

The 4th International Workshop on Advanced Materials and Devices
IWAMD 2023
Thai Nguyen, August 10-13, 2023

Overall Program

August 10, 2023

16:00 – 19:00 Registration

Venue: Thai Nguyen University of Sciences

August 11, 2023

07:00 – 08:00 Registration

08:00 – 10:30 Opening and Plenary

Venue: Main Hall

Chairs: Nguyen Hoang Luong and Manh-Huong Phan

08:00 – 09:00 Opening

09:00 – 09:30 PL1 Young Hee Lee (Sungkyunkwan University, Korea)

Van der Waals Layered Magnetic Semiconductors

09:30 – 10:00 PL2 Ze Xiang Shen (Nanyang Technological University, Singapore)

Pressure-tuned Novel Optoelectronic Properties in Perovskite-Based Heterostructures

Co-authors: Yulia Lekina, Ksenia Chaykun, Brandon Ong, and Maria Lunina

10:00 – 10:30 PL3 Dusan Losic (The University of Adelaide, Australia)

Graphene Related 2D Materials (Gr2Ms) and Their Translation for Emerging Applications

Co-authors: Tran T. Tung, Md J. Nine, Pei L. Yap, and Kamrul Hassan

10:30 – 10:45 Coffee Break & Group Photo

10:45 – 12:10 Parallel Sessions

QMA-1

(M-Room 1)

QMA-K1

Nguyen Tien

Son (Sw)

QMA-I1

Yoshichika

Onuki (JP)

QMA-I2

Jungdae Kim

(Korea)

QMA-I3 (online)

Ramanathan

Mahendiran

(Sing)

BIN-1

(M-Room 2)

BIN-K1

Kytai T. Nguyen

(USA)

BIN-I1

Toan T. Nguyen

(VN)

BIN-I2

Bor-Yann Chen

(TW)

BIN-O1

Nguyen Dinh

Thang (VN)

EMD-1

(Main Hall)

EMD-K1

Nguyen Hoang

Luong (VN)

EMD-I1

Kao-Shuo Chang

(TW)

EMD-I2

Akihiko Fujiwara

(JP)

EMD-O1

Viet Phuong Han

(VN)

EMD-2

(M-Room 3)

EMD-K2

CheolGi Kim

(Korea)

EMD-I3

Dang Ngoc Toan

(VN)

EMD-I4

Takanori

Shirokura (JP)

EMD-O2

Trong Tuan Anh

Tran (Australia)

ENM-1

(M-Room 4)

ENM-K1

Jyh-Ming Ting

(TW)

ENM-I1

Nobuhiro

Matsushita (JP)

ENM-I2

Nguyen Quang

Hung (VN)

ENM-O1

Nguyen Hoang

Giang (VN)

12:10 – 13:30 Lunch

13:30 – 15:10 Parallel Sessions

QMA-2 (M-Room 1)	BIN-2 (M-Room 2)	EMD-3 (Main Hall)	EMD-4 (M-Room 3)	ENM-2 (M-Room 4)
QMA-I4 Nguyen Quoc Hung (VN)	BIN-K2 Trinh Chu Duc (VN)	EMD-K3 Tran Thanh Tung (Australia)	EMD-I8 Shin-Ichiro Kuroki (JP)	ENM-K2 Phan Bach Thang (VN)
QMA-I5 Xuan Hoa Vu (VN)	BIN-I3 Loi Tonthat (JP)	EMD-I5 Nguyen Quang Chinh (Hu)	EMD-I9 Ngoc-Loan Phan (VN)	ENM-I3 Phong D. Tran (VN)
QMA-I6 (online) Ngoc Diep Lai (Fr)	BIN-I4 Van-Tinh Nguyen (VN)	EMD-I6 Shaohai Chen (Sing)	EMD-I10 Peng Song (Sing)	ENM-I4 Tu Le Manh (VN)
QMA-I7 Son Tung Ha (Sing)	BIN-I5 Viet Tuyen Nguyen (VN)	EMD-I7 Susumu Horita (JP)	EMD-I11 Nguyen Duc Hoa (VN)	ENM-O2 Akihiko Fujiwara (JP)
QMA-I8 (online) Hai Son Nguyen (Fr)	BIN-O2 Tan Thi Pham (VN)	EMD-O3 Kyle Alfred Paz (Philippines)	EMD-O4 Viet Huong Nguyen (VN)	ENM-O3 Q. Nghi Pham (Fr)

14:00 – 16:00 PHER Roundtable

Chairs: Phan Bach Thang and Nguyen Tran Thuat

Venue: TNU Meeting Room

15:10 – 15:25 Coffee Break

15:25 – 17:10 Parallel Sessions

AIM-1 (M-Room 1)	BIN-3 (M-Room 2)	EMD-5 (Main Hall)	EMD-6 (M-Room 3)	ENM-3 (M-Room 4)
AIM-K1 (online) Jenő Gubicza (Hu)	BIN-K3 Vu Dinh Lam (VN)	EMD-K4 Dang Mau Chien (VN)	EMD-K5 (online) Xavier Moya (UK)	ENM-K3 (online) Victorino Franco (Spain)
AIM-I1 Yen-Hsun Su (TW)	BIN-I6 Thu Thao Pham (JP)	EMD-I12 Cuong Dang (Sing)	EMD-I14 Barnali Ghosh (India)	ENM-I5 Thi Xuyen Nguyen (TW)
AIM-I2 (online) Phuong Tran (Australia)	BIN-I7 Tien Duc Pham (VN)	EMD-I13 Kazunori Sato (JP)	EMD-I15 (online) Chun-Yeol You (Korea)	ENM-I6 Katsunori Wakabayashi (JP)
AIM-I3 Anh D. Phan (VN)	BIN-O3 Nguyen T. T. Trang (VN)	EMD-O5 Nguyen Duc Thanh (VN)	EMD-O7 Vu Hoang Viet (VN)	ENM-O4 Van-Chuong Ho (Korea)
AIM-I4 (online) Minh-Son Pham (UK)	BIN-O4 Nguyen Thuy Chinh (VN)	EMD-O6 Van-Quy Hoang (Korea)	EMD-O8 Tran Thi Thanh Van (VN)	ENM-O5 Ba-Hieu Vu (VN)

17:10 – 17:20 Coffee Break

17:20 – 18:30 Poster Session

Chairs: Bui Nguyen Quoc Trinh, Phan Bach Thang, Nguyen Xuan Ca and Dang Van Thanh

