester, Rochester, USA, ² Comenius University, Bratislava, Slovakia
Low-temperature performance of semiconducting asymmetric nano-channel diodes
- MoP09:** M. Koyama¹, Y. Kinoshita¹, M. Tatsumi¹, T. Maemoto¹, S. Sasa¹, S. Hamauchi², I. Kawayama², and M. Tonouchi²
¹ Nanomaterials and Microdevices Research Center, Osaka Institute of Technology, Osaka, Japan, ² Institute of Laser Energy, Osaka University, Japan
Study for enhancement of terahertz radiation using GaSb/InAs heterostructures
- MoP10:** R. Paquet¹, B. Chomet¹, S. Blin¹, M. Myara¹, G. Beaudoin², I. Sagnes², L. Varani¹, and A. Garnache¹
¹ Institute of Electronics and Systems, CNRS UMR 5214, University of Montpellier, France, ² Laboratory of Photonics and Nanostructures, CNRS UPR 20, Marcoussis, France
Coherent & tunable THz source

- MoP11:** A. V. Galeeva¹, A. I. Artamkin¹, S. A. Dvoretzkiy², N. N. Mikhailov², S. N. Danilov³, L. I. Ryabova⁴, and D.R. Khokhlov^{1,5}
¹ Faculty of Physics, M. V. Lomonosov Moscow State University, Moscow, Russia, ² Rzhanov Institute of Semiconductor Physics, Novosibirsk, Russia, ³ Regensburg University, Regensburg, Germany, ⁴ Faculty of Chemistry, M. V. Lomonosov Moscow State University, ⁵ P.N. Lebedev Physical Institute, Moscow, Russia
Terahertz photoconductivity in Hg_{1-x}Cd_xTe Films with direct and inverted energy spectrum
- MoP12:** V. Gružinskis¹, E. Starikov¹, P. Shiktorov¹, S. Ašmontas¹, A. Sužiedelis¹, C. Palermo², J. Torres², C. Consejo³, and L. Varani²
¹ Electron. Dep., National Center for Phys. Sci. and Technol., Vilnius, Lithuania, ² Institute of Electronics and Systems, University of Montpellier, France, ³ Laboratoire Charles Coulomb, University of Montpellier, France
Monte Carlo Simulation of Enhanced THz Radiation Detection in GaN MOSFETs with uncentered gate
- MoP13:** D. Yang^{1,2,3}, X. Chen^{1,2,3}, and T. Jiang^{1,2,3,4}
¹ College of Optoelectronic Science and Engineering, National University of Defense Technology, Changsha, China, ² Hunan Provincial Key Laboratory of High Energy Laser Technology, Changsha, China, ³ Hunan Provincial Collaborative Innovation Center of High Power Fiber Laser, Changsha, China, ⁴ State Key Laboratory of High Performance Computing, National University of Defense Technology, Changsha, China
Optically controlled terahertz modulator based on liquid-exfoliated WS₂ nanosheets
- MoP14:** J. J. Heremans¹, Y. Xie¹, S. Vijayaragunathan², T. D. Mishima², and M. B. Santos²
¹ Department of Physics, Virginia Tech, USA, ² Homer L. Dodge Dept. of Physics & Astronomy, The University of Oklahoma, USA
Ballistic quantum interference in self-focusing elliptic potential wall arrays
- MoP15:** R. Somphonsane¹, H. Ramamoorthy², G. He², J. Nathawat², C.-P. Kwan³, N. Arabchigavkani³, Y.-H. Lee², J. Fransson⁴, and J. P. Bird^{2,5}
¹ Department of Physics, King Mongkut's Institute of Technology Ladkrabang, Thailand, ² Department of Electrical Engineering, University at Buffalo, USA, ³ Department of Physics, University at Buffalo, USA, ⁴ Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden, ⁵ Graduate School of Advanced Integration Science, Chiba University, Japan
Quenching weak localization in graphene by the application of a nonequilibrium voltage
- MoP16:** Y. Yin¹, Z. Wang¹, S. Wang¹, Y. Bai¹, Z. Jiang¹, and Z. Zhong^{1,2}
¹ State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai, China, ² Collaborative Innovation Center of Advanced Microstructures, Nanjing, China
Unique electrostatic effect of Au nanoparticles on near-infrared photoluminescence from Si/SiGe due to metal/semiconductor nano-contact
- MoP17:** A. Mielnik-Pyszczorski, K. Gawarecki, and P. Machnikowski
 Department of Theoretical Physics, Wrocław University of Science and Technology, Wrocław, Poland
Effective mass equation for a nanostructure: a derivation from the 8-band k-p theory and assessment of accuracy
- MoP18:** K. Gawarecki and P. Machnikowski
 Department of Theoretical Physics, Wrocław University of Science and Technology, Wrocław, Poland
Fine structure of carrier states in a self-assembled InGaAs quantum dot
- MoP19:** D. Kaur¹, L. Mourokh¹, and R. H. Blick²
¹ Physics Department, Queens College of CUNY, USA, ² Center for Hybrid Nanostructures (CHyN) and Institutes of Nanostructure and Solid State Physics, University of Hamburg, Germany
Stochastic resonance in a proton pumping Complex I of mitochondria membranes
- MoP20:** V. S. Nair^{1,3}, S. Sreelatha², M. Hatamimoslehabadi³, and C. Yelleswarapu³
¹ Department of Physics, N. S. S. College Pandalam, Kerala, India, ² Department of Chemistry, N. S. S. College Pandalam, ³ Department of Physics, University of Massachusetts Boston, USA
Optoelectronic and photoacoustic studies of an organic dye synthesized through green route

- MoP21:** F. Hashimoto and N. Mori
Division of Electrical, Electronic and Information Engineering, Osaka University, Japan
Inter-layer coupling effects on ballistic electron transport in multilayer graphene
- MoP22:** F. Vandrevalla¹, A. Karmakar¹, J. M. Jornet¹, and E. Einarsson^{1,2}
¹ Department of Electrical Engineering, University at Buffalo, USA, ² Department of Materials Design and Innovation, University at Buffalo, USA
Determining optical properties of graphene using terahertz time-domain spectroscopy for plasmonic applications
- MoP23:** T. Komatsu¹, V. Ryzhii¹, T. Otsuji¹, D. Svintsov², and A. Satou¹
¹ Research Institute of Electrical Communication, Tohoku University, Japan, ² Laboratory of 2D Materials' Optoelectronics, Moscow Institute of Physics and Technology, Russia
Temperature-dependent broadening of carrier energy dispersion in graphene by electron-electron interaction and its effect on Auger scatterings
- MoP24:** C. Chuang¹, M. Mineharu¹, N. Matsumoto¹, M. Matsunaga¹, C.-W. Liu², B.-Y. Wu², G.-H. Kim³, L.-H. Lin⁴, Y. Ochiai¹, K. Watanabe⁵, T. Taniguchi⁵, Dinesh Kumar², C.-T. Liang², and N. Aoki¹
¹ Graduate School of Advanced Integration Science, Chiba University, Japan, ² Graduate Institute of Applied Physics, National Taiwan University, Taiwan, ³ School of Electronic & Electrical Engineering, Sungkyunkwan University, Korea, ⁴ Department of Electrophysics, National Chiayi University, Chiayi, Taiwan, ⁵ Advanced Materials Laboratory, National Institute for Materials Science, Tukuba, Japan
Hot carriers in disordered graphene with hexagonal-boron Nitride and multi-layer graphene
- MoP25:** J. A. Delgado Notario¹, V. Clericó¹, T. Otsuji², J. E. Velázquez-Pérez¹, Y. M. Meziani¹, and E. Diez¹
¹ NanoLab, Salamanca University, Salamanca, Spain, ² Research Institute of Electrical Communication, Tohoku University, Sendai, Japan
hBN/graphene devices: Fabrication and characterization
- MoP26:** J. M. Iglesias¹, E. M. Hamham¹, M. J. Martín¹, E. Pascual¹, P. C. Feijoo², F. Pasadas², D. Jiménez², and R. Rengel¹
¹ Department of Applied Physics, University of Salamanca, Spain, ² Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona, Spain
Graphene encapsulated on h-BN: an analysis of mobility and saturation velocity for GFET operation
- MoP27:** Z. Zafar and Y. You
Ordered Matter Science Research Center, Southeast University, Nanjing, China
Polarization induced optical and electrical control of 2D materials by ferroelectrics
- MoP28:** X. Zhang¹, V. Mitin¹, A. Sergeev², K. Sablon², M. Yakimov³, S. Oktyabrsky³, J. K. Choi⁴, and G. Strasser⁵
¹ Department of Electrical Engineering, University at Buffalo, USA, ² U.S. Army Research Laboratory, MD, USA, ³ SUNY Polytechnic Institute, Albany, USA, ⁴ Memory R&D Division, SK Hynix, Korea, ⁵ Center for Micro- and Nanostructures, TU Vienna, Austria
Nanoscale engineering of photoelectron processes in quantum well and dot structures
- MoP29:** G. O. Osayemwenre, E. L. Meyer, and R. T. Taziwa
Fort Hare Institute of Technology, University of Fort Hare, Eastern Cape, South Africa
Focused ion beam imaging of induced defects in polycrystalline silicon solar cells
- MoP30:** G. Thorgilsson, S. I. Erlingsson, and A. Manolescu
School of Science and Engineering, Reykjavik University, Reykjavik, Iceland
Thermoelectric current reversal in tubular nanowires

- MoP31:** M. Gorfien¹, X. Wang², L. Chen³, J. Yu³, H. Wang⁴, J. Zhao⁴, and J. Cao^{1,3}
¹ Department of Physics and National High Magnetic Field laboratory, Florida State University, USA,
² Institute of Physics, Chinese Academy of Sciences, Beijing, China, ³ School of Physics and Astronomy, Shanghai Jiao Tong University, Shanghai, China, ⁴ Institute of Semiconductor, Chinese Academy of Sciences
Nanoscale thermal transport across the GaAs/AlGaAs interface
- MoP32:** J. Dyrkacz and K Walczak
 Department of Chemistry and Physical Sciences, Pace University, New York, USA
Nanoscale heat conduction with noise generated by acoustic phonons
- MoP33:** D. Saroka and K Walczak
 Department of Chemistry and Physical Sciences, Pace University, New York, USA
Tunneling of heat: temperature-dependent transport characteristics
- MoP34:** S. A. O. Motlagh, J.-S. Wu, V. Apalkov, and M. I. Stockman
 Georgia State University, Atlanta, GA, USA
Ultrafast control of electron dynamics in 3D topological insulator

POSTER SESSION II: TUESDAY, JULY 18th, 17:15 – 19:30

- TuP01:** O. Muscato¹, T. Castiglione¹, and A. Coco²
¹ Department of Mathematics and Computer Science, University of Catania, Catania, Italy, ² Department of Mechanical Engineering and Mathematical Sciences, Oxford Brookes University, Oxford, UK
Hydrodynamic modeling of electron transport in silicon quantum wires
- TuP02:** G. F. Quinteiro^{1,2}, D. E. Reiter², and T. Kuhn²
¹ Departamento de Física and IFIBA, Universidad de Buenos Aires, Buenos Aires, Argentina, ² Institut für Festkörpertheorie, Westfälische Wilhelms-Universität Münster, Münster, Germany
Magnetic-optical transitions in quantum dots induced by twisted light
- TuP03:** H. D. Kim¹, A. Murayama¹, K. Kyhm², R. A. Taylor³, and J. S. Kim⁴
¹ Graduate School of Information Science and Technology, Hokkaido University, Japan, ² Department of Opto-mechtronics and Cogno-mechtronics, RCDAMP, Pusan National University, Korea, ³ Clarendon Laboratory, Department of Physics, University of Oxford, UK, ⁴ Department of Physics, Yeungnam University, Gyeongsan, Korea
Optically coupled excitons in a single coupled-quantum-dot structure via dipole-dipole interaction
- TuP04:** M. Syperek¹, J. Andrzejewski¹, W. Rudno-Rudziński¹, A. Maryński¹, G. Sęk¹, J. Misiewicz¹, J. P. Reithmaier², A. Somers³, and S. Höfling³
¹ Department of Experimental Physics, Wrocław University of Science and Technology, Wrocław, Poland, ² Institute of Nanostructure Technologies and Analytics, Universitaet Kassel, Kassel, Germany, ³ Technische Physik, University of Würzburg and Wilhelm-Conrad-Röntgen-Research Center for Complex Material, Würzburg, Germany
Carrier dynamics in semiconductor quantum dots coupled to a quantum well
- TuP05:** A. Maryński¹, M. Syperek¹, M. Pieczarka¹, J. Misiewicz¹, V. Liverini², M. Beck², J. Faist², and G. Sęk¹
¹ Laboratory for Optical Spectroscopy of Nanostructures, Wrocław University of Science and Technology, Wrocław, Poland, ² Institute of Quantum Electronics, ETH Zürich, Zürich, Switzerland
Electronic structure and carrier dynamics in InAs on InP quantum dots tailored by confinement barrier modification
- TuP06:** H. Takeuchi, S. Asai, and M. Nakayama
 Department of Applied Physics, Osaka City University, Osaka, Japan
Screening effects of photogenerated carriers on terahertz radiation from coherent GaAs-like longitudinal optical phonons in (11n)-oriented GaAs/In_{0.1}Al_{0.9}As strained multiple quantum wells

- TuP07:** J. Vyšniauskas¹, A. Lisauskas^{1,2}, M. Bauer², D. Čibiraitė², J. Matukas¹ and H. G. Roskos²
¹ Radiophysics Department, Vilnius University, Vilnius, Lithuania, ² Physikalisches Institut, Goethe-Universität Frankfurt, Germany
Hydrodynamic modelling of terahertz rectification in AlGaIn/GaN high electron mobility transistors
- TuP08:** M. Nafari¹, G. Aizin², and J. M. Jornet¹
¹ Department of Electrical Engineering, University at Buffalo, USA, ² Kingsborough College, The City University of New York, USA
Numerical Studies of the Plasma Wave Instability in Gated Two-dimensional Electron Channels for On-chip THz Signal Generation
- TuP09:** G. Chen¹, R. Shrestha¹, A. Jukna^{1,2}, A. Korliov^{1,3}, C. Richter⁴, and R. Sobolewski¹
¹ University of Rochester, Rochester, USA, ² Vilnius Gediminas Technical University, Vilnius, Lithuania, ³ Centre for Physical Sciences and Technology, Vilnius, Lithuania, ⁴ Rochester Institute of Technology, Rochester, NY, USA
THz time-domain spectroscopy characterization of carbon nanostructures
- TuP10:** H. Wang^{1,2}, R. Knepper², N. Hossain¹, P. Marthi¹, J.-F. Millithaler¹ and M. Margala¹
¹ Department of Electrical and Computer Engineering, University of Massachusetts, Lowell, USA, ² Department of Electrical and Computer Engineering, Boston University, Boston, USA
A design of terahertz parallel plate dielectric waveguide with signal line inserted for ballistic deflection transistor travelling wave amplifier
- TuP11:** K. Kushnir¹, K. Chen², P. M. Rao², and L. V. Titova¹
¹ Department of Physics, Worcester Polytechnic Institute, Worcester, USA, ² Department of Mechanical Engineering, Worcester Polytechnic Institute, Worcester, USA
Carrier dynamics and the role of grain boundaries in polycrystalline PbS films
- TuP12:** C. P. Kwan¹, M. Street², A. Mahmood², W. Echtenkamp², J. Nathawat³, N. Arabchigavkani¹, M. Zhao^{3,4}, B. Barut¹, S. Yin³, M. Randle³, U. Singiseti³, Ch. Binek² and J. P. Bird³
¹ Department of Physics, University at Buffalo, USA, ² Department of Physics and Astronomy, University at Nebraska- Lincoln, USA, ³ Department of Electrical Engineering, University at Buffalo, USA, ⁴ Microwave Devices and Integrated Circuit Department, Key Laboratory of Microelectronics Device & Integrated Technology, Institute of Microelectronics of the Chinese Academy of Science, Beijing, PR China
Electrical evaluation of epitaxial chromia thin films by pulsed laser deposition for spintronic device application
- TuP13:** J. Fu^{1,2}, P. H. Penteado^{1,3}, M. O. Hachiya², D. Loss⁴, and J. Carlos Egues²
¹ Instituto de Física, Universidade de Brasília, Brasil, ² Instituto de Física de São Carlos, Universidade de São Paulo, Brasil, ³ Department of Physics and Astronomy, University of California, USA, ⁴ Department of Physics, University of Basel, Switzerland
Persistent skyrmion lattice of non-interacting electrons with spin-orbit coupling
- TuP14:** A. Vartanian, A. Kirakosyan, and K. Vardanyan
 Department of Solid State Physics, Yerevan State University, Yerevan, Armenia
One-dimensional Fröhlich polaron with Rashba and Dresselhaus spin-orbit coupling
- TuP15:** D. Chu¹, C.-S. Park¹, J. Lee², Y. Shon², and E. K. Kim¹
¹ Department of Physics, Hanyang University, Seoul, Korea, ² Quantum-functional Semiconductor Research Center, Dongguk University, Seoul, Korea
High performance memory device with vertical structures of MGr/hBN/WS₂ layers
- TuP16:** Y. Liu, X. Zheng, and T. Jiang
 College of Optoelectronic Science and Engineering, National University of Defense Technology, Changsha, China
Giant photoluminescence improvement in monolayer WS₂ by charge transfer to PC₆₁BM

- TuP17:** T. Kuroda and N. Mori
Division of Electronic and Information Engineering, Osaka University, Osaka, Japan
Nonequilibrium green function simulations of band-to-band tunneling in in-plane MoS₂/WS₂ heterostructures
- TuP18:** N. Myoung¹, H. C. Park¹, and S. J. Lee²
¹ Center for Theoretical Physics of Complex Systems, Institute for Basic Science, Daejeon, Korea,
² Quantum-functional Semiconductor Research Center, Dongguk University, Seoul, Korea
Vertical heterostructure of ferromagnetic graphene with gate-voltage tunable spin transport
- TuP19:** W. Zhou¹, H. Liu², H. Kataura³, and S. Takeyama⁴
¹ National High Magnetic Field Center, Huazhong University of Science and Technology, Wuhan, China,
² Institute of Physics, Chinese Academy of Sciences, Beijing, China, ³ National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan, ⁴ Institute for Solid State Physics, University of Tokyo, Japan
Relative ordering between bright and dark excitons in single-walled carbon nanotubes
- TuP20:** W. Sheng
Department of Physics, Fudan University, Shanghai, China
Tuning of exciton binding energy in graphene nanoflakes by dielectric environments
- TuP21:** F. Qu, D. Oliveira, L. Villegas-Lelovsky, and J. Fu
Institute of Physics, University of Brasilia, Brasilia, Brazil
Usual and unusual oscillations of valley polarized magnetoexciton and charged exciton absorption in MoS₂ quantum rings
- TuP22:** K. G. Dvovyan, A. A. Tshantshapanyan, and B. Vlahovic
Department of Mathematics and Physics, North Carolina Central University, Durham, USA
Positronium in an elliptical semiconductor quantum dot with Kane's dispersion law
- TuP23:** M. Zhao^{1,2}, J. Nathawat², C.-P. Kwan³, H. Ramamoorthy², N. Matsumoto⁴, M. Matsunaga⁴, N. Aoki⁴, Z. Jin¹, G.-H. Kim⁵, K. Watanabe⁶, T. Taniguchi⁶, J. Han³, and J. P. Bird^{2,4}
¹ High-Frequency High-Voltage Device and Integrated Circuits Center, Institute of Microelectronics of Chinese Academy of Sciences, Beijing, China, ² Department of Electrical Engineering, University at Buffalo, USA, ³ Department of Physics, University at Buffalo, USA, ⁴ Graduate School of Advanced Integration Science, Chiba University, Chiba, Japan, ⁵ School of Electronic Electrical Engineering and Sungkyunkwan Advanced Institute of Nanotechnology, Sungkyunkwan University, Korea, ⁶ Advanced Materials Laboratory, National Institute for Materials Science, Tsukuba, Japan
Transient investigations of hot-carrier transport in BN-encapsulated graphene FETs
- TuP24:** T. Yamanaka¹, K. Kamiya¹, M. Matsunaga¹, A. Higuchi¹, Y. Ochiai¹, M. Kida¹, K. Miyamoto¹, T. Omatsu¹, J. P. Bird², and N. Aoki¹
¹ Graduate School of Advanced Integration Science, Chiba University, Chiba, Japan, ² Department of Electrical Engineering, University at Buffalo, USA
Structural and electrical control of multilayer MoTe₂ crystal by laser irradiation
- TuP25:** F. Lu¹, A. Karmakar¹, S. Shahi¹, and E. Einarsson^{1,2}
¹ Department of Electrical Engineering, University at Buffalo, USA, ² Department of Materials Design and Innovation, University at Buffalo, USA
Localized growth of transition metal dichalcogenides on patterned graphene
- TuP26:** C. Zhao¹, P. Zhang¹, T. Norden¹, R. Sabirianov², A. Petrou¹, and H. Zeng¹
¹ Physics Department, University at Buffalo, USA, ² University of Nebraska-Omaha, USA
Valley splitting induced by exchange field in monolayer TMDCs

- TuP27:** H. Sun^{1,2}, L. Fang^{1,2}, and T. Jiang^{1,3}
¹ State Key Laboratory of High Performance Computing, National University of Defense Technology, Changsha, China, ² College of Computer, National University of Defense Technology, Changsha, China, ³ College of Optoelectronic Science and Engineering, National University of Defense Technology, Changsha, China
High performance photovoltaic detectors based on topological insulator Sb₂Te₃/STO heterostructure grown by molecular beam epitaxy
- TuP28:** A. Zafar and Z. Ni
 Department of Physics and Key Laboratory of MEMS of the Ministry of Education Southeast University, Nanjing, China
Probing the intrinsic optical quality of CVD grown MoS₂
- TuP29:** A. V. Stier¹, N. P. Wilson², X. Xu^{2,3}, J. Kono^{4,5,6}, and S. A. Crooker¹
¹ National High Magnetic Field Laboratory, Los Alamos National Laboratory, USA, ² Department of Physics, University of Washington, Seattle, USA, ³ Department of Materials Science, University of Washington, Seattle, USA ⁴ Department of Electrical & Computer Engineering, Rice University, Houston, USA, ⁵ Department of Physics & Astronomy, Rice University, Houston, USA ⁶ Department of Materials Science & Nanoengineering, Rice University, Houston, USA
2D excitons in high-pulsed magnetic fields
- TuP30:** S. Ruffenach¹, S. S. Krishtopenko^{1,2}, C. Consejo¹, J. Torres³, M. Orlita⁴, W. Knap¹, D. Smirnov⁵, S. V. Morozov², V. I. Gavrilenko², N. N. Michailov⁶, S. A. Dvoretiskii⁶, and F. Teppe¹
¹ L2C, UMR CNRS 5221, Montpellier University, Montpellier, France, ² IPM, Russian Academy of Sciences, Nizhny Novgorod, Russia, ³ IES, UMR 5214, Montpellier University, Montpellier, France ⁴ LNCMI, CNRS-UJF-UPS-INSA, Grenoble, France, ⁵ NHMFL, Florida State University, USA, ⁶ ISP, Russian Academy of Sciences, Novosibirsk, Russia
Topological phase transitions in HgCdTe heterostructures probed by terahertz spectroscopy
- TuP31:** R. Hathwar, M. Saraniti, and S. M. Goodnick
 School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, USA
Ultrafast carrier photoexcitation and relaxation in core-shell III-V nanowire structures
- TuP32:** A. H. Davoody and I. Knezevic
 Department of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, USA
Ultrafast phonon-assisted exciton transfer in carbon nanotube films
- TuP33:** G. Osayemwenre, E. Meyer, R. Taziwa, and S. Mamphweli
 Fort Hare Institute of Technology, University of Fort Hare, Eastern Cape, South Africa
Investigation of defects in crystalline silicon solar cells by confocal Raman spectroscopy
- TuP34:** I. Siloi¹, C. Benedetti², E. Piccinini³, J. Piilo¹, S. Maniscalco¹, M. G. A. Paris^{2,4,5} and P. Bordone^{5,6}
¹ Turku Centre for Quantum Physics, Department of Physics and Astronomy, University of Turku, Finland, ² Quantum Technology Lab, Dipartimento di Fisica, Università degli Studi di Milano, Italy, ³ Dipartimento di Ingegneria dell'Energia Elettrica e dell'Informazione "Guglielmo Marconi" - DEI, Università di Bologna, Italy, ⁴ INFN, Sezione di Milano, Milano, Italy, ⁵ Centro S3, CNR - Istituto Nanoscienze, Modena, Italy, ⁶ Dipartimento di Scienze Fisiche, Informatiche e Matematiche, Università di Modena e Reggio Emilia, Italy
Quantum walks of two interacting particles in a classical noisy environment
- TuP35:** K Walczak
 Department of Chemistry and Physical Sciences, Pace University, New York, USA
Nanoscale heat conduction with noise generated by acoustic phonons