RPGR2025　Daily Program

Toyama International Conference Center

Day 1　|　4 November 2025 (Tuesday)

08:45-09:00	**RPGR2025 Opening Ceremony**	3F, Main Hall	
Plenary Session 1		3F, Main Hall	Chair：
Time	Talk Title	Speaker	Affiliation
09:00-09:45	[Plenary] 2D materials for AI	Xinran Wang	Nanjing University
09:45-10:30	[Plenary] Ultra-clean interfaces on atomically thin semiconductors for electronics and spintronics	Manish Chhowalla	University of Cambridge
10:30-11:00	**Coffee Break**		
Session 1A		3F, Main Hall	Chair：
11:00-11:30	[Invited] TBA	Wang Yao	The University of Hong Kong, Hong Kong
11:30-12:00	[Invited] Moiré optical physics in van der Waals semiconducting heterostructure	Kazunari Matsuda	Kyoto University, Japan
12:00-12:30	[Invited] Isotope Engineering in van der Waals Materials	Jana Vejpravova	Charles University, Czech Republic
Session 1B		2F, Multi-purpose Room	Chair：
11:00-11:30	[Invited] Metal Contacts and Gate Stacks: Overcoming Integration Challenges in 2D TMD Transistors	Lain-Jong (Lance) Li	National University of Singapore, Singapore
11:30-12:00	[Invited] Mid-infrared Emitters and Photodetectors Based on Low-dimensional Materials	Naoki Higashitarumizu	The University of California, Berkeley, USA
12:00-12:30	[Invited] Cross-sectional STM for investigating interface properties in 2D electronics	Ya-Ping Chiu	National Taiwan University, Taiwan
12:30-14:00	**Lunch Break** **IAB Meeting**		
Session 2A		3F, Main Hall	Chair：
14:00-14:30	[Invited] Superfluid stiffness in van der Waals superconductor	Miuko Tanaka	The University of Tokyo, Japan
14:30-15:00	[Invited] Electrical Control on Correlated Electronic States in Layered Quantum Materials	Hongtao Yuan	Nanjing University, China
15:00-15:30	[Invited] Electronic Raman probes of 2D quantum phases	Xiaoxiang Xi	Nanjing University, China
Session 2B		2F, Multi-purpose Room	Chair：
14:00-14:30	[Invited] Interfacial growth of thick 2D crystals	Kaihui Liu	Peking University, China
14:30-15:00	[Invited] Activating basal plane of two-dimensional semiconductor for van der Waals epitaxial growth	Ki-Kang Kim	Sungkyunkwan University, Korea
15:00-15:15	Liquid-mediated edge epitaxy of uniform thick-layer rhombohedral boron nitride single crystals	Pengfei Yang	National University of Singapore, Singapore
15:15-15:30	MOCVD-Grown GaSe and GaS$_{1-x}$Se$_x$: a Raman Phase Validation	Nils Fritjof Langlotz	Philipps University Marburg, Germany
15:30-16:00	**Coffee Break**		
Session 3A		3F, Main Hall	Chair：
16:00-16:15	Shift current in graphene-based van der Waals heterostructure	Yijin Zhang	The University of Tokyo, Japan
16:15-16:30	THz photoresponse of Schwinger-driven electron-hole plasma in graphene	Mikhail Kravtsov	National University of Singapore, Singapore
16:30-16:45	Infrared photodetection in graphene-based heterostructures and twisted bilayer graphene at a near-magic angle	Alexander Chernov	Moscow Institute of Physics and Technology, Russia
16:45-17:00	Dynamically tunable hydrodynamic transport in boron nitride-encapsulated graphene	Akash Gugnani	Indian Institute of Science, India