17:30 – 18:30 Journal of Science: Advanced Materials and Devices (JSAMD) Meeting

Chairs: Nguyen Huu Duc and Manh-Huong Phan

Venue: TNU Meeting Room

18:30 – 20:30 Banquet

August 12, 2023

08:30 – 10:20 Parallel Sessions

QMA-3 (M-Room 1)	BIN-4 (M-Room 2)	EMD-7 (Main Hall)	EMD-8 (M-Room 3)	ENM-4 (M-Room 4)
QMA-K2 (online) Mingzhong Wu (USA)	BIN-K4 (online) Ken-Tye Yong (Australia)	EMD-I16 Do Thi Huong Giang (VN)	EMD-K6 (online) Tho Duc Nguyen (USA)	ENM-K4 (online) Douglas S. Galvao (Brazil)
QMA-K3 (online) Patrick Vera (USA)	BIN-I8 Hoang Thai (VN)	EMD-I17 Takehito Nakano (JP)	EMD-I19 Anh-Tuan Le (VN)	ENM-I7 Tara P. Dhakal (USA)
QMA-I9 Jeehoon Kim (Korea)	BIN-I9 Nguyen Hoang Nam (VN)	EMD-I18 Ivan Škorvánek (Slovakia)	EMD-I20 Koun Shirai (JP)	ENM-O6 Thi-Ha Dang (VN)
QMA-I10 (online) Minh Tuan Trinh (USA)	BIN-O5 Luu M. Quynh (VN)	EMD-O9 Quan Phu Pham (VN)	EMD-O12 Nguyen Danh Thanh (VN)	ENM-O7 Pham Thi Hong (VN)
QMA-O1 Nguyen Trung Kien (VN)	BIN-O6 Van Tan Tran (VN)	EMD-O10 La Thi Ngoc Mai (JP)	EMD-O13 Huyen Thanh Phan (JP)	ENM-O8 Van-Truong Nguyen (VN)
	BIN-O7 Nhi-Thao Ngoc Dang (VN)	EMD-O11 Van-Lam Nguyen (VN)	EMD-O14 Nguyen Quoc Dung (VN)	ENM-O9 Duy Tho Pham (Korea)

10:20 – 10:30 Coffee Break

10:30 – 12:20 Parallel Sessions

AIM-2 (M-Room 1)	EMD-9 (Main Hall)	EMD-10 (M-Room 3)	ENM-5 (M-Room 4)
AIM-K2 Yoshitada Morikawa (JP)	EMD-I21 Nicholas Bingham (USA)	EMD-I24 (online) Amit Chanda (USA)	ENM-K5 (online) Tokeer Ahmad (India)
AIM-I5 Ngoc Linh Nguyen (VN)	EMD-I22 Lan-Anh T. Nguyen (Korea)	EMD-I25 Tam D. Nguyen (Australia)	ENM-I8 Van-Duong Dao (VN)
AIM-I6 Le Van Lich (VN)	EMD-I23 Nguyen Tran Thuat (VN)	EMD-I26 Nguyen Huy Dan (VN)	ENM-I9 Sunglae Cho (Korea)
AIM-O1 Thanh Ngoc Pham (VN)	EMD-O15 Hoang Minh Kien (VN)	EMD-I27 Masashi Akabori (JP)	ENM-O10 Ho Viet Thang (VN)
AIM-O2 Nguyen Duc Long (VN)	EMD-O16 Dinh The Nam (VN)	EMD-O17 Thanh Hai Phan (VN)	ENM-O11 Cu Dang Van (Korea)

EMD-O18
Ngoc Thai Tran
(VN)

12:20 – 13:30 Lunch

13:30 – 15:30 Plenary and Closing

Venue: Main Hall

Chairs: Yoji Shibutani and Nguyen Hoang Luong

- 13:30 – 14:00 PL4 David Mandrus (University of Tennessee, USA)
Progress in Understanding the Charge Density Wave in Kagome Intermetallic ScV₆Sn₆
- 14:00 – 14:30 PL5 Ken-ichi Uchida (National Institute for Materials Science, Japan)
Spin Caloritronics: from Fundamentals to Applications
- 14:30 – 15:00 PL6 Manh-Huong Phan (University of South Florida, USA)
Opportunities in Nano-Biomagnetism: From Hyperthermia Therapy to Drug Delivery and Healthcare Monitoring
- 15:00 – 15:30 Closing

August 13, 2023

08:00 – 17:00 Sightseeing

Detailed Timelines for Parallel Sessions

August 11, 2023

QMA-1		Chairs: Yoshichika Onuki and Son Tung Ha
10:45 – 11:10	QMA-K1	<i>Developing silicon carbide for quantum spintronics</i> <u>Nguyen Tien Son</u> Department of Physics, Chemistry and Biology, Linköping University, Sweden
11:10 – 11:30	QMA-I1	<i>Characteristic electronic states of Eu-based compounds</i> <u>Yoshichika Onuki</u> RIKEN and Tokyo Metropolitan University, Japan
11:30 – 11:50	QMA-I2	<i>STM investigation of type-II Dirac materials</i> Younghun Hwang ¹ , Young Jun Chang ² , Jaekwang Lee ³ , and <u>Jungdae Kim⁴</u> ¹ Electricity and Electronics and Semiconductor Applications, Ulsan College, Korea; ² Department of Physics and Smart Cities, University of Seoul, Korea; ³ Department of Physics, Pusan National University, Korea; ⁴ Department of Physics, and EHSRC, University of Ulsan, Korea
11:50 – 12:10	QMA-I3 (online)	<i>Electrically detected magnetic resonance in transition metal oxides</i> <u>Ramanathan Mahendiran</u> National University of Singapore, Singapore

BIN-1		Chairs: Nguyen The Toan and Anh-Tuan Le
10:45 – 11:10	BIN-K1	<i>Polymeric nanoparticles for the treatments of cardiovascular and lung diseases</i> <u>Kytai T. Nguyen</u> University of Texas at Arlington, USA
11:10 – 11:30	BIN-I1	<i>Machine learning application to biomedicine research at the VNU Key Laboratory for Multiscale simulation of Complex Systems</i> Cong Phuong Cao, Hien T.T. Lai, Tran-Nam Nguyen, and <u>Toan T Nguyen</u> Key Laboratory for Multiscale Simulation of Complex Systems and Faculty of Physics, University of Science, Vietnam National University, Hanoi, Vietnam
11:30 – 11:50	BIN-I2	<i>Deciphering characteristics of Herbal medication for Antiviral treatment through ancient oriental philosophy</i> <u>Bor-Yann Chen</u> and Chung-Chuan Hsueh Department of Chemical and Materials Engineering, National I-Lan University, Taiwan
11:50 – 12:05	BIN-O1	<i>Novel biomaterial complex applied in affinity chromatography to selectively purify recombinant proteins fused with poly-histidine tags</i>

