

4TH INTERNATIONAL CONFERENCE ON TWO-DIMENSIONAL MATERIALS AND TECHNOLOGIES - MELBOURNE CONVENTION & EXHIBITION CENTRE

MONDAY 10 DECEMBER

1400-1700	Registration Open
1700-1900	Welcome Reception - Conference Foyer

TUESDAY 11 DECEMBER

0830-0850	Opening Ceremony 105 & 106 - Chair: Michael Fuhrer			
0850-1020	Plenary Session			
Room	105 & 106			
Session Chair	Qiaoliang Bao			
0850-0935	Lei Jiang <i>Smart interfacial materials from super-wettability to binary cooperative complementary systems</i>			
0935-1020	Hui-Li Xing <i>2D materials for high-performance electronics</i>			
1020-1050	Morning Tea			
1050-1230	Concurrent Symposia 1			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Synthesis - Room 103
Session Chair	Jeff Davis	Yi Du	Jie Zhang	Lan Wang
1050-1120	Shuyun Zhou <i>Van der Waals heterostructures: from commensurate superlattice to incommensurate quasicrystal</i>	Andrew Wee <i>The organic-2D transition metal dichalcogenide interface</i>	Shizhang Qiao <i>Electrocatalysis for water splitting and CO₂ conversion</i>	Changgu Lee <i>Magnetic and physical properties of new 2D materials</i>
1120-1140	Victor Galitski <i>Quantum Cavity Enhancement of Superconductivity and Superconducting Polaritons</i>	Philip Feng <i>Atomic layer 2D nanoelectromechanical systems (nems) with ultra-broad electrical tunability</i>	Chuan Zhao <i>Nickel-iron based 2D materials for electrocatalytic</i>	Sunmin Ryu <i>Nanosopic redox governing charge carriers in two-dimensional crystals</i>
1140-1155	Changxi Zheng <i>Room temperature in-plane ferroelectricity in 8'-In₂Se₃</i>	Lin Wang <i>Band structure engineering of atomically thin PBI₂ with monolayer transition metal dichalcogenides</i>	Linlin Cao <i>Coordination-engineering cobalt on phosphorized carbon nitride for water splitting</i>	Paul Atkin <i>Investigating novel synthesis, optical properties and applications of model 2D semiconducting nanocrystals</i>
1155-1210	Chongyun Jiang <i>Helicity dependent photocurrent in transition metal dichalcogenide van der Waals heterostructures</i>	Sumeet Walia <i>Phosphorene: an alternative elemental analog of Graphene</i>	Tanesh Gamot <i>Enhanced properties of the high internal phase water-in-oil emulsion using graphene oxide-based additives</i>	Nan Pan <i>Edge optical scattering of two-dimensional materials</i>
1210-1230	Jianhao Chen <i>Conventional and in-situ quantum transport measurement of two-dimensional materials</i>	Xinran Wang <i>Ultralow power MoS₂ negative capacitance field-effect transistors</i>	Amadeo Vazquez de Parga <i>Graphene as playground for molecules: from chemisorption to catalysis</i>	Kai Liu <i>Motions induced by interface strain in nano-layered structures</i>
1230-1330	Lunch Break			
1330-1500	Concurrent Symposia 2			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Synthesis - Room 103
Session Chair	Michael Fuhrer	Andrew Wee	Zongyou Yin	Torben Daeneke
1330-1350	Brian Kiraly <i>An orbitally driven single atom magnetic memory on black phosphorus</i>	Xing Wu <i>Advanced in situ TEM on manipulation of nanostructure and probing new properties at atomic scale</i>	Velram Balaji Mohan <i>Hybrid composites of graphene and polymers for 3D printing</i>	Jiadong Zhou <i>Synthesis and properties of magnetic atoms doped MoS₂</i>
1350-1410	Nicola Gaston <i>How robust is the metallicity of two-dimensional gallium?</i>	Jianbin Xu <i>Detection and modulation of light wave with graphene</i>	Yu Lin Zhong <i>Mass production of electrochemically-derived graphene oxide in a packed bed reactor and its application in nanocomposites</i>	Zheng Liu <i>Synthesis of a library of atomically-thin metal chalcogenides</i>
1410-1425	Tobias Maerkl <i>Black-phosphorous-like bismuthene and antimonene in topological van der Waals heterostructures</i>	Dongchen Qi <i>Engineering the 2D hole gas on diamond by surface transfer doping and its device applications</i>	Feng Xin <i>On-chip micro-supercapacitors integrated gas sensor based on three dimensional graphene networks</i>	Fengqiu Wang <i>Tailoring photocarrier dynamics in 2D materials and heterostructures</i>

