The 33rd International Conference on Defects in Semiconductors (ICDS-33)

Sep. 14-19, 2025

Yifu Building of Science and Technology

Fudan University, Shanghai, China

School of Physics, Eastern Institute of Technology, Ningbo
Institute of Computational Physical Sciences, and Key Laboratory of Computational Physical Sciences (Ministry of Education), Fudan University
Institute of Semiconductors, Chinese Academy of Sciences

Sep. 14 (Sunday)

9:00-22:00 **Registration**

Tutorial 1 (Lecture Hall, 1st Floor**)**

Chair: Benjamin Hourahine

10:00-11:30 **First-principles study on defects in semiconductors**

Anderson Janotti, University of Delaware

Tutorial 2 (Lecture Hall, 1st Floor**)**

Chair: Shiyou Chen

14:00-15:30 **First principles calculations for inorganic transition metal compounds and defects therein**

Hannes Raebiger, Yokohama National University

15:00-17:00 **Modeling defects in Semiconductors**

Benjamin Hourahine, The University of Strathclyde

Sep. 15 (Monday)

Welcome Session:

8:10-8:20 **Opening Ceremony (**Lecture Hall, 1st Floor**)**

Xin-Gao Gong, Fudan University

Junwei Luo, Institute of Semiconductors, Chinese Academy of Sciences

Session 1: **Plenary talks (**Lecture Hall, 1st Floor**)**

Chair: Deren Yang

8:20-9:00 **Fluorescent quantum-coherent materials from point defects in semiconductors**

Adam Gali, HUN-REN Wigner Research Centre for Physics

9:00-9:40 **Understanding and Engineering Defect Properties for Quantum Information Science**

Gregory Fuchs, Cornell University

9:40-10:00 **Coffee Break**

Session 2-1: **Invited talks & Contributed talks (**Lecture Hall, 1st Floor**)**

Chair: Adam Gali

10:00-10:30 **Hexagonal diamond: a promising platform for quantum applications**

Chong-Xin Shan, Zhenzhou University

10:30-11:00 **Towards an accurate prediction of the qubit decoherence in 3D and 2D materials: integration of density functional theory and quantum spin dynamics**

Hosung Seo, Sungkyunkwan University

11:00-11:20 **Theory of spin-orbit-phonon processes governing the anisotropic relaxation of SiV and other G4V centers in diamond**

Gergo Thiering, HUN-REN Wigner Research Centre for Physics

11:20-11:40 **Identifying high performance spectrally-stable quantum defects in diamond**

Yihuang Xiong, Dartmouth College

11:40-12:00 **Theoretical investigation of high-energy states of NV^- and NV^0 with wavefunction-based methods**

Ádám Ganyecz, HUN-REN Wigner Research Centre for Physics

Session 2-2: **Invited talks & Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Bing Huang

10:00-10:30 **Unravelling Defect Physics in GaN Heteroepitaxy: From Point Defects to Dislocation Climb**

Xuelin Yang, Peking University

10:30-11:00 **Defects in III-nitride semiconductor materials grown on Si**

Qian Sun, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences

11:00-11:30 **Unique Deep-Level Defects in Low-dimensional Antimony Selenosulfide Semiconducting Materials**

Tao Chen, University of Science and Technology of China

11:30-11:50 **Band-Offset Compensation Strategy for Asymmetric Doping in Wide-Bandgap Semiconductors**

Xiaobao Ma, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences

12:00-13:30 **Lunch**

Session 3-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Yeliang Wang

13:30-14:00 **Erbium-Hyperdoped Silicon Nanocrystals**

Xiaodong Pi, Zhejiang University

14:00-14:30 **Molecular hydrogen dissociation in silicon**

Ben Hourahine, The University of Strathclyde

14:30-15:00 **Electrical activity and modulation of oxygen-related defects in photovoltaic silicon**

Xuegong Yu, Zhejiang University

15:00-15:30 **Molecular Hydrogen in Semiconductors: The Sleeping Beauty of Defect Engineering**

Eduard Lavrov, TUD Dresden University of Technology

Session 3-2: **Invited talks & Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Xuelin Yang

13:30-14:00 **Investigation of Carbon impurties and point defects in GaN-based materials and devices**