Le Thi Hong Nhung¹, Le Ngoc Tram¹, Bui Thi Thu Hoai¹, Nguyen Thi Hong Loan¹, Ha Minh Ngoc², Pham Thi Luong Hang¹, and Nguyen Dinh Thang^{1,3}

¹Department of Biochemistry and Molecular Biology, Faculty of Biology, VNU University of Science, Vietnam National University, Hanoi, Vietnam; ²VNU Key Laboratory of Advanced Materials for Green Growth, VNU University of Science, Vietnam National University, Hanoi, Vietnam; ³Faculty of Advanced Technologies and Engineering, Vietnam-Japan University, Vietnam National University, Hanoi, Vietnam

EMD-1 Chairs: Akihiko Fujiwara and Kao-Shuo Chang

10:45 – 11:10 EMD-K1

Research trends in hard magnetic nanomaterials

Nguyen Hoang Luong

Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam

11:10 – 11:30 EMD-I1

Combinatorial methodology for the exploration of high-entropy-oxide-film-based electronic devices

Van Dung Nguyen¹, Takahiro Nagata², and Kao-Shuo Chang¹

¹Department of Materials Science and Engineering, National Cheng Kung University, Taiwan; ²International Center for Materials Nanoarchitectonics (Wpi-MANA) Nano Electronics Device Materials Group, National Institute for Materials Science (NIMS), Japan

11:30 – 11:50 EMD-I2

Structural and electronic properties of solution-processed oxide semiconductors

Akihiko Fujiwara

Kwansei Gakuin University, Japan

11:50 – 12:05 EMD-O1

Matching experimental research with designed simulation model using uniform FBG sensor for calculating the panel bending

Viet Phuong Han¹, Nguy Phan Tin¹, Kwanil Lee², Sang Bae Lee², Tran Quoc Tien³, and Truong TN Lien¹

¹Vietnam – Korea Institute of Science and Technology (VKIST), Vietnam; ²Korea Institute of Science and Technology (KIST), Korea; ³Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam

EMD-2 Chairs: CheolGi Kim and Do Thi Huong Giang

10:45 – 11:10 EMD-K2

Advances in planar Hall magnetoresistive sensors and their versatile applications

CheolGi Kim

Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea

11:10 – 11:30 EMD-I3

High pressure-driven magnetic disorder and structural transformation in Fe₃GeTe₂: Emergence of a magnetic quantum critical point

N.T. Dang^{1,2}, D.P. Kozlenko³, O.N. Lis^{3,4}, S.E. Kichanov³, E.V. Lukin³, N.O. Golosova³, B.N. Savenko³, D.L. Duong⁵, T.L. Phan⁶, T.A. Tran⁷, and M.H. Phan⁸

¹ Institute of Research and Development, Duy Tan University, Vietnam; ² Faculty of Environmental and Natural Sciences, Duy Tan University, Vietnam;

³ Frank Laboratory of Neutron Physics, JINR, Russian Federation; ⁴ Kazan Federal University, Russian Federation; ⁵ Center for Integrated Nanostructure Physics, Institute for Basic Science, Republic of Korea; ⁶ Faculty of Engineering Physics and Nanotechnology, VNU-University of Engineering and Technology, Vietnam; ⁷ Ho Chi Minh City University of Technology and Education, Vietnam;

⁸ Department of Physics, University of South Florida, USA

11:30 – 11:50 EMD-I4

Giant spin Hall effect in back-end-of-line compatible topological semimetal YPtBi

Takanori Shirokura and Pham Nam Hai

Tokyo Institute of Technology, Japan

11:50 – 12:05 EMD-O2

Metal-organic frameworks (MOFs) grown on Laser scribed graphene for chemoresistive volatile organic compound (VOC) sensors

Trong Tuan Anh Tran, Tran Thanh Tung, Kamrul Hassan, Ehab Salih, and Dusan Losic

The University of Adelaide, School of Chemical Engineering, Australia

ENM-1 Chairs: Phan Bach Thang and Nobuhiro Matsushita

10:45 – 11:10 ENM-K1

Novel high-entropy based electrocatalysts for oxygen evolution reaction

Nguyen Thi Xuyen and Jyh-Ming Ting

Department of Materials Science and Engineering, National Cheng Kung University, Taiwan

11:10 – 11:30 ENM-I1

Mist spin spray process with low environmental load for depositing Cu₂O thin films applicable for glucose sensor

Nobuhiro Matsushita, Ryosuke Nitta, and Yuta Kubota

Tokyo Institute of Technology, Japan

11:30 – 11:50 ENM-I2

Investigation of defect structure and properties of nanomaterials using positron annihilation spectroscopy in Vietnam

Nguyen Quang Hung¹, Luu Anh Tuyen², Phan Trong Phuc², Lo Thai Son², Pham Thi Ngoc Hue², Nguyen Thi Ngoc Hue², and La Ly Nguyen²

¹ Institute of Fundamental and Applied Sciences, Duy Tan University, Vietnam;

² Center for Nuclear Technologies, Vietnam Atomic Energy Institute, Vietnam

11:50 – 12:05 ENM-O1

Natural cellulose fiber-derived photothermal aerogel for efficient and sustainable solar desalination

Pham Tien Thanh and Nguyen Hoang Giang

Vietnam Japan University, Vietnam National University, Hanoi, Vietnam

QMA-2 Chairs: Nguyen Tien Son and Jungdae Kim

- 13:30 – 13:50 QMA-I4
Quantum oscillations in thermoelectric properties of Bi_2Te_3 ultrathin films
Nguyen Quoc Hung¹, Nguyen Trung Kien¹, Nguyen Tran Thuat¹, and Hoang Chi Hieu²
¹Nano and Energy Center, VNU University of Science, Ha Noi, Vietnam; ²Faculty of Physics, VNU University of Science, Ha Noi, Vietnam
- 13:50 – 14:10 QMA-I5
Magnetic/gold nanocrescents like nano-heater and nano-probe
Xuan Hoa Vu, Thi Thu Ha Pham, Emmanuel Fort, Michael Levy, Tran Thu Trang, and Nguyen Van Dang
Thai Nguyen University of Sciences, Vietnam
- 14:10 – 14:30 QMA-I6 (online)
Optimization and manipulation of quantum dot based single photon source for quantum applications
Gia Long Ngo, Jean-Pierre Hermier, and Ngoc Diep Lai
LUMIN, ENS Paris-Saclay, Université Paris-Saclay, France
- 14:30 – 14:50 QMA-I7
Harnessing photonic bound states in the continuum for enhanced light-matter interactions in nanophotonics
Son Tung Ha, Mengfei Wu, Ramón Paniagua-Domínguez, Hai Son Nguyen, Cesare Soci, Hilmi Volkan Demir, and Arseniy I. Kuznetsov
Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore
- 14:50 – 15:10 QMA-I8 (online)
Novel mechanisms for light-matter interaction using bound states in the continuum
Hai Son Nguyen^{1,2}
¹Université de Lyon, Ecole Centrale de Lyon, CNRS, INSA Lyon, Université Claude Bernard Lyon 1, CPE Lyon, France; ²Institut Universitaire de France (IUF), France