Session 3A		3F, Main Hall	Chair :
17:00-17:15	Emergence of Gate-Tunable Anomalous Hall Magnetoresistance in Graphene-Based Van der Waals Heterostructures	Motomi Aoki	Catalan Institute of Nanoscience and Nanotechnology, Spain
17:15-17:30	Pseudofractal Analysis of Graphene-Based Quantum Hall Device Designs	Albert Rigosi	National Institute of Standards and Technology, USA
17:30-17:45	Polarization of impurities in high-quality hBN crystals with out-of-plane electric field	Ilia Begichev	National University of Singapore, Singapore
Session 3B		2F, Multi-purpose Room	Chair :
16:00-16:15	Monolithic BEOL Integration of MoS_2 TFT–Micro-LED Displays	Wanqing Meng	National University of Singapore, Singapore
16:15-16:30	Stacking- and Magnetic Field-induced Polar Order in MoS_2	Yann-Wen Lan	National Taiwan Normal University, Taiwan
16:30-16:45	Vapor-phase Synthesized Siloxane Inter-dielectric for Top-gate MoS_2 Transistor with Near-ideal Subthreshold Slope	Seohak Park	Korea Advanced Institute of Science and Technology, Korea
16:45-17:00	Room-Temperature Dissociation of Lower Alkanes by Hot Carriers Generated Using Tunnel Junctions Based on 2D Materials	Ryo Nouchi	Osaka Metropolitan University, Japan
17:00-17:15	Thermal Transport studies in 2D MoS_2 with sulfur vacancies	Jayakumar Balakrishnan	Indian Institute of Technology Palakkad, India
17:15-17:30	Creation of 0D/2D Heterojunctions via Surface Physical Decoration of TMDs for Enhanced Photocatalytic Hydrogen Evolution	Yutaka Takaguchi	University of Toyama, Japan
17:30-17:45	Ferroelastic switching in α-phase few-layer Group-IV monochalcogenides by mechanical forces	Redhwan Moqbel	Institute of Physics, Academia Sinica, Taiwan
17:45-18:00	**Break**		
18:00-19:30	**Poster Session 1**	3F, Foyer	

Day 2 | 5 November 2025 (Wednesday)

Plenary Session 2		3F, Main Hall	Chair :
Time	Talk Title	Speaker	Affiliation
09:00-09:45	[Plenary] 2D Materials in the expanding flatlands	Yuanbo Zhang	Fudan University, China
09:45-10:30	[Plenary] Theoretical Advances in Moiré Materials: From Bilayers to Novel Geometric Structures	Mikito Koshino	The University of Osaka, Japan
10:30-11:00	**Coffee Break**		
Session 4A		3F, Main Hall	Chair :
11:00-11:30	[Invited] Unconventional Domain Tessellations in Moiré-of-Moiré Lattices	Hyobin Yoo	Seoul National University, Korea
11:30-12:00	[Invited] Roles of Coulomb Interactions in Moiré Materials	Young-Woo Son	Korea Institute for Advanced Study, Korea
12:00-12:30	[Invited] Tunable quantum interferometer for correlated moire electrons	Shuichi Iwakiri	National Institute for Materials Science, Japan
Session 4B		2F, Multi-purpose Room	Chair :
11:00-11:30	[Invited] Advances in MOCVD for Wafer-Scale Synthesis 2D Transition Metal Dichalcogenides	Joan Redwing	The Pennsylvania State University, USA
11:30-12:00	[Invited] Direct 3D integration of 2D dielectrics and semiconductors on silicon wafers	Vincent Tung	The University of Tokyo, Japan
12:00-12:30	[Invited] Hypotaxy - novel approach to synthesize wafer-scale single crystal transition metal dichalcogenides	Gwan-Hyoung Lee	Seoul National University, Korea
12:30-14:00	**Lunch Break** **Luncheon Seminar** 3F, Main Hall		
Session 5A		3F, Main Hall	Chair :
14:00-14:30	[Invited] TBA	Yuerui Lu	Australian National University, Austlaria
14:30-15:00	[Invited] Physics and Application of Sliding Ferroelectricity	Kenji Yasuda	Cornell University, USA
15:00-15:30	[Invited] Quantum Technologies with Hexagonal Boron Nitride	Igor Aharonovich	University of Technology Sydney, Austlaria

Session 5B		2F, Multi-purpose Room	Chair：
14:00-14:30	[Invited] Graphene and 2D Materials in Electronics: From Conventional Devices to Biosensors	Jong-Hyun Ahn	Yonsei University, Korea
14:30-15:00	[Invited] Electronic and optical functional devices of strained monolayers and heterostructures	Jiang Pu	Institute of Science Tokyo, Japan
15:00-15:15	Impact of Dimensional Scaling on Electronic Properties in Atomically Thin Semiconductors	Der-Hsien Lien	National Yang Ming Chiao Tung University, Taiwan
15:15-15:30	van der Waals triple quantum well device based on WSe_2/h-BN/WSe_2 /h-BN/WSe_2 junctions	Kei Kinoshita	The University of Tokyo, Japan
15:30-16:00	**Coffee Break**		

Session 6A		3F, Main Hall	Chair：
16:00-16:15	Optical Injection and Detection of Long-Lived Interlayer Excitons in van der Waals Heterostructures	Alperen Tugen	Federal Institute of Technology Zurich, Switzerland
16:15-16:30	Probing the dynamics of valley-polarized correlated excitonic states in WS_2/WSe_2 moire superlattice heterostructures	Chaw-Keong Yong	National Taiwan University, Taiwan
16:30-16:45	Quantum Beat Spectroscopy of Interlayer Excitons in TMDC Heterobilayers	İbrahim Sarpkaya	Bilkent University UNAM, Turkey
16:45-17:00	Strain engineering of excitons and valleys in 2D semiconductors	Abhijeet Kumar	Free University of Berlin, Germany
17:00-17:15	Super-linear power-law scaling excitations in Janus WSSe Monolayers	Louis Smet	Tohoku University, Japan
17:15-17:30	Light upconversion via resonant exciton-exciton annihilation in few-layer transition metal dichalcogenides	Shao-Yu Chen	National Taiwan University, Taiwan
17:30-17:45	Theoretical study of electronic structure in TMDC nanoscrolls	Ikuma Tateishi	Osaka University, Japan

Session 6B		2F, Multi-purpose Room	Chair：
16:00-16:15	Ultra-Sensitive Terahertz Detection Using Gapped Bilayer Graphene	Elena Titova	Moscow Institute of Physics and Technology, Russia
16:15-16:30	Multiscale-interactive arrangements between moiré structures in twisted bilayer graphene/hBN double moiré lattices	Yuta Seo	The University of Tokyo, Japan
16:30-16:45	Emergent electronic band features in low-dimensional van der Waals heterostructures	Meng-Kai Lin	National Central University, Taiwan
16:45-17:00	Overcoming the mobility-on/off ratio trade-off in ultrathin oxide semiconductors	Yu-Cheng Chang	National Yang Ming Chiao Tung University, Taiwan
17:00-17:15	Light-Matter Probes of Magnetic Order and Spin-Lattice Coupling in van der Waals Antiferromagnets	Dipankar Jana	National University of Singapore, Singapore
17:15-17:30	Magnetoresistance Effects in Two Dimensional Magnetic Semiconductors	Zhe Wang	Xi'an Jiaotong University, China
17:30-17:45	Spontaneous topological Hall effect at room temperature in a van der Waals magnetic semimetal	Hideki Matsuoka	The University of Tokyo, Japan
17:45-18:00	**Break**		
18:00-19:30	**Poster Session 2**	3F, Foyer	

Day 3 | 6 November 2025（Thursday）

Plenary Session 3		3F, Main Hall	Chair：
Time	Talk Title	Speaker	Affiliation
09:00-09:45	[Plenary] Simulating high-temperature superconductivity in a triangular moiré lattice	Kin Fai Mak	Cornell University, USA
09:45-10:30	[Plenary] Fractional Quantum Anomalous Hall Effect	Xiaodong Xu	University of Washington Seattle, USA
10:30-11:00	**Coffee Break**		

Session 7A		3F, Main Hall	Chair：
11:00-11:30	[Invited] Graphite thermal diode based on phonon hydrodynamics	Masahiro Nomura	The University of Tokyo, Japan
11:30-12:00	[Invited] Breaking symmetry for nonlinear optoelectronics	Goki Eda	National University of Singapore, Singapore
12:00-12:30	[Invited] Teratronics in the flatland	Denis Bandurin	National University of Singapore, Singapore

Session 7B		2F, Multi-purpose Room	Chair：
11:00-11:30	[Invited] Dielectrics for 2D semiconductors	Yan Wang	University of Cambridge, UK
11:30-12:00	[Invited] Ultrafast Optical-to-electrical Conversion in 2D Materials Investigated Using THz Electronics	Katsumasa Yoshioka	NTT Basic Research Laboratories, Japan
12:00-12:30	[Invited] Two-Dimensional Atomic Membranes for Iontronic Devices	Chun-Wei Chen	National Taiwan University, Taiwan
12:30-14:00	**Lunch Break**		

Session 8A		3F, Main Hall	Chair：
14:00-14:30	[Invited] TBA	Arindam Ghosh	Indian Institute of Science, India
14:30-15:00	[Invited] Quantum Engineering of Color Centers and Moiré Superlattices in Hexagonal Boron Nitride	Young Duck Kim	Kyung Hee University, Korea
15:00-15:30	[Invited] Emergent nonlinear optical responses in noncentrosymmetric two-dimensional magnets	Toshiya Ideue	The University of Tokyo, Japan

Session 8B		2F, Multi-purpose Room	Chair：
14:00-14:30	[Invited] Epitaxy of/on 2D Materials: Interface Engineering and Device Integrations	Wen-Hao Chang	National Yang Ming Chiao Tung University, Taiwan
14:30-15:00	[Invited] Synthesis and Characterization of High-Quality Janus Transition Metal Dichalcogenides	Toshiaki Kato	Tohoku University, Japan
15:00-15:15	Synthesis, Doping, and Encapsulation of 2D Transition Metal Dichalcogenides by Thin Film Techniques	Yu-Chuan Lin	National Yang Ming Chiao Tung University, Taiwan
15:15-15:30	Chemical Vapor Deposition Growth of High-quality TMDCs with Ultralow Density of Defects	Qinke Wu	Hubei University of Technology, China
15:30-16:00	**Coffee Break**		

Session 9A		3F, Main Hall	Chair：
16:00-16:15	Topological Transport in bilayer graphene with interlayer sliding	Jie Pan	Xi'an Jiaotong University, China
16:15-16:30	Interaction-limited conductivity of twisted bilayer graphene revealed by giant terahertz photoresistance	Artur Shilov	National University of Singapore, Singapore
16:30-16:45	Resonant tunneling in spin-orbit proximitized graphene heterostructures	Jimpei Kawase	The University of Tokyo, Japan
16:45-17:00	Photoinduced DC Hall current in few-layer black phosphorus with a gate-tunable gap	Dongeun Kim	Seoul National University, Korea
17:00-17:15	Singular Flat Bands and Landau Quantization in Three Dimensions	Takuto Kawakami	The University of Osaka, Japan
17:15-17:30	Fermi-arc-induced chiral transport in Weyl semimetal TaAs	Dong Li	RIKEN Center for Emergent Matter Science, Japan

Session 9B		2F, Multi-purpose Room	Chair：
16:00-16:15	Quantum Optical Twist and Scan Microscopy	Takahiro Uto	Federal Institute of Technology Zurich, Switzerland
16:15-16:30	Photonics of in situ twisted 2D materials	Sviatoslav Kovalchuk	Free University of Berlin, Germany
16:30-16:45	Nanoscale Inhomogeneities in Photocarrier Dynamics in Low-Dimensional Materials Visualized by Ultrafast Nano-Spectroscopy	Takashi Kumagai	Institute for Molecular Science, Japan
16:45-17:00	Self-aligned cavity formation in photonic crystal waveguide and dielectric environment modulation with 2D material heterostructures	Chee Fai Fong	AIST, Japan
17:00-17:15	Probing Majorana physics in Bi_2Se_3/$NbSe_2$ Josephson junctions through current-phase relation measurements	Andrei Kudriashov	National University of Singapore, Singapore
17:15-17:30	Layer-selective Fulde–Ferrell–Larkin–Ovchinnikov phase in misfit layered superconductor $(PbSe)_{1.14}(NbSe_2)_3$	Yuki Itahashi	RIKEN Center for Emergent Matter Science, Japan
17:30-18:00	**Break**		
18:00-20:00	**Banquet**	Grand Plaza	

Day 4 | 7 November 2025 (Friday)

Plenary Session 4		3F, Main Hall	Chair：
Time	Talk Title	Speaker	Affiliation
09:00-09:45	[Plenary] Imaging dynamic atomic behaviour at complex surfaces and interfaces in 2D heterostructures	Sarah Haigh	University of Manchester, UK
09:45-10:30	[Plenary] Hexagonal Boron Nitride: Growth and Applications in Energy and Quantum Technologies	Hyeon Suk Shin	Institute for Basic Science, Sungkyunkwan University, Korea
10:30-11:00	**Coffee Break**		
Special Session		3F, Main Hall	Chair：
11:00-11:30	[Special] TBA	Yoshihiro Iwasa	RIKEN Center for Emergent Matter Science, Japan
11:30-12:00	[Special] Hexagonal Boron Nitride as wide-band gap 2D materials	Takashi Taniguchi	National Institute for Materials Science, Japan
12:00-12:30	[Special] van der Waals Layered Semiconductors in Electronics and Spintronics	Young Hee Lee	Hubei University of Technology, China
12:30-12:45	**RPGR2025 Closing Ceremony**	3F, Main Hall	