Degang Zhao, Institute of Semiconductors, Chinese Academy of Sciences

14:00-14:20 **Phonon modes in Nitride semiconductor**

Tao Wang, Peking University

14:20-14:40 **Various defects in AlGaN alloys**

Igor Prozheev, University of Helsinki

14:40-15:00 **The Behavior of oxygen in AlN: From Localized Phonons to Radiative Recombination**

Erfei Zhang, Peking University

15:00-15:20 **On the origin of the electrically active defects E1 and E3 in GaN and dilute AlxGa1-xN films grown on Ammono-GaN substrates**

Piotr Kruszewski, Institute of High Pressure Physics PAS

15:40-15:50 **Coffee Break**

Session 4-1: Invited talks & Contributed talks (Lecture Hall, 1st Floor**)**

Chair: Xiaodong Pi

15:50-16:20 **Defect and strain induced energy level modulation and spin polarization in novel 2D materials**

Yeliang Wang, Beijing Institute of Technology

16:20-16:50 **Growth Mechanism of III-Nitride Semiconductors on Two-dimensional Substrates**

Bing Huang, Beijing Computational Science Research Center

16:50-17:10 **In situ Synchrotron X-ray Characterization of the Nucleation and Growth of AlN Epitaxial Films on Sapphire (0001)**

Guangxu Ju, Peking University

17:10-17:30 **Overcoming asymmetric carriers injection in III-nitride LEDs through defect engineering**

Yuxin Yang, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences

17:30-17:50 **Climb or Glide? ——A Novel Understanding of the Atomistic Dynamic Paths of Threading Edge Dislocations in GaN**

Han Yang, Peking University

Session 4-2: Invited talks & Contributed talks (Multi-function Hall, 2nd Floor**)**

Chair: Eduard Lavrov

15:50-16:20 **Electroluminescence of NV Color Centers in Diamond p-i-n Diodes mediated by Charge-state Dynamics**

Yuning Wu, East China Normal University

16:20-16:40 **Theoretical investigation of the spin decoherence of carbon-related defects in hexagonal boron nitride**

Hyeonsu Kim, Sungkyunkwan University

16:40-17:00 **Magnetic-field dependent V_B^- spin decoherence in hexagonal boron nitrides: A first-principles study**

Jaewook Lee, Sungkyunkwan University

17:00-17:20 **Stark Shift from Quantum Defects in Hexagonal Boron Nitride**

Song Li, Beijing Computational Science Research Center

17:20-17:40 **Strain-induced coherence enhancement of solid-state spin defects at zero magnetic field**

Huijin Park, Sungkyunkwan University

17:40-18:00 **Decoherence dynamics of quantum spins in transition metal dichalcogenides**

Taejoon Park, Sungkyunkwan University

18:00-20:00 **Dinner**

Sep. 16 (Tuesday)

Session 5: **Plenary talks (**Lecture Hall, 1st Floor**)**

Chair: Gregory Fuchs

8:20-9:00 **Bulk GaN growth and defect characterization**

Ke Xu, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences

9:00-9:40 **The role of hydrogen in persistent photoconductivity and photochromism**

Matthew McCluskey, Washington State University

9:40-10:00 **Coffee Break**

Session 6-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Ke Xu

10:00-10:30 **Tailoring Defects in Semiconductors: from Highly Mismatched Alloys to Polytype Heterostructures**

Rachel Goldman, University of Michigan

10:30-11:00 **Unconventional approaches to realize perfect semiconductor superlattices and heterostructures**

Yong Zhang, The University of North Carolina at Charlotte

11:00-11:30 **Long carrier lifetime InAs/InAsSb type-II superlattices without Ga-related defects for HOT MWIR infrared imaging**

Zhi-Chuan Niu, Institute of Semiconductors, Chinese Academy of Sciences

11:30-12:00 **Disorder-Assisted Epitaxy of Polymorph Heterostructures**

Andrej Kuznetsov, University of Oslo

Session 6-2: **Invited talks & Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Jiandong Ye

10:00-10:30 **Study on Defects and Thermal Stability in CVD-Grown Si-based Ge and GeSn Semiconductors**