BIN-2 Chairs: Trinh Chu Duc and Loi Tonthat

- 13:30 – 13:55 BIN-K2
From microengineering to organ-on-a-chip: An Evolution of Biochip Technology
Loc Do Quang¹, Hang Nguyen Thu², Tung Bui Thanh², and Trinh Chu Duc²
¹ University of Science, Vietnam National University, Hanoi, Vietnam; ² University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam
- 13:55 – 14:15 BIN-I3
Multifunctional ultrasmall $Au-Fe_3O_4$ nanoparticles for cancer therapy
Loi Tonthat
Tohoku University, Japan

- 14:15 – 14:35 BIN-I4
3D-printing scaffolds with polycaprolactone/collagen/peptide enhance mouse mesenchymal stem vitality and bone regeneration
Van-Tinh Nguyen, Gun-Woo Oh, and Won-Kyo Jung
 VINMEC High-Tech Center, Vietnam
- 14:35 – 14:55 BIN-I5
SERS detection of phenol on CuO/Au core/shell nanowires
 Thi Ha Tran, Minh Phuong Le, Van Tan Tran, Quang Hoa Nguyen, Van Thanh Pham, Cong Doanh Sai, An Bang Ngac, Viet Tuyen Nguyen, and Nguyen Hai Pham
 University of Science, Vietnam National University, Hanoi, Vietnam
- 14:55 – 15:10 BIN-O2
Utilizing response surface methodology for optimizing quercetin loaded niosome by ethanol injection method
 Hien Minh Nguyen^{1,2}, Nguyen Thien Han Le^{1,2}, Tran Phuoc Thuan Nguyen^{1,2}, Binh Minh Do^{1,2}, Ngoc Trong Nghia Chau^{1,2}, Tan Thi Pham^{2,3}, and Minh Tri Le^{1,2}
¹School of Medicine, Vietnam National University Ho Chi Minh City, Vietnam; ²Vietnam National University Ho Chi Minh City (VNUHCM), Vietnam; ³Ho Chi Minh City University of Technology (HCMUT), Ho Chi Minh City, Vietnam

EMD-3 Chairs: Nguyen Quang Chinh and Susumu Horita

- 13:30 – 13:55 EMD-K3
Sustainable Graphene production, ink formulations and printing advanced chemoresistive sensing devices
Tran T. Tung, Kamrul Hassan, Anh Tuan Tran, Ramesh K, Ehab Mohamed A. E. Salih, and Dusan Losic
 School of Chemical Engineering, The University of Adelaide, South Australia
- 13:55 – 14:15 EMD-I5
Ultrafine-grained metals: Their advantages in the use of micro-devices and description of grain size strengthening by a modified Hall-Petch equation
Nguyen Quang Chinh
 Eötvös Loránd University, Budapest, Hungary
- 14:15 – 14:35 EMD-I6
Creating, reading, and deleting Skyrmions in a magnetic tunnel junction
Shaohai Chen
 Institute of Materials Research & Engineering, Agency for Science, Technology & Research (A*STAR), Singapore
- 14:35 – 14:55 EMD-I7
Effect of ammonia gas in annealing process on reduction of residual OH-bonds and improvement of electrical properties of low-temperature silicon oxide films
Susumu Horita
 Japan Advanced Institute of Science and Technology, Japan

14:55 – 15:10 EMD-O3
A first principles analysis on the effects of AGNR passivation towards adsorption of Hydrogen atoms
Kyle Alfred Paz, Al Rey Villagracia, and Melanie David
De La Salle University, Philippines

EMD-4 Chairs: Peng Song and Shin-Ichiro Kuroki

13:30 – 13:50 EMD-I8
SiC CMOS integrated circuits and image sensors for extreme environment applications
Shin-Ichiro Kuroki, Tatsuya Meguro, Vuong Van Cuong, Akinori Takeyama, Takahiro Makino, Takeshi Ohshima, Kazutoshi Kojima, and Yasunori Tanaka
Hiroshima University, Japan

13:50 – 14:10 EMD-I9
Strong-field optoelectronics and gas sensing
Ngoc-Loan Phan
Ho Chi Minh City University of Education, Vietnam

14:10 – 14:30 EMD-I10
Charge-spin conversion in atomically thin 2D crystals
Peng Song
Nanyang Technological University, Singapore

14:30 – 14:50 EMD-I11
Low power consumption and highly sensitive gas micro-nano sensors
Nguyen Duc Hoa, Nguyen Van Duy, Chu Manh Hung
International Training Institute for Materials Science (ITIMS), Hanoi University of Science and Technology, Vietnam

14:50 – 15:05 EMD-O4
Atmospheric pressure spatial stomic layer deposition: a cost-effective scalable technology for functional nanocoatings
Viet Huong Nguyen
Phenikaa University, Vietnam

ENM-2 Chairs: Jyh-Ming Ting and Tran Dinh Phong

13:30 – 13:55 ENM-K2
Effects of defect engineering and residual stress engineering on thermoelectric properties of nanostructured materials
Phan Bach Thang
Center for Innovative Materials and Architectures, Vietnam National University Ho Chi Minh City, Vietnam

13:55 – 14:15 ENM-I3
Engineering of a viable artificial leaf for solar H₂ production
Duc N. Nguyen, Quyen T. Le, Ly T. Le, Anh D. Nguyen, and Phong D. Tran
University of Science and Technology of Hanoi, Vietnam Academy of Science and Technology, Vietnam

- 14:15 – 14:35 ENM-I4
Electronucleation of Ni-Co nano alloy particles from nonaqueous solvents
Tu Le Manh, and Hoang Thi Thanh Thuy
 Faculty of Materials Science and Engineering, Phenikaa University, Vietnam
- 14:35 – 14:50 ENM-O2
Electrochemical and spectroscopic properties of Dithiobiuret-based cathode materials for Lithium ion batteries
 Tomoki Nishigaki, Yuma Miki, Haruki Arayama, Aiko Saito, Rin Miyasaka, Shinsuke Shigeto, Hiroshi Uemachi, and Akihiko Fujiwara
 Kwansai Gakuin University, Japan
- 14:50 – 15:05 ENM-O3
Oxide materials for thermoelectric applications
Q. Nghi Pham
 Insitutut de Chimie Moléculaire et de Matériaux d'Orsay (ICMMO), Université Paris Saclay, France