1425-1440	Zhe Liu <i>Electromechanical actuation properties of group IV monochalcogenides</i>	Seong Jun Kim <i>Multi-functional sensor based on rGO/SWCNT fabric with high durability and waterproofing for human-motion detection</i>	Yehia Manawi <i>Engineering the Surface and Mechanical Properties of Water Desalination Membranes Using Ultra Long Carbon Nanotubes</i>	Wooyoung Shim <i>Van der Waals crystal for battery applications</i>
1440-1500	Barbaros Özyilmaz <i>Spin transport studies in graphene and black phosphorus</i>	Haitao Chen <i>Directional valley-locked emission from a monolayer transition metal dichalcogenide enabled by plasmonic nanoantenna</i>	Muthana Ali <i>Graphene oxide-silica hybrid capsules for sustained fragrance release</i>	Kevin Sivula <i>Liquid-phase exfoliated semiconducting transition metal dichalcogenide 2D nanoflakes for large-area optoelectronic applications</i>
1500-1530	Afternoon Tea			
1530-1700	Editorial Plenary Session facilitated by Michael Fuhrer - 105 & 106 Luke Fleet (Nature), Jovia Jiang (Small), Esther Levy (Advanced Materials Technologies) and Guilin Wang (Science China Materials)			
1700-1830	Poster Session 1 - Sponsored by Light - Science & Applications Conference Foyer 1.1 & 1.2			

WEDNESDAY 12 DECEMBER

0830-1000	Plenary Session			
Room	105 & 106			
Session Chair	Jun Zhu			
0830-0915	Gordon Wallace <i>Graphene – the development pipeline</i>			
0915-1000	Chun-Ning Lau <i>Spin and charge transport in 2D materials</i>			
1000-1030	Morning Tea			
1030-1230	Concurrent Symposia 3			
	Physics - Room 106	Devices - Room 105	Devices - Room 104	Synthesis - Room 103
Session Chair	Antonija Grubisic-Cabo	Blanca Biel	Vipul Bansal	Uli Zuelicke
1030-1100	Jill Miwa <i>Vandium sulphide compounds at the 2D limit</i>	Xiangfeng Duan <i>Van der Waals integration beyond 2D materials</i>	Paola Barbara <i>Nanostructured graphene for ultra-broadband photodetectors</i>	Yunqi Liu <i>Controlling growth of graphene and its electronic properties</i>
1100-1120	Adrian Cernescu <i>Real-space mapping of polaritons in 2D materials</i>	Moon-Ho Jo <i>Programmable doping of atomically thin van der Waals semiconductors with light probes</i>	Weida Hu <i>Infrared photodetector based on 2D materials: progress, challenges, and opportunities</i>	Lin He <i>Detecting valley splitting and valley-contrasting spin splitting at single-electron level around atomic defects of graphene</i>
1120-1135	Mustafa Eginligil <i>Doping effect on light polarization dependent photocurrent of a 2d semiconductor</i>	Baishan Liu <i>Band alignment modulation of ZnO nanorods/monolayer MoS₂ mixed-dimensional heterostructure via strain engineering</i>	Sivacarendran Balendhran <i>Resistive memories and uv sensors based on layered MoO(3-x)</i>	Lijun Zhang <i>Ubiquitous interlayer coupling in two-dimensional materials and its effects on materials properties</i>
1135-1150	Guodong Liu <i>Electronic band structure study of exfoliated millimeter-sized mono-layer MoTe₂ using angle-resolved photoemission spectroscopy</i>	Achint Jain <i>One-dimensional edge contacts to monolayer MoS₂</i>	Zhongming Wei <i>Polarization-sensitive photodetectors based on 2D layered semiconductors</i>	Elisa Ang <i>Single layer transverse flow carbon nanotube membrane for desalination</i>
1150-1210	Zexiang Shen <i>Configuring the structures of 2D materials and perovskites and their applications</i>	Semonti Bhattacharyya <i>Universal conductance fluctuations as a direct probe to detect crossover of symmetry classes in topological insulators</i>	Kai Zhang <i>Narrow-gap 2D semiconductors for IR and THz optoelectronics</i>	Yu Ye <i>Desired two-dimensional materials' properties by designed growth</i>
1210-1230	Miguel Ugeda <i>Multifractal superconductivity in single-layer NbSe₂</i>	Zhenhua Ni <i>Defect engineering for modulating the trap states in 2D photoconductor</i>	Wenzhong Bao <i>2D transition metal dichalcogenides: from field effect transistors to wafer-scale circuits</i>	Xiaojun Wu <i>Computer simulation and design of 2D crystals with tunable band gap and magnetic properties</i>