Chi Xu, Institute of Semiconductors, Chinese Academy of Sciences

10:30-10:50 **Deep level traps in as-grown epilayers of (010) β-Ga_2O_3 grown by metal organic chemical vapor deposition on native Sn-doped substrates**

Christopher Dawe, University of Manchester

10:50-11:10 **Stabilization of unrelaxed Ga vacancies and ionized acceptors in β-Ga_2O_3 through Al-alloying and Si-doping**

Iuliia Zhelezova, Helsinki Accelerator Laboratory

11:10-11:30 **Electronic Structure and Doping Properties in Ga_2O_3-Based Alloys**

Xuefen Cai, Shenzhen University

11:30-11:50 **Machine Learning Model for Defect Dynamics in Complex Ga_2O_3 Polymorphs**

Junlei Zhao, Southern University of Science and Technology

12:00-13:30 **Lunch**

Session 7-1: Invited talks & Contributed talks (Lecture Hall, 1st Floor**)**

Chair: Hannes Raebiger

13:30-14:00 **Performance limiting inhomogeneities of defect states in Ga_2O_3 diodes**

Jiandong Ye, Nanjing University

14:00-14:30 **Atom-level mechanisms of solid-to-solid phase transformations in gallium oxide under ion irradiation in the broad range of energies**

Flyura Djurabekova, University of Helsinki

14:30-14:50 **The electric field influence on EC-0.18 eV electron trap level in (100)-oriented β-Ga_2O_3 crystals grown by the Czochralski method**

Piotr Kruszewski, Institute of High Pressure Physics PAS

14:50-15:10 **Observation of Conductive Interstitial Ga Line Defects in β-Ga_2O_3**

Debo Hu, National Center for Nanoscience and Technology

15:10-15:30 **Gaussian band trap as compensation defect in hetero-epitaxial β-Ga_2O_3 measured by photo-induced current transient spectroscopy**

Rujun Sun, Xidian University

Session 7-2: Invited talks & Contributed talks (Multi-function Hall, 2nd Floor**)**

Chair: Lei Liu

13:30-14:00 **Absorption lines of F centers in MgO and CaO through time-dependent hybrid-functional theory calculations**

Mathilde Franckel, École Polytechnique Fédérale de Lausanne

14:00-14:30 **Epitaxy of highly uniform GaN wafers on 2D materials: effect of surface defects manipulation**

Xinqiang Wang, Peking University

14:30-14:50 **Why are point-like emitters in Aluminum Nitride so bright?**

Anthony Bennett, Cardiff University

14:50-15:10 **Wavefunction theory: a robust tool for color center characterization**

Zsolt Benedek, Eotvos Lorand University

15:10-15:30 **First-principles calculations of optical spectra for luminescent centers based on one-dimensional configuration coordinate model**

Harutaka Saito, Osaka University

15:40-15:50 **Coffee Break**

Session 8-1: Invited talks (Lecture Hall, 1st Floor**)**

Chair: Mathilde Franckel

15:50-16:20 **Single Bond Resolved Vibrational Characterization of the Semiconductor Defects Below Surface**

Lei Liu, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences

16:20-16:50 **Current Status of Semiconductor Intracenter Photonics**

Yasufumi Fujiwara, Ritsumeikan University/Osaka University

Session 8-2: Invited talks (Multi-function Hall, 2nd Floor**)**

Chair: Yong Zhang

15:50-16:20 **Electron Trapping and Luminescence Mechanisms in Rare-Earth Doped Materials**

Khang Hoang, North Dakota State University

16:20-16:50 **Deep-Level Defect Characterization and Property Modulation in Two-Dimensional Semiconductors**

Penghong Ci, Institute of Semiconductors, Chinese Academy of Sciences

16:50-18:00 **Poster presentation (**Entrance Hall, 1st Floor**)**

18:00-20:00 **Dinner & IAC/ISC meeting**

Sep. 17 (Wednesday)

Session 9: **Plenary talks (**Lecture Hall, 1st Floor**)**

Chair: Filip Tuomisto

8:20-9:00 **Defect Theory in the Age of Artificial Intelligence**

Aron Walsh, Imperial College London

9:00-9:40 **Revisiting the Formulation of Charged Defects in Solids**

Shengbai Zhang

9:40-10:00 **Coffee Break**

Session 10-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Aron Walsh

10:00-10:30 **Acceptor Doping and Hole Compensation in CdTe**

Anderson Janotti, University of Delaware

10:30-11:00 **Modulation Doping and Polarization−Defect Coupling for 2D Materials Electronics**