AIM-1 Chairs: Yen-Hsun Su and Phan Duc Anh

- 15:25 – 15:50 AIM-K1 (online)
Combinatorial design of new high-entropy alloys and their characterization by a novel machine learning-based X-ray line profile analysis
 Péter Nagy^{1,2}, Bálint Kaszás³, István Csabai⁴, Zoltán Hegedűs⁵, Johann Michler², László Pethö², and Jenő Gubicza¹
¹Department of Materials Physics, ELTE Eötvös Loránd University, Hungary; ²Laboratory for Mechanics of Materials and Nanostructures, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; ³Institute for Mechanical Systems, ETH Zürich, Switzerland; ⁴Department of Physics of Complex Systems, Eötvös Loránd University, Hungary; ⁵Deutsches Elektronen-Synchrotron DESY, Germany
- 15:50 – 16:10 AIM-I1
Machine learning driven photosensitive materials decision on metal oxide surface
Yen-Hsun Su
 Department of Materials Science and Engineering, National Cheng Kung University, Taiwan
- 16:10 – 16:30 AIM-I2 (online)
Inverse design of triply periodic minimal surface-based honeycomb hybrid metamaterials using deep learning
Phuong Tran and Chenxi Peng
 RMIT University, Melbourne, Australia
- 16:30 – 16:50 AIM-I3
Exploring the applications of machine learning and deep learning in investigating material properties
Anh D. Phan
 Phenikaa University, Vietnam

16:50 – 17:10 AIM-I4 (online)
Design of new printable alloys for additive manufacturing: A data-driven approach
Minh-Son Pham
Imperial College London, UK

BIN-3 Chairs: Kytai T. Nguyen and Tien Duc Pham

- 15:25 – 15:50 BIN-K3
Metamaterials: Historical development and scientific advances
Vu Dinh Lam¹, Nguyen Thanh Tung^{1,2}, Bui Son Tung^{1,2}, Bui Xuan Khuyen^{1,2}, and Pham Thanh Son^{1,2}
¹Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; ²Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam
- 15:50 – 16:10 BIN-I6
Spontaneous formation of Amphiphilic Diblock Copolymer based on Poly(vinyl alcohol) in water solution
Thu Thao Pham¹, Seito Aibara², Takehiro Omori², Yoshihiro Kimura², and Shin-ichi Yusa¹
¹University of Hyogo, Japan; ²Japan VAM & POVAL CO., LTD., Japan
- 16:10 – 16:30 BIN-I7
Highly adsorptive removal of antibiotics using synthesized metal oxide nanomaterials with surface modification by protein
Thi Ngan Vu¹, Pham Hai Phong Le², Thi Thuy Trang Truong¹, Trung Kien Tran², Thu Ha Hoang³, and Tien Duc Pham¹
¹Faculty of Chemistry, University of Science, Vietnam National University, Hanoi, Viet Nam; ² Hanoi Medical University, Viet Nam; ³University of Education, Vietnam National University, Hanoi, Vietnam
- 16:30 – 16:45 BIN-O3
Toxicity of 3D-printed Acrylonitrile-Butadiene-Styrene (ABS) released in biological buffer
Luu M. Quynh¹, Nguyen T. T. Trang², Luong T. P. Thao², Do D. Linh, Tran T. N. Anh², Pham T. Dat¹, Kieu T. Kien², Dinh D. Thanh², Nguyen H. Nam³, Nguyen L. Thanh², and Hoang T. M. Nhung²
¹ Faculty of Physics, VNU - University of Science, Hanoi, Vietnam; ² Faculty of Biology, VNU - University of Science, Hanoi, Vietnam; ³ Nano and Energy Center, VNU - University of Science, Hanoi, Vietnam
- 16:45 – 17:00 BIN-O4
Optimizing preparation and assessment of stability of fish scale collagen peptide/sachi oil microemulsion
Nguyen Thuy Chinh^{1,2}, Vu Thi Ngoc Lan², Mai Duc Huynh¹, Nguyen Xuan Thai¹, Nguyen Phi Hung³, Thi Cam Quyen Ngo^{2,4}, Tien Dung Nguyen⁵, and Hoang Thai^{1,2}
¹Institute for Tropical Technology, Vietnam Academy of Science and Technology, Viet Nam; ²Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Viet Nam; ³Institute of Natural Products Chemistry, Vietnam Academy of Science and Technology, Viet Nam;

⁴Institute of Environmental Sciences, Nguyen Tat Thanh University, Viet Nam;

⁵Faculty of Chemistry, Hanoi National University of Education, Viet Nam

EMD-5 Chairs: Dang Mau Chien and Kazunori Sato

- 15:25 – 15:50 EMD-K4
Development of electrochemical sensor probes using micro-electrodes for detection of arsenic, ion, and ammonium concentrations in domestic water
Dang Mau Chien, Doan Duc Chanh Tin, and Nguyen Duy Linh
Institute for Nanotechnology, Vietnam National University Ho Chi Minh City, Vietnam
- 15:50 – 16:10 EMD-I12
Controlling excitons and trion in colloidal nanomaterials for optoelectronic devices
Cuong Dang
School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore
- 16:10 – 16:30 EMD-I13
Application of KKR-CPA method to computational materials design of high entropy alloys
Kazunori Sato^{1,2,3}
¹Graduate School of Engineering, Osaka University, Japan; ²CSRN, Graduate School of Engineering Science, Osaka University, Japan; ³Spintronics Research Network Division, OTRI, Osaka University, Japan
- 16:30 – 16:45 EMD-O5
Fabrication of thin film transistors using copper oxide as channel material
Nguyen Duc Thanh^{1,2}, Hoang Thi Thuy¹, Vu Hoang Viet¹, and Nguyen Tran Thuat¹
¹Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam; ²Nanotechnology program, Vietnam Japan University, Vietnam National University, Hanoi, Vietnam
- 16:45 – 17:00 EMD-O6
Exploring of the reaction pathway on the notch region of double graded bandgap CIGS solar cells
Van-Quy Hoang, Dong-Hwan Jeon, Seong-Yeon Kim, Dae-Kue Hwang, Jaebaek Lee, Dae-Ho Son, Shi-Joon Sung, Kee-Jeong Yang, Jin-Kyu Kang, and Dae-Hwan Kim
Daegu-Gyeongbuk Institute of Science and Technology (DGIST), Korea