1230-1330	Lunch Break			
1330-1510	Concurrent Symposia 4			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Physics - Room 103
Session Chair	Yuerui Lu	Yu Lin Zhong	Zongyou Yin	Yi Du
1330-1400	Jun Zhu <i>Quantum valley Hall effect and valleytronics in bilayer graphene</i>	Zaipeng Guo <i>Two-dimensional electrode materials for metal-ion batteries</i>	Lain-Jong Li <i>Two-dimensional semiconducting materials: candidates for extending Moore's Law</i>	Ting Yu <i>Light-matter interactions in 2D materials</i>
1400-1420	Marc Bockrath <i>Interacting Electrons in Bilayer Graphene and Bilayer Graphene/hBN Moiré Superlattices</i>	Jiong Lu <i>Recent STM studies of gate-tunable 2D material devices</i>	Goki Eda <i>Hot carrier optoelectronic devices based on van der Waals heterostructures</i>	Ali Yazdani <i>Visualizing quantum hall liquids and their boundary modes</i>
1420-1435	Aydin Cem Keser <i>Effect of spin-charge disorder correlations on the AHE in 2D dirac fermions</i>	Yanqing Jia <i>Novel all-solid-state supercapacitors based on snowflake-like Ni₃Si₂/NiOOH/graphene hybrid nanostructures</i>	Saju Daniel <i>Natural rubber/st-LDH/MWCNT hybrid bio nanocomposites as flexible EMI shield</i>	Yu Zhang <i>An Atomic-scale on/off Switching of Magnetism at Point Defects in Graphene</i>
1435-1450	Momoko Onodera <i>Metallic carrier transport and superconductivity in novel transitional-metal dinitrides, ReN₂ crystals</i>	Azmira Jannat <i>Physisorptive two dimensional tin sulphide nanoflakes with extraordinary sensitivity and selectivity to NO₂ at room temperature</i>	Peter Sherrell <i>2D crystal heterostructures for water-oxidation</i>	Luhua Li <i>Properties and applications of atomically thin boron nitride</i>
1450-1510	Alexander Tries <i>Strong exciton effect in graphene nanoribbons</i>	Anlian Pan <i>Single nanostructure band gap engineering and heterostructures of atomic layered semiconductors</i>	Mohammad Rezwan Habib <i>Tunable photoluminescence in organic semiconductor/two-dimensional transition metal dichalcogenides van der Waals heterojunction</i>	Yuanbo Zhang <i>Visualizing the electronic structure of thin layers of Bi₂Sr₂CaCu₂O₈+delta</i>
1510-1540	Afternoon Tea			
1540-1720	Concurrent Symposia 5			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Synthesis - ROOM 103
Session Chair	Semonti Bhattacharyya	Zaipeng Guo	Jennifer MacLeod	Torben Daeneke
1540-1600	Simon Brown <i>Topological nanostructures: bismuth and related materials</i>	Phillip Aitchison <i>Redefining the "things" in the IoT: graphene-enabled internet of materials for large area sensing</i>	Hong Li <i>Strain-enhanced two-dimensional electrocatalysts for water splitting and beyond</i>	Jie Zhang <i>Advanced composite two-dimensional energy materials by simultaneous anodic and cathodic exfoliation</i>
1600-1620	Zhi Li <i>Realization of flat band with possible non-trivial topology in electronic Kagome lattice</i>	Rongjin Li <i>Large-area two-dimensional organic single crystals</i>	Nigel Lucas <i>Superphenylphosphines: ligands that direct metal coordination and bulk assembly via "nanographene" substituents</i>	Nai-Chang Yeh <i>Exploring the quantum states and quantum degrees of freedom in 2D van der Waals materials and topological insulators</i>
1620-1640	Ping-Heng Tan <i>Moiré phonons in twisted bilayer MoS₂</i>	Dohun Kim <i>Graphene bolometers for sensitive detection of nitrogen-vacancy spin states in diamond</i>	Si Zhou <i>Ab initio design of carbon based hybrid electrocatalysts</i>	Yuan Huang <i>New mechanical exfoliation technique for preparing large area 2D materials and special structures</i>
1640-1700	Xia Hong <i>Functional design of MoS₂ via nanoscale ferroelectric control</i>	Yuefeng Yin <i>Enhancing electronic fingerprints of physisorbed molecules of graphene</i>	Yanfeng Zhang <i>Controlled growth and versatile applications of metallic transitional metal dichalcogenides</i>	Libo Gao <i>Growth of environmentally stable transition metal selenide films</i>