Xian-Bin Li, Jilin University

11:00-11:30 **Doping and defect physics in low-dimensional semiconductors**

Huixiong Deng, Institute of Semiconductors, Chinese Academy of Sciences

11:30-12:00 **First-principles calculations of shallow impurities in semiconductors**

Jun Kang, Beijing Computational Science Research Center

Session 10-2: **Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Yu Kumagai

10:00-10:20 **Ab initio modeling of doping in hexagonal-diamond silicon**

Marc Túnica, Université Paris-Saclay, CNRS

10:20-10:40 **PINN-Based Elastic Field Mapping Around Silicon Nano-inclusions from Atomistic simulation**

Yi Cui, Nagoya University

10:40-11:00 **Efficient Generation of Spin Photocurrent by Defect-Mediated Resonant Excitation**

Shixiong Zhang, Hubei Normal University

11:00-11:20 **Interplay Between Intrinsic Structural Defects and Optoelectronic Properties in Semi-Heusler Gapped Metals**

Muhammad Rizwan Khan, Shenzhen University

11:20-11:40 **First-Principles Characterization of the Native Defect Landscape Across Half-Heusler Chemistries**

Angela Pak, University of Illinois at Urbana-Champaign

11:40-12:00 **Multidimensional Defect Identification of Semiconductors in Nonequilibrium**

Jun Liu, Key Laboratory of Materials Physics, Institute of Solid State Physics, HFIPS, Chinese Academy of Sciences

12:00-13:30 **Lunch**

Session 11-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Huixiong Deng

13:30-14:00 **Prediction of Defect Formation Energies by Machine Learning**

Yu Kumagai, Tohoku University

14:00-14:30 **Computational Strategies for Modelling Defects in Semiconductors**

Seán Kavanagh, Harvard University

14:30-15:00 **Leveraging defects and interfaces based on low-dimensional materials for memristor applications**

Wennie Wang, University of Texas at Austin

15:00-15:30 **Electronic transitions at defects: from theory to applications**

Menglin Huang, Fudan University

Session 11-2: **Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Anderson Janotti

13:30-13:50 **Giant Flexoelectricity in Bent Semiconductor Thinfilm**

Dongbo Zhang, Beijing Normal University

13:50-14:10 **Computational Prediction of an n-type Transparent Conducting Oxide F-doped Sb_2O_5**

Ke Li, University College London

14:10-14:30 **Mechanistic Control of Small Interstitial Clusters for Room-Temperature, Post-Synthesis Defect Engineering of Oxides**

Grace McKnight, University of Illinois

14:30-14:50 **p-Type (Ultra-) Wide Bandgap NiO-based Semiconductors: Band/Defect Engineering and Their Applications in Bipolar Devices**

Chao Ping Liu, Shantou University

14:50-15:10 **P/N-Type Doping in ZnO within Two-Dimensional Limit**

Dong Han, Northeastern University

15:10-15:30 **Effects of native defects in ZnO electron transport layers on stability of organic solar cells**

Chun Yuen Ho, University of Southern Denmark

15:30-15:50 **Coffee Break**

Session 12-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Shengbai Zhang

15:50-16:20 **First-Principles Theory for Excited-States Kinetics and Optical Readout of Quantum Defects**

Erik Perez, University of Wisconsin-Madison

16:20-16:50 **Chemical trend of defect-assisted nonradiative carrier recombination in halide perovskites**

Xie Zhang, Northwestern Polytechnical University

16:50-17:20 **Defect Theory under Steady Illuminations and Applications**

Ji-Hui Yang, Fudan University

Session 12-2: **Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Xianbin Li

15:50-16:10 **Impact of Defect-Mediated Recombination on the Performance of Emerging Photovoltaics**

Xinwei Wang, Imperial College London

16:10-16:30 **Interaction-induced magnetoconductivity and the Hall effect in disordered massive − massless fermion mixtures**

Yuping Huang, Guangdong Technion – Israel Institute of Technology

16:30-16:50 **Theoretical Study of the Magnetic Mechanism of a Pca21 C_4N_3 Monolayer and the Regulation of Its Magnetism by Gas Adsorption**

Dongqiu Zhao, Anyang Normal University

16:50-17:10 **Enhanced Gas Sensing Performance of Pd-Doped Janus ZrSSe Monolayer for Early Detection of Lithium-ion Battery Thermal Runaway: A DFT Study**

Guanxiang Yang, North China Electric Power University

18:00-21:00 **Banquet**

Sep. 18 (Thursday)

Session 13: **Plenary talks (**Lecture Hall, 1st Floor**)**

Chair: Yasufumi Fujiwara

8:20-9:00 **Building a "defective" materials genome: high-throughput computational materials design including point defects**

Geoffroy Hautier, Rice University

9:00-9:40 **Large electronic structure calculations of semiconductor defects and devices**

Lin-Wang Wang, Institute of Semiconductor, Chinese Academy of Sciences

9:40-10:00 **Coffee Break**

Session 14-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Geoffroy Hautier

10:00-10:30 **(Vacancy) defect identification in (compound) semiconductors and their alloys with positron annihilation spectroscopy**

Filip Tuomisto, University of Helsinki

10:30-11:00 **Defect of Kesterite: Synthesis Design Perspectives**

Xiaojin Hao, School of Photovoltaic and Renewable Energy Engineering UNSW

11:00-11:30 **Facile Reconstruction of Extended Defects in Antimony Selenide**

Keith McKenna, University of York

11:30-12:00 **Investigation of basic defects in silicon, acting as spin-to-photon interfaces**

Peter Deák, Beijing Computational Science Research Center

Session 14-2: **Invited talks & Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Ji-Hui Yang

10:00-10:30 **Nondestructive Visualization of SiC Single-crystal Defects and the Evolution Mechanism of Typical Defects**

Jun Yin, Xiamen University

10:30-10:50 **Defect control in ultra-thick 4H-SiC homoepitaxial layers**

Rong Wang, Zhejiang University

10:50-11:10 **Review of the defects in silicon carbide and its influence on the reliability of power devices**

Peng Dong, Microsystem and Terahertz Research Center, Institute of Electronic Engineering, China Academy of Engineering Physics

11:10-11:30 **Pre-Filled vs. Pre-Emptied: Distinct Interface State Responses in 4H-SiC VDMOSFETs via Carrier Occupancy Modulation**

Zilan Wang, Dalian University of Technology

11:30-11:50 **Key Interface Factors in Total Ionizing Dose Effect of 4H-SiC MOS Devices**

Chenfeng Ji, Key Laboratory of Materials Physics, Institute of Solid State Physics, HFIPS, Chinese Academy of Sciences

12:00-13:30 **Lunch**

Session 15-1: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: Jeffrey McCallum

13:30-14:00 **Recent Advances in Understanding the Interface States and Band Tail States in Advanced CMOS Devices at Cryogenic Temperature**

Runsheng Wang, Peking University

14:00-14:30 **Optical spectroscopy of interfacial point defects via electrically stimulated recombination in fully processed silicon carbide power MOSFETs**

Dominic Waldhoer, Institute for Microelectronics at TU Wien

14:30-15:00 **First-principles study of the random telegraph noise in 2D field-effect transistors**

Yong-Hoon Kim, Korea Advanced Institute of Science and Technology

15:00-15:30 **Multiscale Ab initio Reliability Simulator (MARS) based on defect database in amorphous SiO_2/HfO_2 interface**

Yue-Yang Liu, Institute of Semiconductors, Chinese Academy of Sciences

Session 15-2: **Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Xiaojin Hao

13:30-13:50 **Impact of Phosphorus Diffusion Pre-gettering on the Electrical Properties of Oxygen Precipitate in n-Type Czochralski Silicon for Heterojunction Solar Cells**

Ruokai Wu, Zhejiang University

13:50-14:10 **Origin of hole density pinning in group-V doped CdTe**

Baoying Dou, Henan University

14:10-14:30 **Data-driven Discovery of Novel High -performance Quaternary Chalcogenide Photovoltaics**

Mohammad Ubaid, Indian Institute of Technology Kanpur

14:30-14:50 **Investigation of Defect Evolution in High-Bandgap Kesterite Solar Cells via Advanced Characterisation and First-Principles Insights**

Jialiang Huang, University of New South Wales

14:50-15:10 **Defect Engineering in Perovskites for Photovoltaic Applications**

Jian Xu, Beijing Institute of Technology

15:10-15:30 **Mitigating Face‐Sharing Octahedral Impurity Phases for Efficient Perovskite Photovoltaics**

Yong Wang, Zhejiang University

15:30-15:50 **Coffee Break**

Session 16-1: **Invited talks & Contributed talks (**Lecture Hall, 1st Floor**)**

Chair: Yong-Hyun Kim

15:50-16:20 **First-principles Study of Defects in Statically Unstable Solids**

Yi-Yang Sun, Shanghai Institute of Ceramics, Chinese Academy of Sciences

16:20-16:50 **Multiscale Modeling of Radiation Effects in Semiconductor Devices**

Yonggang Li, Key Laboratory of Materials Physics, Institute of Solid State Physics, HFIPS, Chinese Academy of Sciences

16:50-17:10 **Paramagnetic Intrinsic Defects in Calcium Oxide: A First-Principles Study**

YongHyun Kwon, Sungkyunkwan University

17:10-17:30 **Improvement of photoluminescence from GaAsPN/GaP alloys by electron irradiation and rapid thermal annealing**

Emil Mihai Pavelescu, IMT Bucharest

Session 16-2: **Contributed talks (**Multi-function Hall, 2nd Floor**)**

Chair: Keith McKenna

15:50-16:10 **Universal polaron formations in chemically-doped MoS_2 revealed from first principles**

Soungmin Bae, Tohoku University

16:10-16:30 **Study of native and irradiation-induced deep-level defects in transition metal dichalcogenides MX_2 (M = Mo,W; X = S, Se, Te)**

Łukasz Gelczuk, Wrocław University of Science and Technology

16:30-16:50 **Persistent photoconductivity and charge carrier absorption in Sb_2Se_3**

Frank Herklotz, Dresden University of Technology

16:50-17:10 **Atomically precise Defect Engineering of Semiconductors via Scanning Probe Microscopy**

Hanyan Fang, Nanjing University

17:10-17:30 **Microscopic Understanding, Engineering, and Utilization of Defect Behavior in Wide-Bandgap Semiconductors**

Zhiming Shi, Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Sciences

18:00-20:00 **Dinner**

Sep. 19 (Friday)

Session 17: **Plenary talks (**Lecture Hall, 1st Floor**)**

Chair: Matthew McCluskey

8:20-9:00 **Defect Spectroscopy of Ion Implanted Silicon for Quantum Technologies**

Jeffrey McCallum, University of Melbourne

9:00-9:40 **Carbon-based Gap States and Mobility Degradation at SiC/SiO_2 Interfaces**

John Robertson, Cambridge University

9:40-10:00 **Coffee Break**

Session 18: **Invited talks (**Lecture Hall, 1st Floor**)**

Chair: John Robertson

10:00-10:30 **Theory of Static Electricity: Triboelectric Series, Static Adhesion, and Granular Charging**

Yong-Hyun Kim, Korea Advanced Institute of Science and Technology

10:30-11:00 **The role played by impurities in 2D Dirac semiconductors near the critical temperature of the superconducting transition**

Ivan Savenko, Guangdong Technion Israel Institute of Technology

11:00-11:30 **Defect Modulation in AlScN Ferroelectric Materials**

Xiaojuan Sun, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences

Closing Session

11:30-11:40 **Closing Remarks**

11:40-13:30 **Lunch**

Poster presentation

P1. Si/SiO_2 MOSFET reliability physics: From four-state model to all-state model

Xinjing Guo*, Fudan University*

P2. Dynamic phase transformation in Ga_2O_3

Ru He, *University of Helsinki*

P3. Bridging the Gap Between Hybrid and GGA functionals for Nitrogen and Vacancy Related Defects in Diamond

Samuel Frost, *University of Warwick*

P4. Exploring the Sb(V) Oxides: Intrinsic Defect Properties and Extrinsic Doping of ASb_2O_6 (A=Mg, Cd)

Ke Li, *University College London*

P5. Generalized A(n)BC Recombination Model in Semiconductors with Multi-Level Defects

Shanshan Wang*, Fudan University*

P6. Hole localization in Li-doped antiferromagnetic MnO

Yunfeng Zhu, *Yokohama National University*

P7. Machine Learning Hamiltonian Enables Scalable and Accurate Defect Calculations: Vacancies in Amorphous SiO_2

Zhenxing Dai, *Fudan University*

P8. Insights into the Origin of Electron Trapping in Sn(IV) Oxides and Sulfides from First-Principles Calculations

Teruya Nagafuji, *Institute of Science Tokyo*

P9. Transition metal–hydrogen complexes in SnO_2

Frank Herklotz, *Dresden University of Technology*

P10. Automating recognition and identification of dislocations in electron channeling images acquired in the scanning electron microscope

Ben Hourahine, *The University of Strathclyde*

P11. Characterization of deep-level defects in n- and p-type dilute BxGa1-xAs alloys grown at low temperature and their evolution upon annealing

Łukasz Gelczuk, *Wrocław University of Science and Technology*

P12. First principles study on electronic structure and thermoelectric properties of GaN materials doped with C and Mg atoms

Boyang Huang, *Shihezi University*

P13. Defect Phonon Renormalization during Nonradiative Multiphonon Transitions in Semiconductors

Junjie Zhou*, Fudan University*

P14. "One defect, one potential" strategy for accurate machine learning prediction of defect phonons

Junjie Zhou*, Fudan University*

P15. Independent determination of carrier densities and analysis of different recombination channels in GaAs through Raman scattering of LO phonon–plasmon coupled mode

Fan Zhang, *Songshan Lake Materials Laboratory, Dongguan*

P16. Nanoscale arsenic doping in silicon by self-assembled molecular monolayers

Xuejiao Gao, *North China Electric Power University*

P17. Characterizing non-equilibrium doping effects in Aluminum nitride under multiple fabrication conditions

Kai Liu, *Shenzhen Technology University*

P18. Comprehensive research of the hydrogenated intrinsic vacancies of β-Ga_2O_3 by first principles

Tao Wang, *Xi'an Jiaotong University*

P19. Investigation of point defects in semiconductors via positron annihilation spectroscopy

Xingzhong Cao, *Institute of High Energy Physics, CAS*

P20. Effects of Nitrogen doping on defect behaviour in Czochralski silicon: An ab initio investigation

Hao Hu (Yu Pei), *Shanghai Advanced Silicon Technology*

P21. Scalable Defect Modeling in Amorphous HfO_2: From Small to ultra-Large Supercells with GNN Interatomic Potentials

Shuqi Tang*, Fudan University*

P22. Probing Interface Phonons and Defects in Correlated Oxide Heterostructures via Sum-Frequency Spectroscopy

Tongying Liu, *Fudan University*

P23. Atomistic mechanisms of radiation-induced defects in β-Ga_2O_3: Insights from molecular dynamics simulations

Huan He, *Xi'an Jiaotong University*

P24. Study and analysis of radiation effects in single-photon avalanche diodes

Zixuan Wang, *Hunan Normal University*

P25. Effects of Gamma Irradiation on ESD Performance of High-Voltage SCR with double-snapback characteristic

Yujie Liu, *Hunan Normal University*

P26. Resolidified Chalcogen Precursors for High-Quality 2D Semiconductor Growth

Di Yang, *Tsinghua Shenzhen International Graduate School*

P27. Reassessing Dynamic Jahn Teller effect in diamond NV- center based on saddle point excited state theory

Lei Sun, *Peking University*

P28. Exclusive Generation of Single-atom Sulfur for Ultrahigh Quality Monolayer MoS_2 Growth

Yunhao Zhang, *Tsinghua Shenzhen International Graduate School*

P29. Influence of Surface Treatments on the Ohmic Contact Performance on the N-Face of Iron-Doped Semi-Insulating Freestanding GaN

Yuanhang Sun, *Suzhou Institute of Nano-Tech and Nano-Bionics, CAS*

P30. Study of the Growth Mechanism and Defects of GaN Films by Remote Epitaxy

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