EMD-6 Chairs: Cuong Dang and Barnali Ghosh

- 15:25 – 15:50 EMD-K5 (online)
Barocaloric materials for sustainable heating and cooling applications
Xavier Moya
Department of Materials Science, University of Cambridge, UK
- 15:50 – 16:10 EMD-I14
Engineering perovskite halides as new platform for detectors
Barnali Ghosh
S.N. Bose National Centre for Basic Sciences, India

- 16:10 – 16:30 EMD-I15 (online)
Spin torque majority gate for logic device applications
 Soobeom Lee¹, Dongryul Kim¹, Suhyeok An¹, Seong Bok Kim², Woo Ri Ju², Jae Yong Cho¹, Jun-Su Kim¹, June-Seo Kim², and Chun-Yeol You¹
¹Department of Physics and Chemistry, Daegu Gyeongbuk Institute of Science & Technology, Korea; ²Division of Nanotechnology, Daegu Gyeongbuk Institute of Science & Technology, Korea
- 16:30 – 16:45 EMD-O7
Study of absorption of multilayered thin films for enhancing thermal detector efficiency
Vu Hoang Viet, Hoang Thi Thuy, and Nguyen Tran Thuat
 Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam
- 16:45 – 17:00 EMD-O8
Development of gold nanoparticles/pyramidal Silicon surface enhancement Raman substrates for pesticide residue detection
 Huynh Nguyen Thanh Luan, Tran Nguyen Nam Phuong, Nguyen Duc Hao, Le Van Hieu, Le Vu Tuan Hung, and Tran Thi Thanh Van
 University of Science, Viet Nam National University Ho Chi Minh City, Viet Nam

ENM-3 Chairs: Katsunori Wakabayashi and Nguyen Quang Hung

- 15:25 – 15:50 ENM-K3 (online)
New perspectives in magnetocaloric research
Victorino Franco
 University of Seville, Spain
- 15:50 – 16:10 ENM-I5
Secondary-phase-induced charge-discharge performance enhancement of Co-free high entropy spinel oxide electrodes for Li-ion batteries
Thi Xuyen Nguyen¹, Jagabandhu Patra^{1,2}, Chia-Chien Tsai¹, Wen-Ye Xuan^{3,4}, Hsin-Yi Tiffany Chen³, Matthew S. Dyer⁴, Oliver Clemens⁵, Ju Li⁵, Subhasish Basu Majumder^{7,8}, Jeng-Kuei Chang^{1,2}, and Jyh-Ming Ting¹
¹National Cheng Kung University, Taiwan; ²National Yang Ming Chiao Tung University, Taiwan; ³National Tsing Hua University, Taiwan; ⁴University of Liverpool, UK; ⁵Universität Stuttgart, Germany; ⁶Massachusetts Institute of Technology, UK; ⁷Indian Institute of Technology, India; ⁸Kansas State University, USA
- 16:10 – 16:30 ENM-I6
Nonlinear optical effect and DC photocurrent for few-layered metallic TMDC
Katsunori Wakabayashi
 Kwansai Gakuin University, Japan
- 16:30 – 16:45 ENM-O4
Boosting the electrochemical cycle life of a zinc ion battery with an eco-friendly cellulose-coated Zn metal
Van-Chuong Ho¹, Hai Yen Nguyen Thi², Jeong F Kim², and Junyoung Mun^{1,3}

¹School of Advanced Materials Science and Engineering, Sungkyunkwan University, Republic of Korea; ²Department of Energy and Chemical Engineering, Incheon National University, South Korea; ³SKKU Institute of Energy Science and Technology (SIEST), Sungkyunkwan University, Republic of Korea

16:45 – 17:00 ENM-O5

Compositional dependence of energy storage density in Ba(Zr_xTi_{1-x})O₃ ferroelectrics

Ba-Hieu Vu, Van-Hai Dinh, and Le Van Lich

School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam

August 12, 2023

QMA-3 Chairs: Jeehoon Kim and Xuan Hoa Vu

08:30 – 08:55 QMA-K2 (online)

Harnessing spin in α -Sn

Mingzhong Wu

Colorado State University, USA

08:55 – 09:20 QMD-K3 (online)

Charge density wave proximity effect in MoSe₂-TiSe₂ heterostructures

Jaydeep Joshi^{1,2}, Benedikt Scharf³, Igor Mazin^{1,2}, Sergiy Krylyuk⁴, Daniel J. Campbell⁵, Johnpierre Paglione^{5,6}, Albert Davydov^{2,4,5}, Igor Žutić⁷, and Patrick M. Vora^{1,2}

¹Department of Physics and Astronomy, George Mason University, USA;

²Quantum Science and Engineering Center, George Mason University, USA;

³Institute for Theoretical Physics and Astrophysics and Würzburg-Dresden

Cluster of Excellence ct.qmats, University of Würzburg, Germany; ⁴Materials

Science and Engineering Division, National Institute of Standards and

Technology, USA; ⁵Maryland Quantum Materials Center, Department of

Physics, University of Maryland, USA; ⁶Canadian Institute for Advanced

Research, Canada; ⁷Department of Physics, University at Buffalo, USA

09:20 – 09:40 QMA-I9

Magnetic force microscopy studies in unconventional magnetic materials

Jeehoon Kim

Pohang University of Science and Technology, Korea

09:40 – 10:00 QMA-I10 (online)

Ultrafast optical manipulation of spin in quantum materials

Minh Tuan Trinh

Utah State University, USA

10:00 – 10:15 QMA-O1

Enhanced thermoelectricity of Bi₂Te_{3-x}Se_x quantum thin film

Nguyen Trung Kien, Chu Truong Son, Dong Thi Lan Anh, Pham Thi Hong, Hoang Chi Hieu, and Nguyen Quoc Hung

Nano and Energy Center, VNU University of Science, Vietnam

BIN-4 Chairs: Hoang Thai and Pham Thu Thao

- 08:30 – 08:55 BIN-K4 (online)
Nanocarbons for biology and medicine: sensing, imaging, and drug delivery
Ken-Tye Yong
School of Biomedical Engineering, University of Sydney, Australia
- 08:55 – 09:15 BIN-I8
Green synthesis and antibacteria activity of hydrotalcite-Ag nanoparticles
Nguyen Thuy Chinh^{1,2}, Nguyen Xuan Thai^{1,2}, Nguyen Thi Kim Anh³, Bui Thao Linh³, Tien Dung Nguyen³, Tran Thanh Thuy⁴, and Hoang Thai^{1,2}
¹Institute for Tropical Technology, Vietnam Academy of Science and Technology, Vietnam; ²Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; ³Faculty of Chemistry, Hanoi National University of Education, Vietnam
- 09:15 – 09:35 BIN-I9
3D bio-printing of blood vessel-like structures using umbilical cord stem cells
Nguyen Ngoc Dinh¹, Luu Manh Quynh¹, Pham Van Thanh¹, Tran Vinh Thang¹, Hoang Van Huy¹, Do Dieu Linh¹, Tran Trung Nghia¹, Nguyen Van Son¹, Dinh Khanh Manh¹, Nguyen Thi Yen Lan¹, Ngo Duy Minh¹, Do Xuan Hai², Than Thi Trang Uyen³, Hoang Thi My Nhung¹, and Nguyen Hoang Nam¹
¹VNU University of Science, Vietnam; ²Vietnam Military Medical University, Vietnam; ³Vinmec Hightech Center, Vinmec, Vietnam
- 09:35 – 09:50 BIN-O5
A novel nanoemulsion in ethanol-water solution using Trisodium citrate as emulsifying agent: formation and application in Si-QD/SiO₂ and NiFe₂O₄/SiO₂ core-shell structure synthesis
Phi Thi Huong¹, Hoang V. Huy¹, Doan H. Anh², Nguyen H. Nam¹, Tran T. Hong³, and Luu M. Quynh²
¹Nano and Energy Center, VNU University of Science, Hanoi, Vietnam; ²Faculty of Physics, VNU University of Science, Hanoi, Vietnam; ³Faculty of Environmental Sciences, VNU University of Science, Hanoi, Vietnam
- 09:50 – 10:05 BIN-O6
Understanding mechanism of photo-induced enhanced Raman scattering on ZnO/Au nanorods
Van Tan Tran, Minh Phuong Le, Quang Hoa Nguyen, Van Thanh Pham, Cong Doanh Sai, Nguyen Hai Pham, Viet Tuyen Nguyen, Thi Ha Tran, and An Bang Ngac
University of Science, Vietnam National University, Hanoi, Vietnam
- 10:05 – 10:20 BIN-O7
Investigation of the remineralization ability of biphasic calcium phosphate in artificial saliva
Nhi-Thao Ngoc Dang^{1,2} and Thi-Hiep Nguyen^{1,2}
¹International University, Vietnam; ²Vietnam National University, Ho Chi Minh City, Vietnam

EMD-7 Chairs: Takehito Nakano and Ivan Škorvák

- 08:30 – 08:50 EMD-I16
Non-volatile multi-state switching of magnetisation states induced by electric-field-driven in an micropatterned multiferroics
Do Thi Huong Giang, Vu Nguyen Thuc, Ho Anh Tam, Nguyen Van Tuan, Nguyen Thi Ngoc, Van-Hai Dinh, Le Van Lich, and Nguyen Huu Duc
VNU University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam
- 08:50 – 09:10 EMD-I17
Neutron diffraction studies on s- and p-electron magnets
Takehito Nakano
Ibaraki University, Japan
- 09:10 – 09:30 EMD-I18
Ultra-rapidly annealed Ni-rich nanocrystalline Fe-Ni-Nb-B alloys with excellent magnetic softness
Ivan Škorvák¹, Jozef Marcin¹, Branislav Kunca¹, and Peter Švec²
¹Institute of Experimental Physics, Slovak Academy of Sciences, Slovakia;
²Institute of Physics, Slovak Academy of Sciences, Slovakia
- 09:30 – 09:45 EMD-O9
Exploration of transition metal oxides-based analog memristors with self-rectifying characteristics for artificial synaptic applications
Quan Phu Pham^{1,2}, Duy Khanh Le^{1,2}, Thang Bach Phan^{2,3}, Thuat Tran Nguyen⁴, and Ngoc Kim Pham^{1,2}
¹ Faculty of Material Science and Technology, University of Science, Vietnam; ² Vietnam National University, Ho Chi Minh City, Vietnam; ³ Center for Innovative Material and Architecture (INOMAR), Vietnam; ⁴ Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam
- 09:45 – 10:00 EMD-O10
Electrodeposition of Indium on Copper and Cobalt for 3D packaging
La Thi Ngoc Mai, Nakayama Kohei, and Inoue Fumihiko
Graduate School of Engineering Science, Yokohama National University, Japan
- 10:00 – 10:15 EMD-O11
Atomistic investigation on the mechanical properties and energy absorption capabilities of high-entropy alloy gyroid nanostructures
Van-Lam Nguyen, Dang Thi Hong Hue, Van-Hai Dinh, Trong-Giang Nguyen, and Le Van Lich
School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam

EMD-8 Chairs: Nguyen Ngoc Dinh and Anh-Tuan Le

- 08:30 – 08:55 EMD-K6 (online)
Rapid optical and electrical sensing of hydrogen using templated control of nano-hydride geometry and magnetic composition
Tho Duc Nguyen
Department of Physics and Astronomy, University of Georgia, Athens, USA

- 08:55 – 09:15 EMD-I19
A smart rapid alert system for food safety (SRASF) based on advanced functional nanomaterials-based sensing electrochemical nanoplatform
 Ngo Xuan Dinh¹, Nguyen Tuan Anh¹, Nguyen Ngoc Huyen¹, Phung Thi Lan Huong¹, Nguyen Le Nhat Trang¹, Tien Van Manh¹, Ong Van Hoang¹, Pham Thi Tuyet Nhung¹, Le Minh Tung², and Anh-Tuan Le¹
¹Phenikaa University Nano Institute (PHENA), PHENIKAA University, Vietnam;
²Department of Physics, Tien Giang University, Vietnam
- 09:15 – 09:35 EMD-I20
First-principles calculation of the specific heat jump at the glass transition
K. Shirai^{1,2}, K. Watanabe², H. Momida², and S. Hyun³
¹Vietnam Japan University, Vietnam National University, Hanoi, Vietnam;
²SANKEN, Osaka University, Japan; ³Korea Institute of Ceramic Engineering and Technology, Korea
- 09:35 – 09:50 EMD-O12
Development of cross bar memristors with CrO_x as active layer
Nguyen Danh Thanh^{1,2}, Hoang Thi Thuy¹, Pham Do Thanh Dat¹, Pham Phu Quan³, Phan Bach Thang⁴, Dang Van Son¹, Pham Kim Ngoc³, and Nguyen Tran Thuat¹
¹Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam; ²Nanotechnology program, Vietnam Japan University, Vietnam National University, Hanoi, Vietnam; ³Faculty of Material Science and Technology, University of Science, Vietnam National University, Ho Chi Minh City, Vietnam; ⁴Center for Innovative Material and Architecture, Vietnam National University, Ho Chi Minh City, Vietnam
- 09:50 – 10:05 EMD-O13
Topological states in 3D Woodpile photonic crystal
Huyen Thanh Phan¹, Shun Takahashi², Satoshi Iwamoto³, and Katsunori Wakabayashi¹
¹Kwansei Gakuin University, Japan; ²Kyoto Institute of Technology, Japan; ³The University of Tokyo, Japan
- 10:05 – 10:20 EMD-O14
Simultaneous determination of Ascorbic acid, Dopamine, and Uric acid using graphene/ITO based biomolecular electrochemical sensor
 Trinh Ngoc Hien^{1,2}, Bui Dang Quang³, Tran Duc Canh³, Pham Thu Ha³, Nguyen Thi Tuyet Nhung³, Vu Thi Hau³, Nguyen Van Dang^{1,4}, Dang Van Thanh^{1,5}, Pham Thi Thuy⁵, Nguyen Quoc Dung³
¹Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; ²TNU-University of Information and Communication Technology, Vietnam; ³Faculty of Chemistry, Thai Nguyen University of Education, Vietnam; ⁴Faculty of Physics and Technology, TNU-University of Sciences, Vietnam; ⁵Faculty of Basic Sciences, TNU-University of Medicine and Pharmacy, Vietnam

ENM-4 Chairs: Nguyen Tran Thuat and Tara P. Dhakal

- 08:30 – 08:55 ENM-K4 (online)
Multi-scale modeling of Carbon-based nanomaterials
Douglas S. Galvao
State University of Campinas, Campinas-SP, Brazil
- 08:55 – 09:15 ENM-I7
Nanocrystal synthesis approach to stable Lead-free perovskite solar cells
Zeying Chen, Wendy Ramos, Bipin Rijal, and Tara P. Dhakal
Center for Autonomous Solar Power (CASP), Binghamton University, USA
- 09:15 – 09:30 ENM-O6
Enhanced energy storage performance of BiFeO₃/SrTiO₃ lead-free multilayer thin films via compositional tailoring and domain engineering
Thi-Ha Dang^{1,2}, Van-Hai Dinh¹, and Le Van Lich¹
¹School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam; ²Vietnam National University of Forestry, Vietnam
- 09:30 – 09:45 ENM-O7
Wideband optical properties of Poly(methyl methacrylate) from 0.2 to 25 μm
Pham Thi Hong¹, Nguyen Trung Kien¹, Nguyen Viet Tuyen², Hung Q. Nguyen¹, and H. T. M. Nghiem³
¹Nano and Energy Center, VNU University of Science, Vietnam; ²Faculty of Physics, VNU University of Science, Vietnam; ³Phenikaa Institute of Advanced Study, Phenikaa University, Vietnam
- 09:45 – 10:00 ENM-O8
Nitrogen doped MoS₂ nanosheets and Graphene/MoS₂ composite prepared by Electrolysis Plasma-induced process toward hydrogen evolution reaction
Van-Truong Nguyen¹, Pham Minh Tan¹, Hoang Tien Dat¹, and Khieu Thi Tam²
¹Thai Nguyen University of Technology, Vietnam; ²Thai Nguyen University of Science, Vietnam
- 10:00 – 10:15 ENM-O9
Graphene-Carbon nanotube hybrid for supercapacitors: from research to innovation
Duy Tho Pham and Doe Kim
IBS Center for Integrated Nanostructure Physics (CINAP), SungKyunKwan University, Korea

AIM-2 Chairs: Yoshitada Morikawa and Le Van Lich

- 10:30 – 10:55 AIM-K2
First-principles and machine-learning study of interface chemical reactions for energy and environmental problems
Harry Handoko Halim and Yoshitada Morikawa
Osaka University, Japan
- 10:55 – 11:15 AIM-I5
Ab initio calculations for spin quantum defects

Ngoc Linh Nguyen^{1,2}, Hung T. Dang^{1,3}, Tien Lam Pham³, and Thi Minh Hoa Nghiem²

¹Faculty of Materials Science and Engineering, Phenikaa University, Vietnam;

²PHENIKAA Research and Technology Institute (PRATI), A&A Green Phoenix

Group JSC, Vietnam; ³Phenikaa Institute of Advanced Study (PIAS), Phenikaa University, Vietnam

11:15 – 11:35 AIM-I6

Accelerated search for new lead-free ferroelectric materials with high piezoelectric performance

Le Van Lich

School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam

11:35 – 11:50 AIM-O1

Elucidation of reaction mechanisms in NO_x purification catalysts using first-principles calculations

Thanh N. Pham¹, Y. Hamamoto^{1,2}, K. Inagaki^{1,2}, I. Hamada^{1,2}, and Y. Morikawa^{1,2,3}

¹Department of Precision Engineering, Osaka University, Japan; ²Elements Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Japan;

³Research Center for Precision Engineering, Graduate School of Engineering, Osaka University, Japan

11:50 – 12:05 AIM-O2

Machine Learning-assisted study of lattice thermal conductivity: Insights from bulk GeTe and Janus ISbTe materials

Duc-Long Nguyen

Science and Technology Advanced Institute, Van Lang University, Vietnam

EMD-9 Chairs: Nicholas Bingham and Tran Thanh Tung

10:30 – 10:50 EMD-I21

Collective behavior of artificial spin ice with external stimuli

Nicholas Bingham

University of Maine, USA

10:50 – 11:10 EMD-I22

Electrically tunable magnetic fluctuations in multilayered vanadium-doped tungsten diselenide

Lan-Anh T. Nguyen^{1,2}

¹Center for Integrated Nanostructure Physics (CINAP), Institute for Basic Science (IBS), Suwon 16419, Republic of Korea; INAP, ²Sungkyunkwan University, Korea

11:10 – 11:30 EMD-I23

Development of thermal infrared imagers: From materials research to Innovative devices

Vu Hoang Viet¹, Nguyen Duc Thanh², Nguyen Danh Thanh², Nguyen Quoc Hung¹, Mai Anh Tuan³, Nguyen Quang⁴, and Nguyen Tran Thuat¹

¹University of Science, Vietnam National University, Hanoi, Vietnam;

²Vietnam Japan University, Vietnam National University, Hanoi, Vietnam;

³University of Engineering and Technology, Vietnam National University,

Hanoi, Vietnam; ⁴International University, Vietnam National University
Hochiminh City, