

Program of Session S3

Condensed Matter Physics and Computational Physics

(other activities are mentioned in the conference's main program)

Date: October 13-15, 2025

Venue: Phenikaa University, Duong Noi, Hanoi

Organizers: Phenikaa University, NYCU Institute of Physics, and Vietnam Physical Society

No.	Time	Title	Presenter
October 13, 2025 Morning			
10:45 - 11:45		Oral session chaired by Pham Tien Lam ; location: Room 3 (202 A8)	
S3.K1	10:45 – 11:15	Quantum Mechanics on a macroscopic scale: The role and impact of computer simulations	Prof. Massimo Boninsegni University of Alberta, Canada
S3.I1	11:15 – 11:45	Real-Space Kernel Polynomial Method for Electronic properties of quantum materials	Prof. Do Van Nam Phenikaa University
October 13, 2025 Afternoon			
15:25 – 16:00		Poster session 1	
16:00 – 17:30		Oral session chaired by Tran Hai Duc, Dang The Hung ; location: Room 3 (202 A8)	
S3.I2	16:00 – 16:25	Local structure and vortex phase diagram in Bi-Pb-Sr-Ca-Cu-O superconductor with additions of nanoparticles	Assoc. Prof. Tran Hai Duc VNU University of Science
S3.I3	16:25 – 16:50	Magneto-Optical Responses in Topological Semimetals: From Weyl and Dirac to Nodal-Line Systems	Assoc. Prof. Huynh Vinh Phuc Dong Thap University
S3.O1	16:50 – 17:10	Novel Advancements in Integrating Artificial Intelligence and Theoretical Models for Predicting Material Properties	Dr. Phan Duc Anh Phenikaa University
S3.O2	17:10 – 17:30	TM-BaO monolayers (TM = Co, Fe, Mn): A promising platform for spintronic and electronic applications	Dr. Hoang Van Ngoc Thu Dau Mot University
October 14, 2025 Afternoon			
13:30 – 15:10		Oral session chaired by Nguyen Ngoc Linh ; location: Room 2 (201 A8)	
S3.O3	13:30 – 13:55	First-order phase transition and magneto-caloric effect in the disordered Blume-Capel models	Assoc. Prof. Bach Huong Giang VNU University of Science

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S3.O4	13:55 – 14:20	Theory of light absorption and scattering by nanoparticles in an absorbing medium - modeling with experimental validation	Dr. Nghiem Thi Minh Hoa Phenikaa University
S3.O5	14:20 – 14:45	Resonance Energy Transfer Between Two Atoms Near a Finite-length dielectric cylindrical waveguide	Dr. Nguyen Dung Chinh Van Lang University
S3.O6	14:45 – 15:10	High-Chern-number topological phases in stacked atomic layers: influence of layer sliding and interlayer coupling	Mr. Lam Huu Minh Phenikaa University
15:25 – 16:00		Poster session 2	
16:00 – 17:00		Oral session chaired by Dang The Hung ; location: Room 2 (201 A8)	
S3.O7	16:00 – 16:20	Quantum sensing with NV centers: nanoscale magnetometry	Assist. Prof. Young-Gwan Choi University of Ulsan, Korea
S3.O8	16:20 – 16:40	Computational Insights into Defect States in Wide Band Gap Semiconductors	Dr. Nguyen Ngoc Linh Phenikaa University
S3.O9	16:40 – 17:00	Bottom-up synthesis of 2D materials for future electronics	Assist. Prof. Seok Joon Yun University of Ulsan, Korea

List of poster presentations

Poster session 1 October 13, 2025: 15:25 – 16:00 Chairpersons: Pham Tien Lam		
S3.P1	Thermoelectric properties in a jacutingaite monolayer under static and dynamic fields	Assoc. Prof. Bui Dinh Hoi Hue University
S3.P2	Structural properties of densified boron silicon nitride under high pressure: insights from molecular dynamics simulation	Assoc. Prof. Le Van Vinh Mr. Dinh Cong Thanh Phenikaa University
S3.P3	EXAFS Debye-Waller factor and melting temperature of fcc-structured metals under extreme conditions with non-ideal c/a axial ratio	Mr. Trinh Van Toan Tho Xuan 4 High School, Thanh Hoa
S3.P4	Anharmonic high-order EXAFS cumulants of cadmium metal affected by thermal and structural disorders	Assoc. Prof. Tong Sy Tien Ms. Nguyen Thi Minh Thuy University of Fire Prevention and Fighting
S3.P5	Electronic origin of pressure-induced isostructural modifications in Ca ₃ Co ₂ O ₆	Prof. Dang Ngoc Toan Duy Tan University
S3.P6	Slater–Koster Tight-Binding Model of Twisted Bilayer Graphene at the Magic Angle with Hopping Parameter Adjustment	Mr. Pham Le Viet VNUHCM University of Science
S3.P7	Correlated mechanical and electronic anisotropies in 2D Janus auxetic materials: First-principles insights into Si ₂ XY (X/Y = S, Se, Te)	Assoc. Prof. Nguyen Ngoc Hieu Duy Tan University

Poster session 2

October 14, 2025: 15:25 – 16:00

Chairpersons: Dang The Hung

S3.P8	Machine Learning-Informed Microscopic Theory for Predicting the Glass Transition of Metallic Glasses	Ms. Ngo Thi Que Phenikaa University
S3.P9	The interaction of hydrogen to 2D silicon carbide: DFT study	Mr. Nguyen Van Hoa HCM City University of Technology
S3.P10	Developing an Interactive Computational Platform for Molecule-Surface Material Interaction: Applying to Area Selective Atomic Layer Deposition simulations	Mr. Ngo Dang Huy Phenikaa University
S3.P11	Computational Design of Goldene-Based Metal-Semiconductor Heterostructures	Assoc. Prof. Nguyen Van Chuong Mr. Pham Thiet Truong Dong Thap University
S3.P12	Investigate the Impact of Lattice Defects on the Electronic Structure and Electronic Properties of Two-Dimensional Materials	Dr. Bui Thi Hanh Phenikaa University
S3.P13	Predicting the onset of collective motion in hcp-Fe under extreme conditions	Mr. Tran Dinh Cuong Phenikaa University
S3.P14	Predicting Glass Transition Dynamics of Metallic Glasses from Structural Correlations Using Integrated Simulation, Theory, and Machine Learning	Ms. Vu Bich Hanh Phenikaa University