1700-1720	Yuerui Lu <i>Excited state biexcitons in atomically thin MoSe₂</i>	Masaro Yoshida <i>2D material devices as lab-on-a-chip to explore novel states of matter</i>	Yongxiang Li <i>Facile solution-phase synthetic strategy of 2D SnS nanosheets and its ethanol sensing characteristics</i>	Marko Kralj <i>In situ growth control and further physical and chemical engineering of CVD MoS₂</i>
1720-1850	Poster Session 1 - Sponsored by NPI Lasers Conference Foyer 1.1 & 1.2			
1900-2200	Conference Dinner - ICON-2DMAT Young Scientist and Poster Award Ceremonies: Ground floor Conference Courtyard			

THURSDAY 13 DECEMBER

0830 - 1000	Plenary Session			
Room	105 & 106			
Session Chair	Michael Fuhrer			
0830 - 0915	Hui-Ming Cheng <i>Graphene and 2D materials films and membranes: Fabrication and Applications</i>			
0915 - 1000	James Hone <i>Method and materials for van der Waals heterostructures</i>			
1000 - 1030	Morning Tea			
1030 - 1230	Concurrent Symposia 6			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Synthesis - Room 103
Session Chair	Antonija Grubisic-Cabo	Qiaoliang Bao	Jie Zhang	Dan Li
1030-1100	Blanca Biel <i>Point-like defects in transition metal dichalcogenides characterized by SPM simulations</i>	Baohua Jia <i>Ultrafast laser interaction with 2D materials</i>	Kian-Ping Loh <i>Two dimensional ferroelectric films</i>	Kourosh Kalantar-zadeh <i>Liquid metals from metallic core to two dimensional skin</i>
1100-1120	Alexander Holleitner <i>Generation of localized, optically active defects in tunable 2D materials, using helium ion irradiation</i>	Suk-Ho Choi <i>Si-quantum-dots-based optoelectronic devices by employing doped-graphene transparent conductive electrodes</i>	Guozhen Liu <i>Graphene oxide thin film based in vivo device for continuous monitoring of interferon-γ in inflammatory mice</i>	Vipul Bansal <i>Taking inspiration from biology to preserve photo-sensitive 2D materials against ambient oxidation</i>
1120-1135	Ajit Srivastava <i>Single photon-phonon entanglement in WSe₂ quantum dots</i>	Amadeo Vazquez de Parga <i>Large-area heterostructures from graphene and encapsulated colloidal quantum dots via the Langmuir-Blodgett method</i>	Thu Ha Tran <i>Preparation and application of 1t'-phase ReS₂xSe_{2(1-x)} (x = 0 - 1) nanodots for hydrogen evolution reaction</i>	Nitu Syed <i>Wafer scale synthesis of two dimensional GaPO₄ from liquid metal featuring a large out of plane piezoelectric response</i>
1135-1150	Jiabin Qiao <i>Twisted graphene bilayer around the first magic angle engineered by heterostrain</i>	Junpeng Lu <i>Optical modulation of THz radiation via 2D perovskite</i>	Yuanhui Sun <i>Strong interlayer coupling and new phases of two-dimensional optoelectronic semiconductor InSe</i>	Jiawei Liu <i>Wet-chemical synthesis of ultrathin two-dimensional metallic nanosheets for (electro) catalytic applications</i>
1150-1210	Mark Edmonds <i>Electric field-tuned topological phase transition in ultra-thin Na₃Bi</i>	Zhipei Sun <i>Nonlinear optics with 2D materials</i>	Guohua Jia <i>Heavy-metal-free 2D semiconductor nanoplatelets: synthesis, growth mechanism and applications</i>	Xiaoqiang Cui <i>Single-atom cobalt covalently bound to distorted 1T-MoS₂ for unprecedented hydrogen evolution catalysis</i>
1210 - 1330	Lunch Break			
1330 - 1500	Concurrent Symposia 7			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Synthesis - Room 103
Session Chair	Bent Weber	Semonti Bhattacharyya	Vipul Bansal	Qiaoliang Bao
1330-1350	Nancy Sandler <i>Deformed graphene membranes: from electronic waveguides to valley filters</i>	Liu Lei <i>Electrical control of spin-valley photocurrent in a monolayer semiconductor by circular photogalvanic effect</i>	Jong Beom Baek <i>Fused aromatic organic networks form syntheses and applications</i>	Chunxiao Cong <i>Optical spectroscopic study of two-dimensional layered materials and their heterostructures</i>
1350-1410	Uli Zuelicke <i>Quantum capacitance and spin susceptibility of HgTe quantum wells</i>	Jennifer MacLeod <i>On-surface synthesis of organic 2D materials</i>	Shayan Seyedin <i>MXene for wearable energy storage</i>	Zaiquan Xu <i>Tunable room-temperature single-photon emission in atomically thin materials</i>

1410-1425	Momoko Onodera <i>Influence of C-rich domain in h-BN on carrier transport of graphene/h-BN van der Waals heterostructures</i>	Pingan Hu <i>High performance electronics and optoelectronics based on two dimensional layered films</i>	Qiang Fu <i>Engineering 2D Metal-Organic Frameworks for Separation Membranes</i>	Ankur Sharma <i>Efficient and layer-dependent exciton pumping across atomically-thin organic-inorganic type-I heterostructures</i>
1425-1440	Wei Tao <i>Quasiparticle interference study of topological semimetal ZrS₂ due to surface defects at 4.5 K</i>	Azmira Jannat <i>Two dimensional indium sulfide with excellent optoelectronic properties</i>	Fangxin Hu <i>PT/Graphene Foam Biofilm for Highly Sensitive and Selective In-Situ Adsorption and Detection of Superoxide Anions Released from Living Cells</i>	Yingping Pang <i>Heavy-metal-free quasi-2D colloidal semiconductor nanoplatelets with atomically uniform thickness</i>
1440-1500	Dongkeun Ki <i>Interaction-driven finite-temperature phase transitions in graphene multilayers</i>	Feng Miao <i>Electronic transport and device applications of 2D materials</i>	Yongfa Zhu <i>Organic photocatalysts for energy, environment and anti-tumor</i>	Liangzhi Kou <i>Multiferroic coupling in novel two-dimensional materials</i>
1500 - 1530	Afternoon Tea			
1530 - 1700	Concurrent Symposia 8			
	Physics - Room 106	Devices - Room 105	Chemistry - Room 104	Synthesis - Room 103
Session Chair	Lan Wang	Jill Miwa	Dan Li	Zaiquan Xu
1530-1550	Rachael Myers-Ward <i>Remote epitaxy – a new paradigm for stackable electronics</i>	Nanshu Lu <i>Nanobubbles and nanotents formed by 2D materials</i>	Tao Yao <i>Synchrotron radiation X-ray absorption in energy materials</i>	Litao Sun <i>Graphene-based materials for environmental protection</i>
1550-1610	Agustin Schiffrin <i>Low-dimensional organic nanostructures on surfaces: towards nanoscale control of interfacial (OPTO) electronic properties</i>	Shu Ping Lau <i>Solution exfoliated black phosphorus from materials to applications</i>	Torben Daeneke <i>Synthesis of 2D materials using liquid metal solvents</i>	Yi Du <i>2D Xenon: a new family of quantum matters</i>
1610-1625	Siyu Li <i>Tuning electronic properties of graphene by STM tip</i>	Ankur Sharma <i>Defect engineering in few-layer phosphorene</i>	Peter Sherrell <i>Direct Printing in Three-Dimensions of 2D Materials Inks</i>	Neeraj Mishra <i>Graphene coated silicon carbide nanowires</i>
1625-1640	Xinfeng Liu <i>Strong light-matter interaction in layered materials</i>	Litty Thekkekara <i>Laser printed self-powered textiles</i>	Hareem Khan <i>Synthesis of 2D SnS materials for piezoelectric nanogenerator applications</i>	Jinchang Fan <i>Surface and interface engineering Pd-based ultrathin nanosheets for electrocatalysis</i>
1640-1700	Feixiang Xiang <i>Thickness-dependent electronic structure in WTe₂ thin films</i>	Zheng Zhang <i>Strong interlayer coupling in MoS₂ van der Waals homojunction constructed by defect engineering</i>	Yuan Chen <i>Nano-RuO₂-decorated holey graphene composite fibers for micro-supercapacitors with ultrahigh energy density</i>	Nasir Mahmood <i>Chemical designing of two-dimensional materials for renewable energy</i>
1710 - 1730	Closing Ceremony & Announcement of the 5 th ICON-2DMat - Room 105			