ICPS2024 Technical Program

(subject to change)

as of July 26, 2024

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2:00pm – 6:00pm		Registration
3:50pm – 4:00pm		Welcome Remarks- Sylvain Charbonneau (Ottawa University), Julie Lefebvre (NRC) - **Gatineau Salon**
4:00pm – 6:00pm	Su-PLEN	Sunday Plenary Session- **Gatineau Salon**
	Su-PLEN-1	**Klaus von Klitzing**, Max-Planck-Institut für Festkörperforschung, Germany- **"The Quantum Revolution in Metrology"**
	Su-PLEN-2	**Duncan Haldane**, Princeton, USA- "**Topological Quantum States, Entanglement and the dream of topologically-protected quantum-information processing"**
	Su-PLEN-3	**Heike Riel**, IBM Research Europe, Switzerland- **"What's Next in Computing – In Bits, AI & Qubits?"**
6:00pm – 8:00pm		Welcome Reception
Monday July 29, 2024		
8:30am – 8:50am		Welcome Coffee
8:50am – 9:00am		Introduction- Pawel Hawrylak (Conference Chair)- **Gatineau Salon**
9:00am – 10:30am	Mo-PLEN	Plenary Session 1- **Gatineau Salon**
	Mo-PLEN-1	**Jacqueline Bloch**, CNRS CN2 Paris, France- **"Topological photonics with excitonic polaritons"**
	Mo-PLEN-2	**Igor Aharonovich**, University of Technology Sydney, Australia- **"Hexagonal Boron Nitride - an Intriguing Platform for On Chip Quantum Technologies"**
10:30am – 12:00pm	Mo-PLEN	Plenary Session 2- **Gatineau Salon**
	Mo-PLEN-3	**Daniel Loss**, University of Basel, Switzerland- **"Spin Qubits in Semiconductors for Scalable Quantum Computers"**
	Mo-PLEN-4	**Shuyun Zhou**, Tsinghua University, China- **"Floquet engineering of quantum materials"**
12:00pm – 1:30pm		Lunch Break
1:30pm – 3:00pm	Mo-S1	Technical Session 1
ROOM 210	Mo-S1-1	**5. 2D materials beyond graphene including twistronics & 12. Quantum optics, nano-photonics, quantum emitters** Mo-S1-1-1 **Invited** – Long Ju, MIT, USA- **"Integer and Fractional Quantum Anomalous Hall Effects in Crystalline Graphene"** Mo-S1-1-2 - **Deterministic generation of a large-scale photonic GHZ state (529)** D. Cogan[1], Z-E. Su[1], O. Kenneth[1], D. Gershoni[1] *[1] The Physics Department and the Solid-State Institute, Technion-Israel Institute of Technology, 3200003, Haifa, Israel* Mo-S1-1-3 - **Excitons in Gated WSe2 Quantum Dots (338)** Daniel Miravet[1], Ludmiła Szulakowska[1], Maciej Bieniek[2], Marek Korkusinski[1,3], Pawel Hawrylak[1] *[1] Department of Physics, University Of Ottawa, Wroclaw, Ontario, Canada* *[2] Institute of Theoretical Physics, Wroclaw University of Science and Technology, Wroclaw, Poland* *[3] Emerging Technologies Division, National Research Council of Canada, Ottawa, Ontario, Canada* Mo-S1-1-4 - **Bose-Fermi mixture stabilized by a strongly correlated insulator in a moiré electron bilayer system (509)** Amine Ben Mhenni[1], Wilhelm Kadow[2], Adrian Paulus[1], Mikolaj Metelski[1], Alain Dijkstra[1], Matteo Barbone[3], Jonathan Finley[1], Michael Knap[2], Nathan Wilson[1] *[1] Walter Schottky Institute, Technical University of Munich, Garching, Germany* *[2] Department of Physics, School of Natural Sciences, Technical University of Munich, Garching, Germany* *[3] Department of Electrical Engineering, Technical University of Munich, Garching, Germany* Mo-S1-1-5 - **TBC**
ROOM 212	Mo-S1-2	**8. Low dimensional semiconductor systems (1D, 2D)** Mo-S1-2-1 **Invited** - Hannah Joyce, Cambridge University, UK- **"High-throughput Approaches for Engineering Semiconductor Nanowire Devices for Terahertz Photonics and Beyond"** Mo-S1-2-2 - **Artificial electrostatic crystals: a new platform to studying novel electronic phases (21)** Daisy Wang[1,2], Zeb Krix[1,2], Chong Chen[3], Dave Ritchie[3], Oleg Sushkov[1,2], Alex Hamilton[1,2], Oleh Klochan[1,2,4] *[1] School of Physics, UNSW Sydney, Kensington, NSW, Australia* *[2] Australian Research Council Centre of Excellence in Future Low-Energy Electronics Technologies, Sydney, NSW, Australia*

[3] *Cavendish Laboratory, Cambridge University, Cambridge, UK*
[4] *School of Science, UNSW Canberra, Campbell, ACT, Australia*

Mo-S1-2-3 - **Irradiated Schrödinger Cat States in ultra-high mobility 2D Electron Systems. (32)**
J. Iñarrea[1,3], G. Platero[2,3]
[1] *Escuela Politécnica Superior,Universidad Carlos III,Leganes, Madrid, 28911, Spain*
[2] *Instituto de Ciencia de Materiales, CSIC, Cantoblanco, Madrid, 28049, Spain*
[3] *Unidad Asociada al Instituto de Ciencia de Materiales, CSIC, Cantoblanco, Madrid, 28049, Spain*

Mo-S1-2-4 - **Collective depinning and sliding of a quantum Wigner solid in a two-dimensional electron system (44)**
M. Yu. Melnikov[1], A. A. Shashkin[1], S.-H. Huang[2], C. W. Liu[2], Sergey Kravchenko[3]
[1] *Institute of Solid State Physics, Chernogolovka, Russia*
[2] *National Taiwan University, Taipei, Taiwan*
[3] *Northeastern University, Boston, MA, United States*

Mo-S1-2-5 - **Diffusive Relaxation of Hot Electrons in a Quantum Hall Edge Channel Studied with a Hilltop Quantum Dot (63)**
Ryo Oishi[1], Yuto Hongu[1], Tokuro Hata[1], Chaojing Lin[1], Takafumi Akiho[2], Koji Muraki[2], Toshimasa Fujisawa[1]
[1] *Tokyo Institute of Technology, Tokyo, Japan*
[2] *NTT Basic Research Laboratories, Atsugi, Japan*

ROOM 202 Mo-S1-3

11. Optical properties, opto-electronics, solar cells

Mo-S1-3-1 - **Electrically Pumped GeSn/SiGeSn Multiple Quantum Well Laser Operating in Continuous Wave MODE at Low Temperatures (11)**
Dan Buca[1], Teren Liu[1], Lukas Seidel[2], Omar Concepcion[1], Michael Oehme[2], Davide Spirito[3], Giovanni Capellini[3,6], Zoran Ikonic[4], Jean-Michel Hartmann[5], Alexei Chelnokov[5], Detlev Grützmacher[1]
[1] *Peter Grünberg Institute-9, Semiconductor Nanoelectronics and JARA-Fundamentals of Future Information Technologies, Forschungszentrum Jülich, Jülich, Germany*
[2] *Institute of Semiconductor Engineering, University of Stuttgart, Stuttgart, Germany*
[3] *IHP-Leibnitz Institute for innovative Microelectronics, Frankfurt / Oder, Germany*
[4] *Pollard Institute, School of Electronic and Electrical Engineering, University of Leeds, Leeds, UK*
[5] *UniversitéGrenoble Alpes, CEA Leti, Grenoble, France*
[6] *Department of Sciences, Università Roma Tre, Roma, Italy*

Mo-S1-3-2 - **Neutral Shallow Acceptors in Heavily Doped CdTe at Room Temperature (307)**
Hiroyasu Nakata[1,2], Rinto Tachibana[2], Akira Fujimoto[3], Yoshiyuki Harada[3], Tsuyosi Hirai[4], Shirou Sakuragi[5], Yasuo Kanematsu[2], Michisato Toyota[2]
[1] *Osaka Kyoiku University, Kashiwara, Osaka 582-8582, Japan*
[2] *Graduate School of Science, Osaka University, Toyonaka, Osaka 560-0043, Japan*
[3] *Nanomaterials Microdevices Research Center, Osaka Institute of Technology, Asahi-ku, Osaka 535-8585, Japan*
[4] *College of Science and Engineering, Ritsumeikan University, Kusatsu, Siga 525-8577, Japan*
[5] *Union Materials Inc., Tone-machi, Ibaragi 300-1602, Japan*

Mo-S1-3-3 - **Measuring Exciton-Polariton Interactions at the Few Particle Level (374)**
Invited Speakers - Paul Walker[1], Fedor Benimetskiy[1], Anthony Ellul[1], Sylvain Ravets[2], Jacqueline Bloch[2], Maurice Skolnick[1], Dmitry Krizhanovskii[1]
[1] *University of Sheffield, Sheffield, United Kingdom*
[2] *Centre de Nanosciences et de Nanotechnologies (C2N), Université Paris-Saclay - CNRS, Palaiseau, France*

Mo-S1-3-4 - **Ultrafast Opto-Electronic tuning of Third-Harmonic Generation in a Graphene Field Effect Transistor (37)**
Omid Ghaebi[1], Sebastian Klimmer[1,2], Nele Tornow[1], Andrea Tomadin[3], Habib Rostami[4], Giancarlo Soavi[1,5]
[1] *Institute of Solid State Physics, Friedrich Schiller University Jena, Jena, Germany*
[2] *ARC Centre of Excellence for Transformative Meta-Optical Systems, Department of Electronic Materials Engineering, Research School of Physics, The Australian National University, Canberra, Australia*
[3] *Dipartimento di Fisica, Università di Pisa, Pisa, Italy*
[4] *Department of Physics, University of Bath, Claverton Down, Bath, United Kingdom*
[5] *Abbe Center of Photonics, Friedrich Schiller University Jena, Jena, Germany*

Mo-S1-3-5 - **TBC**

ROOM 204 Mo-S1-4

13. Quantum technology: Semiconductor-based qubits

Mo-S1-4-1 - **Spatially resolved trap states and random telegraph noise in semiconductors (48)**
Megan Cowie[1], Taylor J. Z. Stock[2,3], Procopios C. Constantinou[2], Neil J. Curson[2,3], Peter Grutter[1]
[1] Department of Physics, McGill University, Montreal, Quebec, Canada
[2] London Centre for Nanotechnology, University College London, London, United Kingdom
[3] Department of Electronic and Electrical Engineering, University College London, London, United Kingdom

Mo-S1-4-2 - **Quantum Oscillations of Excitonic Schrodinger's Cats as Qubits Using Quantum Dot Based Resonant Tunneling Diodes (77)**
S. V. U. Vedhanth[1], Amit Bhunia[1], Mohit Kumar Singh[1], Maryam Al-Huwayz[2,3], Mohamed Henini[2], Shouvik Datta[1]
[1] Indian Institute of Science Education and Research, Pune (IISER-Pune), Pune, Maharashtra, India
[2] University of Nottingham, Nottingham, UK
[3] Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia

Mo-S1-4-3
Invited – Cécile Yu, Delft University of Technology, The Netherlands- **"Single-qubit Operations and Statistics in a Dense 10-qubit Array"**

Mo-S1-4-4 - **A 2D Semiconductor Route to Spin-valley Qubits (89)**
Kuan Eng Johnson Goh[1,2,3]
*[1] Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and Research (A*STAR) , 2 Fusionopolis Way, Innovis #08-03, Singapore 138634, Republic of Singapore*
[2] Department of Physics, National University of Singapore, 2 Science Drive 3, Singapore 117551
[3] Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, 50 Nanyang Avenue, Singapore 637371

Mo-S1-4-5 - **Technology Computer-Aided Design Simulations of Hole Spin Qubits In Gated Double Quantum Dots (113)**
Pericles Philippopoulos[1], Raphaël Prentki[1], Marek Korkusinski[2], Félix Beaudoin[1]
[1] Nanocademic Technologies Inc., Montréal, Québec, Canada
[2] National Research Council of Canada, Ottawa, Ontario, Canada

ROOM 209 Mo-S1-5

10. Spintronics and spin phenomena

Mo-S1-5-1 - **Determination of perpendicular magnetic anisotropy in magnetic heterostructures: DFT-based spin-orbit torque method (36)**
Yu-hui Tang[1], Huang Huang[1], Yu-Hsiang Fu[2,3], Chao-Cheng Kaun[3]
[1] Department of Physics, National Central University, Taoyuan City, Taiwan
[2] Department of Physics, National Taiwan University, Taipei, Taiwan
[3] Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan

Mo-S1-5-2 - **Dynamic Nuclear Polarization and Nuclear Spin Diffusion in Nanoscale Si Particles (102)**
Gevin von Witte[1,2], Aaron Himmler[2], Viivi Hyppönen[3], Jiri Jäntti[4], Mohammed M. Albannay[1], Jani O. Moilanen[5], Matthias Ernst[2], Vesa-Pekka Lehto[4], Joakim Riikonen[4], Sebastian Kozerke[1], Mikko I. Kettunen[3], Konstantin Tamarov[4]
[1] Institute for Biomedical Engineering, University and ETH Zurich, Zurich, Switzerland
[2] Institute of Molecular Physical Science, ETH Zurich, Zurich, Switzerland
[3] Kuopio Biomedical Imaging Unit, A.I. Virtanen Institute, University of Eastern Finland, Kuopio, Finland
[4] Department of Technical Physics, University of Eastern Finland, Kuopio, Finland
[5] Department of Chemistry, Nanoscience Center, University of Jyväskylä, Jyväskylä, Finland

Mo-S1-5-3 - **Evaluation of the spin-orbit interaction in atomically thin Td-MoTe2 (205)**
Taro Wakamura[1], Masayuki Hashisaka[1,2], Matthieu Bard[1], Shota Okazaki[3], Takao Sasagawa[3], Takashi Taniguchi[4], Kenji Watanabe[5], Koji Muraki[1], Norio Kumada[1]
[1] NTT Basic Research Laboratories, Atsugi, Kanagawa, Japan
[2] Institute for Solid State Physics, University of Tokyo, Japan, Kashiwa, Chiba, Japan
[3] Laboratory for Materials and Structures, Tokyo Institute of Technology, Japan, Nagatsuta, Kanagawa, Japan
[4] Research Center for Electronic and Optical Materials, National Institute for Materials Science, Japan, Tsukuba, Ibaraki, Japan
[5] Research Center for Materials Nanoarchitectonics, National Institute for Materials Science, Japan, Tsukuba, Ibaraki, Japan

Mo-S1-5-4 - **Acoustic Spin Control Gate (269)**
James Stotz[1], Paul Helgers[2], Klaus Biermann[2], Paulo Santos[2]
[1] Queen's University, Kingston, Ontario, Canada
[2] Paul Drude Institute, Berlin, Berlin, Germany

Mo-S1-5-5 - **Magnetic Proximity Effects and Charge transfer in MoSe2/CrSBr (105)**

Invited Speakers - Caique S. de Brito[1,2], Paulo E. Faria Junior[3], Talieh S. Ghiasi[4], Florean Dirnberger[5], Samuel Mañas-Valero[4,6], Kenji Watanabe[7], Takashi Taniguchi[7], K. Zollner[3], J. Fabian[3], C. Schüller[2], H. S. J. van der Zant[4], Yara Galvao Gobato[1]

[1] Federal University of São Carlos (UFSCAR), Physics Department, SP, Brazil
[2] Institut für Experimentelle und Angewandte Physik, Universität Regensburg, D93040, Regensburg, Germany.
[3] Institute of Theoretical Physics, University of Regensburg, 93040 Regensburg, Germany
[4] Kavli Institute of Nanoscience, Delft University of Technology, 2628 CJ, Delft, Netherlands
[5] Institute of Applied Physics and Würzburg-Dresden Cluster of Excellence ct.qmat, Dresden, Germany
[6] Instituto de Ciencia Molecular (ICMol), Universitat de València, Paterna 46980, Spain
[7] Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba 305-0044, Japan

ROOM 211 Mo-S1-6

6. Perovskites/Organic semiconductors; Complex oxide and chalcogenide semiconductors

Mo-S1-6-1 - **Resolving Anisotropic Strong Coupling Effects in Metal-Organic Hybrid Samples (29)**
Maximilian Rödel[1], Jinhong Kim[2], Matthias Stolte[2], Luca Nils Philipp[3], Matthias Lehmann[2], Frank Würthner[2], Roland Mitric[3], Jens Pflaum[1,4]
[1] Experimental Physics VI, University of Würzburg, Würzburg, Germany
[2] Institut für Organische Chemie and Center for Nanosystems Chemistry, University of Würzburg, Würzburg, Germany
[3] Institut für Physikalische und Theoretische Chemie, University of Würzburg, Würzburg, Germany
[4] Bavarian Center for Applied Energy Research, Würzburg, Germany

Mo-S1-6-2 - **Resonant multiple-phonon absorption causes efficient anti-Stokes photoluminescence in CsPbBr3 nanocrystals (31)**
Zhuoming Zhang[1], Sushrut Ghonge[2], Yang Ding[1], Shubin Zhang[2], Mona Berciu[3,4], Richard Schaller[5], Boldizsar Janko[2], Masaru Kuno[1,2]
[1] Department of Chemistry and Biochemistry, University of Notre Dame, 251 Nieuwland Science Hall, Notre Dame, IN 46556, United States
[2] Department of Physics and Astronomy, University of Notre Dame, 225 Nieuwland Science Hall, Notre Dame, IN 46556, United States
[3] Department of Physics and Astronomy, University of British Columbia, Vancouver Campus 325-6224, Agricultural Road, Vancouver BC V6T 1Z1, Canada
[4] Stewart Blusson Quantum Matter Institute, University of British Columbia, Vancouver, British Columbia, V6T 1Z4 Canada
[5] Department of Chemistry, Northwestern University, Evanston, IL 60208 and Center for Nanoscale Materials, Argonne National Laboratory, Lemont, IL 60439, United States

Mo-S1-6-3 - **Investigating the buried Band Structure of Co-coated photoactive Oxynitrides using Soft-X-Ray ARPES (68)**
Anna Hartl[1,2,3], Vladimir Strocov[2], Thomas Lippert[1], Nick Shepelin[1]
[1] Laboratory for Multiscale Materials Experiments, Paul Scherrer Institute, Villigen PSI, Switzerland
[2] Laboratory for Advanced Spectroscopy and X-ray Sources, Villigen PSI, Switzerland
[3] Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Biosciences, ETH Zürich, Zurich, Switzerland

Mo-S1-6-4 - **Excitons in Ultrathin Exfoliated Small Molecule Crystalline Thin Films (93)**
Hadi Afshari[1], Steven Raybould[1], Nadeem Akbar[1], Lucas Seeley[1], Collin Campbell[1], Lloyd Bumm[1], Madalina Furis[1]
[1] Homer L. Dodge Physics & Astronomy Department, University Of Oklahoma, Norman, Oklahoma, United States

Mo-S1-6-5 - **Polarized Photoluminescence and Enhanced Circular Dichroism in an Achiral, Low Bandgap Bismuth Iodide Perovskite Derivative (231)**

Invited Speakers - Philip Klement[1], Jakob Möbs[2,3], Gina Stuhrmann[3], Lukas Gümbel[1], Marius J. Müller[1], Johanna Heine[2], Sangam Chatterjee[1]

[1] Institute of Experimental Physics I and Center for Materials Research, Gießen, Germany
[2] Department of Chemistry and Materials Science Center, Marburg, Germany
[3] Department of Physics, University of Oxford, Parks Road, OX1 3PU Oxford, United Kingdom
[4] Institute of Nanotechnology (INT) and Karlsruhe Nano Micro Facility (KNMF), Karlsurhe, Germany

3:00pm – 3:30pm Coffee Break

3:30pm – 5:00pm Mo-S2 Technical Session 2

ROOM 210 Mo-S2-1

12. Quantum optics, nano-photonics, quantum emitters, NV Centers

Mo-S2-1-1 - **Low-Temperature Photophysics of Single Nitrogen-Vacancy Centers in Diamond (272)**

Invited Speakers - Juanita Bocquel[1], Jodok Happacher[1], David A. Broadway[1], Hossein Dinani[2], Jeronimo R. Maze[3], Patrick Maletinsky[1]

[1] Department of Physics, University of Basel, Basel, Switzerland
[2] Escuela de Ingeniería, Facultad de Ciencias, Ingeniería y Tecnología, Universidad Mayor, Santiago, Chile
[3] Facultad de Física, Pontificia Universidad Católica de Chile, Santiago, Chile

Mo-S2-1-2 - **Berry-Phase Translation Effect in Strain-Engineered Hydrogenated Dilute Nitrides: A Novel Approach to X-ray Photonics (25)**
Marco Felici[1], Giorgio Pettinari[2], Michela Fratini[3], Luisa Barba[4], Gaetano Campi[5], Silvia Rubini[6], A. Polimeni[1]
[1] *Sapienza University of Rome, Rome, Italy*
[2] *Institute for Photonics and Nanotechnologies (IFN), National Research Council (CNR), Rome, Italy*
[3] *Institute of Nanotechnology (Nanotec), National Research Council (CNR), Rome, Italy*
[4] *Institute of Crystallography (IOC), National Research Council (CNR), Basovizza (Trieste), Italy*
[5] *Institute of Crystallography (IOC), National Research Council (CNR), Monterotondo (Rome), Italy*
[6] *Istituto Officina dei Materiali (IOM), National Research Council (CNR), Basovizza (Trieste), Italy*

Mo-S2-1-3 - **Photodynamics and Enhanced Photon Emission in Aluminum Nitride Quantum Emitters (55)**
Yanzhao Guo[1,2], Bilge Yagci[1,2], Joseph Cannon[1,2], Sam Bishop[1,2], Rachel Clark[1,2], John Hadden[1,2], Anthony Bennett[1,2]
[1] *School of Engineering, Cardiff University, Queen's Buildings, Cardiff, CF24 3AA, UK*
[2] *Translational Research Hub, Maindy Road, Cardiff, CF24 4HQ, UK*

Mo-S2-1-4 - **Optical Control of Linear Cluster State Generation with a Semiconductor Quantum Dot in a Micropillar Cavity (86)**
Helio Huet[1], Stephen Wein[2], Niccolo Somaschi[2], Martina Morassi[1], Aristide Lemaître[1], Isabelle Sagnes[1], Abdelmounaim Harouri[1], Olivier Krebs[1], Loïc Lanco[1,3], Dario Fioretto[1,2], Nadia Belabas[1], Pascale Senellart[1]
[1] *Université Paris-Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies, Palaiseau, France*
[2] *Quandela SAS, Palaiseau, France*
[3] *Université Paris Cité, CNRS, Centre de Nanosciences et de Nanotechnologies, Palaiseau, France*

Mo-S2-1-5 - **Nanocavity enhanced photon coherence of a quantum dot at up to 30 K (94)**
Alistair Brash[1], Jake Iles-Smith[2]
[1] *University Of Sheffield, Sheffield, United Kingdom*
[2] *University of Manchester, Manchester, United Kingdom*

ROOM 212 Mo-S2-2 **1. Material growth, structural properties and characterization, phonons**

Mo-S2-2-1
Invited - Alessandro Molle, CNR-IMM, Italy- **"Two-Dimensional Xenes: Synthesis, Processing, and Engineering"**

Mo-S2-2-2 - **High Mobility Ternary Tetradymite Films (526)**
Hang Chi[1,2,3]
[1] *Department of Physics, University of Ottawa, Ottawa, ON K1N 6N5, Canada*
[2] *School of Electrical Engineering and Computer Science, University of Ottawa, Ottawa, ON K1N 6N5, Canada*
[3] *Nexus for Quantum Technologies, University of Ottawa, Ottawa, ON K1N 6N5, Canada*

Mo-S2-2-3 - **Iso-electronic Sb Impurities in GaAs Studied by Cross-sectional Scanning Tunneling Microscopy (59)**
Aurelia Trevisan[1], Peter Hodgson[2], Manus Hayne[2], Paul M. Koenraad[1]
[1] *Eindhoven University Of Technology, Eindhoven, Netherlands*
[2] *Lancaster University, Lancaster, United Kingdom*

Mo-S2-2-4 - **Growth Optimization and Comparison of Epitaxial Graphene on 4H- and 6H-SiC (97)**
Teresa Marie Tschirner[1], Yefei Yin[1], Klaus Pierz[1], Frank Hohls[1], Hans Werner Schumacher[1]
[1] *Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Lower Saxony, Germany*

Mo-S2-2-5 - **Chemical composition and band bending at Al2O3/GaAs interface formed via in situ Al2O3 atomic layer deposition on pristine GaAs (45)**
Nataliya Demarina[1], Soraya Karimzadah[1], Benjaminn Bennemann[1], Abdur Rehman Jalil[1], Heinrich Hartmann[2], Beata Kardynal[1], Michail Ion Lepsa[1], Detlev Gruetzmacher[1]
[1] *Peter Gruenberg Institute, Forschungszentrum Juelich, Juelich, Germany*
[2] *Central Institute of Engineering, Electronics and Analytics, Forschungszentrum Juelich, Juelich, Germany*

ROOM 202 Mo-S2-3 **14. Quantum technology: Quantum dots and nano-crystals**

Mo-S2-3-1 - **Improved Accuracy of Single-Hole Pumping via Silicon Quantum Dot by Dynamic Gate Compensation (27)**
Gento Yamahata[1], Akira Fujiwara[1]
[1] *NTT Basic Research Laboratories, Atsugi-shi, Kanagawa, Japan*

Mo-S2-3-2 - **Quantum-Dot Molecules on the InAs(110) Cleavage Surface Created by Atom Manipulation (56)**
V. D. Pham[1], Y. Pan[1,2], H. Kumar[1], S. C. Erwin[3], S. Fölsch[1]
[1] Paul-Drude-Institut für Festkörperelektronik, Hausvogteiplatz 5-7, Leibniz-Institut im Forschungsverbund Berlin e. V., 10117 Berlin, Germany
[2] Center for Spintronics and Quantum Systems, State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an 710049, China
[3] Center for Computational Materials Science, Naval Research Laboratory, Washington, DC 20375, USA

Mo-S2-3-3 - **Spin-photon entanglement with direct photon emission in the telecom C-band (216)**
Invited Speakers - Petros Laccotripes[1,2], Tina Müller[1], Mark Stevenson[1], Joanna Skiba-Szymanska[1], Dave Ritchie[2], Andrew Shields[1]
[1] Toshiba Europe Ltd, Cambridge, United Kingdom
[2] Cambridge University, Cambridge, United Kingdom

Mo-S2-3-4 - **Combined effects of the electron-hole exchange and Förster energy transfer interactions in self-assembled quantum-dot pairs (35)**
Jaime David Díaz Ramírez[1], Ping-Yuan Lo[2], Shun-Jen Cheng[2], Hanz Yecid Ramírez Gómez[1]
[1] School of Physics, Universidad Pedagógica y Tecnológica de Colombia (UPTC), Tunja 150003, Boyacá, Colombia
[2] Department of Electrophysics, National Yang Ming Chiao Tung University (NYCU), Hsinchu 30050, Taiwan, Republic of China

Mo-S2-3-5 - **Superconducting Diode Using Semiconductor Quantum Dots (71)**
Go Takeuchi[1], Mikio Eto[1]
[1] Faculty of Science and Technology, Keio University, Yokohama, Japan

ROOM 204 Mo-S2-4 **4. Carbon: 2D graphene, 1D nanotubes, and 0D quantum dots**

Mo-S2-4-1 - **Graphene quantum Hall resistance standard for realizing the unit of resistance under relaxed experimental conditions (75)**
Yefei Yin[1], Mattias Kruskopf[1], Pierre Gournay[2], Benjamin Rolland[2], Martin Götz[1], Eckart Pesel[1], Teresa Tschirner[1], Davood Momeni[1], Frank Hohls[1], Klaus Pierz[1], Hansjörg Scherer[1], Rolf J. Haug[3], Hans Werner Schumacher[1]
[1] Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany
[2] Bureau International des Poids et Mesures (BIPM), Pavillon de Breteuil, 92312 Sevres, France
[3] Institut für Festkörperphysik, Leibniz Universität Hannover, 30167 Hannover, Germany

Mo-S2-4-2 - **Anisotropic Fluorescence Enhancement near Semiconducting Carbon Nanotube Metasurfaces (95)**
Michael Pugh[1], SK Firoz Islam[1,2], Igor Bondarev[1]
[1] Department of Math and Physics, North Carolina Central University, Durham, North Carolina, United States
[2] Department of Physics, Jamia Millia Islamia (A Central University), New Delhi, India

Mo-S2-4-3
Invited - Luca Banszerus, Center for Quantum Devices, Niels Bohr Institute at the University of Copenhagen,2100 Copenhagen, Denmark - **"Electron and Hole Quantum Dots in Bilayer Graphene"**

Mo-S2-4-4 - **Accelerating modeling of Bernal-stacked bilayer graphene devices: effective four-band model (137)**
Alina Mrenca-kolasinska[1], Szu-Chao Chen[2], Ming-Hao Liu[3]
[1] AGH University, Faculty of Physics and Applied Computer Science, Cracow, Poland
[2] National Formosa University, Department of Electro-Optical Engineering, Yunlin, Taiwan
[3] National Cheng Kung University, Department of Physics, Tainan, Taiwan

Mo-S2-4-5 - **Radio-Frequency Charge Detection on Gate-Defined Bilayer Graphene Quantum Dots (140)**
Christian Volk[1,2], Katrin Hecker[1,2], Samuel Möller[1,2], Leon Stecher[1], Lucca Valerius[1], Tobias Deussen[1], Saketh Ravuri[1], Kenji Watanabe[3], Takashi Taniguchi[4], Christoph Stampfer[1,2]
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[2] Peter Grünberg Institute (PGI-9), Forschungszentrum Jülich, Jülich, Germany
[3] Research Center for Functional Materials, NIMS, Tsukuba, Japan
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ROOM 209 Mo-S2-5 **9. Quantum Hall effect, and fractional quantum Hall effect**

Mo-S2-5-1 - **Topological Robustness Revealed by Real-time Longitudinal and Transverse Studies (33)**
Anh Ho Hoai[1], Jian Huang[1], Loren Pfeiffer[2], Ken West[2]
[1] Wayne State University, Detroit, Michigan, United States
[2] Princeton University, Princeton, New Jersey, United States

Mo-S2-5-2 - **Robust Interlayer-Coherent Quantum Hall States in Twisted Bilayer Graphene (69)**
Dohun Kim[1], Byungmin Kang[2], Yong-Bin Choi[3], Kenji Watanabe[4], Takashi Taniguchi[5], Gil-Ho Lee[3], Gil Young Cho[3], Youngwook Kim[1]
[1] Department of Physics and Chemistry, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, Republic of Korea
[2] Department of Physics, Massachusetts Institute of Technology, Cambridge, MA, USA
[3] Department of Physics, Pohang University of Science and Technology (POSTECH), Pohang, Republic of Korea
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[5] International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan

Mo-S2-5-3 - **Fractionalization of an Electronic Superposition State in Interacting Quantum Hall Edge Channels (81)**
Takase Shimizu[1,2], Eiki Iyoda[3], Satoshi Sasaki[1], Akira Endo[2], Shingo Katsumoto[2], Norio Kumada[1], Masayuki Hashisaka[1,2]
[1] NTT Basic Research Laboratories, NTT corporation, Atsugi, Kanagawa, Japan
[2] Institute for Solid State Physics, The University of Tokyo, Kashiwa, Chiba, Japan
[3] Department of Physics, Tokai University, Hiratsuka, Kanagawa, Japan

Mo-S2-5-4 - **Fractional quantum Hall state preserving gates (119)**
Sambit Mohapatra[1], Jean-Baptiste Cuvellier[1], Abdelhanin Aassime[1], Yan Sun[2], Alan Durnez[1], Alexei Chepelianskii[2], Antonella Cavanna[2], Ulf Gennser[1]
[1] Université Paris Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies (C2N), Palaiseau, France
[2] Université Paris Saclay, CNRS, Laboratoire de Physique des Solides (LPS), Orsay, France

Mo-S2-5-5 - **Novel Highly Correlated Ground States in Landau Flat Bands of GaAs/AlGaAs (12)**
Invited Speakers - H. Huang[1], W. Hussain[1], S. Myers[1], V. Shingla[1], A. Kumar[2], L. Pfeiffer[3], K. West[3], K. Baldwin[3] and G. Csáthy[1]
[1] Department of Physics and Astronomy, Purdue University, West Lafayette, IN 47907, USA
[2] Department of Physics, Monmouth College, Monmouth, IL 61462, USA
[3] Department of Electrical Engineering, Princeton University, Princeton, NJ 08544 NJ, USA

ROOM 211 Mo-S2-6 **7. Topological states of matter, topological Insulators, and Weyl semimetals**

Mo-S2-6-1 - **Interaction dominated transport in 2D conductors: from degenerate to partially-degenerate regime. (13)**
G. Gusev[1], A. D. Levin[1], E. B. Olshanetsky[2,3], Z. D. Kvon[2,3], V. M. Kovalev[2,4,5], M. V. Entin[2,3], N. N. Mikhailov[2,3]
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[5] Abrikosov Center for Theoretical Physics, Moscow Institute of Physics and Technology, Dolgoprudny, 141701, Russia

Mo-S2-6-2 - **Quantum Spin Hall Effect at Elevated Temperatures in InAs/GaInSb/InAs Trilayer Quantum Wells (98)**
Manuel Meyer[1], Jonas Baumbach[1], Sebastian Schmid[1], Monika Emmerling[1], Adriana Wolf[1], Sergey Krishtopenko[2], Benoit Jouault[2], Gerald Bastard[1,3], Frederic Teppe[2], Fabian Hartmann[1], Sven Höfling[1]
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[3] Physics Department École Normale Supérieure , PSL 24 rue Lhomond, 75005 Paris, France, Paris, France

Mo-S2-6-3 - **Coherent Electron Scattering in Mesoscopic Bismuth Selenide Devices (138)**
Craig Knox[1,2], Matthew Vaughan[1], Ahmet Yagmur[2], Satoshi Sasaki[2], John Cunningham[1], Edmund Linfield[1], Giles Davies[1], Joshua Freeman[1]
[1] School of Electronic and Electrical Engineering, University Of Leeds, Leeds, United Kingdom
[2] School of Physics and Astronomy, University Of Leeds, Leeds, United Kingdom

Mo-S2-6-4 - **Transport studies in selectively grown topological insulator multiterminal Josephson junctions. (147)**
Gerrit Behner[1], Alina Rupp[1,2], Abdur Rehman Jalil[1,2], Kristof Moors[1,2], Dennis Heffels[1,2], Detlev Grützmacher[1,2], Thomas Schäpers[1,2]
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Mo-S2-6-5
Invited - Milan Orlita, CNRS Grenoble, France- **"Magneto-optical studies of topological materials"**

5:00pm – 7:00pm Mo-P Poster Session 1- **Ottawa Salon**

Mo-P-003 - **CVD-Grown Semiconducting Monolayers with Near-homogeneous Excitonic Linewidths (87)**
J. Göser[1], Z. Li[1], S. Zhao[1], I. Bilgin[1], A. Högele[1,2]
[1] Fakultät für Physik, Munich Quantum Center, and Center for NanoScience (CeNS), Ludwig-Maximilians-Universität München, Geschwister-Scholl-Platz 1, 80539 Munich, Germany
[2] Munich Center for Quantum Science and Technology (MCQST), Schellingtr. 4, 80799 Munich, Germany

Mo-P-004 - **Heteroepitaxial growth of III-V on Si: a DFT perspective (109)**
Sreejith Pallikkara Chandrasekharan[1], Divishth Gupta[1], Charles Cornet[1], Laurent Pedesseau[1]
[1] Univ Rennes, INSA Rennes, CNRS, Institut FOTON – UMR 6082, France

Mo-P-005 - **Electronic and phonon coherence in n-GaAs studied using ultrafast quantum path interferometry with attosecond controlled near-infrared pulses (120)**
Kazutaka Nakamura[1,2], Itsuki Takagi[1,2], Yosuke Kayanuma[3]
[1] Institute of Innovative Research, Tokyo Institute of Technology, Yokohama, Kanagawa 226-8501, Japan
[2] Department of Materials Science and Engineering , Tokyo Institute of Technology, Yokohama, Kanagawa 226-8501, Japan
[3] Graduate School of Science, Osaka Metropolitan University, Sakai, Osaka 599-8531, Japan

Mo-P-006 - **Engineering Band Structure Transitions in WSe2 through Te Doping: An Alternative Approach Beyond Thickness Reduction (126)**
Pei-Yu Chuang[1], Shih-Wei Chiu[1], Shu-Hua Kao[2], Mitch Ming-Chi Chou[3], Chao-Kuei Lee[4], Chi-Hsuan Lee[5], Cheng-Maw Cheng[1,4,6]
[1] National Synchrotron Radiation Research Center, Hsinchu, Taiwan
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[3] Department of Materials and Optoelectronic Science, National Sun Yat-sen University, Kaohsiung, Taiwan
[4] Department of Photonics, National Sun Yat-sen University, Kaohsiung, Taiwan
[5] Research Center for Applied Sciences, Academia Sinica, Kaohsiung, Taiwan
[6] Department of Electrophysics, Taipei, Taiwan

Mo-P-008 - **Luminescence properties and chemical structure of red fluorescent material using europium(III)-doped benzoguanamine (179)**
Naoki Ohtani[1], Haruki Takemura[1], Takahiro Niimi[1]
[1] Doshisha University, Kyoto, Japan

Mo-P-009 - **Lowering Effective Dielectric Constant of Ferroelectric Hf0.5Zr0.5O2 Film with an Ultra-Thin Al2O3 Intermediate Layer (197)**
Jinyoung Park[1], Hyunjae Park[2], Hyunmin Kwun[2], Eunseok Hyun[2], Jaehyeong Jo[2], Jiwan Kim[2], Wonho Song[3], Junhyung Kim[4], Kibog Park[2,5]
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[3] LG Display, Paju, Gyeonggi-Do, South Korea
[4] Electronics and Telecommunications Research Institute, Daejeon, Gyeonggi-Do, South Korea
[5] Department of Electrical Engineering, Ulsan National Institute of Science and Technology, Daejeon, South Korea, Ulsan

Mo-P-010 - **In-Plane Germanium Nanowire Networks: Growth and Hole Transport (200)**
Santhanu Panikar Ramanandan[1], Alban Morelle[2], Shelly Ben-David[1], Sara Martí-Sánchez[3], Alok Rudra[4], Jordi Arbiol[3,5], Thomas Ihn[2,6], Klaus Ensslin[2,6], Anna Fontcuberta i Morral[1,4,7]
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[6] Quantum Center, ETH Zurich, 08010 Barcelona, Switzerland
[7] Center for Quantum Science and Engineering, EPFL,1015 Lausanne, Switzerland

Mo-P-011 - **Nanocrystalline Silicon for Optomechanical Applications (249)**
Gloria Conte[1], Omid Reza Ranjbar Naeini[1], Jouni Ahopelto[2], Clivia Mafra Sotomayor Torres[1]
[1] INL International Iberian Nanotechnology Laboratory, Espoo, Portugal
[2] VTT Technical Research Centre of Finland Ltd, Espoo, Finland

Mo-P-021 - **ULTRARAM: A Compound-Semiconductor Floating-Gate Universal Memory (235)**
Xiuxin Xia[1], Serdar Tekin[1], Peter Hodgson[1,2], Manus Hayne[1,2]
[1] Lancaster University, Lancaster, United Kingdom
[2] Quinas Technology, Lancaster, United Kingdom

Mo-P-022 - **The Field-Effect Inverter, a Non-CMOS III-V Semiconductor Unipolar Logic Device in InAs/InGaAs/AlSb/GaSb: From Theory to Proof of Concept (241)**
Jonathan Hall[1], Peter Hodgson[1,2], Manus Hayne[1,2]
[1] Department of Physics, Lancaster University, Lancaster, United Kingdom
[2] Quinas Technology, Department of Physics, Lancaster University, Lancaster, United Kingdom

Mo-P-023 - **Terahertz-Frequency Plasmonic-Crystal Instability in Field-Effect Transistors with Asymmetric Gate Arrays (243)**
Shahabaj Mundaganur[1], Aarbaj Mundaganur[1], Gregory Aizin[2], Jonathan Bird[1]
[1] University At Buffalo, Brooklyn, NY, United States
[2] Kingsborough College & the Graduate Center of the City University of New York, Brooklyn, NY, United States

Mo-P-024 - **Circuit-level Device Modeling for Analysis of Failure Mechanisms during Selective Erase Operation in 3D CTF memory devices (317)**
Sunghwan Cho[1,2], Byoungdeog Choi[3]
[1] Memory Business, Samsung Electronics Co., Ltd. Hwasung 18448, South Korea
[2] Department of Semiconductor and Display Engineering, Sungkyunkwan University, Suwon 16419, South Korea
[3] Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon 16419, South Korea

Mo-P-025 - **Alloy Scattering and Field-Dependent Electron Transport in Direct-Gap GeSn Alloys (424)**
Christopher Broderick[1,2], Sarita Das[1,2], Eoin O'Reilly[1,2]
[1] School of Physics, University College Cork, Cork T12 YN60, Ireland
[2] Tyndall National Institute, University College Cork, Lee Maltings, Dyke Parade, Cork T12 R5CP, Ireland

Mo-P-029 - **Investigating Non-Covalently Functionalized CVD Graphene and Hexagonal Boron Nitride (hBN) Heterostructures as Platforms for Hydrogen Sensing (174)**
Evans Addo-mensah[1], Hugh Churchill[2], Uchechukwu Wejinya[3]
[1] Materials Science and Engineering Program, University of Arkansas, Fayetteville, USA
[2] Department of Physics, University of Arkansas, Fayetteville, USA
[3] Mechanical Engineering Department, University of Arkansas, Fayetteville, USA

Mo-P-030 - **Quantum Carrier Transport of Highly Disordered Electron System in Epitaxial Graphene on 6H-SiC with As-Grown Defects (214)**
Jaehyeong Jo[1], Eunseok Hyun[1], Jiwan Kim[1], Hyunjae Park[1], Junhyung Kim[2], Gahyun Choi[3], So-Dam Sohn[3], Jan Kunc[4], Daejin Eom[3], Kibog Park[1,5]
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Mo-P-032 - **Real-Time, Operando Characterization of Aryl Diazonium Functionalized Bilayer Graphene (270)**
Bahar Molavi[1], Thomas Szkopek[1]
[1] Mcgill University, Quebec, Canada

Mo-P-033 - **From Order to Disorder: Assessing Thermal Properties in Amorphous Graphene with Machine Learning-Driven Simulations (345)**
Hassan Shoaib[1], Samuel Huberman[1]
[1] McGill University, QC, Canada

Mo-P-037 - **Magneto-optical Characterization of Two-Dimensional Ferromagnetic FGT and CGT (49)**
Annika Bergmann[1], Mustafa Hemaid[1], Rico Schwartz[1], Tobias Korn[1]
[1] Institute of Physics, University of Rostock, Germany

Mo-P-038 - **Interaction of 2D Materials with Laser-Written Waveguide Circuits (58)**
Alina Schubert[1], Karo Becker[1], Jakob Kuhlke[1], Rico Schwartz[1], Andreas Thies[2], Alexander Szameit[1], Matthias Heinrich[1], Tobias Korn[1]
[1] University of Rostock, Berlin, Germany
[2] Ferdinand Braun Institut, Leibnitz Institut für Höchstfrequenztechnik, Berlin, Germay

Mo-P-039 - **Probing Exciton Dynamics in 2D MoSe2 with Multidimensional Coherent Spectroscopy (91)**
Melisa Ozen[1,2], Saeid Kamal[1,3], David Jones[1,2], Ziliang Ye[1,2]
[1] Department of Physics and Astronomy, University of British Columbia, Vancouver, British Columbia, Canada
[2] Stewart Blusson Quantum Matter Institute, Vancouver, British Columbia, Canada
[3] Department of Chemistry, University of British Columbia, Vancouver, British Columbia, Canada

Mo-P-040 - **Exciton Localization in Two-Dimensional Semiconductors Through Modification of the Dielectric Environment (178)**
Kelly Yohana Muñoz Gomez[1], Jhen Dong Lin[2], Yun Chen Shih[2], Shun Jen Cheng[2], Hanz Yesid Ramirez Gómez[1]
[1] Universidad Pedagógica Y Tecnológica De Colombia (UPTC), Hsinchu, Boyacá, Colombia
[2] National Yang Ming Chiao Tung University (NYCU), Hsinchu, Taiwan, Republic of China

Mo-P-041 - **Terahertz manipulation of exciton complexes in 2D semiconductors (203)**
Tommaso Venanzi[1], Marzia Cuccu[2], Edith Wietek[2], Xiaoxiao Sun[3], Takashi Taniguchi[4], Kenji Watanabe[4], Manfred Helm[2,3], Stephan Winnerl[3], Alexey Chernikov[2]
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[4] National Institute for Materials Science (NIMS), Tsukuba, Japan

Mo-P-042 - **High Harmonic Generation in Monolayer MoS2 with Electrostatic Modulation (219)**
Taeho Kim[1], Minjeong Kim[1], Jonghwan Kim[1]
[1] POSTECH, Gyeongsangbuk-do, Republic of Korea

Mo-P-043 - **Capillary Transfer of Epitaxial WS2 Grown by Metalorganic Chemical Vapour Deposition (245)**
Aidan Karmali[1], Jean-Felix Milette[1], Mathias Roman[1], Jeremy Leung[1], Sebastian Schaefer[1], Victoria Howard[1], Katelyn Warren[1], James Gupta[1]
[1] University Of Ottawa, Canada

Mo-P-044 - **In Situ Characterization of 2D Materials Growth in MOCVD (256)**
Jean-Felix Milette[1], James Gupta[1], Francois Drouin[1], Aidan Karmali[1]
[1] University Of Ottawa, Ontario, Canada

Mo-P-045 - **Dependence of the exciton-phonon scattering on the exciton wave function in two-dimensional semiconductors (274)**
Hanz Ramirez[1]
[1] Universidad Pedagógica Y Tecnológica De Colombia, Boyacá, Colombia

Mo-P-048 - **Investigating the novel CrSCl material system: A 2D van der Waals ferromagnetic semiconductor (350)**
Yong Wang[1], Dingyi Yang[2,3], Shaopeng Wang[2], Wei Xu[4], Yongjie Xu[5], Yizhang Wu[6], Tarnjit Kaur Johal[3]
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[6] Department of Applied Physical Sciences, The University of North Carolina at Chapel Hill, NC, USA. 27514

Mo-P-049 - **Gate-Tunable Negative Differential Resistance in WSe2/hBN/Graphene Heterostructure (353)**
Inayat Uddin[1], Nhat Anh Nguyen Phan[1], Hai Yen Le Thi[2], Kenji Watanabe[3], Takashi Taniguchi[4], Gil Ho Kim[1,2]
[1] Department of Electrical and Computer Engineering, Sungkyunkwan University (SKKU), Suwon, Gyeonggi-do, Republic of Korea
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Mo-P-050 - **Negative transconductance differential in MoSe2/hBN/WSe2 vertical structure (354)**
Hai Yen Le Thi[1], Inayat Uddin[2], Nhat Anh Phan Nguyen[2], Kenji Watanabe[3], Takashi Taniguchi[4], Gil-Ho Kim[1,2]
[1] Sungkyunkwan Advanced Institute of Nano Technology (SAINT), Sungkyunkwan University (SKKU), Suwon, Gyeong-gi, Republic of Korea
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[4] International Center for Material Nano Architectonics, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Japan

Mo-P-053 - **Terahertz spectroscopy of charge transport in the semiconducting polymer PDPP3T (22)**
Philipp Riederer[1], Christian Eckel[2], Thomas Weitz[2,3], Roland Kersting[1,4]
[1] LMU, Faculty of Physics, Goettingen, Bavaria, Germany
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[4] Center for NanoScience (CeNS), LMU, Munich, Lower Saxony, Germany

Mo-P-054 - **Dynamics of Exciton Delocalization in Small Molecule Semiconductors (92)**
Madalina Furis[1], Varun Mapara[1], Hadi Afshari[1], Nadeem Akbar, Steven M. Raybould[1], Atsuhiko Ueno[2], Tsukasa Yoshida[2], Lloyd A. Bumm[1]
[1] University Of Oklahoma, Yonezawa, Oklahoma, United States
[2] Yamagata University, Yonezawa, Japan

Mo-P-057 - **Thermoelectric Properties of Two-dimensional Dirac Materials in HgTe Quantum Wells (14)**
G. M. Gusev[1], A. D. Levin[1], E. B. Olshanetsky[2,3], Z. D. Kvon[2,3], N. N. Mikhailov[2,3]
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[3] Novosibirsk State University, Novosibirsk 630090, Russia

Mo-P-058 - **Multifractal conductance fluctuations of the helical edge states (15)**
E. B. Olshanetsky[1,2], G. M. Gusev[3], A. D. Levin[3], Z. D. Kvon[1,2], N. N. Mikhailov[1,2]
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[3] Instituto de Física da Universidade de São Paulo, 135960-170, São Paulo, SP, Brazil

Mo-P-059 - **Scattering-Dominated Transport Among Massive and Massless Dirac Fermions (30)**
A. D. Levin[1], G. M. Gusev[1], F. G. G. Hernandez[1], E. B. Olshanetsky[2,3], V. M. Kovalev[2,4,5], M. V. Entin[2,3], N. N. Mikhailov[2,3]
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[5] Abrikosov Center for Theoretical Physics, Moscow Institute of Physics and Technology, Dolgoprudny, 141701, Russia

Mo-P-060 - **Topological Phase Transition in Sn Single Layer from Stanene to Beta-Sn (163)**
Cheng-Maw Cheng[1,2,3], Ye-Shun Lan[4], Chia-Ju Chen[4], Shu-Hua Kuo[1], Yen-Hui Lin[4], Angus Huang[4,5,6], Jing-Yue Huang[1], Pin-Jui Hsu[4,7], Horng-Tay Jeng[4,6,8]
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Mo-P-061 - **Dissipation and Geometric Effects in Bloch-Zener Oscillations (188)**
Ibuki Terada[1], Sota Kitamura[2], Hiroshi Watanabe[3], Hiroaki Ikeda[1]
[1] Ritsumeikan University, Hongo, Tokyo, Japan
[2] University of Tokyo, Hongo, Tokyo, Japan
[3] Nihon University, Narashino, Chiba, Japan

Mo-P-064 - **First-principal calculations for giant valley splitting in stressed silicon thin films (40)**
Toshiaki Hayashi[1], Hiroyuki Kageshima[2], Jinichiro Noborisaka[1], Katsuhiko Nishiguchi[1]
[1] NTT Corporation, Matsue, Kanagawa, Japan
[2] Shimane University, Matsue, Shimane, Japan

Mo-P-065 - **Electric and magnetic field dependent conductivity of strain-free modulation-doped InAs/CdSe core/shell nanowires (46)**
Nataliya Demarina[1], Detlev Gruetzmacher[1]
[1] Peter Gruenberg Institute, Forschungszentrum Juelich, Germany

Mo-P-066 - **Temperature-Induced Revolving Effect of Electron Flow in Semiconductor Heterostructures (70)**
Marc Bescond[1,2], Guéric Etesse[1], Xiangyu Zhu[2], Fabienne Michelini[1], Nicolas Cavassilas[1], Kazuhiko Hirakawa[2,3]
[1] IM2NP - CNRS - Aix-Marseille Université, Tokyo, France
[2] Institute of Industrial Science - University of Tokyo, Tokyo, Japan
[3] LIMMS-CNRS, Tokyo, Japan

Mo-P-067 - **Terahertz-induced resistance oscillations in MgZnO/ZnO heterostructures. (72)**
Jesus Iñarrea[1,2]
[1] *Escuela Politécnica Superior,Universidad Carlos III,Leganes, Madrid, 28911, Spain*
[2] *Unidad Asociada al Instituto de Ciencia de Materiales, CSIC, Cantoblanco, Madrid, 28049, Spain*

Mo-P-068 - **Cryogenic Performance of Field-Effect Transistors and Amplifiers Based on Selective Area Grown InAs Nanowires (84)**
Giulia Meucci[1], Dags Olsteins[1], Damon J. Carrad[1], Gunjan Nagda[2], Daria V. Beznasiuk[1], Christian E. N. Petersen[1], Sara Martí-Sánchez[3], Jordi Arbiol[3,4], Thomas S. Jespersen[1]
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[4] *ICREA, Passeig de Lluís Companys 23, 08010 Barcelona, Catalonia, Spain*

Mo-P-069 - **Theoretical exploration of two-dimensional electrenes for low-resistance metal-2D semiconductor contacts (88)**
Mohammad Rafiee Diznab[1], Erin Johnson[1,2], Jesse Maassen[1]
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[2] *Department of Chemistry, Dalhousie University, Halifax, Nova Scotia, Canada*

Mo-P-071 - **Epitaxially Integrated Patterned Back Gates for Highest-Quality 2DEG Structures in GaAs/AlGaAs (112)**
C. Reichl[1,2], C. Marty[1,2], J. Scharnetzky[1,2], W. Dietsche[1,2], W. Wegscheider[1,2]
[1] *Laboratory for Solid State Physics, ETH Zürich, Zürich, Switzerland*
[2] *Quantum Center, ETH Zürich, Zürich, Switzerland*

Mo-P-072 - **Dresselhaus Spin-Orbit Interaction in Square p-AlGaAs/GaAs/AlGaAs Quantum Well Studied by Surface Acoustic Waves (114)**
Alexey Suslov[1], Irina Drichko[2], Ivan Smirnov[2], Kirk Baldwin[3], Loren Pfeiffer[3], Ken West[3]
[1] *National High Magnetic Field Laboratory, St. Petersburg, FL, USA*
[2] *Ioffe Institute, St. Petersburg, Russia*
[3] *Princeton University, Princeton, NJ, USA*

Mo-P-073 - **Ultrafast Exciton and Charge Carrier Dynamics in Monolayer MoS2 Measured with Time-resolved Spectroscopic Ellipsometry (154)**
Lucas Krätschmer[1], Younes Slimi[1], Lukas Trefflich[2], Shirley Espinoza[3], Mateusz Rebarz[3], Jakob Seyfarth[1], Theo Pflug[4], Markus Olbrich[4], Noah Stiehm[1], Bernd Hähnlein[1], Chris Sturm[2], Alexander Horn[4], Jakob Andreasson[3], Marius Grundmann[2], Stefan Krischok[1], Rüdiger Schmidt-Grund[1]
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[2] *Universität Leipzig, Leipzig, Saxony, Germany*
[3] *ELI Beamlines, Dolní Břežany, Czech Republic*
[4] *Laserinstitut Hochschule Mittweida, Mittweida, Germany*

Mo-P-074 - **Hydrodynamic Modelling of High Mobility 2D Electron Systems (157)**
Zachary Berkson-Korenberg[1], Sujatha Vijayakrishnan[1], Guillaume Gervais[1]
[1] *McGill University, Quebec, Canada*

Mo-P-075 - **Atomic Force Microscopy and Image Analysis of Epitaxial 2d Tungsten Disulfide Crystals Grown via MOCVD (158)**
Francois Drouin[1], J. Gupta[1], A. Karmali[1], J. F. Milette[1], M. A. Lambert[1]
[1] *Department of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada*

Mo-P-077 - **Full-Zone Valley Polarization Landscape of Finite-Momentum Excitons in Transition-Metal Dichalcogenide Monolayers (185)**
Ping-Yuan Lo[1], Guan-Hao Peng[1], Wei-Hua Li[1], Yi Yang[1], Shun-Jen Cheng[1]
[1] *Department Of Electrophysics, National Yang-Ming Chiao-Tung University, Taiwan*

Mo-P-078 - **Phonon impact on a single CdSe quantum dot from cryogenic to room-temperature (524)**
F. Granger[1,2], L. Vallejo-Melgarejo[1], G. Nogues[2], E. Bellet-Amalric[1], J. Cibert[2], D. Ferrand[2], K. Kheng[1]
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Mo-P-080 - **Orbitally Controlled Quantum Hall States in Decoupled Two-Bilayer Graphene Sheets (64)**
Soyun Kim[1], Dohun Kim[1], Kenji Watanabe[2], Takashi Taniguchi[3], Jungen Smet[4], Youngwook Kim[1]
[1] *Department of Physics and Chemistry, DGIST, Daegu, Republic of Korea*
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Mo-P-081 - **Scanning-Probe and Magneto-Optical Studies of Integer and Fractional Moiré Chern Insulators (115)**
Mirko Bacani[1], Rajarshi Bhattacharyya[1], Evgeny Redekop[2]
[1] *attocube systems AG, Santa Barbara CA 93106, Germany*
[2] *Department of Physics, University of California at Santa Barbara, Santa Barbara CA 93106, USA*

Mo-P-082 - **Large Composite Fermion Effective Mass at Filling Factor 5/2 (142)**
Frédéric Boivin[1], Matei Petrescu[1], Zachary Berkson-Korenberg[1], Sujatha Vijayakrishnan[1], Ken W. West[2], Loren N. Pfeiffer[2], Guillaume Gervais[1]
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[2] *Department of Electrical Engineering, Princeton University, Princeton, New Jersey, USA*

Mo-P-083 - **Flip-chip gating for studying quantum Hall states in pristine ultra-high mobility 2DEGs (244)**
Talia Martz-Oberlander[1], Mohammad Abbasi Eskandari[1], Ken West[2], Loren Pfeiffer[2], Guillaume Gervais[1]
[1] *Department of Physics, McGill University, Princeton, Quebec, Canada*
[2] *Department of Electrical and Computer Engineering, Princeton University, Princeton, New Jersey, USA*

Mo-P-086 - **Inelastic light scattering spectroscopy of GHz spin dynamics in ferromagnet/semiconductor nanostructures based on conformal Ni80Fe20 shells on GaAs nanowires (199)**
Maria Carmen Giordano[1], Mohammad Hamdi[1], Andrea Mucchietto[1], Dirk Grundler[1,2]
[1] *Institute of Materials, EPFL, Lausanne, Vaud, Switzerland*
[2] *Institute of Electrical and Micro Engineering, EPFL, Lausanne, Vaud, Switzerland*

Mo-P-087 - **Non-local Signatures of Edge States Arising from Substrate-Induced Spin-Orbit Coupling in Graphene-on-Chromia (242)**
Keke He[1], Hamed Vakilitaleghani[2], Bilal Barut[1], Shenchu Yin[1], Michael Randle[1], Ripudaman Dixit[1], Nargess Arabchigavkani[1], Jubin Nathawat[1], Ather Mahmood[2], Christian Binek[2], Peter Dowben[2], Alexey Kovalev[2], Jonathan Bird[1]
[1] *University At Buffalo, Lincoln, NY, United States*
[2] *University of Nebraska Lincoln, Lincoln, NE, United States*

Mo-P-090 - **Temperature Dependent Dielectric Functions and Critical Points of β-InSe (184)**
Long Van Le[1], Tae Jung Kim[2,3], Xuan Au Nguyen[2], Junho Choi[2], Young Dong Kim[2]
[1] *Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi 100000, Vietnam*
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[3] *Center for Converging Humanities, Kyung Hee University, Seoul 02447, Republic of Korea*

Mo-P-091 - **Influence of Preparation Ambient on Luminescent and Electrical Properties of TiO2:Sm Thin Films (194)**
Shinichiro Kaku[1], Kazuto Miyano[1], Xinwei Zhao[1,2], Mariko Murayama[1,3]
[1] *Tokyo University of Science, Henan, Japan*
[2] *Henan University of Technology, Henan, China*
[3] *Toyo University Research Institute of Industrial Technology, Saitama, Japan*

Mo-P-092 - **Effect of Structural Changes Induced by Annealing Atmospheres on Luminescence of Eu2+, Eu3+- doped AlN Thin Films (195)**
Kazuto Miyano[1], Yingda Qian[1], Shinichiro Kaku[1], Xinwei Zhao[1,2], Mariko Murayama[1,3]
[1] *Tokyo University of Science, Henan, Japan*
[2] *Henan University of Technology, Henan, China*
[3] *Toyo University Research Institute of Industrial Technology, Saitama, Japan*

Mo-P-093 - **Polymeric blends containing exfoliated graphene as flexible substrates for photovoltaics (268)**
Graciana Sousa[1], Luciana Pinto[1,2], Roberto Jakomin[3], Alexander Silva[4], Rudy Kawabata[2], Rogerio Valaski[4], Fabiele Tavares[1], Guillermo Soares[1], Guilherme Torelly[2], Patricia Souza1,2, Mauricio Pires[1]
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Mo-P-094 - **Light-Matter Interaction in Plasmonic Nanocavities (530)**
L.-L. Tay[1], J. Huse[1]
[1] *National Research Council of Canada, Ottawa, Ontario K1A 0R6, Canada*

Mo-P-095 - **Detection of electrically charged biomolecules with digitally photocorroding GaAs/AlGaAs nanoheterostructures (367)**
Ishika Ishika[1], René St-Onge[1], Walid M. Hassen[1], Houman Motesharei[1,2], Azam Tayabali[1,2], Jan J. Dubowski[1]
[1] *Interdisciplinary Institute for Technological Innovation, Université de Sherbrooke, Ottawa, Québec, Canada*
[2] *Environmental Health Science and Research Bureau, Health Canada, Ottawa, Ontario, Canada*

Mo-P-096 - **Interaction Induced Localisation in a 2D Exciton-Polariton Lieb Lattice (375)**
Seth Lovett[1], Anthony Ellul[1], Paul Walker[1], Maurice Skolnick[1], Dmitry Krizhanovskii[1]
[1] *University of Sheffield, United Kingdom*

Mo-P-097 - **$In_xGa_{1-x}As_yP_{1-y}$ on Insulator Waveguide Design for Nonlinear Integrated Photonics (525)**
G. Simpson[1], O.W. Oner[1,2], R. Mahjoub[1], K. Dolgaleva[1,2]
[1] *Department of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada*
[2] *School of Electrical and Computer Engineering, University of Ottawa, Canada*

Mo-P-099 - **How two-component Bose-Einstein condensates can 'bypass' the no-cloning theorem? (78)**
Shouvik Datta[1]
[1] *Indian Institute of Science Education and Research, PuneIISER-Pune, Maharashtra, India*

Mo-P-100 - **Controlling Single-Photon Emission with Ultrathin Transdimensional Plasmonic Films (96)**
Igor Bondarev[1]
[1] *Department of Math and Physics, North Carolina Central University, North Carolina, United States*

Mo-P-101 - **Defect and Strain engineering of Quantum Confinement in WSe2 /β-Ga2O3 (106)**
Camila Cavalini[1], C. Rabahi[1], Eujin Lee[2], Caique S. de Brito[1], José R. Toledo[1], Felipe F. Cazetta[1], Raphael B.F. de Oliveira[1], Marcelo B. Andrade[3,4], Mohamed Henini[5], Yuhao Zhang[6], Jeongyong Kim[2], Ingrid D. Barcelos[7], Yara Galvao Gobato[1]
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Mo-P-105 - **Optimizing the Lasing Threshold: Impact of Pitch and Nanowire Diameter in InP PCSELs (259)**
Hans-Peter Wagner[1], Navoda Jayawardana[1], Matthew T. Larson[1], Chia-Wei Tu[1], Naiyin Wang[2], Hark Hoe Tan[2], Chennupati Jagadish[2], Heidrun Schmitzer[3]
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[2] *The Australian National University, Canberra, Ohio, Australia*
[3] *Xavier University, Cincinnati, Ohio, United States*

Mo-P-106 - **Characterization of polycrystalline zinc sulfide waveguides for nonlinear photonic (523)**
A. Lemoine[1], A. Letoublon[1], A. Naïm[1], T. Batte[1], M. Perrin[1], C. Cornet[1], Y. Dumeige[1], C. Levallois[1], Yoan Léger[1]
[1] *Univ Rennes, INSA Rennes, CNRS, Institut FOTON - UMR 6082, F-35000 Rennes, France*

Mo-P-108 - **Transient Analysis of Local Heating on Current-Addressing Qubit Selection in Silicon Quantum Computing Systems (218)**
Nobuhiro Kusuno[1], Takeru Utsugi[1], Takuma Kuno[1], Noriyuki Lee[1], Ryuta Tsuchiya[1], Hiroyuki Mizuno[1]
[1] *Hitachi, Ltd., Tokyo, Japan*

Mo-P-109 - **Hermetic packaging for spin qubit processors (263)**
Fabio Ansaloni[1], Joost van der Heijden[1], Kyle E Castoria[2], David G Rees[2], Heenjun Byeon[2], Merlin von Soosten[1], Soren Andresen[1], Jonatan Kutchinsky[1]
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[2] *Eeroq Corporation, Chicago, Illinois, United States*

Mo-P-110 - **Fabrication and Transport Measurements of Gate-defined Quantum Dot Structures Formed in a Bull's-eye Optical Cavity (376)**
Masato Tsuchiya[1], Sangmin Ji[2], Rio Fukai[1], Haruki Kiyama[3], Takafumi Fujita[1,4,5], XiaoFei Liu[6], Arne Ludwig[7], Andreas Wieck[7], Satoshi Iwamoto[2], Akira Oiwa[1,4,5]
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Mo-P-113 - **Energy Costs of Precise Erasure for Nanoscale Silicon Dot Memory with Non-equilibrium Initial State (65)**
Takase Shimizu[1], Kensaku Chida[1], Gento Yamahata[1], Katsuhiko Nishiguchi[1]
[1] *NTT Basic Research Laboratories, Kanagawa, Japan*

Mo-P-114 - **Aharonov-Bohm Effect on Double Quantum Dot in AC Field (133)**
Miyu Umebayashi[1], Mikio Eto[1]
[1] *Keio University, Japan*

Mo-P-115 - **Optical and Magneto-Optical Properties of Localized Excitons in Monolayer WSe2 on Nano-Roughness Glass Substrates (224)**
Caique Serati de Brito[1], Cesar Ribahi[1], Barbara Rosa[2], Andrey Chaves[3], Camila Cavalini[1], Douglas F. Franco[4], Marcelo Nalin[4], Ingrid D.Barcelos[5], Stephan Reitzenstein[2], Yara Galvao Gobato[1]
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Mo-P-116 - **Electrical Manipulation of Spin in Phosphorene Quantum Dots (257)**
Tanmay Thakur[1], Francois Peeters[2], Bartłomiej Szafran[1]
[1] *Faculty of Physics and Applied Computer Science, Groenenborgerlaan 171, B-2020 Antwerp, Poland*
[2] *Department of Physics, University of Antwerp, Groenenborgerlaan 171, B-2020 Antwerp, Belgium*

Mo-P-117 - **Calculations of Size-Dependent Trions and Biexcitons Binding Energies in Lead Halide Perovskite Nanocrystals (283)**
Takao Sato[1], Kenichi Cho[2], Hidekatsu Suzuura[1], Yoshihiko Kanemitsu[2]
[1] *Graduate School of Engineering, Hokkaido University, Sapporo, Hokkaido, Japan*
[2] *Institute for Chemical Research, Kyoto University, Uji, Kyoto, Japan*

Mo-P-120 - **Phase-modulated Thermal Conductance in HgTe 3DTI Josephson Junctions (74)**
Yi-ju Ho[1], Stanislau Piatrusha[1], Martin Stehno[1], Laurens Molenkamp[1]
[1] *University of Würzburg, Germany*

Mo-P-123 - **Bilayer Graphene / WSe2 Josephson Junctions: Shapiro Steps and Supercurrent Revivals in In-plane Magnetic Fields (251)**
Philipp Schmidt[1,2], Katarina Stanojevic[1], Kenji Watanabe[3], Takashi Taniguchi[4], Bernd Beschoten[1], Christoph Stampfer[1,2]
[1] *JARA-FIT and 2nd Institute of Physics, RWTH Aachen University, Jülich, Germany*
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Mo-P-124 - **Designing Majorana Quasiparticles in InAsP Quantum Dots in InP Nanowire (288)**
Ibsal Assi[1], Mahan Mohseni[1], Daniel Miravet[1], Hassan Allami[1], Marek Korkusinski[1,2], Pawel Hawrylak[1]
[1] *Department of Physics, University of Ottawa, Ottawa, K1N6N5, Canada*
[2] *Security and Disruptive Technology, NRC, Ottawa, Canada*

Mo-P-127 - **Detection of Brownian-motion via a Quantum Dot Coupled to a Highly Miniaturized Mechanical Oscillator (104)**
Giang Nam Nguyen[1], Clemens Spinnler[1], Liang Zhai[1], Alisa Javadi[1], Ying Wang[2], Sven Scholz[3], Andreas Wieck[3], Arne Ludwig[3], Peter Lodahl[2], Leonardo Midolo[2], Richard Warburton[1]
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[2] *Niels Bohr Institute, Copenhagen, Denmark*
[3] *Ruhr-Universität Bochum, Bochum, Germany*

Mo-P-128 - **Fundamentals of Gaseous Nanoelectrofluidics Using Semiconductor Devices (156)**
R. B. Goodman[1], N. Wicklund[1], D. M. Willerton[1], W. Reisner[1], G. Gervais[1]
[1] *Department of Physics, McGill University, Montréal, Québec, H3A 2T8, Canada*

Mo-P-129 - **Optimizing Inverse Phononic Crystals on GaAs for Surface Acoustic Waveguiding (522)**
K. Singh[1], J. A. H. Stotz[1]
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Tuesday July 30, 2024

9:00am – 10:00am | Tu-S3 | Technical Session 3

ROOM 210 | Tu-S3-1 | **5. 2D materials beyond graphene including twistronics**

Tu-S3-1-1
Invited - Pablo Jarillo-Herrero, MIT, USA- **"Next Generation Moiré Quantum Matter"**

Tu-S3-1-2 - **Selective photo-excitation and angular momentum imprint of exciton complexes in 2D materials by using twisted lights (50)**
Guan-Hao Peng[1], Ping-Yuan Lo[1], Wei-Hua Li[1], Oscar Javier Gomez Sanchez[1], Jhen-Dong Lin[1], Kristan Bryan Simbulan[2], Ting-Hua Lu[2], Yann-Wen Lan[2], Shun-Jen Cheng[1]
[1] *National Yang Ming Chiao Tung University, Hsinchu, Taiwan*
[2] *National Taiwan Normal University, Taipei, Taiwan*

Tu-S3-1-3 - **Unconventional Ferroelectricity in Graphene/hBN Moiré: Phenomenology, Mechanism, and Applications (51)**
Xueqiao Wang[1], Zhiren Zheng[1], Samuel Aronson[1], Xiaodong Yan[2], Vinod Sangwan[2], Justin Qian[2], S. E. Liu2, Kenji Watanabe[3], Takashi Taniguchi[3], Su-yang Xu[4], Qiong Ma[5], M. C. Hersam, R. Ashoori[1], Pablo Jarillo-Herrero[1]
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[3] *National Institute for Materials Science, Tsukuba, Ibaraki, Japan*
[4] *Harvard University, Cambridge, MA, United States*
[5] *Boston College, Boston, MA, United States*

ROOM 212 | Tu-S3-2 | **8. Low dimensional semiconductor systems (1D, 2D)**

Tu-S3-2-1 - **Effect of Internal Electric Fields on Electronic Transitions in Bent GaAs Nanowires (73)**
Francisca Marín[1], Yiannis Hadjimichael[2], Christian Merdon[2], Patricio Farrell[2], Costanza Manganelli[3], Oliver Brandt[1], Lutz Geelhaar[1]
[1] *Paul-Drude-Institut für Festkörperelektronik, Leibniz-Institut im Forschungsverbund Berlin e. V., Hausvogteiplatz 5–7, 10117 Berlin, Germany*
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[3] *Institut für Halbleiterphysik, Leibniz-Institut für innovative Mikroelektronik, Im Technologiepark 25, 15236 Frankfurt (Oder), Germany*

Tu-S3-2-2 - **Extremely Low Tunneling Resistance in GaAs 2D-Bilayers, Going Beyond Balanced Densities (90)**
Christian Marty[1,2], Simon Parolo[1,2], Jan Scharnetzky[1,2], Christian Reichl[1,2], Werner Dietsche[1,2,3], Werner Wegscheider[1,2]
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[2] *Quantum Center, ETH Zürich, Switzerland*
[3] *Max-Plank-Institut für Festkörperforschung, Stuttgart, Germany*

Tu-S3-2-3 - **Hydrodynamic Electron Transport in Ultra-High Mobility Corbino Rings (117)**
Sujatha Vijayakrishnan[1], Zachary Berkson-Korenberg[1], Justin Mainville[1], Lloyd W Engel[2], Michael P Lilly[3], Thomas Szkopek[4], Ken W West[5], Loren N Pfeiffer[5], Guillaume Gervais[1]
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[3] *Center for Integrated Nanotechnologies, Sandia National Laboratories, Albuquerque, New Mexico, USA*
[4] *Department of Electrical and Computer Engineering, McGill University, Montreal, Quebec, USA*
[5] *Department of Electrical Engineering, Princeton University, Princeton, NJ, USA*

Tu-S3-2-4 - **Bloch Sphere Representation and Logic Gate Analysis for Spin Behavior in Multi-Subband Systems (123)**
Tatsuki Tojo[1], Kyozaburo Takeda[1]
[1] *Waseda University, Tokyo, Japan*

ROOM 202 | Tu-S3-3 | **14. Quantum technology: Quantum dots and nano-crystals**

Tu-S3-3-1
Invited - Alex Greilich, TU-Dortmund, Germany- **"Robust Time Crystal in Semiconductor Electron-Nuclear Spin System"**

Tu-S3-3-2 - **Noise Cross-Correlation Measurement of Capacitively-Coupled Silicon Nanometer-Scale Dots via Electron Counting Statistics (80)**
Kensaku Chida[1], Antoine Andrieux[1], Katsuhiko Nishiguchi[1]
[1] NTT Basic Research Laboratories, Atsugi, Japan

Tu-S3-3-3 - **Perfect Zeeman Anisotropy in Rotationally Symmetric Quantum Dots with Strong Spin-Orbit Interaction (160)**
Markus Aspegren[1], Lila Chergui[2], Mikelis Marnauza[3], Rousan Debbarma[1], Jakob Bengtsson[2], Sebastian Lehmann[1], Kimberly Dick[3], Stephanie Reimann[2], Claes Thelander[1]
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[2] Mathematical Physics and NanoLund, Lund University, SE-221 00 Lund, Sweden
[3] Centre for Analysis and Synthesis and NanoLund, Lund University, SE-221 00 Lund, Sweden

ROOM 204 Tu-S3-4

13. Quantum technology: Semiconductor-based qubits

Tu-S3-4-1 - **Vertical electric filed-tunable effective g*-factor of holes in a compressively strained germanium quantum well grown on silicon (118)**
Sergei Studenikin[1], Philip Waldron[1], Maksym Myronov[2]
[1] National Research Council Canada, Ottawa, Ontario, Canada
[2] Physics Department, The University of Warwick, Coventry CV4 7AL, UK

Tu-S3-4-2 - **Dispersive Readout and Coherent Manipulation in an Isolated 2x2 Quantum Dot Array in 28Si (181)**
Pierre Hamonic[1], Martin Nurizzo[1], Jayshankar Nath[3], Matthieu C. Dartiailh[3], Benoit Bertrand[2], Heimanu Niebojewski[2], Pierre-Louis Julliard[3], Bruna Cardoso-Paz[3], Maud Vinet[3], Tristan Meunier[1,3], Matias Urdampilleta[1]
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[2] CEA-LETI, Grenoble, France
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Tu-S3-4-3
Invited - Thaddeus Ladd, HRL Laboratories, USA- **"Quantum Technologies based on Si/SiGe and SiCOI"**

ROOM 209 Tu-S3-5

9. Quantum Hall effect, and fractional quantum Hall effect

Tu-S3-5-1
Invited - Youngwook Kim, Daegu Gyeongbuk Institute of Science and Technology, Republic of Korea- **"Exciton Condensation in Twisted Bilayer Graphene"**

Tu-S3-5-2
Invited - Jun Zhu, Pennsylvania State University, USA- **"High-Temperature Quantum Valley Hall Effect and Valleytronics"**

ROOM 211 Tu-S3-6

6. Perovskites & 9. Quantum Hall Effect

Tu-S3-6-1 - **Time, Momentum, and Energy Resolved Pump-Probe Spectroscopy of the Quantum Hall System: Discovery of a Metastable Nonequilibrium Spin State (518)**
H. M. Yoo[1], M. Korkusinski[2], D. M. Miravet[3], K. W. Baldwin[4], K. West[4], L. N. Pfeiffer[4], P. Hawrylak[4], R. C. Ashoori[1]
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[3] Department of Physics, University of Ottawa, Ottawa, ON, K1N 6N5, Canada
[4] Department of Electrical Engineering, Princeton University, Princeton, NJ 08544, USA

Tu-S3-6-2 - **Quarter- and Half-Filled Quantum Hall States and their Competing Interactions in Bilayer Graphene (520)**
Ravi Kumar[1], André Haug[1], Jehyun Kim[1], Misha Yutushui[1], Konstantin Khudiakov[1], Vishal Bhardwaj[1], Alexey Ilin[1], Kenji Watanabe[2], Takashi Taniguchi[3], David F. Mross[1], Yuval Ronen[1]
[1] Department of Condensed Matter Physics, Weizmann Institute of Science, Rehovot 76100, Israel
[2] Research Center for Functional Materials, National Institute for Materials Science, 1-1 Namiki, Tsukuba 305-0044, Japan
[3] International Center for Materials Nanoarchitectonics, National Institute for Materials Science, 1-1 Namiki, Tsukuba 305-0044, Japan

Tu-S3-6-3 - **Hot Carriers in Metal Halide Perovskite Solar Cells (28)**
Invited Speakers - Hadi Afshari[1], Shashi Sourabh[1], Megh Khanal[2], Varun Mapara[1], Vincent R. Whiteside[2], Giles E. Eperon[3], Madalina Furis[1], Ian R. Sellers[2]
[1] Department of Physics & Astronomy, University of Oklahoma, Norman OK 73019, USA
[2] 2Departmanet of Electrical Engineering, University at Buffalo, Buffalo NY 14260, USA
[3] Swift Solar, San Carlos, CA 94070, USA

ICPS2024 Technical Program

*(**subject to change**)*

as of July 26, 2024

10:00am – 10:30am		Coffee Break
10:30am – 12:00pm	Tu-S4	Technical Session 4
Gatineau Salon	Tu-S4-QT	**Special Quantum Technology session** Tu-S4-QT1 **Invited** – Andrew Dzurak, UNSW Sydney, Australia & Diraq, Australia- Title: **"Spin-based quantum processing leveraging industry-standard silicon CMOS manufacture"** Tu-S4-QT2 **Invited** – Daniel Higginbottom, Simon Fraser University, Canada & Photonic Inc., Canada- **"Networking Silicon Qubits"** Tu-S4-QT3 **Invited** – Colin John Humphreys, Queen Mary University of London, UK & Paragraf, UK- **"Applications and the Commercialisation of Graphene/2D Electronic Devices"**
ROOM 212	Tu-S4-2	**11. Optical properties, opto-electronics, solar cells** Tu-S4-2-1 **Invited** - Jos Haverkort, Eindhoven University of Technology, The Netherlands- **"Direct Bandgap Silicon Germanium"** Tu-S4-2-2 - **Femtosecond time resolved pump-probe spectroscopic ellipsometry – introduction and examples (47)** Rüdiger Schmidt-Grund[1] *[1] Tu Ilmenau, Ilmenau, Thüringen, Germany* Tu-S4-2-3 - **Polariton condensates' circuitry: turning bends (99)** Manuel Gundin-Martinez[1], Alexey Yulin[2], Sebastian Klembt[3], Sven Höfling[3], M Dolores Martin-Fernandez[1], Luis Viña[1] *[1] Universidad Autónoma De Madrid, Madrid, Madrid, Spain* *[2] ITMO University, Saint Petersburgh, Russia* *[3] Wurzburg University, Wurzburg, Germany* Tu-S4-2-4 - **Nonlinear Rydberg exciton-polaritons in Cu2O microcavities (101)** Maxim Makhonin[1], A. Delphan[1], K. W. Song[2], P. Walker[1], T. Isoniemi[1], P. Clarino[1], K. Orfanakis[3], S. K. Rajendran[3], H. Ohadi[3], J. Heckötter[4], M. Assmann[4], M. Bayer[4], A. Tartakovskii[1], M. Skolnick[1], O. Kyriienko[2], D. Krizanovskii[1] *[1] Department of Physics and Astronomy, University of Sheffield, Sheffield, S3 7RH, UK* *[2] Department of Physics and Astronomy, University of Exeter, Stocker Road, Exeter, EX4 4PY, UK* *[3] SUPA, University of St Andrews, St Andrews, KY16 9AJ, UK* *[4] Fakult at Physik, TU Dortmund, August-Schmidt-Straße 4, Dortmund, 44227, Germany* Tu-S4-2-5 - **Ab Initio Studies of Nonlinear Optical Responses of Magnetic Semiconductors (150)** Guang-Yu Guo[1,2] *[1] Deparment of Physics, National Taiwan University, Taipei 10617, Taiwan* *[2] Physics Division, National Center for Theoretical Sciences, Taipei 10617, Taiwan*
ROOM 202	Tu-S4-3	**1. Material growth, structural properties and characterization, phonons** Tu-S4-3-1 - **Stoichiometric growth of a wide-bandgap semiconductor SrTiO3 film via Bayesian optimization with adaptive prior mean (125)** Yuki K. Wakabayashi[1], Takuma Otsuka[2], Yoshiharu Krockenberger[2], Hiroshi Sawada[2], Yoshitaka Taniyasu[1], Hideki Yamamoto[1] *[1] NTT Basic Research Laboratories, Atsugi, Kanagawa, Japan* *[2] NTT Communication Science Laboratories, Seika-cho, Kyoto, Japan* Tu-S4-3-2 - **First-principles Study of Si Transport from Si-oxide/Si Interface into Oxide (127)** Hiroyuki Kageshima[1], Toru Akiyama[2], Kenji Shiraishi[3] *[1] Shimane University, Matsue, Shimane, Japan* *[2] Mie University, Tsu, Mie, Japan* *[3] Nagoya University, Nagoya, Aichi, Japan*

Tu-S4-3-3
Invited - A. Fontcuberta i Morral, Laboratory of Semiconductor Materials, Institute of Materials, EPFL, 1015 Lausanne, Switzerland; Institute of Physics, EPFL, 1015 Lausanne, Switzerland- **"Semiconductor nanowires for hole-spin qubits and THz photodetection applications"**

Tu-S4-3-4 - **Emergence of the highest mobility holes in a 2D system epitaxially grown on a silicon wafer (148)**
Maksym Myronov[1], Phil Waldron[2], Sergei Studenikin[2]
[1] The University Of Warwick, Coventry, United Kingdom
[2] National Research Council of Canada, Ottawa, Canada

Tu-S4-3-5 - **In Situ Observation of GaAs Nanowire Growth : Focus on the Crystal Phase Dependence on the Physical State of the Catalyst (232)**
Vincent Sallet[1], Gilles Patriarche[2], Laurent Travers[2], Frank Glas[2], Jean-Christophe Harmand[2]
[1] GEMAC, CNRS, Université de Versailles St Quentin en Yvelines, Université Paris-Saclay, Versailles, France
[2] C2N, CNRS, Université Paris-Saclay, Palaiseau, France

ROOM 204 Tu-S4-4 **2. Wide-bandgap semiconductors (GaN, SiC, Ga2O3, BN, Diamond)**

Tu-S4-4-1 - **In–situ Strain Control in Epitaxial Silicon Carbide Compound Semiconductor (151)**
Behzad Jazizadeh[1], Maksym Myronov[1]
[1] University of Warwick, Coventry, United Kingdom

Tu-S4-4-2 - **Intrinsic Polarity Inversion in III-Nitride Semiconductors for Efficient Nonlinear Interactions (67)**
Maksym Gromovyi[1,2], Nagesh Bhat[2], Hervé Tronche[3], Pascal Baldi[3], Moustafa El Kurdi[1], Xavier Checoury[1], Benjamin Damilano[2], Philippe Boucaud[2]
[1] Université Paris Saclay/CNRS/C2N, Palaiseau, France
[2] Université Côte d'Azur/CNRS/CRHEA, Sophia-Antipolis, France
[3] Université Côte d'Azur/CNRS/INPHYNI, Nice, France

Tu-S4-4-3
Invited - Czeslaw Skierbiszewski, Polish Academy of Sciences, Poland- **"Tunnel Junctions for New Architecture of Nitride Devices"**

Tu-S4-4-4 - **Modeling Gate Leakage Current of 0.5 µm GaN HEMTs Operating at 500 °C for RF Applications (116)**
Hao Xue[1], Craig Storey[1], Jean-Paul Noël[1], Alex Walker[1], Ryan Griffin[1]
[1] National Research Council Of Canada, Ottawa, Ontario, Canada

Tu-S4-4-5 - **TBC**

ROOM 209 Tu-S4-5 **7. Topological states of matter, topological Insulators, and Weyl semimetals**

Tu-S4-5-1 - **TBC**

Tu-S4-5-2 - **Observation of Temperature Independent Anomalous Hall Effect in Thin Bismuth from Near Absolute Zero to 300 K Temperatures (168)**
Oulin Yu[1], Frédéric Boivin[1], Avram Silberztein[1], Thomas Szkopek[2], Guillaume Gervais[1]
[1] Department of Physics, Mcgill University, Montreal, Quebec, Canada
[2] Department of Electrical and Computer Engineering, McGill University, Montreal, Quebec, Canada

Tu-S4-5-3 - **Realization of Z2 Topological Photonic Insulators Based on Bulk Transition Metal Dichalcogenides (198)**
Tommi Isoniemi[1], Paul Bouteyre[1], Xuerong Hu[1], Fedor Benimetskiy[1], Yue Wang[2], Maurice S. Skolnick[1], Dmitry N. Krizhanovskii[1], Alexander I. Tartakovskii[1]
[1] University of Sheffield, Sheffield, United Kingdom
[2] University of York, York, United Kingdom

Tu-S4-5-4 - **Fabrication of Monolayer WTe2 Josephson Junctions (206)**
Michael Randle[1], Masayuki Hosoda[2], Russell Deacon[1,3], Manabu Ohtomo[2], Patrick Zellekens[3], Kenji Watanabe[4], Takashi Taniguchi[5], Shota Okazaki[6], Takao Sasagawa[6], Kenichi Kawaguchi[2], Shintaro Sato[2], Koji Ishibashi[1,3]
[1] Advanced Device Laboratory RIKEN, Wako, Saitama, Japan
[2] Fujitsu Research, Fujitsu Ltd., Atsugi, Kanagawa, Japan
[3] RIKEN Center for Emergent Matter Science (CEMS), Wako, Saitama, Japan
[4] Research Center for Electronic and Optical Materials, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

[5] *Research Center for Materials Nanoarchitectonics, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan*
[6] *Laboratory for Materials and Structures, Tokyo Institute of Technology, Midori, Yokohama, Japan*

Tu-S4-5-5
Invited - Yayu Wang, Tsinghua University, China- **"Antiferromagnetic Quantum Anomalous Hall Effect Modulated by Spin Flips and Flops"**

ROOM 211	Tu-S4-6	**3. Electron devices and applications: visible, MIR and THz**

Tu-S4-6-1 - **Terahertz electromodulation spectroscopy on organic semiconductors (24)**
P. Riederer[1], R. Kersting[1,2]
[1] *Faculty of Physics, Ludwig-Maximilians University, Munich, Germany*
[2] *Center for NanoScience (CeNS), Ludwig-Maximilians-University, Munich, Germany*

Tu-S4-6-2 - **AC Signal-Sensing 6 Orders of Magnitude above Cutoff Frequency in DRAMs with a Non-Equilibrium Nanoscale Dot (82)**
Chloe Salhani[1], Kensaku Chida[1], Toshiaki Hayashi[1], Katsuhiko Nishiguchi[1]
[1] *NTT Basic Research Laboratories, Atsugi, Kanagawa, Japan*

Tu-S4-6-3 - **Mid-infrared high-bandwidth PIN GeSn photodetectors monolithically grown on silicon (475)**
Mahmoud Atalla[1], Simone Assali[1], Gérard Daligou[1], Anis Attiaoui[1], Sebastian Koelling[1], Patrick Daoust[1], Oussama Moutanabbir[1]
[1] *Polytechnique Montréal, Montréal, Québec, Canada*

Tu-S4-6-4 - **Ge/GeSn Nanowires for Mid-infrared Sensing and Imaging (478)**
Lu Luo[1], Mahmoud Atalla[1], Simone Assali[1], Sebastian Koelling[1], Gérard Daligou[1], Oussama Moutanabbir[1]
[1] *Polytechnique Montreal, Montreal, Quebec, Canada*

Tu-S4-6-5
Invited - Rolf Szedlak, TU Wien, Austria- **"(Towards) On-Chip Mid-Infrared Spectroscopy"**

12:00pm – 1:30pm		Lunch Break
1:30pm – 3:00pm	Tu-S5	Technical Session 5
ROOM 210	Tu-S5-1	**5. 2D materials beyond graphene including twistronics**

Tu-S5-1-1
Invited - Yang-hao Chan, Institute of Atomic and Molecular Sciences Academia Sinica, Taiwan- **"Excitonic effects in optical-field-driven quasi 2D materials from first-principle time-dependent GW approach"**

Tu-S5-1-2 - **Atomistic Calculations of Filling Dependent Electronic States in Magic Angle Twisted Bilayer and Trilayer Graphene (285)**
Alina Wania Rodrigues[1], Maciej Bieniek[2], Daniel Miravet[1], Marek Korkusiński[3], Pawel Potasz[4], Pawel Hawrylak[1]
[1] *University Of Ottawa, Wroclaw, ON, Canada*
[2] *Wroclaw University of Science and Technology, Wroclaw, Poland*
[3] *National Research Council of Canada, Ottawa, ON, Canada*
[4] *Nicolaus Copernicus University, Torun, ON, Poland*

Tu-S5-1-3 - **Unveiling the Complex Nonlinear Susceptibility in Atomically Thin WSe2 through Valley-Polarization-Electric-Dipole Interference (54)**
Paul Herrmann[1], Sebastian Klimmer[1,2], Till Weickhardt[1], Anastasios Papavasileiou[3], Kseniia Mosina[3], Zdeněk Sofer[3], Ioannis Paradisanos[4], Daniil Kartashov[5,6], Giancarlo Soavi[1,6]
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[2] *ARC Centre of Excellence for Transformative Meta-Optical Systems, Department of Electronic Materials Engineering, Research School of Physics, The Australian National University, Canberra, ACT, Australia*
[3] *Department of Inorganic Chemistry, University of Chemistry and Technology, Prague, Czech Republic*
[4] *Institute of Electronic Structure and Laser, Foundation for Research and Technology, Heraklion, Crete, Greece*
[5] *Institute of Optics and Quantum Electronics, Friedrich Schiller University Jena, Jena, Germany*
[6] *Abbe Center of Photonics, Friedrich Schiller University Jena, Jena, Germany*

Tu-S5-1-4 - **Ultrafast All-Optical Wavefront Shaping Enabled by Second-Harmonic Polarization Switching in Transition Metal Dichalcogenide Monolayers (66)**
Sebastian Klimmer[1,2], Artem Sinelnik[1,3], Shiu Hei Lam[3], Filippo Coviello[1,3,4], Giuseppe Della Valle[4,5], Duk-Yong Choi[6], Thomas Pertsch[3,7,8], Giancarlo Soavi[1], Isabelle Staude[1,3,8]
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[2] ARC Centre of Excellence for Transformative Meta-Optical Systems, Research School of Physics, The Australian National University, Canberra, ACT, Australia
[3] Institute of Applied Physics, Abbe Center of Photonics, Friedrich Schiller University Jena, Jena, Germany
[4] Dipartimento di Fisica, Politecnico di Milano, Milano, Italy
[5] Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche, Milano, Italy
[6] Laser Physics Centre, Research School of Physics, The Australian National University, Canberra, ACT, Australia
[7] Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany
[8] Max Planck School of Photonics, Jena, Germany

Tu-S5-1-5 - **TBC**

ROOM 212 Tu-S5-2 **8. Low dimensional semiconductor systems (1D, 2D)**

Tu-S5-2-1 - **Observation of non-diffusive phonon heat transport in ultrathin layered semiconductors MoSe2 and MoS2 (83)**
Invited Speakers - Sebin Varghese[1,2], Jordi Tur Prats[3], Jake Mehew[1], David Saleta Reig[1,2], Roberta Farris[1], Juan Camacho[3], Jamal Haibeh[4], Aleksei Sokolov[4,5], Pablo Ordejon[1], Samuel Huberman[5], Albert Beardo[3,6], Xavier Alvarez[3], Klaas-Jan Tielrooij[1,2]
[1] Catalan Institute of Nanoscience and Nanotechnology, Bellaterra (Barcelona), Spain
[2] Eindhoven University of Technology, Eindhoven, Netherlands
[3] Universitat Autònoma de Barcelona, Bellaterra (Barcelona), Spain
[4] McGill University, Montreal, Quebec, Canada
[5] Technische Universität Berlin, Berlin, Germany
[6] University Colorado and NIST, Boulder, Colorado, United States

Tu-S5-2-2 - **Hydrodynamics of Electron-Hole Fluid in Mesoscopic GaAs Channels (20)**
Yuri Pusep[1], Marco Antonio Patricio[1], Gustavo Jakobsen[2], Marcio Daldin Teodoro[2], Guennady Gusev[3], Ashat Bakarov[4]
[1] São Carlos Institute of Physics/University of São Paulo, São Carlos, São Paulo, Brazil
[2] Federal University of São Carlos, São Carlos, São Paulo, Brazil
[3] Institute of Physics/University of São Paulo, São Paulo, São Paulo, Brazil
[4] Institute of Semiconductor Physics, Novosibirsk, Russia

Tu-S5-2-3 - **Bismuth-Induced Nanostructures on III-V Semiconductor Surfaces (155)**
Rohit Yadav[1], Sina Ritter[1], Yi Liu[1], Sandra Benter[1], Sebastian Lehmann[1], Anders Mikkelsen[1], Rainer Timm[1]
[1] NanoLund and Department of Physics, Lund University, Lund, Sweden

Tu-S5-2-4 - **Polaronic polariton quasiparticles in a dark excitonic medium (186)**
Kenneth Choo[1,2], Olivier Bleu[1,2], Jesper Levinsen[1,2], Meera Parish[1,2]
[1] School of Physics and Astronomy, Monash University, Victoria 3800, Australia
[2] ARC Centre of Excellence in Future Low-Energy Electronics Technologies, Monash University, Victoria 3800, Australia

Tu-S5-2-5 - **TBC**

ROOM 202 Tu-S5-3 **12. Quantum optics, nano-photonics, quantum emitters, NV Centers**

Tu-S5-3-1 - **Resonance Fluorescence from a Diamond Nitrogen-Vacancy Center in the Purcell Regime (107)**
Yannik Fontana[1], Viktoria Yurgens[1], Andrea Corazza[1], Brendan J. Shields[1,2], Patrick Maletinsky[1], Richard J. Warburton[1]
[1] Department of Physics, University of Basel, 4056 Basel, Switzerland
[2] Quantum Network Technologies, Boston, Massachusetts 02215, USA

Tu-S5-3-2 - **Cavity Quantum Electrodynamics with Individual Perovskite Quantum Dots Coupled to a Fiber Microcavity (129)**
Zakaria Said[1], Marina Cagnon Trouche[1], Antoine Borel[1], Mohamed-Raouf Amara[1], Jakob Reichel[2], Christophe Voisin[1], Carole Diederichs[1], Yannick Chassagneux[1]
[1] Laboratoire de Physique de l'Ecole Normale Supérieure, ENS, Université PSL, CNRS, Sorbonne Université, Université Paris Cité, 75005 Paris, France, Paris, France
[2] Laboratoire Kastler Brossel, Sorbonne Université, CNRS, ENS - Université PSL, Collège de France, Paris F-75252, France, Paris, France

Tu-S5-3-3
Invited – Laura Polimeno, CNR NanotecInstitute of Nanotechnologyvia Monteroni, Lecce 73100, Italy- **"Probing the ultimate polariton interactions in WS2 monolayer based exciton polariton platform"**

Tu-S5-3-4 - **Purcell-Enhanced Single Photons at Telecom Wavelengths from a Quantum Dot in a Photonic Crystal Cavity (132)**
Catherine Phillips[1], Alistair Brash[1], Max Godsland[2], Nicholas Martin[1], Andrew Foster[1], Anna Tomlinson[1], René Dost[1], Nasser Babazadeh[2], Elisa Sala[2], Luke Wilson[1], Jon Heffernan[2], Maurice Skolnick[1], Mark Fox[1]
[1] Department of Physics and Astronomy, University Of Sheffield, Sheffield, United Kingdom
[2] EPSRC National Epitaxy Facility, University of Sheffield, Sheffield, United Kingdom

Tu-S5-3-5 - **Er sites in Si for quantum information processing (139)**
Alexey Lyasota[1], Ian R. Berkman[1], Gabriele G. de Boo[1], John G. Bartholomew[2,3], Shao Qi Lim[4], Brett C. Johnson[5], Jeffrey C. McCallum[4], Bin-Bin Xu[1], Shouyi Xie[1], Rose L. Ahlefeldt[6], Matthew J. Sellars[6], Chunming Yin[1,7], Sven Rogge[1]
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[7] Hefei National Laboratory for Physical Sciences at the Microscale, CAS Key Laboratory of Microscale Magnetic Resonance and School of Physical Sciences, University of Science and Technology of China, Hefei 230026, China

ROOM 204 Tu-S5-4

4. Carbon: 2D graphene, 1D nanotubes, and 0D quantum dots

Tu-S5-4-1 - **Gate-tunable quantum pathways of massless Dirac fermions in high harmonic generation (189)**
Minjeong Kim[1,2], Soonyoung Cha[1], Youngjae Kim[3], Shinyoung Choi[1,4], Sejong Kang[5], Hoon Kim[6,7], Sangho Yoon[1,2], Gunho Moon[1,2], Taeho Kim[1,2], Ye Won Lee[1,2], Gil Young Cho[6,7,8], Moon Jeong Park[5], Cheol-Joo Kim[1,4], B. J. Kim[6,7], JaeDong Lee[3], Moon-Ho Jo[1,2,7], Jonghwan Kim[1,2,7]
[1] Center for Van der Waals Quantum Solids, Institute for Basic Science (IBS), Pohang, South Korea
[2] Department of Materials Science and Engineering, Pohang University of Science and Technology, Pohang, South Korea
[3] Department of Physics and Chemistry, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, South Korea
[4] Department of Chemical Engineering, Pohang University of Science and Technology, Pohang, Pohang, South Korea
[5] Department of Chemistry, Pohang University of Science and Technology, Pohang, South Korea
[6] Center for Artificial Low Dimensional Electronic Systems, Institute for Basic Science (IBS), Pohang, South Korea
[7] Department of Physics, Pohang University of Science and Technology, Pohang, South Korea
[8] Asia Pacific Center for Theoretical Physics, Pohang, South Korea

Tu-S5-4-2 - **Dynamics and Switching of Photoinduced Carrier Polarity at the Si/SiO2 Interface Observed by Graphene Transport (208)**
Jin Miura[1], Fumiyuki Inamura[1], Takashi Ikuta[1], Kenzo Maehashi[1], Kenji Ikushima[1]
[1] Department of Biomedical Engineering, Tokyo University of Agriculture and Technology, Naka-cho, Koganei, Tokyo, Japan

Tu-S5-4-3 - **One-dimensional proximity superconductivity in the quantum Hall regime (43)**
Invited Speakers - Julien Barrier[1], Minsoo Kim[1], Roshan Krishna Kumar[2], Na Xin[1], Piranavan Kumaravadivel[1], Lee Hague[1], Ekaterina Nguyen[1], Alexey Berdyugin[1], Christian Moulsdale[1], Vladimir Enaldiev[1], Jonathan Prance[3], Frank Koppens[2], Roman Gorbachev[1], Kenji Watanabe[4], Takashi Taniguchi[4], Leonid Glazman[5], Irina Grigorieva[1], Vladimir Fal'ko[1], Andre Geim[1],
[1] University of Manchester, Manchester, United Kingdom
[2] ICFO - The Institute of Photonic Sciences, Castelldefels, Barcelona, Spain
[3] Lancaster University, Lancaster, United Kingdom
[4] NIMS, Tsukuba, Japan
[5] Yale University, New Haven, CT, United States of America

Tu-S5-4-4 - **Tunable Topological Phase Transitions in Rhombohedral Pentalayer Graphene (262)**
Samuel Aronson[1], Tonghang Han[1], Zhengguang Lu[1], Kenji Watanabe[2], Takashi Taniguchi[3], Raymond Ashoori[1], Long Ju[1]
[1] Department of Physics, Massachusetts Institute of Technology, Cambridge, MA, US
[2] Research Center for Electronic and Optical Materials, National Institute for Materials Science, Tsukuba, Japan
[3] Research Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan

Tu-S5-4-5 - **Infrared resonance Raman of graphene: signatures of electron phonon coupling and of the band structure on the double resonant peaks (297)**
Tommaso Venanzi[1,2], Lorenzo Graziotto[1], Simone Sotgiu[1], Francesco Macheda[1], Taoufiq Ouaj[3], Elena Stellino[4], Guglielmo Marchese[1], Claudia Fasolato[5], Paolo Postorino[1], Marvin Metzelaars[6], Paul Koegerler[6], Bernd Beschoten[3], Matteo Calandra[7], Vaidotas Miseikis[8], Camilla Coletti[8], Stefano Roddaro[9], Michele Ortolani[1], Christoph Stampfer[3], Francesco Mauri[1], Leonetta Baldassarre[1]
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[2] Center for Life Nano-Science, Istituto Italiano di Tecnologia, Rome 00161, Italy, Rome, Italy
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[9] Department of Physics, University of Pisa, Pisa, Italy

ROOM 209 Tu-S5-5

13. Quantum technology: Semiconductor-based qubits

Tu-S5-5-1 - **Nonlinear Rabi frequency of Electric Dipole Spin Resonance (212)**
Yasuhiro Tokura[1]
[1] Department of Pure and Applied Sciences, University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki, Japan

Tu-S5-5-2 - **Hole Flying Qubits in Quantum Dot Arrays (248)**
David Fernández-Fernández[1], Yue Ban[2], Gloria Platero[1]
[1] ICMM-CSIC, Madrid, Spain
[2] Departmento de Física, UC3M, Leganés, Spain

Tu-S5-5-3 - **Coupling superconducting flux qubits to impurities in silicon (312)**
Tikai Chang[1], Itamar Holzman[1], Qi Lim[2], Danielle Holmes[2], Brett Johnson[3], David Jamieson[2], Michael Stern[1]
[1] Bar Ilan University, Ramat Gan, Gush Dan, Israel
[2] ARC Centre for Quantum Computation and Communication Technology (CQC-T) & School of Physics, University of Melbourne, Parkville, Victoria, Australia
[3] School of Science, RMIT University, Melbourne, Victoria, Australia

Tu-S5-5-4 - **Si quantum dot qubits interfaced with monolithic ultra-low power Cryo-CMOS (330)**
Janne Lehtinen[1], N. Yurttagül[1], M. Kainlauri[1], J. Toivonen[1], S. Khadka[1], M. Prunnila[1]
[1] Semiqon, Espoo, Finland

Tu-S5-5-5
Invited - Jason Petta, UCLA, USA- **"Semiconductor spin qubits: Playing the long game"**

ROOM 211 Tu-S5-6

10. Spintronics and spin phenomena

Tu-S5-6-1 - **TBC**

Tu-S5-6-2 - **TBC**

Tu-S5-6-3 - **Dynamics of Non-radiative Spin-valley Polarized Carriers in Gate-tunable Suspended WSe2 Monolayers (385)**
Giacomo Mariani[1], Yoji Kunihashi[1], Louis Smet[1], Taro Wakamura[1], Satoshi Sasaki[1], Jun Ishihara[2], Makoto Kohda[2], Junsaku Nitta[1,2], Haruki Sanada[1]
[1] NTT Basic Research Laboratories, Atsugi, Japan
[2] Tohoku University, Sendai, Japan

Tu-S5-6-4 - **Transfer from Structured Light Polarization to Persistent Spin Helix State in GaAs/AlGaAs Two-Dimensional Electron Gas (394)**
Keito Kikuchi[1], Miari Hiyama[1], Jun Ishihara[1], Sota Yamamoto[1], Yuzo Ohno[2], Takachika Mori[3], Kensuke Miyajima[3], Makoto Kohda[1,4,5,6]
[1] Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan
[2] University of Tsukuba, Tsukuba, Ibaraki, Japan
[3] Tokyo University of Science, Katsushika, Tokyo, Japan
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[6] Quantum Materials and Applications Research Center, National Institutes for Quantum Science and Tech-nology, Takasaki, Gunma, Japan

		Tu-S5-6-5 **Invited** - Gunther Springholz, Johannes Kepler University, Austria- **"Band Structure Engineering and Ferroelectric Rashba Effect in IV-VI Topological Crystalline Insulator Heterostructures"**
3:00pm – 3:30pm		Coffee Break
3:30pm – 5:00pm	Tu-S6	Technical Session **6**
ROOM 210	Tu-S6-1	**5. 2D materials beyond graphene including twistronics** Tu-S6-1-1 **Invited** - Clement Faugeras, LNCMI Grenoble, France- **"Magneto-optics of magnetic ground states in van der Waals magnetic materials"** Tu-S6-1-2 - **Non-linear Landau Fan Diagram and Extraction of Landau Level Spacing by Open Orbit in Graphene Moiré Superlattices (79)** Pilkyung Moon[1,2,3], Youngwook Kim[4,5], Mikito Koshino[6], Takashi Taniguchi[7], Kenji Watanabe[7], Jurgen H. Smet[4] *[1] New York University Shanghai, Shanghai, China* *[2] NYU-ECNU Institute of Physics at NYU Shanghai, Shanghai, China* *[3] New York University, New York City, USA* *[4] Max-Planck-Institut für Festköperforschung, Stuttgart, Germany* *[5] DGIST, Daegu, Republic of Korea* *[6] Osaka University, Osaka, Japan* *[7] National Institute for Materials Science, Tsukuba, Japan* Tu-S6-1-3 - **Investigation of the Interlayer Coupling of Twisted Bilayer CVD-Grown MoS2 via Raman Spectroscopy (110)** Eileen Schneider[1], Narine Moses Badlyan[1], Yuri Koval[1], Janina Maultzsch[1] *[1] Department Physik, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany* Tu-S6-1-4 - **Interactions and Ultrafast Dynamics of Exciton Complexes in a Monolayer Semiconductor with Electron Gas (111)** Aleksander Rodek[1], Kacper Oreszczuk[1], Tomasz Kazimierczuk[1], James Howarth[2], Takashi Taniguchi[3], Kenji Watanabe[3], Marek Potemski[1,4], Piotr Kossacki[1] *[1] Institute of Experimental Physics, Faculty of Physics, University Of Warsaw, Warsaw, Poland* *[2] National Graphene Institute, University of Manchester, Manchester, UK* *[3] National Institute for Materials Science, Tsukuba, Japan* *[4] Laboratoire National des Champs Magnetiques Intenses, CNRS-UGA-UPS-INSA-EMFL, Grenoble, France* Tu-S6-1-5 - **Fully Spin Polarized Hole Transport at Low Filling Factors in Monolayer WSe2 (373)** Antoine Labbé[1,2], Justin Boddison-Chouinard[1,2], Alex Bogan[1], Pedro Barrios[1], Philip Waldron[1], Kenji Watanabe[3], Takashi Taniguchi[3], Adina Luican-Mayer[2], Louis Gaudreau[1] *[1] NRC, Ottawa, Canada* *[2] University Of Ottawa, Ottawa, Canada* *[3] National Institute of Material Science, Japan*
ROOM 212	Tu-S6-2	**12. Quantum optics, nano-photonics, quantum emitters, NV Centers** Tu-S6-2-1 **Invited** - Val Zwiller, KTH Royal Institute of Technology, Sweden- **"Single photon generation, manipulation and detection with nanowires"** Tu-S6-2-2 - **Linear and nonlinear characterization of vertical orientation-patterned gallium phosphide waveguides for second harmonic generation (144)** Antoine Lemoine[1], Brieg Le Corre[1,2], Lise Morice[1], Abdelmounaim Harouri[2], Luc Le Gratiet[2], Gregoire Beaudoin[2], Julie Le Pouliquen[1], Arnaud Grisard[3], Sylvain Combrié[3], Bruno Gérard[4], Charles Cornet[1], Yannick Dumeige[1], Konstatinos Pantzas[2], Isabelle Sagnes[2], Yoan Léger[1] *[1] Univ Rennes, INSA, CNRS, Institut FOTON - UMR 6082, F-35000 Rennes, France, Rennes, France* *[2] Centre de Nanosciences et de Nanotechnologie, CNRS, 91120 Palaiseau, France, Palaiseau, France* *[3] Thales Research and Technology, 91767 Palaiseau, France, Palaiseau, France* *[4] III-V Lab, 91767 Palaiseau, France, Palaiseau, France* Tu-S6-2-3 - **Fast Optical Control of a Coherent Hole-Spin in an Open Microcavity (145)** Malwina Marczak[1], Mark Hogg[1], Nadia Antoniadis[1], Timon Baltisberger[1], Giang Nguyen[1], Alisa Javadi[1], Rüdiger Schott[2], Sascha Valentin[2], Andreas Wieck[2], Arne Ludwig[2], Richard Warburton[1] *[1] University Of Basel, Basel, Switzerland* *[2] Ruhr-Universität Bochum, Bochum, Germany*

Tu-S6-2-4 - **Gallium Phosphide Platforms for Integrated Photonics (164)**
Lise Morice[1,2], Brieg Le Corre[1,3], Antoine Lemoine[1], Abdelmounaim Harouri[3], Grégoire Beaudoin[3], Luc Le Gratiet[3], Tony Rohel[1], Julie Lepouliquen[1], Rozenn Bernard[1], Christian Grillet[2], Charles Cornet[1], Isabelle Sagnes[3], Konstantinos Pantzas[3], Christelle Monat[2], Yoan Leger[1]
[1] Univ Rennes, INSA, CNRS, Institut FOTON, UMR 6082, F-35000 Rennes, France
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[3] Centre des Nanosciences et Nanotechnologies, CNRS, Univ Paris-Saclay, Palaiseau, France

Tu-S6-2-5 - **Origin of the heavy-hole in-plane g-factor in individual annealed InGaAs/GaAs quantum dots (177)**
Prashant Ramesh[1,2], Nico Margaria[3], Dario Fioretto[1,3], Stephen Wein[3], Anton Pischagin[3], Martina Morassi[1], Aristide Lemaitre[1], Matthew Doty[2], Pascale Senellart[1], Loic Lanco[1,4], Nadia Belabas[1], Olivier Krebs[1]
[1] C2N-CNRS, Palaiseau, France
[2] University of Delaware, Newark, Delaware, United States of America
[3] Quandela SAS, Massy, France
[4] Universite Paris Cite, Paris, France

ROOM 202 Tu-S6-3

11. Optical properties, opto-electronics, solar cells

Tu-S6-3-1 - **Nonlinear Optical Responses in α-Type Organic Salt (171)**
Keisuke Kitayama[1,2], Masao Ogata[1,3]
[1] Department of Physics, University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113-0033, Japan
[2] RIKEN Center for Emergent Matter Science, Wako, Saitama, 351-0198, Japan
[3] Trans-scale Quantum Science Institute, University of Tokyo, Bunkyo-ku, Tokyo 113-0033, Japan

Tu-S6-3-2 - **Direct Observation of Strong Spin-Layer Coupling in Bilayer MoS2 (180)**
Yumin Sim[1], Hoang Nguyen[1], Maeng-Je Seong[1]
[1] Chung-ang University, Seoul, South Korea

Tu-S6-3-3
Invited - Eric Tournié, University of Montpellier, CNRS, France- **"Mid-infrared Semiconductor Lasers Grown on group-IV Platforms"**

Tu-S6-3-4 - **Deep-UV Distributed Feedback Laser Diode Design with Ultrawide Bandgap Semiconductor AlGaN (276)**
Sheena (Hsin Wei) Huang[1], Huili (Grace) Xing[1,2], Debdeep Jena[1,2]
[1] Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, USA
[2] Department of Materials Science and Engineering, Cornell University, Ithaca, NY, USA

Tu-S6-3-5 - **Unconventional Electroluminescence in an Intrinsic Gateable Semiconductor (278)**
Stephen Harrigan[1,2,3], Francois Sfigakis[1,4,5], Lin Tian[1,6], Nachiket Sherlekar[1,6], Brady Cunard[1,6], Man Chum Tam[6], Ho-Sung Kim[6], Zbigniew Wasilewski[1,2,3,5,6], Michael Reimer[1,2,5,6], Jonathan Baugh[1,2,3,4,5]
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[2] Department of Physics and Astronomy, University of Waterloo, Waterloo, Ontario, Canada
[3] Waterloo Institute for Nanotechnology, University of Waterloo, Waterloo, Ontario, Canada
[4] Department of Chemistry, University of Waterloo, Waterloo, Ontario, Canada
[5] Northern Quantum Lights, Inc., Waterloo, Ontario, Canada
[6] Department of Electrical and Computer Engineering, Waterloo, Ontario, Canada

ROOM 204 Tu-S6-4

14. Quantum technology: Quantum dots and nano-crystals

Tu-S6-4-1 - **Single PbS colloidal quantum dot transistors (161)**
Kenji Shibata[1], M. Yoshida[1], K. Hirakawa[2], T. Otsuka[3,4,5], S. Z. Bisri[5,6], Y. Iwasa[5,7]
[1] Tohoku Institute of Technology, Sendai, 982-8577, Japan
[2] IIS and INQIE, University of Tokyo, Tokyo, 153-8505, Japan
[3] RIEC, WPI-AIMR, and CSIS, Tohoku University, Sendai, 980-8577, Japan
[4] Department of Electronic Engineering, Tohoku University, Sendai 980-8579, Japan
[5] RIKEN Center for Emergent Matter Science, Wako, Saitama 351-0198, Japan
[6] Department of Applied Physics and Chemical Engineering, Tokyo University of Agriculture and Technology, Koganei, Tokyo 184-8588, Japa
[7] Department of Applied Physics and QPEC, University of Tokyo, Tokyo, 113-8656, Japan

Tu-S6-4-2 - **Assessing the charging energy of GaAs/AlGaAs tunable-barrier single-electron pumps by two-gate turnstile operation (176)**
Frank Hohls[1], Thomas Gerster[1], Dario Maradan[1], Niels Ubbelohde[1], Klaus Pierz[1], Thomas Weimann[1], Hans Werner Schumacher[1], Vyacheslavs Kashcheyevs[2]
[1] Physikalisch-Technische Bundesanstalt, Braunschweig, Germany
[2] University of Latvia, Riga, Latvia

Tu-S6-4-3
Invited - Maciej Bieniek, Wrocław University of Science and Technology, Poland- **"Fine Structure of Excitons in Gated 2D TMD's Heterostructures"**

Tu-S6-4-4 - **Classifying the Charge State of Quantum Dots by Machine Learning and Improving the Performance by Visual Explanations of the Model (201)**
Yui Muto[1], Takumi Nakaso[2], Motoya Shinozaki[3], Takumi Aizawa[1], Takahito Kitada[1], Takashi Nakajima[4], Matthieu R. Delbecq[4], Jun Yoneda[4], Kenta Takeda[4], Akito Noiri[4], Arne Ludwig[5], Andreas D. Wieck[5], Seigo Tarucha[4], Atsunori Kanemura[2], Motoki Shiga[6,7,8], Tomohiro Otsuka[3,1,9,4]
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[2] LeapMind, Shibuya-ku, Tokyo, Japan
[3] WPI Advanced Institute for Materials Research, Tohoku University, Aoba-ku, Sendai, Miyagi, Japan
[4] Center for Emergent Matter Science, RIKEN, Wako, Saitama, Japan
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[8] Graduate School of Information Science, Tohoku University, Aoba-ku, Sendai, Miyagi, Japan
[9] Center for Science and Innovation in Spintronics, Aoba-ku, Sendai, Miyagi, Japan

Tu-S6-4-5 - **Universal scaling of adiabatic tunneling out of a shallow confinement potential (223)**
Niels Ubbelohde[1], Austris Akmentinsh[2], David Reifert[1], Thomas Weimann[1], Klaus Pierz[1], Vyacheslavs Kashcheyevs[2]
[1] Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany
[2] University of Latvia, Riga, Latvia

ROOM 209 Tu-S6-5 **2. Wide-bandgap semiconductors (GaN, SiC, Ga2O3, BN, Diamond)**

Tu-S6-5-1 - **Impact of Internal Electric Field on Polaritonic Lifetime in a GaN-Based Waveguide. (152)**
Loïc Méchin[1], François Médard[1], Joël Leymarie[1], Hamadou Dicko[1], Sophie Bouchoule[2], Jean-Yves Duboz[3], Blandine Alloing[3], Jesus Zuñiga-Pérez[3,4], Pierre Disseix[1]
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[4] Majulab, International Research Laboratory IRL 3654, CNRS, Université Côte d'Azur, Sorbonne Université, National University of Singapore, Nanyang Technological University, Singapore 117543, Singapore

Tu-S6-5-2 - **Distinguishing Different Stackings in Layered Materials Via Luminescence Spectroscopy (173)**
Matteo Zanfrognini[1], Alexandre Plaud[2,3], Ingrid Stenger[3], Frédérique Fossard[2], Lorenzo Sponza[2], Léonard Schué[32,3], Fulvio Paleari[4], Elisa Molinari[1], Daniele Varsano[4], Ludger Wirtz[5], François Ducastelle[2], Annick Loiseau[2], Julien Barjon[3]
[1] Dipartimento di Scienze Fisiche, Informatiche e Matematiche, Universita` di Modena e Reggio Emilia, I-41125 Modena, Italy
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[5] Department of Physics and Materials Science, University of Luxembourg, 1511 Luxembourg, Luxembourg

Tu-S6-5-3 - **Light Hole and Heavy Hole Revealed by Quantum Oscillations in GaN/AlN 2D Hole Gas (190)**
Chuan Chang[1], Joseph Dill[1], Oscar Ayala-Valenzuela[2], Zexuan Zhang[1], Scott Crooker[2], Ross McDonald[2], Debdeep Jena[1], Huili Grace Xing[1]
[1] Cornell University, Ithaca, New York, United States
[2] National High Magnetic Field Laboratory, Los Alamos National Laboratory, Los Alamos, New Mexico, United States

Tu-S6-5-4 - **Schottky Barrier Inhomogeneity of Pt/4H-SiC Junction Probed by Metal-Base Transistor Ballistic Electron Emission Spectroscopy (BEES) (191)**
Jiwan Kim[1], Hyunjae Park[1], Jaehyeong Jo[1], Eunseok Hyun[1], Jisang Lee[1], Sejin Oh[1], Kibog Park[1,2]
[1] Department of Physics, Ulsan National Institute of Science and Technology, Ulsan, South Korea
[2] Department of Electrical Engineering, Ulsan National Institute of Science and Technology, Ulsan, South Korea

Tu-S6-5-5
Invited - Hideo Kosaka, Yokohama National University, Japan- **"Diamond Spin Qubits for Quantum Communication and Computing"**

ROOM 211 Tu-S6-6 **15. Semiconductor-superconductor hybrid systems, Nano-mechanics, MEMS/NEMS, and opto-mechanics**

Tu-S6-6-1 - **Half-integer Shapiro Steps in Highly Transmissive InSb Nanoflag Josephson Junctions (300)**
Andrea Iorio[1], Alessandro Crippa[1], Bianca Turini[1], Sedighe Salimian[1], Matteo Carrega[2], Luca Chirolli[1], Valentina Zannier[1], Lucia Sorba[1], Elia Strambini[1], Francesco Giazotto[1], Stefan Heun[1]
[1] Nest, Istituto Nanoscienze-CNR And Scuola Normale Superiore, Pisa, Italy
[2] CNR-SPIN, Genoa, Italy

Tu-S6-6-2- **Suspended Monolayer Graphene by Adhesion Lithography (379)**
Eli Martel[1], Thomas Szkopek[1,2]
[1] Department of Physics, McGill University, Montreal, Québec, H3A 2T8, Canada
[2] Department of Electrical and Computer Engineering, McGill University, Montreal, Québec, H3A 0E9, Canada

Tu-S6-6-3
Invited - Roman Lutchyn, Microsoft Research, USA- **"Interferometric Single-Shot Parity Measurement in InAs-Al Hybrid Devices"**

Tu-S6-6-4
Invited – Hongqi Xu, Peking University, China- **"Physics of Semiconductor Josephson Junctions under Microwave Irradiation"**

5:00pm – 7:00pm Tu-P Poster Session 2- **Ottawa Salon**

Tu-P-001 - **Gate Materials and Process Variations: Exploring Their Influence on Transport Properties in Silicon MOS Devices (284)**
Md Mamunur Rahman[1], Jonathan Yue Huang[1], Alexandra Dickie[1,2], Steve Yianni[1,2], Kok Wai Chan[1,2], Fay Hudson[1,2], Christopher C. Escott[1,2], Andrea Morello[1], Arne Laucht[1,2], Andre Saraiva[1,2], Andrew S. Dzurak[1,2], Wee Han Lim[1,2]
[1] School of Electrical Engineering and Telecommunications, University of New South Wales, Sydney, NSW 2052, Australia
[2] Diraq, Sydney, NSW 2052, Australia

Tu-P-002 - **Band Alignment at Cubic (111) ScN / Wurtzite (0001) GaN Heterojunction (343)**
Chandrashekhar Savant[1], Thai Son Nguyen[1], Huili Grace Xing[1,2,3], Debdeep Jena[1,2,3]
[1] Department of Materials Science and Engineering, Cornell University, Ithaca, New York, United States
[2] School of Electrical and Computer Engineering, Cornell University, Ithaca, New York, United States
[3] Kavli Institute at Cornell for Nanoscale Science, Cornell University, Ithaca, New York, United States

Tu-P-004 - **Comprehensive Study of Photocarrier's Lifetime in Strain-Compensated InGaAs/InAlAs Superlattice on the Polar InP(111)B Substrates as a Function of the Design Parameters (380)**
Seyed-Ali Hosseini-Farahabadi[1], Milad Entezami[1], Man Chun Alan Tam[1], Zbigniew R. Wasilewski[1,2]
[1] University of Waterloo, Waterloo, Ontario, Canada
[2] Waterloo Institute for Nanotechnology, Waterloo, Ontario, Canada

Tu-P-005 - **Enhanced Photoresponse of VO2 Nanowires by Surface Doping with AuNPs via Dielectrophoresis Method (381)**
Inayat Uddin[1], Hai Yen Le Thi[2], Nhat Anh Nguyen Phan[1], Hanul Kim[2], Gil Ho Kim[1,2]
[1] Department of Electrical and Computer Engineering, Sungkyunkwan University (SKKU), Suwon, Gyeonggi-do, Republic of Korea
[2] Sungkyunkwan Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University (SKKU), Suwon, Gyeonggi-do, Republic of Korea

Tu-P-007 - **Exploring Photoexcited Carrier Dynamics in Be-Doped Low-Temperature Grown InGaAs/InAlAs Strained-Balanced Superlattices on InP(001) for Terahertz Detection (412)**
Milad Entezami[1], Seyed Ali Hosseini-Farahabadi[1], Man Chun Alan Tam[1], Zbigniew Roman Wasilewski[1,2]
[1] Department of Electrical and Computer Engineering, University Of Waterloo, Waterloo, Ontario, Canada
[2] Waterloo Institute for Nanotechnology, University of Waterloo, Waterloo, Ontario, Canada

Tu-P-008 - **Study of Single Crystal Graphene Grown by Chemical Vapor Deposition on Copper (457)**
Tharanga Nanayakkara[1], Kushan Wijewardena[1], Rameshwor Poudel[1], Annika Kriisa[1], Rasanga Samaraweera[2], Ramesh Mani[1]
[1] Georgia State University, Badulla, Georgia, United States
[2] Uva Wellassa University, Badulla, Sri Lanka

Tu-P-009 - **Atom-by-atom tomography of isotopes in semiconductor spin qubits (477)**
Sebastian Koelling[1], Eloise Rahier[1], Simone Assali[1], Patrick Daoust[1], Oussama Moutanabbir[1]
[1] Polytechnique Montreal, Quebec, Canada

Tu-P-010 - **Three-dimensional Mapping of Isotopes in Semiconductor Nanowires (479)**
Eloïse Rahier[1], Sebastian Koelling[1], Simone Assali[1], Patrick Daoust[1], Oussama Moutanabbir[1]
[1] Polytechnique Montréal, Quebec, Canada

Tu-P-011 - **Single Ge Quantum Well via a Hybrid Combination of MBE/CVD Growth (490)**
Karim M. Omambac[1], Patrick Daoust[1], Lu Luo[1], Nicolas Rotaru[1], Oussama Moutanabbir[1]
[1] Nano and Quantum Semiconductors Laboratory, 2500 Chem. de Polytechnique, Montréal, QC H3T 1J4, Canada

Tu-P-012 - **Classification of Atomic Defects in Semiconductor Material Systems by Machine Learning (517)**
Calvin Wong[1], Johnson Goh[1,2,3]
*[1] Institute of Materials Research and Engineering (IMRE), Agency for Science Technology and Research (A*STAR), Singapore*
[2]Department of Physics, National University of Singapore, 2 Science Drive 3, Singapore 117551, Singapore
[3]Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798, Singapore

Tu-P-014 - **Molecular-beam epitaxy growth and characterization of cubic Ga_{1-x}In_{x}N across the entire composition range (229)**
Mario F. Zscherp[1], Silas A. Jentsch[1], Marius J. Müller[1], Vitalii Lider[2], Celina Becker[2], Andreas Beyer[2], Mario Littmann[3], Falco Meier[3], Donat J. As[3], Markus Stein[1], Kerstin Volz[2], Jörg Schörmann[1], Sangam Chatterjee[1]
[1] Institute of Experimental Physics I and Center for Materials Research, Marburg, Germany
[2] Materials Science Center and Faculty of Physics, Marburg, Germany
[3] Department of Physics, Paderborn, Germany

Tu-P-015 - **InAlGaN/GaN HEMTs with n-GaN Regrowth at Ohmic Contact Regions (359)**
Nadia El Bondry[1], Charles Pitaval[1], Cedric Lacam[1], Nicolas Michel[1], Sébastien Aroulanda[1], Stéphane Piotrowicz[1], Olivier Parillaud[1]
[1] III-V Lab, 1 avenue Augustin Fresnel, 91767 Palaiseau Cedex, France

Tu-P-022 - **Vertical PIN GeSn light-emitting diodes on Silicon with 2.5 µm emission at room temperature (476)**
Mahmoud Atalla[1], Gérard Daligou[1], Cédric Lemieux-Leduc[1], Patrick Daoust[1], Sebastian Koelling[1], Simone Assali[1], Oussama Moutanabbir[1]
[1] Polytechnique Montréal, Quebec, Canada

Tu-P-023 - **Portable Mid-infrared Spectrometer Integrating High-Speed Group IV Detector (480)**
Anthony Nomezine[1], David Vlassov[1], Mahmoud Attala[1], Oussama Moutanabbir[1]
[1] Department of Engineering Physics, Polytechnique Montréal, Québec, Canada

Tu-P-024 - **Single-photon avalanche GeSn detectors on Silicon for 2 µm wavelength detection and beyond (481)**
Mahmoud Atalla[1], Jérémy Bélec[1], Coralie Bellemare[1], Cédric Lemieux Leduc[1], Sebastian Koelling[1], Simone Assali[1], Oussama Moutanabbir[1]
[1] Polytechnique Montréal, Canada

Tu-P-025 - **Single photon avalanche diode operating at the wavelength of 2 µm (482)**
Jérémy Bélec[1], O. Moutanabbir[1]
[1] Polytechnique Montréal, Quebec, Canada

Tu-P-028 - **Weak Localization and Gas Sensing of Graphene (392)**
Akira Fujimoto[1], Shoji Maeda[1], Daiju Terasawa[2], Akira Fukuda[2], Masatoshi Koyama[1], Kazuto Koike[1], Yoshiyuki Harada[1], Zhigang Jiang[3], Eric M. Vogel[4]
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[2] Hyogo Medical University, Nishinomiya, Hyogo, Japan
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[4] School of Materials Science & Engineering, Georgia Tech, Atlanta, GA, USA

Tu-P-029 - **Magic-angle Helical Trilayer Graphene as A New Platform for realizing Correlated Topological States of Matter (450)**
Xueying Li[1], R. Plumadore[1], L. Molino[1], S. Walker[1], A. Luican-Mayer[1]
[1] Department of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada

Tu-P-033 - **Dynamics of the Electric Double-Layer in Electrolyte Gated Graphene FETs (501)**
Tom Badcock[1], J. Kuleshova[1], A. Nikolaenko[1], M. Tyler[1], V. Curto[1], N. Conway[1], J. Tingay[1]
[1] Paragraf, 7-8 West Newlands, Somersham, Cambridgeshire, PE28 3EB, UK

Tu-P-036 - **Controlled Charge Polarity in WSe2 Field Effect Transistor Grown by Self-flux Method (383)**
Hai Yen Le Thi[1], Inayat Uddin[2], Nguyen Nhat Anh Phan[2], Gil-Ho Kim[1,2]

[1] *Sungkyunkwan Advanced Institute of Nano Technology (SAINT), Sungkyunkwan University (SKKU), Suwon, South Korea*
[2] *Department of Electrical and Computer Engineering, Sungkyunkwan University (SKKU), Suwon, South Korea*

Tu-P-037 - **Black Phosphorus-Based Metal-Insulator-Semiconductor Diode in 2D van der Waals Heterostructures (384)**
Nguyen Nhat Anh Phan[1], Inayat Uddin[1], Hai Yen Le Thi[2], Kenji Watanabe[3], Takashi Taniguchi[4], Gil-Ho Kim[1,2]
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[4] *International Center for Material Nano-Architectonics, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Japan*

Tu-P-038 - **Multi-particle Excitonic Systems in WSe2 Grown on hBN by Molecular Beam Epitaxy (391)**
Julia Kucharek[1], M. Raczyński[1], R. Bożek[1], S. Kret[3], T. Taniguchi[2], K. Watanabe[2], P. Kossacki[1], M. Goryca[1], W. Pacuski[1]
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[2] *National Institute for Materials Science, Tsukuba 305-0047, Ibaraki, Japan*
[3] *Institute of Physics, Polish Academy of Sciences, 02-668 Warsaw, Poland*

Tu-P-039 - **Propagation and Quantization of Valley Current through One Dimensional Channel (400)**
Kei Takahashi[1], Yusuke Nakayama[1], David K. Ferry[2], Jonathan P. Bird[3], Nobuyuki Aoki[1]
[1] *Chiba University, Tempe, Chiba, Japan*
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[4] *School of Physics and Astronomy, University of Nottingham, Nottingham, UK*

Wednesday July 31, 2024		
8:30am – 9:00am		Welcome Coffee
9:00am – 10:30am	We-PLEN	Plenary Session 3- **Gatineau Salon**
	We-PLEN-1	Philip Kim, Harvard University, USA- **"Anyon braiding in graphene quantum Hall interferometer"**
	We-PLEN-2	Alexander Efros, Naval Research Laboratory, USA- **"Semiconductor Nanocrystals: from discovery to modern development"**
10:30am – 12:00pm	We-PLEN	Plenary Session 4- **Gatineau Salon**
	We-PLEN-3	Allan H. MacDonald, The University of Texas at Austin, USA- **"Moiré Materials"**
	We-PLEN-4	Yoshinori Tokura, University of Tokyo, Japan- **"Emergent electromagnetic phenomena of magnetic topological insulators and semimetals"**
12:00pm – 1:30pm		Lunch Break
1:30pm – 8:00pm		Explore Ottawa

ICPS2024 Technical Program

*(**subject to change**)*

as of July 26, 2024

Thursday August 1, 2024

9:00am – 10:00am | Th-S7 | Technical Session 7

ROOM 210 | Th-S7-1

8. Low dimensional semiconductor systems (1D, 2D)

Th-S7-1-1 - **Optical nonlinearity driven by hydrodynamic free electrons in semiconductor nanostructures (209)**
Tommaso Venanzi[1], Andrea Rossetti[2], Huatian Hu[3], Adel Bousseksou[4], Thomas Deckert[2], Valeria Giliberti[1], Marialilia Pea[5], Isabelle Sagnes[4], Gregoire Beaudoin[4], Daniele Brida[2], Raffaele Colombelli[4], Michele Ortolani[6], Cristian Ciracì[3]
[1] Istituto Italiano Di Tecnologia, Rome, Italy
[2] University of Luxembourg, Luxembourg, Luxembourg
[3] Istituto Italiano di Tecnologia, Arnesano, Italy
[4] Centre de Nanosciences et de Nanotechnologies (CNRS), Palaiseau, France
[5] Istituto di Fotonica e Nanotecnologie (CNR), Rome, Italy
[6] Sapienza University of Rome, Rome, Italy

Th-S7-1-2 - **Capacitance and Coulomb Drag in GaAs/AlGaAs Electron-Hole Bilayers (252)**
Miranda Davis[1,2], Simon Parolo[1], Christian Reichl[1,2], Werner Dietsche[1,3], Werner Wegscheider[1,2]
[1] Solid State Physics Laboratory, ETH Zurich, Zurich, Switzerland
[2] Quantum Center, ETH Zurich, Zurich, Switzerland
[3] Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany

Th-S7-1-3 - **Magnetoresistance Oscillations from Collective Ballistic Dynamics in Two-dimensional Systems (279)**
Jean J. Heremans[1], Adbhut Gupta[2], Gitansh Kataria[3], Mani Chandra[4], Siddhardh C. Morampudi[5], Saeed Fallahi[6,7], Geoff C. Gardner[7], Michael J. Manfra[6,7,8], Ravishankar Sundararaman[9]
[1] Dept. of Physics, Virginia Tech, Blacksburg, VA 24061, USA
[2] Dept. of Electrical Engineering, Princeton University, Princeton, NJ 08544, USA
[3] Bradley Dept. of Electrical & Computer Eng., Virginia Tech, Blacksburg, VA 24061, USA
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[6] Dept. of Physics & Astronomy, Purdue University, IN 47907, USA
[7] Birck Nanotechnology Center, Purdue University, IN 47907, USA
[8] School of Electrical & Computer Eng. & School of Materials Eng., Purdue University, IN 47907, USA
[9] Dept. of Materials Science & Engineering, Rensselaer Polytechnic Institute, Troy, NY 12180, USA

Th-S7-1-4 - **Flat-Band Electronic Bipolarity in a Janus and Kagome van der Waals Semiconductor Nb_3TeI_7 (280)**
Jo Hyun Yun[1,2], Minki Sung[1,2], Minhyuk Choi[1,2], Wooin Yang[1], Dowook Kim[1], Min Joong Kim[1], Sung-Hyuk Her[3], Kyoo Kim[4], Si Young Choi[3], Tae-Hwan Kim[1], Jae Young Kim[2], Han Woong Yeom[1,2], Jun Sung Kim[1,2]
[1] Department of Physics, Pohang University of Science and Technology, Pohang, Korea
[2] Center of Artificial Low Dimensional Electronic Systems, Institute for Basic Science (IBS), Pohang, Korea
[3] Department of Material Science and Engineering, Pohang University of Science and Technology, Pohang, Korea
[4] Korea Atomic Energy Research Institute (KAERI), Daejeon, Korea

ROOM 212 | Th-S7-2

12. Quantum optics, nano-photonics, quantum emitters, NV Centers

Th-S7-2-1 - **Electrically Injected T Centre Emission (258)**
Michael Dobinson[1,2], Melanie Gascoine[1,2], Camille Bowness[1,2], Elianor Hoffmann[3], Camille Chartrand[1,2], Yehudah Ackermann[1,2], Michael Thewalt[1], Daniel Higginbottom[1,2], Stephanie Simmons[1,2]
[1] Simon Fraser University, Burnaby, British Columbia, Canada
[2] Photonic Inc., Coquitlam, British Columbia, Canada
[3] Université Paris-Saclay, Gif-sur-Yvette, Île-de-France, France

Th-S7-2-2 - **Ultra-Fast Coherent Exciton Dynamics in Core-Shell GaAs/AlGaAs Nanowires (215)**
Matthew T. Larson[1], Samia Alyami[1], Carsten Ullrich[2], Naiyin Wang[3], Hark Hoe Tan[3], Chennupati Jagadish[3], Heidrun Schmitzer[4], Hans-Peter Wagner[1]
[1] University Of Cincinnati, Cincinnati, Ohio, United States
[2] University of Missouri/Columbia, Columbia, Missouri, United States
[3] The Australian National University, Canberra, ACT 2600, Australia
[4] Xavier University, Cincinnati, Ohio, United States

Th-S7-2-3 - **Occupancy-driven Zeeman suppression and inversion in trapped polariton condensates (266)**
Krzysztof Sawicki[1]
[1] University of Southampton, Southampton, United Kingdom

Th-S7-2-4 - **Strong coupling of phonons and antiferromagnetic magnons mediated by terahertz cavity photons (321)**
Marcin Bialek[1], Kamil Stelmaszczyk[1], Dorota Szwagierczak[2], Beata Synkiewicz-Musialska[2], Jan Kulawik[2], Norbert Pałka[3], Marek Potemski[1], Wojciech Knap[1]
[1] Polish Academy Of Sciences, Warszawa, Poland
[2] Łukasiewicz Research Network–Institute of Microelectronics and Photonics, Kraków Division, Kraków, Poland, Kraków, Poland
[3] Institute of Optoelectronics, Military University of Technology, Warszawa, Poland, Warszawa, Poland

ROOM 202 Th-S7-3 **4. Carbon: 2D graphene, 1D nanotubes, and 0D quantum dots**

Th-S7-3-1 - **Towards sub-mK Electron Temperatures Using Pomeranchuk Cooling in Twisted Bilayer Graphene (314)**
Robin Dolleman[1], Alexander Rothstein[1,2], Ammon Fischer[3], Lennart Klebl[4], Kenji Watanabe[5], Takashi Taniguchi[5], Dante Kennes[3,6], Florian Libisch[7], Bernd Beschoten[1], Christoph Stampfer[1,2]
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[3] JARA-FIT and Institut für Theorie der Statistischen Physik, RWTH Aachen University, 52074 Aachen, Germany
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[6] Max Planck Institute for the Structure and Dynamics of Matter, Center for Free Electron Laser Science, Hamburg, Germany
[7] Institute for Theoretical Physics, Vienna University of Technology, 1040 Vienna, Austria

Th-S7-3-2 - **Supersonic electron flow and hydraulic jump in bilayer graphene (320)**
Johannes Geurs[1,2], Yinjie Guo[2], Tatiana Webb[2], Itai Keren[2], Takashi Taniguchi[3], Kenji Watanabe[3], Abhay Pasupathy[2], Cory R Dean[2]
[1] Columbia Nano Initiative, Columbia University, New York, USA
[2] Department of Physics, Columbia University, New York, USA
[3] National Institute for Materials Science, 1-1 Namiki, Tsukuba, Japan

Th-S7-3-3 - **Observing Zero-Field Energy Gap in Graphene Grown on Sapphire Substrate (324)**
Yuma Hiraga[1], Kairi Kaneta[1], Songtian Li[2], Yoshiro Hirayama[2,3], Seiji Sakai[2], Katsushi Hashimoto[1,3]
[1] Graduate School of Sciences, Tohoku University, Sendai, Japan
[2] Quantum Materials and Applications Research Center, National Institutes for Quantum Science and Technology, Takasaki, Japan
[3] Centre for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan

Th-S7-3-4 - **Radiofrequency reflectometry measurement of superfluid stiffness in magic-angle twisted trilayer graphene (340)**
Zeyu Hao[1], Abhishek Banerjee[1], Mary Kreidel[1], Isabelle Phinney[1], Jeong Min Park[2], Patrick Ledwith[1], Andrew Zimmerman[1], Pablo Jarillo Herrero[2], Pavel Volkov[1,3], Ashvin Vishwanath[1], Kin Chung Fong[1,4], Philip Kim[1]
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[3] Department of Physics, University of Connecticut, Storrs, Connecticut, 06269, USA
[4] Raytheon BBN, Quantum Engineering and Computing Group, Cambridge, Massachusetts 02138, USA

ROOM 204 Th-S7-4 **2. Wide-bandgap semiconductors (GaN, SiC, Ga2O3, BN, Diamond)**

Th-S7-4-1 - **Theoretical Study of the Temperature Dependent Competition of Non-radiative Auger-Meitner and Radiative Recombination in (Al,Ga)N Quantum Wells (207)**
Joshua McMahon[1,2], Robert Finn[2], Stefan Schulz[1,2]
[1] School of Physics, University College Cork, Cork, Ireland
[2] Tyndall National Institute, University College Cork, Cork, Ireland

Th-S7-4-2 - **Crossover from Resistive to Ballistic Phonon Transport and Giant-Phonon Drag in Homoepitaxial ß-Ga2O3 Films (228)**
Rüdiger Mitdank[1], Robin Ahrling[1], Johannes Boy[1], Andreas Popp[3], Zbigniew Galazka[3], Saskia F. Fischer[1,2]
[1] Novel Materials Group, Institut für Physik, Humboldt-Universität zu Berlin, 10099 Berlin, Germany
[2] Center for the Science of Materials Berlin, Humboldt-Universität zu Berlin, 12489 Berlin, Germany
[3] Leibniz Institute of Crystal Growth, 12489 Berlin, Germany

Th-S7-4-3 - **Investigation of Ultrafast Carrier Dynamics in Scandium Nitride (ScN) Using Pump-Probe Time-Resolved Spectroscopic Ellipsometry (260)**
Younes Slimi[1,2], Rebecca Petrich[1], Noah Stiehm[1], Martin Zahradník[3], Shirly Espinoza[3], Mateusz Rebarz[3], Mohamed Bouafia[2], Jakob Andreasson[3], Stefan Krischok[1], Rüdiger Schmidt-Grund[1]
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[2] *Applied Optics Laboratory, Institute of Optics and Precision Mechanics, University of Setif 1, 19000 Setif, Algeria*
[3] *ELI Beamlines Facility, The Extreme Light Infrastructure ERIC, 25241 Dolní Břežany, Czech-Republic*

Th-S7-4-4 - **Shubnikov-de Haas oscillations in AlN/GaN/AlN quantum-wells on single-crystal AlN substrates (265)**
Yu-Hsin Chen[1], Jimy Encomendero[2], Eungkyun Kim[2], Joseph Dill[3], Thai-Son Nguyen[1], Chuan Chang[4], Huili Grace Xing[1,2], Debdeep Jena[1,2]
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[3] *School of Applied and Engineering Physics, Cornell University, Ithaca, New York, United States*
[4] *Department of Physics, Cornell University, Ithaca, New York, United States*

ROOM 209 Th-S7-5 **7. Topological states of matter, topological Insulators, and Weyl semimetals**

Th-S7-5-1 - **Coercive field enhancement in the quantum anomalous Hall insulators Vy(BixSb1-x)2-yTe3 and Cry(BixSb1-x)2-yTe3 grown on a GaAs buffer layer (282)**
Yusuke Nakazawa[1], Takafumi Akiho[1], Kiyoshi Kanisawa[1], Hiroshi Irie[1], Norio Kumada[1], Koji Muraki[1]
[1] *NTT Basic Research Laboratories, Atsugi, Kanagawa, Japan*

Th-S7-5-2 - **Anisotropic exchange interactions in kagome lattice ferromagnets (292)**
Denis Karaiskaj[1], Arup Barua[1], Hengzhou Liu[1], Zachary Romestan[2], Soumya S. Bhat[2], Sean Knapp[1], Samuel Langelund Carrera[1], Varun Mapara[1], Shirin Mozaffari[3], David Mandrus[3], Aldo H. Romero[2]
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[2] *Department of Physics and Astronomy, West Virginia University, Morgantown, WV 26506, USA*
[3] *Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN 37996, USA*

Th-S7-5-3 - **Field-controlled Dirac points and the fate of "end" states in broken gap semiconductor nanowires (397)**
Guido Goldoni[1,2], Andrea Vezzosi[1,2], Andrea Bertoni[2], Marco Gibertini[1,2]
[1] *University of Modena and Reggio Emilia, Modena, MO, Italy*
[2] *CNR-NANO, Modena, MO, Italy*

Th-S7-5-4 - **Tuning topological ground states in interacting electronic kagome systems (504)**
Sergio Ulloa[1], Miguel Mojarro[1]
[1] *Ohio University, Athens, Ohio, United States*

ROOM 211 Th-S7-6 **10. Spintronics and spin phenomena**

Th-S7-6-1 - **Observation of spatially dependent nonequilibrium bulk and edge spin accumulation in two dimensional MoTe2 (366)**
Fangchu Chen[1], K. Das[2], B. W. Yang[1], S. Z. Zhong[1], D. Golovanova[2], H. Ren[1], T. Y. Wang[3,4], X. Luo[3], Y. P. Sun[3,5,6], G. X. Miao[1], B. H. Yan[2], and A. W. Tsen[1]
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[6] *Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing, 210093, China*

Th-S7-6-2 - **Nuclear induced frequency focusing in the mode-locking of hole spin coherences in CsPb(Cl,Br)$_3$ perovskite nanocrystals (378)**
Erik Kirstein[1], Nataliia E. Kopteva[1], Dmitri R. Yakovlev[1,2,3], Evgeny A. Zhukov[12], Elena V. Kolobkova[4,5], Maria S. Kuznetsova[6], Vasilii V. Belykh[3], Irina A. Yugova[6], Mikhail M. Glazov[2], Manfred Bayer[1], Alex Greilich[1]
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[6] *Spin Optics Laboratory, St. Petersburg State University, 198504 St. Petersburg, Russia*

Th-S7-6-2
Invited - Masaaki Tanaka, University of Tokyo, Japan- **"A new class of Fe-doped III-V ferromagnetic semiconductors with high Curie temperatures and their quantum heterostructures"**

10:00am – 10:30am		Coffee Break
10:30am – 12:00pm	Th-S8	Technical Session 8
ROOM 210	Th-S8-1	**4. Graphene & 5. 2D materials beyond graphene including twistronics**

Th-S8-1-1 - **Electrically Tunable Excitons and Biexcitons in Gated Bilayer Graphene Quantum Dots with Trigonal Warping (246)**
Matthew Albert[1], Daniel Miravet[1], Yasser Saleem[1,2], Katarzyna Sadecka[1,3], Marek Korkusinski[1,4], Pawel Hawrylak[1]
[1] Department of Physics, University of Ottawa, Hamburg, Ontario, Canada
[2] Institut für Physikalische Chemie, Universität Hamburg, Hamburg, Germany
[3] Institute of Theoretical Physics, Wrocław University of Science and Technology, Wrocław, Poland
[4] Security and Disruptive Technologies, National Research Council, Ottawa, Canada

Th-S8-1-2 - **Mass Inversion at the Lifshitz Transition in Monolayer Graphene by High-Density, Diffusive, Flip-Chip Alkali Doping (369)**
Thomas Szkopek[1], Ayse Melis Aygar[1], Oliver Durnan[2], Bahar Molavi[1], Sam N.R. Bovey[1], Alexander Grüneis[3]
[1] McGill University, New York, Quebec, Canada
[2] Columbia University, New York, New York, United States
[3] Technisches Universitat Wien, Vienna, Austria

Th-S8-1-3 - **Light-induced Shift Current Vortex Crystals in Moiré Heterobilayers (153)**
Chen Hu[1,2], Mit H. Naik[1,2], Yang-Hao Chan[1,2,3], Jiawei Ruan[1,2], Steven G. Louie[1,2]
[1] Department of Physics, University of California at Berkeley, Berkeley, California, United States
[2] Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, United States
[3] Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan

Th-S8-1-4 - **Resonant Tunneling Detection of Atomic Reconstruction in Twisted Bilayer WSe2 (193)**
Kei Kinoshita[1], Rai Moriya[1], Yung-Chang Lin[2], Shota Okazaki[3], Momoko Onodera[1], Yijin Zhang[1], Ryosuke Senga[2], Kenji Watanabe[4], Takashi Taniguchi[4], Takao Sasagawa[3], Kazu Suenaga[5], Tomoki Machida[1]
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[2] National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan
[3] Laboratory for Materials and Structures, Tokyo Institute of Technology, Yokohama, Japan
[4] National Institute for Materials Science, Tsukuba, Japan
[5] The Institute of Scientific and Industrial Research, Osaka University, Osaka, Japan

Th-S8-1-5 - **Synthesis and Doping of 2D Semiconductors by Metalorganic Chemical Vapor Deposition (210)**
Yu-chuan Lin[1]
[1] National Yang Ming Chiao Tung University, Hsinchu City, Taiwan

Th-S8-1-6 - **Excitonic Insulator Phases in 2D Transition Metal Dichalcogenides:**
The Case of Monolayer WTe2 as an Excitonic Spin Density Wave (255)
Elisa Molinari[1,2], Daniele Varsano[1], Samaneh Ataei[1], David H. Cobden[3], Massimo Rontani[1]
[1] Cnr Nanoscience Institute and Uni Modena & Reggio Emilia, Modena, Italy
[2] University of Modena and Reggio Emilia, FIM Department, Modena, Italy
[3] Department of Physics, University of Washington, Seattle, WA, USA

ROOM 212	Th-S8-2	**12. Quantum optics, nano-photonics, quantum emitters, NV Centers**

Th-S8-2-1
Invited - Ren-bao Liu, The Chinese University of Hong Kong, China- **"Quantum nonlinear spectroscopy via a single spin quantum sensor"**

Th-S8-2-2 - **Unconventional Temperature-dependence of the Zero-phonon Linewidth in Nanowire Quantum Dots (422)**
Lingxi Yu[1,2], Marek Korkusinski[1], Samridhi Gambhir[3], Edith Yeung[1,2], Patrick Laferriere[1], Robin Williams[1], Hoi-Kwong Lo[3,4], Philip Poole[1], Dan Dalacu[1,2]
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[2] Department of Physics, University of Ottawa, Ottawa, Ontario, Canada
[3] Quantum Bridge Technologies Inc., Toronto, Ontario, Canada
[4] Department of ECE, University of Toronto, Toronto, Ontario, Canada

Th-S8-2-3 - **Current-Crowding-Free Superconducting Nanowire Single-Photon Detectors Enabled by Local Helium Ion Irradiation (327)**
Stefan Strohauer[1], Fabian Wietschorke[2], Christian Schmid[2], Stefanie Grotowski[1], Lucio Zugliani[2], Rasmus Flaschmann[2], Björn Jonas[2], Kai Müller[2], Jonathan Finley[1]

[1] *Walter Schottky Institute and School of Natural Sciences, Technical University of Munich, Garching, Germany*
[2] *Walter Schottky Institute and School of Computation, Information and Technology, Technical University of Munich, Garching, Germany*

Th-S8-2-4 - **Nonlinear Spectroscopy of the Polariton-Polariton Interaction Energy at the Quantum Level (329)**
Christian Kriso[1], Théo Colomer[1], Dawid Paszko[2], Alex Ferrier[2], Aristide Lemaître[1], Martina Morassi[1], Isabelle Sagnes[1], Luc Le Gratiet[1], Abdelmounaim Harouri[1], Marzena Szymanska[2], Jacqueline Bloch[1], Sylvain Ravets[1]
[1] *Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, Palaiseau, France*
[2] *Department of Physics and Astronomy, University College London, London, UK*

Th-S8-2-5 - **Room-temperature single-photon source in the blue-green range based on CdSe/ZnSe nanowire quantum dot (333)**
Francis Granger[1,2], Gilles Nogues[2], Edith Bellet-Amalric[1], Joël Cibert[2] ,David Ferrand[2], Kuntheak Kheng[1]
[1] *Univ. Grenoble-Alpes, CEA, Grenoble INP, IRIG, PHELIQS, NPSC, Grenoble, France*
[2] *Univ. Grenoble-Alpes, CNRS, Inst. NEEL, Grenoble, France*

ROOM 202 Th-S8-3

1. Material growth, structural properties and characterization, phonons

Th-S8-3-1 - **MoSe2 as an epitaxial quantum well with asymmetric MgSe and hBN barriers (261)**
Adam K. Szczerba[1], Blanka Tronowicz[1], Julia Kucharek[1], Takashi Taniguchi[2], Kenji Watanabe[2], Wojciech Pacuski[1]
[1] *Faculty of Physics, University of Warsaw, Pasteura St. 5, 02-093 Warsaw, Poland*
[2] *National Institute for Materials Science, 1-1 Namiki, Tsukuba 305-0044, Japan*

Th-S8-3-2 - **Fluctuation-dissipation and Johnson-Nyquist noise in thermoelectric materials (372)**
Ngoc Anh Minh Tran[1], A. S. Dutt[2], N. B. Pulumati[2], Heiko Reith[2], Anjun Hu[1], Alexandre Dumont[3], Kornelius Nielsch[2], Andre-Marie Tremblay[3], Gabi Schierning[4], Bertrand Reulet[3], Thomas Szkopek[1]
[1] *McGill University, Montreal, Quebec, Canada*
[2] *IFW Dresden, Dresden, Germany*
[3] *Université de Sherbrooke, Sherbrooke, Québec, Canada*
[4] *Universitat Duisburg-Essen, Duisburg, Germany*

Th-S8-3-3
Invited - Hiroki Ago, Kyushu University, Japan- **"Science of 2.5 Dimensional Materials: Integration of High-Quality 2D Materials for Electronic Devices and Catalysis"**

Th-S8-3-4 - **Pulsed laser epitaxy of ferromagnetic GdN thin films (377)**
Yusuke Tanaka[1], Yoshiharu Krockenberger[1], Yoji Kunihashi[1], Hideki Gotoh[2,1], Junsaku Nitta[1,3], Haruki Sanada[1]
[1] *NTT Basic Research Laboratories, Atsugi, Japan*
[2] *Research Institute for Nanodevices, Hiroshima University, Higashi-hiroshima, Japan*
[3] *Department of Materials Science, Tohoku University, Sendai, Japan*

Th-S8-3-5 - **TBC**

ROOM 204 Th-S8-4

14. Quantum technology: Quantum dots and nano-crystals

Th-S8-4-1 - **Formation of Quantum Dots in ZnO Heterostructures and Observation of Kondo Effect (204)**
Kosuke Noro[1,2], Yusuke Kozuka[3], Kazuma Matsumura[1,2], Takeshi Kumasaka[1], Yoshihiro Fujiwara[1,2], Atsushi Tsukazaki[4,5], Masashi Kawasaki[6,7], Tomohiro Otsuka[1,2,5,7,8]
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[5] *Center for Science and Innovation in Spintronics, Tohoku University, Aoba-ku, Sendai, Miyagi, Japan*
[6] *Department of Applied Physics and Quantum-Phase Electronics Center (QPEC), University of Tokyo, Bunkyo-ku, Tokyo, Japan*
[7] *Center for Emergent Matter Science, RIKEN, Wako, Saitama, Japan*
[8] *WPI Advanced Institute for Materials Research, Tohoku University, Aoba-ku, Sendai, Miyagi, Japan*

Th-S8-4-2 - **Telecoms-Wavelengths Cavity-enhanced Devices Based on Type-II GaSb Quantum Rings (236)**
Sam Jones[1], Gizem Acar[1], Peter Hodgson[1], Manus Hayne[1]
[1] *Department of Physics, Lancaster University, Lancaster LA1 4YB, United Kingdom*

Th-S8-4-3 - **Continuous Generation of an Indistinguishable Photonic Cluster State (239)**
Invited Speaker - Ido Schwartz[1]
[1] Technion - Israel Institute of Technology, Haifa, Israel

Th-S8-4-4 - **Electronic and Excitonic Properties of [111]-oriented site-controlled GaAs Quantum Dots (238)**
Neil O'Connor[1,2], James McCloskey[1,2], Francesco Mattana[1], Gediminas Juska[1], Emanuele Pelucchi[1], Stefan Schulz[1,2]
[1] Tyndall National Institute, University College Cork, Cork, Cork, Ireland
[2] School of Physics, University College Cork, Cork, Cork, Ireland

Th-S8-4-5 - **Kondo Effect in Few-Electron Quantum Dots (315)**
Olfa Dani[1], Johannes C. Bayer[1], Timo Wagner[1], Gertrud Zwicknagl[2], Rolf J. Haug[1]
[1] Institut für Festkörperphysik, Leibniz Universität Hannover, Hannover, Germany
[2] Institut für Mathematische Physik, Technische Universität Braunschweig, Braunschweig, Germany

ROOM 209 Th-S8-5 **9. Quantum Hall effect, and fractional quantum Hall effect**

Th-S8-5-1 - **Non-trivial Entropy of a Correlated Kondo Impurity (131)**
Colin Piquard[1], Alexandre Veillon[1], Yosuke Sato[1], Abdelhanin Aassime[1], Antonella Cavanna[1], Ulf Gennser[1], Anne Anthore[1,2], Frédéric Pierre[1]
[1] Université Paris-Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies, Palaiseau, France
[2] Université Paris Cité, CNRS, Centre de Nanosciences et de Nanotechnologies, Palaiseau, France

Th-S8-5-2 - **Disorder induced local quantum Hall breakdown on spin-, valley-, and cyclotron-gapped states in graphene (134)**
Aifei Zhang[1], Manjari Garg[1], Kenji Watanabe[2], Takashi Taniguchi[2], Patrice Roche[1], Carles Altimiras[1], Olivier Maillet[1], François Parmentier[1]
[1] Université Paris-Saclay, CEA, CNRS, SPEC, 91191 Gif-sur-Yvette cedex, France
[2] National Institute of Materials Science, 1-1 Namiki, Tsukuba, 305-0044, Japan

Th-S8-5-3 - **Anyon braiding and quasiparticle Andreev scattering in a mesoscopic collider (136)**
Olivier Maillet[1], Pierre Glidic[2], Colin Piquard[2], Abdelhanin Aassime[2], Yong Jin[2], Antonella Cavanna[2], Ulf Gennser[2], Anne Anthore[3], Frédéric Pierre[2]
[1] Université Paris-Saclay, CEA, CNRS, SPEC, 91191 Gif-sur-Yvette Cedex, France, Paris, France
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[3] Université Paris Cité, CNRS, Centre de Nanosciences et de Nanotechnologies, F-91120 Palaiseau, France, Paris, France

Th-S8-5-4 - **Subsonic to Supersonic transition in Phonon-assisted Non-linear DC Transport in Ultra-high Mobility Two Dimensional Electron Gas (149)**
Michael Hilke[1], Zitong Wang[1], Norm Fong[2], Guy Austing[1,2], Sergei Studenikin[2], Ken West[3], Loren Pfeiffer[3]
[1] McGill University, Montréal, Quebec, Canada
[2] National Research Council of Canada, Ottawa, Ontario, Canada
[3] Princeton University, Princeton, New Jersey, USA

Th-S8-5-4
Invited - Michael Manfra, Purdue University, USA- **"Interferometric Measurements of Charge and Statistics in the Fractional Quantum Hall Regime"**

ROOM 211 Th-S8-6 **6. Perovskites/Organic semiconductors; Complex oxide and chalcogenide semiconductors**

Th-S8-6-1 - Controlling the Self-Assembly of Organic Semiconductors by Tuning the H-Bonded Assembly of Diketopyrrolopyrroles (289)
Navathej Preetha Genesh[1], Dominik Dettmann[1,2], Daling Cui[3], Yuxuan Che[3], Violeta Toader[3], Tarnjit Johal[1], Chaoying Fu[4], Dmytro Perepichka[3], Federico Rosei[1]
[1] Institut National de la Recherche Scientifique, Centre Énergie, Matériaux et Télécommunications, Montreal, Quebec, Canada
[2] Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche, Roma, Lazio, Italy
[3] McGill University, Department of Chemistry, Montreal, Quebec, Canada
[4] Huzhou University, School of Life Sciences, Huzhou Key Laboratory of Medical and Environmental Applications Technologies, Huzhou, Zhejiang, China

Th-S8-6-2 - **Unveiling the Growth Dynamics of CsPbBr3 Microcrystals with Various Geometries via Single-step CVD Process (352)**
Mamoon Ur Rashid[1], Zeeshan Tahir[1], Farman Ullah[2], Muhammad Sheeraz[1], Yun Chang Park[3], Chinh Tam Le[1], Yong Soo Kim[1]
[1] University of Ulsan, Department of Physics, 93 Daehak-ro, Mugeo-dong, Nam-gu, Building # 8, Room # 8-334, 44610, Ulsan, Republic of Korea., South Korea
[2] University of Waterloo, Department of Mechanical and Mechatronics Engineering, Waterloo, Ontari-oN2L 3G1, Canada
[3] National Nanofab Center, Measurement and Analysis Division, 34141, Daejeon, South Korea

Th-S8-6-3 - **Real-Time Observation of Slowed Charge-Density Wave Dynamics in Thinned 1T-TaS2 (401)**
Shenchu Yin[1], Keke he[1], Bilal Barut[1], Michael Randle[1], Ripudaman Dixit[1], Jubin Nathawat[1], Davoud Adinehloo[1], Vasili Perebeinos[1], Jong Han[2], Jonathan Bird[1]
[1] Department of Electrical Engineering, University at Buffalo, Buffalo, NY 14260, USA
[2] Department of Physics, University at Buffalo, Buffalo, NY 14260, USA

Th-S8-6-4 - **Computational Insights into Organic/Inorganic Halide Perovskite Solar Devices (512)**
Andrea Vezzosi[1], Nikolaos Lempesis[1], Virginia Carnevali[1], Vladislav Sláma[1], Ursula Röthlisberger[1]
[1] Laboratory of Computational Chemistry and Biochemistry, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

Th-S8-6-5
Invited - Michal Baranowski, Wroclaw University of Science and Technology, Poland- **"Exciton-phonon coupling - the Driving Force Behind Metal-Halide Perovskite Optical Response"**

12:00pm – 1:30pm		Lunch Break
1:30pm – 3:00pm	Th-S9	Technical Session 9
ROOM 210	Th-S9-1	**5. 2D materials beyond graphene including twistronics**

Th-S9-1-1
Invited - Thomas Ihn, ETH Zurich, Switzerland- **"Quantum Devices in Graphene"**

Th-S9-1-2 - **Quadrupolar and dipolar excitons in MoSe2 homo - bilayer (301)**
Jakub Jasinski[1,2], Joakim Hagel[3], Samuel Brem[3], Alessandro Surrente[2], Duncan Maude[1], Michal Baranowski[2], Ermin Malic[3], Paulina Plochocka[1,2]
[1] Laboratoire National Des Champs Magnétiques Intenses, Cnrs, Toulouse, France
[2] Department of Experimental Physics, Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wroclaw, Poland
[3] Department of Physics, Philipps-Universitat Marburg, Marburg, Germany

Th-S9-1-3 - **Defect-induced magnetic phase transition in 2D semiconductor CrSBr (306)**
Fangchao Long[1,3], Mahdi Ghorbani-Asl[1], Zdenek Sofer[2], Florian Dirnberger[3], Arkady V. Krasheninnikov[1], Slawomir Prucnal[1], Manfred Helm[1,3], Shengqiang Zhou[1]
[1] Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany
[2] University of Chemistry and Technology Prague, Prague, Czech Republic
[3] TU Dresden, Dresden, German

Th-S9-1-4 - **Spin Polarized Transport in Monolayer WSe2 Quantum Structures (451)**
Justin Boddison-Chouinard[1,2], Antoine Labbé[1,2], Alex Bogan[1], Pedro Barrios[1], Philip Waldron[1], Jean Lapointe[1], Kenji Watanabe[3], Takashi Taniguchi[3], Marek Korkusinski[1,2], Adina Luican-Mayer[2], Louis Gaudreau[1,2]
[1] National Research Council Canada, Ottawa, Ontario, Canada
[2] University of Ottawa, Ottawa, Ontario, Canada
[3] Research Center for Functional Materials, National Institute for Materials Science, Tsukuba, Japan

Th-S9-1-5 - **Tunable quantum interferometer for correlated moire electrons (360)**
Alexandra Mestre-Tora[1], Shuichi Iwakiri[1], Elias Portoles[1], Marieke Visscher[1], Marta Perego[1], Giulia Zheng[1], Takashi Taniguchi[2], Kenji Watanabe[3], Manfred Sigrist[4], Thomas Ihn[1], Klaus Ensslin[1]
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[3] Research Center for Electronic and Optical Materials, National Institute for Materials Science, Tsukuba, Japan
[4] Institute for Theoretical Physics, ETH Zurich, Zurich, Switzerland

ROOM 212	Th-S9-2	**8. Low dimensional semiconductor systems (1D, 2D)**

Th-S9-2-1
Invited - Wilfred van der Wiel, University of Twente, The Netherlands- **"Information Processing in Dopant Network Processing Units"**

Th-S9-2-2 - **Probing charge Transport in quasi-1D Layered Semiconductors Towards Quantum Applications (290)**
Ivan Verzhbitskiy[1], Johnson Goh[1]
*[1] Institute of Materials Research and Engineering, Agency for Science Technology and Research (A*STAR), Singapore*

Th-S9-2-3- **Ultrastrong remote interaction between terahertz magnetoplasmons and electrons in a quantum point contact mediated by a split-ring resonator (294)**
Kazuyuki Kuroyama[1], Jinkwan Kwoen[2], Yasuhiko Arakawa[2], Kazuhiko Hirakawa[1,2]
[1] Institute of Industrial Science, Meguro-ku, Tokyo, Japan
[2] Institute of Nano Quantum Information Electronics, Meguro-ku, Tokyo, Japan

Th-S9-2-4 - **Fluctuating Magnetism in Rhombohedral Graphene Multilayers (462)**
Ludwig Holleis[1], Tian Xie[1], Haoxin Zhou[1], Siyuan Xu[1], Zhiyuan Cui[1], Caitlin Patterson[1], Kenji Watanabe[2], Takashi Tanaguchi[3], Chenhao Jin[1], Andrea Young[1]
[1] UC Santa Barbara, Tsukuba, CA, United States
[2] International Center for Materials Nanoarchitectonics, Tsukuba, Japan
[3] Research Center for Functional Materials, Tsukuba, Japan

Th-S9-2-5 - **Ferroelectric Semiconductors with a Tuneable Inverted Mexican Hat Valence Band (387)**
J. Felton[1], Joe Page[2], Zhuo Yang[3], N. Alghofaili[1], Mark Greenaway[2], James O'Shea[1], Laurence Eaves[1], Yoshimitsu Kohama[3], Amalia Patane[1]
[1] University Of Nottingham, Nottingham, United Kingdom, United Kingdom
[2] Loughborough University, Loughborough, United Kingdom, United Kingdom
[3] The University of Tokyo, Tokyo, Japan, Japan

ROOM 202 Th-S9-3 **11. Optical properties, opto-electronics, solar cells**

Th-S9-3-1 - **Chalcogen hyperdoped Silicon: a route for monolithically integrated infrared optoelectronics (298)**
Shengqiang Zhou[1], Mohd Saif Shaikh[1], Mao Wang[1], Moritz Hoesch[2], Slawomir Prucnal[1], Yonder Berencén[1], Kambiz Jamshidi[3], Manfred Helm[1,3]
[1] Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany
[2] Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany
[3] TU Dresden, Dresden, Germany

Th-S9-3-2 - **The Role of Magnetic Fields in Synchronization of Two Polariton Condensates (305)**
Magdalena Furman[1], Rafał Mirek[1], Mateusz Król[1], Wojciech Pacuski[1], Helgi Sigurðsson[1,2], Jacek Szczytko[1], Barbara Piętka[1]
[1] University of Warsaw, Warsaw, Poland
[2] University of Iceland, Reykjavik, Iceland

Th-S9-3-3 - **Scalable Two-dimensional Semiconductors: From Photogating to Deep UV Optoelectronics (325)**
Invited Speakers - Benjamin Thomas Dewes[1], Natham Cottam[1], Mustaqeem Shiffa[1], Jonathan Bradford[1], Tin Cheng[1], Sergei Novikov[1], Chris Mellor[1], Oleg Makarovskiy[1], Kazi Rahman[1], James O'Shea[1], Peter Beton[1], Teresa Ben[2], David González[2], Amalia Patanè[1]
[1] School Of Physics And Astronomy, University Of Nottingham, Nottingham, United Kingdom
[2] University Research Institute on Electron Microscopy and Materials, Universidad de Cádiz, Cádiz, Spain

Th-S9-3-4 - **Simultaneous Optimization of Yield and Threshold in Microring Lasers (308)**
Mihir Athavale[1,3], Ruqaiya Al-Abri[1], Stephen Church[1], Wei Wen Wong[2], Andre Low[3], Kedar Hippalgaonkar[3], Hark Hoe Tan[2], Patrick Parkinson[1]
[1] Photon Science Institute and Department of Physics and Astronomy, School of Natural Sciences, The University of Manchester, Manchester M13 9PL, United Kingdom
[2] Department of Electronic Materials Engineering, Research School of Physics, The Australian National University, Canberra ACT 2601, Australia
*[3] Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and Research (A * STAR), 2 Fusionopolis Way, Innovis, Singapore 138634, Singapore*

Th-S9-3-5 - **Broadband Metamaterial-Based Single-Photon Detectors with Near-Unity Absorption (344)**
Sarah Odinotski[1,2], Burak Tekcan[1,2], Sasan Vosoogh-Grayli[1,2], Lin Tian[1,2], Tarun Patel[1,3], Jean-Philippe Bourgoin[5], Zbig Wasilewski[2,4], Michael Reimer[1,2,3,5]
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[2] Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Canada
[3] Department of Physics, University of Waterloo, Waterloo, Canada
[4] Waterloo Institute for Nanotechnology, Waterloo, Canada
[5] Single Quantum Systems, Waterloo, Canada

ROOM 204 Th-S9-4 **4. Carbon: 2D graphene, 1D nanotubes, and 0D quantum dots**

Th-S9-4-1 - **Metasurface-Enhanced Terahertz Third Harmonic Generation in Double-Layer Graphene (341)**
Ali Maleki[1], Moritz Heindl[2], Yongbao Xin[3], Robert W. Boyd[1,4,5], Georg Herink[2], Jean-Michel Ménard[1,4]
[1] University Of Ottawa, Ottawa, ON, Canada
[2] Experimental Physics VIII – Ultrafast Dynamics, University of Bayreuth, Bayreuth, Germany
[3] Iridian Spectral Technologies Ltd., Ottawa, ON, Canada
[4] School of Electrical Engineering and Computer Science, University of Ottawa, Ottawa, ON, Canada

[5] *Institute of Optics and Department of Physics and Astronomy, University of Rochester, Rochester, NY, USA*

Th-S9-4-2 - **Mechanical Control of Quantum Transport in Graphene and Single-wall Carbon Nanotubes (489)**
Linxiang Huang[1], Guoqing Wei[1], Andrew McRae[1], Alexandre Champagne[1]
[1] *Concordia University, Montréal, Quebec, Canada*

Th-S9-4-3 - **Propagation Control of Ultrashort Plasmon Wavepacket in Graphene (62)**
Invited Speakers - Katsumasa Yoshioka[1], Guillaume Bernard[1], Taro Wakamura[1], Masayuki Hashisaka[1], Kenichi Sasaki[1], Satoshi Sasaki[1], Kenji Watanabe[2], Takashi Taniguchi[2], Norio Kumada[1]
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[3] *Research Center for Materials Nanoarchitectonics, National Institute for Materials Science, 1-1 Namiki, Tsukuba 305-0044, Japan*

Th-S9-4-4 - **Entropy Spectroscopy of a Bilayer Graphene Quantum Dot (386)**
Christoph Adam[1], Hadrien Duprez[1], Natalie Lehmann[1], Antoni Yglesias[1], Solenn Cances[1], Max Josef Ruckriegel[1], Michele Masseroni[1], Chuyao Tong[1], Artem Olegovich Denisov[1], Rebekka Garreis[1], Wister Huang[1], Kenji Watanabe[2], Takashi Taniguchi[3], Klaus Ensslin[1], Thomas Ihn[1]
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[2] *Research Center for Functional Materials, National Institute for Materials Science, Tsukuba, Japan*
[3] *International Center for Materials Nanoarchitectonics, National Institute for Material Science, Tsukuba, Japan*

Th-S9-4-5 - **Topological Flat Bands in Strained Graphene: Optical Control and Robust Edge States (503)**
Md Tareq Mahmud[1,2], Dawei Zhai[1,3], Adel Belayadi[4], Nancy Sandler[1]
[1] *Department of Physics and Astronomy, and Nanoscale and Quantum Phenomena Institute, Ohio University, Athens, OH, USA*
[2] *Department of Physics, University of Dakha, Dakha 1000, Bangladesh*
[3] *Department of Physics, The University of Hong Kong, and HKU-UCAS Joint Institute of Theoretical and Computational Physics at Hong Kong, Hong Kong, China*
[4] *Department of Physics, University of Science and Technology Houari Boumediene, Bab-Ezzouar, Algeria*

ROOM 209 Th-S9-5 **2. Wide-bandgap semiconductors (GaN, SiC, Ga2O3, BN, Diamond) & 12. Quantum optics, nano-photonics, quantum emitters**

Th-S9-5-1 - **Resonant Tunneling Spectroscopy of High-Energy States in Non-centrosymmetric GaN/AlN Resonant Tunneling Diodes (267)**
Jimy Encomendero[1], Vladimir Protasenko[1], Debdeep Jena[1,2,3], Grace Xing[1,2,3]
[1] *School of Electrical and Computer Engineering, Cornell University, Ithaca, NY, USA*
[2] *Department of Materials Science and Engineering, Cornell University, Ithaca, NY, USA*
[3] *Kavli Institute at Cornell for Nanoscale Science, Cornell University, Ithaca, NY, USA*

Th-S9-5-2 - **Schottky barrier height dependence on polarity and doping density of GaN in epitaxially grown NbN/GaN structures (346)**
Anand Ithepalli[1], Jimy Encomendero[2], Madhav Ramesh[2], Huili (Grace) Xing[1,2], Debdeep Jena[1,2]
[1] *Department of Materials Science and Engineering, Cornell University, Ithaca, New York, United States*
[2] *Department of Electrical and Computer Engineering, Cornell University, Ithaca, New York, United States*

Th-S9-5-3 - **Scalable Thin-Film GaSe Epitaxy and Chemical Conversion into Ga2O3 (403)**
Nathan Cottam[1], Ben Dewes[1], Mustaqeem Shiffa[1], Tin Cheng[1], Sergei Novikov[1], Chris Mellor[1], Oleg Makarovskiy[1], David Gonzalez[2], Teresa Ben[2], Amalia Patanè[1]
[1] *University Of Nottingham, Nottingham, United Kingdom*
[2] *University Research Institute on Electron Microscopy and Materials, Cadiz, Spain*

Th-S9-5-4 - **Single Electron Trap Dynamics in Diamond Sensed by a Proximal Nitrogen-Vacancy Center (108)**
Yannik Fontana[1], Viktoria Yurgens[1], Brendan J. Shields[1,2], Patrick Maletinsky[1], Richard J. Warburton[1]
[1] *Department of Physics, University of Basel, 4056 Basel, Switzerland*
[2] *Quantum Network Technologies, Boston, Massachusetts 02215, USA*

Th-S9-5-5 - **Hybrid Electroluminescence Device Generating On-Demand Single Photons in Room Temperature (172)**
Aleksander Rodek[1], Mateusz Hajdel[2], Kacper Oreszczuk[1], Anna Kafar[2], Muhammed Aktas[2], Marek Potemski[1,2,3], Czesław Skierbiszewski[2], Piotr Kossacki[1]
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[3] *Laboratoire National des Champs Magnetiques Intenses, CNRS-UGA-UPS-INSA-EMFL, Grenoble, France*

Th-S9-5-6 - **Splitting Polariton Condensates With 1D Microcavity Couplers (100)**
Elena Rozas[1], Alexey Yulin[2], Sebastian Klembt[3], Sven Höfling[3], M Dolores Martin-Fernandez[1], Luis Viña[1]
[1] *Universidad Autónoma De Madrid, Saint Petersburgh, Madrid, Spain*

[2] *ITMO University, Saint Petersburgh, Russia*
[3] *Wurzburg University, Wurzburg, Germany*

ROOM 211	Th-S9-6	**15. Semiconductor-superconductor hybrid systems, Nano-mechanics, MEMS/NEMS, and opto-mechanics**

Th-S9-6-1 - **Continuous microwave photon counter using superconducting cavity-coupled semiconductor quantum dots (9)**
Subhomoy Haldar[1], David Barker[1], Harald Havir[1], Antti Ranni[1], Sebastian Lehmann[1], Kimberly A. Dick[1,2], Ville F. Maisi[1]
[1] *NanoLund and Solid-State Physics, Lund University, Box 118, 22100 Lund, Sweden, Lund, Skane, Sweden*
[2] *Center for Analysis and Synthesis, Lund University, Box 124, 22100 Lund, Sweden, Lund, Skane, Sweden*

Th-S9-6-2 - **Coupling of Quantum Hall Effect and Superconductivity Using Al/InAs Junction on Cleaved Edge Surface (124)**
Takafumi Akiho[1], Hiroshi Irie[1], Yusuke Nakazawa[1], Satoshi Sasaki[1], Norio Kumada[1], Koji Muraki[1]
[1] *NTT Basic Research Laboratories, Atsugi, Japan*

Th-S9-6-3 - **High Transparency Induced Superconductivity in Field Effect Two-Dimensional Electron Gases in Undoped InAs/AlGaSb Surface Quantum Wells (286)**
E. Annelise Bergeron[1,2], Francois Sfigakis[1,3,4], Ahmed Elbaroudy[5,2], Andrew W. M. Jordan[1,4], Fiona Thompson[1,4], George Nichols[1,2], Yinqiu (Peyton) Shi[5,6], Man Chun Tam[5,6], Zbigniew Wasilewski[1,2,3,5,6], Jonathan Baugh[1,2,3,4,6]
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[5] *Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario, Canada*
[6] *Waterloo Institute for Nanotechnology, University of Waterloo, Waterloo, Ontario, Canada*

Th-S9-6-4 - **Strong coupling between the superconducting LC resonator and ensemble spin (456)**
Taehee Kim[1], Sunghun Park[2], Sung Jin An[1], Sung-Bo Shim[3], Hakseong Kim[3], Brian Zhou[4], Hee-Chul Park[5], Jungpil Seo[6], Minkyung Jung[1]
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[5] *Pukyong National University, Busan, Busan, South Korea*
[6] *Department of Physics and Chemistry, DGIST, Hyeonpung, Dalseong, Daegu, South Korea*

Th-S9-6-5
Invited - Thiago Alegre, University of Campinas-UNICAMP, Brazil- **"Towards Overcoming Performance Barriers in Optomechanical Quantum Information Platforms"**

3:00pm – 3:30pm		Coffee Break
3:30pm – 5:00pm	Th-S10	Technical Session **10**
ROOM 210	Th-S10-1	**5. 2D materials beyond graphene including twistronics**

Th-S10-1-1
Invited – Jonghwan Kim, Pohang University of Science and Technology, Republic of Korea- **"Probing deep-ultraviolet optoelectronic processes in hexagonal boron nitride"**

Th-S10-1-2 - **Optoelectronic and Tunneling Probe of Moiré Magnetism in Twisted CrI3 (361)**
Tarun Patel[1,2], Bowen Yang[1,2], Meixin Cheng[1,3], Kostyantyn Pichugin[3], Lin Tian[1,4], Nachiket Sherlekar[1,2], Shaohua Yan[5], Yang Fu[5], Shangjie Tian[5,6], Hechang Lei[5], Michael Reimer[1,4], Junichi Okamoto[7,8], Adam Wei Tsen[1,3]
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Th-S10-1-3 - **Charge Transport in Split-gated Point Contact based on MoS2/WSe2 Heterostructure (382)**
Nguyen Nhat Anh Phan[1], Inayat Uddin[1], Hai Yen Le Thi[2], Nobuyuki Aoki[3], Kenji Watanabe[4], Takashi Taniguchi[5], Gil-Ho Kim[1,2]

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[2] *Sungkyunkwan Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University (SKKU), Suwon, South Korea*
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[4] *Research Center for Functional Materials, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Japan*
[5] *International Center for Material Nano-Architectonics, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Japan*

Th-S10-1-4 - **Size-Dependent Effects in Thin Films of Transition Metal Chalcogenides (402)**
Lars Thole[1], Christopher Belke[1], Davin Höllmann[1], Sonja Locmelis[2], Peter Behrens[2,3], Rolf J. Haug[1,3]
[1] *Institute Of Solid State Physics, Leibniz University Hannover, Hannover, Germany*
[2] *Institute of Inorganic Chemistry, Leibniz University Hannover, Hannover, Germany*
[3] *Laboratory of Nano and Quantum Engineering, Leibniz University Hannover, Hannover, Germany*

Th-S10-1-5 - **Influence of atomic relaxations on the moiré flat band wavefunctions in antiparallel twisted bilayer WS2 (419)**
Laurent Molino[1], Leena Aggarwal[1], Indrajit Maity[2,3], Ryan Plumadore[1], Johannes Lischner[2,3], Adina Luican-Mayer[1]
[1] *University Of Ottawa, Ottawa, Ontario, Canada*
[2] *Imperial College London, London, United Kingdom*
[3] *Thomas Young Centre for Theory and Simulation of Materials, London, United Kingdom*

ROOM 212 Th-S10-2 **12. Quantum optics, nano-photonics, quantum emitters, NV Centers**

Th-S10-2-2
Invited - Jacek Szczytko, University of Warsaw, Poland- **"Engineering Tunable Band Structures and Spin-Orbit Coupling in Photonic Potentials Using Birefringent Optical Cavities"**

Th-S10-2-2 - **Ab initio study of carbon defects in hexagonal boron nitride: in search of single-photon emitters (342)**
Marek Maciaszek[1,2], Lukas Razinkovas[2,3], Audrius Alkauskas[2,4]
[1] *Faculty of Physics, Warsaw University of Technology, Warszawa, Poland*
[2] *Center for Physical Sciences and Technology (FTMC), Vilnius, Lithuania*
[3] *Department of Physics/Centre for Materials Science and Nanotechnology, University of Oslo, Oslo, Norway*
[4] *Departament of Physics, Kaunas University of Technology, Kaunas, Lithuania*

Th-S10-2-3 - **Plug-and-play quantum light from semiconductor quantum dots in fiber-pigtailed hybrid circular Bragg gratings (349)**
Lucas Rickert[1], Kinga Zolnacz[2], Daniel Vajner[1], Martin v. Helversen[1], Johannes Schall[1], Shulun Li[1,4], Sven Rodt[1], Anna Musial[3], Grzegorz Sek[3], Z. Niu[4], Stephan Reitzenstein[1], Tobias Heindel[1]
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[2] *Department of Optics and Photonics, Wroclaw University of Science and Technology, Wroclaw, Poland*
[3] *Department of Experimental Physics, Wroclaw University of Science and Technology, Wroclaw, Poland*
[4] *Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China*

Th-S10-2-4 - **Coherent Dynamics of the Swing-up Excitation Technique (368)**
Friedrich Sbresny[1], Katarina Boos[1], Sang Kyu Kim[1], Malte Kremser[2], Hubert Riedl[2], Frederik Bopp[2], William Rauhaus[1], Bianca Scaparra[1], Klaus D. Jöns[3], Jonathan J. Finley[2], Lukas Hanschke[3], Kai Müller[1]
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[2] *Walter Schottky Institut, School of Natural Sciences and MCQST, Technische Universität München, 85748 Garching, Germany*
[3] *Institute for Photonic Quantum Systems (PhoQS), Center for Optoelectronics and Photonics Paderborn (CeOPP) and Department of Physics, Paderborn University, 33098 Paderborn, Germany*

Th-S10-2-5 - **Inverted Refractive-Index-Contrast Subwavelength Gratings by 3D Micro-Printing (432)**
Emilia Pruszyńska-Karbownik[1], Daniel Jandura[2], Maciej Dems[3], Łukasz Zinkiewicz[1], Artur Broda[4], Marcin Gębski[3], Jan Muszalski[4], Dušan Pudiš[2,5], Tomasz Czyszanowski[3], Jan Suffczyński[1]
[1] *University Of Warsaw, Warsaw, Poland*
[2] *University of Žilina, Žilina, Slovakia*
[3] *Łódź University of Technology, Łódź, Poland*
[4] *Institute of Microelectronics and Photonics, Warsaw, Poland*
[5] *University Science Park of the University of Žilina, Žilina, Slovakia*

ROOM 202 Th-S10-3 **11. Optical properties, opto-electronics, solar cells**

Th-S10-3-1 - **Quality of Mid-IR Plasmon Resonances in Highly Mismatched Alloys (358)**
Gavin Frodsham[1], Hassan Allami[1], Jacob Krich[1]
[1] *University Of Ottawa, Ottawa, Canada*

Th-S10-3-2 - **First-Principles Theory of Optical Emission in Nanostructured Hexagonal Ge (423)**
Christopher Broderick[1,2,3], Xie Zhang[4], Mark Turiansky[1], Chris Van de Walle[1]
[1] Materials Department, University of California, Santa Barbara, California 93106, U.S.A
[2] Tyndall National Institute, University College Cork, Lee Maltings, Dyke Parade, Cork T12 R5CP, Ireland
[3] School of Physics, University College Cork, Cork T12 YN60, Ireland
[4] School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an 710072, China

Th-S10-3-3 - **GeSn Mid-Infrared Thermophotovoltaic Cells for Power Beaming and Heat Conversion (469)**
Gérard Daligou[1], Richard Soref[2], Patrick Del Vecchio[1], Anis Attiaoui[1], Mahmoud Atalla[1], Oussama Moutanabbir[1]
[1] Department of Engineering Physics, Polytechnique Montréal, Montréal, Canada
[2] Department of Engineering, University of Massachusetts Boston, Boston, USA

Th-S10-3-4 - **Resonant Excitation of Nanowire Quantum Dots (528)**
S. Gangopadhyay[1,2], L. Yu[4,5], K.-S. Chan[4,6], D. Northeast[4], D. Dalacu[4,5,6], P.J. Poole[4], M.E. Reimer[1,3]
[1] Institute for Quantum Computing, University of Waterloo, Waterloo, Ontario N2L3G1, Canada
[2] Department of Physics and Astronomy, University of Waterloo, Waterloo, Ontario N2L3G1, Canada
[3] Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario N2L3G1, Canada
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[5] Department of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada
[6] Electrical and Computer Engineering, University of Toronto, Toronto, Ontario M5S 3G4, Canada

Th-S10-3-5 - **Coherent Excitation of Nanowire Quantum Dots using Notched Adiabatic Rapid Passage (NARP) (488)**
K. A. Owen[1,2], A. Gamouras[1,2], D. B. Northeast[1], S. Gambhir[4], K. -S. Chan[1,4,5], G. Wilbur[3], K. C. Hall[3], P. J. Poole[1], R. L. Williams[1], D. Dalacu[1,2,5]
[1] National Research Council Canada, Ottawa, Ontario K1A 0R6, Canada
[2] Department of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada
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[4] Quantum Bridge Technologies, Inc., 108 College Street, Toronto, Ontario, M5G 0C6, Canada
[5] Department of Electrical & Computer Engineering, University of Toronto, Toronto, Ontario, M5S 3G4, Canada

Th-S10-3-6 - **Infrared Plasmon-Polariton Modes in Hyperbolic Metamaterials Based on III-V Semiconductors (507)**
Ethan Caudill[1], Michael Lloyd[2], Kiernan Arledge[1], Tetsuya Mishima[1], Christopher Cailide[1], Jill Nolde[2], Chase Ellis[2], Priyantha Weerasinghe[3], Terry Golding[3], John Murphy[2], Michael Santos[1], Joseph Tischler[1]
[1] University of Oklahoma, Norman, OK, United States
[2] U.S. Naval Research Laboratory, Washington, DC, United States
[3] Amethyst Research Inc, Norman, OK, United States

ROOM 204 Th-S10-4 **14. Quantum technology: Quantum dots and nano-crystals**

Th-S10-4-1 - **Photoionisation detection of a single erbium ion with sub-100-ns time resolution (326)**
Yangbo Zhang[1], Wenda Fan[1], Jiliang Yang[1], Hao Guan[1], Qi Zhang[1], Xi Qin[1], Changkui Duan[1], Gabriele de Boo[2], Brett Johnson[3,4], Jeffrey McCallum[4], Matthew Sellars[5], Sven Rogge[2], Chunming Yin[1], Jiangfeng Du[1]
[1] University of Science and Technology of China, Hefei, China
[2] University of New South Wales, NSW, Australia
[3] RMIT University, Victoria, Australia
[4] University of Melbourne, Victoria, Australia
[5] Australian National University, ACT, Australia

Th-S10-4-2 - **Telecom C-band single photon emission using a scalable platform based on deterministically positioned nanowire quantum dot sources (371)**
Andrew Wakileh[1,2], Lingxi Yu[1,3], Doğa Dokuz[1,3], Sofiane Haffouz[1], Xiaohua Wu[1], Jean Lapointe[1], David Northeast[1], Robin Williams[1], Nir Rotenberg[2], Philip Poole[1], Dan Dalacu[1,2,3]
[1] National Research Council Canada, Ottawa, Ontario, Canada
[2] Queen's University, Kingston, Ontario, Canada
[3] University of Ottawa, Ottawa, Ontario, Canada

Th-S10-4-3 - **Quantum dot molecules as spin-photon interfaces for applications in quantum communication (323)**
Invited Speakers - Christopher Thalacker[1], Michelle Lienhart[1], Frederik Bopp[1], Florian Vögl[1], Nikolai Bart[2], Johannes Schall[3], Katarina Boos[4], Friedrich Sbresny[4], Markus Stöcker[1], Andreas Wieck[2], Arne Ludwig[2], Dirk Reuter[5], Stephan Reitzenstein[3], Hubert Riedl[1], Kai Müller[4], Jonathan Finley[1]
[1] Walter-Schottky-Institute, TUM School of Natural Sciences, Technical University of Munich, Garching bei München, Germany

[2] *Faculty of Physics and Astronomy, Ruhr-University Bochum, Bochum, Germany*
[3] *Institute of Solid-State Physics, Technical University of Berlin, Berlin, Germany*
[4] *Walter Schottky Institute, TUM School of Computation, Information, and Technology, Technical University of Munich, Garching bei München, Germany*
[5] *University of Paderborn, Paderborn, Germany*

Th-S10-4-4 - **Squeezing and Entanglement of Nuclear Spins by Localized Electron (429)**
Dmitry Smirnov[1], Andrei Shumilin[1], Erik Kirstein[2], Evgeny Zhukov[2], Dmitri Yakovlev[1,2], Natasha Kopteva[2], Manfred Bayer[2]
[1] *Ioffe Institute, St. Petersburg, Russian Federation*
[2] *TU Dortmund, Dortmund, Germany*

Th-S10-4-5 - **Principal Axis Orientation Dependence of Quadrupole Interaction in Anomalous Hanle Effect (448)**
Sota Yamamoto[1], Reina Kaji[2], Hirotaka Sasakura[2], Satoru Adachi[2]
[1] *Tohoku University, Sendai, Miyagi, Japan*
[2] *Hokkaido University, Sapporo, Hokkaido, Japan*

ROOM 209 Th-S10-5

13. Quantum technology: Semiconductor-based qubits

Th-S10-5-1 - **Non-adiabaticity of electron pick-up process by surface acoustic wave for qubit transport (332)**
Zongye Wang[1], Xuedong Hu[1]
[1] *Physics Department, University At Buffalo, Buffalo, New York, United States*

Th-S10-5-2 - **Fast and high-fidelity dispersive readout of a spin qubit via squeezing and resonator nonlinearity (337)**
Chon Fai Kam[1], Xuedong Hu[1]
[1] *University At Buffalo, Buffalo, New York, United States*

Th-S10-5-3 - **Valley Qubits and Qutrits in TMD Heterostructures (357)**
Jaroslaw Pawlowski[1], Katarzyna Sadecka[1,2], Maciej Bieniek[1]
[1] *Wrocław University of Science and Technology, Wrocław, Poland*
[2] *University of Ottawa, Ottawa, Canada*

Th-S10-5-4 - **Theory on the Effective g-Factor of a Hole-Spin Qubit in Semiconductor Quantum Dot Systems (415)**
Yun-Pil Shim[1], Omadillo Abdurazakov[1], Ralph Colmenar[2,3], Charles Tahan[2], Mitchell Brickson[4]
[1] *The University of Texas at El Paso, El Paso, Texas, United States*
[2] *University of Maryland, College Park, Maryland, United States*
[3] *Laboratory for Physical Sciences, College Park, Maryland, United States*
[4] *Sandia National Laboratories, Albuquerque, New Mexico, United States*

Th-S10-5-5
Invited - Alex Hamilton, University of New South Wales, Australia- **"Hole Spin Qubits in Planar Silicon CMOS"**

ROOM 211 Th-S10-6

15. Semiconductor-superconductor hybrid systems, Nano-mechanics, MEMS/NEMS, and opto-mechanics

Th-S10-6-1 - **Development of a Semiconductor-Superconductor Hybrid 2DEG with In-situ Nb and NbTi. (460)**
Sjoerd Telkamp[1], Tommaso Antonelli[1,2], Clemens Todt[1], Manuel Hinderling[2], Marco Coraiola[2], Erik Cheah[1], Rüdiger Schott[1], Filip Křížek[1,3], Fabrizio Nichele[2], Werner Wegscheider[1]
[1] *ETH Zurich, Zurich, Switzerland*
[2] *IBM Research Europe, Zurich, Switzerland*
[3] *Czech Academy of Sciences, Prague, Czech Republic*

Th-S10-6-2 - **PL-based mechanical measurements in luminescence-driven optomechanical systems (439)**
Hideki Arahari[1], Kodai Takaoka[2], Sota Konishi[2], Seiji Akita[2], Hajime Ishihara[1]
[1] *Osaka University, Toyonaka, Osaka, Japan*
[2] *Osaka Metropolitan University, Sakai, Osaka, Japan*

Th-S10-6-3
Invited – Adrian Bachtold, ICFO, Spain- **"The Nonlinear Sound of Tiny Guitars Approaching the Quantum Regime"**

		Th-S10-6-4 **Invited** – Jesper Nygård, University of Copenhagen, Denmark- **"Advances in Growth and Integration of Nanowires for Small Quantum Circuits – Superconductor-Semiconductor Junctions and Chains of Hybrid Quantum Dots"**
7:30pm – 10:00pm		Banquet Dinner
Friday August 2, 2024		
9:00am – 10:30am	Fr-S11	Technical Session **11**
ROOM 210	Fr-S11-1	**5. 2D materials beyond graphene including twistronics** Fr-S11-1-1 - **Investigation of Photoluminescence Intensity from MBE-Grown MoSe_2 Monolayers Towards the Performance of the Exfoliated Samples (427)** Mateusz Raczyński[1], Kacper Oreszczuk[1], Wojciech Pacuski[1], Tomasz Kazimierczuk[1], Piotr Kossacki[1] *[1] Faculty of Physics University of Warsaw, Warsaw, Mazowieckie, Poland* Fr-S11-1-2 - **Collosal field-induced energy shift of high-energy excitons in 2D van der Waals magnetic semiconductor CrSBr (431)** Rafał Komar[1], Aleksandra Łopion[1], Kseniia Mosina[2], Aljoscha Soll[2], Zdeněk Sofer[2], Clement Faugeras[3], Wojciech Pacuski[1], Mateusz Goryca[1], Piotr Kossacki[1], Tomasz Kazimierczuk[1] *[1] Faculty Of Physics, University Of Warsaw, Warsaw, Poland* *[2] Department of Inorganic Chemistry, University of Chemistry and Technology Prague, Prague, Czechia* *[3] LNCMI-CNRS, Grenoble, France* Fr-S11-1-3 - **2D van der Waals Magnets: A Promising Platform for Strongly Correlated Phenomena (433)** Igor Rozhansky[1], Vladimir Fal'ko[1] *[1] University of Manchester, Manchester, United Kingdom* Fr-S11-1-4 - **Ultrafast Scanning Tunnelling Spectroscopy of a Phonon-driven Atomic Single-photon Emitter in a Monolayer Crystal (447)** Yaroslav Gerasimenko[1], Carmen Roelcke[1], Lukas Kastner[1], Maximilian Graml[1], Jan Wilhelm[1], Jascha Repp[1], Rupert Huber[1] *[1] Department of Physics and Regensburg Centre for Ultrafast Nanoscopy, University of Regensburg, Regensburg, Germany* Fr-S11-1-5 - **Scanning Probe Microscopy of Moiré Structures (531)** A. Luican-Mayer[1] *[1] Department of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5, Canada* Fr-S11-1-6 - **TBC**
ROOM 212	Fr-S11-2	**8. Low dimensional semiconductor systems (1D, 2D)** Fr-S11-2-1 - **New Prospects for Manufacture of Identical Q Dots, Qubits, Q Memories, Q Simulators, Color Centers and more (440)** **Invited Speakers** - R.A. Wolkow[1,3], J. Pitters[2] *[1] Department of Physics, University of Alberta, Edmonton, Alberta T6G 2E1, Canada* *[2] National Research Council of Canada, Edmonton T6G 2M9, Canada* *[3] Quantum Silicon, Edmonton, T6G 2M9, Alberta, Canada* Fr-S11-2-2 - **Electrical Control of the Kondo Cloud by the Kondo Box (399)** Ngoc Han Tu[1], Minsoo Kim[2], Donghoon Kim[2], Ryo Ito[3], David Pomaranski[4], Jeongmin Shim[2], Ivan. V. Borzenets[5], Arne Ludwig[6], Andreas D. Wieck[6], H.-S. Sim[2], Michihisa Yamamoto[1,4] *[1] Centre for Emergent Matter Science (CEMS), RIKEN, Saitama 351-0198, Japan* *[2] Department of Physics, KAIST, Daejeon, South Korea* *[3] The National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan* *[4] Quantum-Phase Electronics Center and Department of Applied Physics, The University of Tokyo* *[5] Physics & Astronomy Department, Texas A&M University, Texas, United States* *[6] Lehrstuhl für Angewandte Festkörperphysik, Ruhr-Universität Bochum, Germany* Fr-S11-2-3 - **Effect of electron beam irradiation on electrical properties of WS2 nanotubes: an in-situ/in-operando study (463)** Martin Kovarik[1], Daniel Citterberg[1], Tomáš Šikola[1,2], Miroslav Kolíbal[1,2] *[1] Brno University of Technology, CEITEC, Brno, Czech Republic* *[2] Brno University of Technology, FSI, Institute of Physical Engineering, Brno, Czech Republic*

Fr-S11-2-4 - **Charge Transfer and Hybrid States in Inverted-Gap Core-Shell Nanowires (416)**
Andrea Vezzosi[1], Guido Goldoni[1,2], Andrea Bertoni[2]
[1] Dipartimento FIM, Università di Modena e Reggio Emilia, Modena, Italy
[2] Istituto Nanoscienze Cnr, Italy, Modena, Italy

Fr-S11-2-5 - **TBC**

ROOM 202 Fr-S11-3

12. Quantum optics, nano-photonics, quantum emitters, NV Centers

Fr-S11-3-1 - **Parity-time reversal Symmetric Polaritonic System with a Single Hexagonal Microrod Cavity on a Loss-controlled Substrate (434)**
Hyun Gyu Song[1], Minho Choi[1], Kie Young Woo[1], Chung Hyun Park[1], Yong-Hoon Cho[1]
[1] Korea Advanced Institute of Science and Technology (KAIST)), Daejeon, South Korea

Fr-S11-3-2 - **Hybrid Integration of III-V Nanowires Embedded with Quantum Dots on SiN Photonic Integrated Circuits (435)**
Edith Yeung[1,2], David B. Northeast[1], Maziyar Milanizadeh[1], Marek Korkusinski[1,2], Philip J. Poole[1], Robin L. Williams[1], Dan Dalacu[1,2]
[1] National Research Council Canada, Ottawa, Ontario, Canada
[2] University of Ottawa, Ottawa, Ontario, Canada

Fr-S11-3-3 - **A Coherent Spin-Photon Interface in a GaAs Quantum Dot (103)**
Invited Speakers - Giang Nam Nguyen[1], Liang Zhai[1], Mark Hogg[1], Alisa Javadi[1], Clemens Spinnler[1], Marcel Erbe[1], Carolin Schrader[1], Marcus Wyss[2], Julian Ritzmann[3], Hans-Georg Babin[3], Andreas Wieck[3], Arne Ludwig[3], Richard Warburton[1]
[1] University of Basel, Basel, Switzerland
[2] Swiss Nanoscience Institute, Basel, Switzerland
[3] Ruhr-Universität Bochum, Bochum, Germany

Fr-S11-3-4 - **Mode-Matching Method for Efficient Coupling and Near-Unity Absorptance in a Single Tapered Semiconductor Nanowire (436)**
Sathursan Kokilathasan[1,2], Sasan V. Grayli[1,2], Brad van Kasteren[1,2], Tarun Patel[1,3], Matteo Pennacchietti[1,2], Dan Dalacu[4,5], Philip J. Poole[4], Michael E. Reimer[1,2,3]
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[2] Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, ON, Canada
[3] Department of Physics and Astronomy, University of Waterloo, Waterloo, ON, Canada
[4] National Research Council of Canada, Ottawa, ON, Canada
[5] Department of Physics, University of Ottawa, Ottawa, ON, Canada

Fr-S11-3-5 - **On-demand entangled photon sources for quantum networks (444)**
M.E Reimer[1] S. Malik[2], M. Wentland[2], S. Gangopadhyay[2], S. Grayli[1], M. Zeeshan[3], R.L. Williams[3], P.J. Poole[3], D. Dalacu[3], A. Fognini[4], V. Zwiller[5]
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[2] Institute for Quantum Computing and Department of Physics and Astronomy, University of Waterloo, Waterloo, N2L 3G1, Canada
[3] National Research Council of Canada, Ottawa, K1A 0R6, Canada
[4] Single Quantum B.V. Delft, 2628 CJ, The Netherlands
[5] Department of Applied Physics, Royal Institute of Technology, 10691, Stockholm, Sweden

ROOM 204 Fr-S11-4

13. Quantum technology: Semiconductor-based qubits

Fr-S11-4-1 - **Autotuning quantum dot qubits with FrEQuENTS (420)**
Tyler Kovach[1], Daniel Schug[2,3], Michael Wolfe[1], Patrick Walsh[1], Jared Benson[1], Evan MacQuarrie[1], Danielle Middlebrooks[3], Mark Eriksson[1], Justyna Zwolak[2,3]
[1] University of Wisconsin-Madison, Madison, Wisconsin, United States
[2] University of Maryland, College Park, Maryland, United States
[3] National Institute of Standards and Technology, Gaithersburg, Maryland, United States

Fr-S11-4-2 - **Semiconductor Circuits for Quantum Computing with Electron Wave Packets (442)**
David Pomaranski[1,2], Ryo Ito[2,3], Ngoc Han Tu[1], Arne Ludwig[4], Andreas Dirk Wieck[4], Shintaro Takada[3,5], Nobu-Hisa Kaneko[3], Christopher Bäuerle[6], Michihisa Yamamoto[1,2]
[1] University Of Tokyo, Bunkyo, Tokyo, Japan
[2] RIKEN Center for Emergent Matter Science, Wako, Saitama, Japan
[3] National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan
[4] Faculty of Physics and Astronomy, Ruhr-University Bochum, North Rhine-Westphalia, Bochum, Germany
[5] Department of Physics, Osaka University, Toyonaka, Osaka, Japan
[6] Institut Néel, Grenoble, Auvergne-Rhône-Alpes, France

Fr-S11-4-3 - **Dynamic qubit stabilization with real-time noise surveillance (237)**

Invited Speakers - Fabrizio Berritta[1], Joost van der Heijden[2], Fabio Ansaloni[2], Torbjørn Rasmussen[1], Jan Krzywda[3], Federico Fedele[1], Saeed Fallahi[4], Geoffrey Gardner[4], Michael Manfra[4], Evert van Nieuwenburg[3], Jeroen Danon[5], Anasua Chatterjee[1], Ferdinand Kuemmeth[1,2]
[1] Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark
[2] Quantum Machines, QDevil, Ballerup, Denmark
[3] Lorentz Institute, Leiden University, Leiden, Netherlands
[4] Birck Nanotechnology Center, Purdue University, West-Lafayette, Indiana, United States
[5] Norwegian University of Science and Technology, Trondheim, Norway

Fr-S11-4-4 - **Light Hole Spins Confined in Germanium (468)**

Patrick Del Vecchio[1], Oussama Moutanabbir[1]
[1] École Polytechnique De Montréal, Montréal, Quebec, Canada

Fr-S11-4-5 - **Manipulation of hole spins under realistic electric and strain fields in quantum dots (486)**

Jose C. Abadillo-Uriel[1], Esteban A. Rodríguez[2], Biel Martínez[3], Y. M. Niquet[2]
[1] Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spainin
[2] Univ. Grenoble Alpes, CEA, IRIG-MEM-L Sim, Grenoble, France
[3] Univ. Grenoble Alpes, CEA LETI, Grenoble, France

ROOM 209 Fr-S11-5

9. Quantum Hall effect, and fractional quantum Hall effect

Fr-S11-5-1 - **Deformation and Dynamics of Excitations of Quantum Hall Edges (370)**

Yunhyeon Jeong[1], Masahiro Hotta[1], Takaaki Mano[2], Go Yusa[1]
[1] Tohoku University, Sendai, Miyagi, Japan
[2] National Institute for Materials Science, Tsukuba, Ibaraki, Japan

Fr-S11-5-2 - **Probing the 2/3 edge channel quantum coherence using electronic Hong Ou Mandel shot noise correlation (417)**

Avirup De[1], Charles Boudet[1], Jayshankar Nath[1], M. Kapfer[1], P. Roulleau[1], D. Ritchie[2], Ian Farrer[3], D.C. Glattli[1]
[1] Université Paris-Saclay, CEA, CNRS, SPEC, Gif-sur-Yvette, 91191 Cedex, France
[2] Department of Electronic and Electrical Engineering, University of Sheffield, Mappin Street, S1 3JD, UK
[3] Cavendish Laboratory, University of Cambridge, J.J. Thomson Avenue, Cambridge CB3 0HE, UK

Fr-S11-5-3 - **Evidencing Channel Mixing effects on the Quantum Coherence of Quantum Hall channels (418)**

Charles Boudet[1], Avirup De[1], Jayshankar Nath[1], Preden Roulleau[1], Dave Ritchie [2], Ian Farrer[3], D. C. Glattli[1]
[1] CEA Paris-Saclay, Gif-sur-Yvette, Essonne, France
[2] University of Cambridge, Cambridge, Cambridgeshire, United Kingdom
[3] University of Sheffield, Sheffield, South Yorkshire, United Kingdom

Fr-S11-5-4 - **Induced Transformations- and Size Dependence- of Fractional Quantum Hall Effects Under Tilted Magnetic Fields (445)**

Kushan Wijewardena[1], Tharanga Nanayakkara[1], Annika Kriisa[1], Christian Reichl[2], Werner Wegscheider[2], Ramesh Mani[1]
[1] Georgia State University, Atlanta,Georgia, United States
[2] ETH-Zurich, Zurich, Switzerland

Fr-S11-5-5 - **Observation of Developing Fractional Quantum Hall States at Even-Denominator Fillings 1/6 and 1/8 (291)**

Invited Speakers- Mansour Shayegan[1], Chengyu Wang[1], Pranav Madathil[1], Siddharth Singh[1], Adbhut Gupta[1], Yoon Jang Chung[1], Kirk Baldwin[1], Loren Pfeiffer[1]
[1] Department of Electrical and Computer Engineering, Princeton University, Princeton, New Jersey 08544, USA

ROOM 211 Fr-S11-6

10. Spintronics and spin phenomena

Fr-S11-6-1 - **Dresselhaus Spin-Orbit Coefficient Evaluated from Weak Antilocalization in a Gated InSb/AlInSb Quantum Well (395)**

Taizo Kawano[1], Tadashi Fukuchi[1], Tetsuya Mishima[2], Michael Santos[2], Jun Ishihara[1], Sota Yamamoto[1], Katsushi Hashimoto[3,4], Yoshiro Hirayama[4,5], Junsaku Nitta[1,6], Makoto Kohda[1,4,5,7]
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[2] Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, Norman, Oklahoma, USA
[3] Graduate School of Sciences, Tohoku University, Sendai, Miyagi, Japan
[4] Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Miyagi, Japan
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10:30am – 10:50am		Coffee Break
10:50am – 12:00pm	Fr-IUPAP	IUPAP ECSP Winner Session- **Gatineau Salon**
	Fr-IUPAP-1	Marina Filip, University of Oxford, UK- **"Understanding Delocalization and Dissociation of Excitons in Heterogeneous Semiconductors from First Principles Computational Modeling"**
	Fr-IUPAP-2	Yang Xu, Chinese Academy of Sciences, China- **"New perspectives on Rydberg excitons in 2D semiconductors"**
12:00pm – 1:30pm	Fr-PLEN	Plenary Session 5- **Gatineau Salon**
	Fr-PLEN-1	Andrei Geim, University of Manchester, UK- **"Electron Transport in the Dirac Liquid"**
	Fr-PLEN-2	Kin Fai Mak, Cornell University, USA- **"Electron fractionalization and pairing in moiré semiconductors"**
1:30pm – 2:00pm		Best Student Awards/Closing Session/ Next ICPS- **Gatineau Salon**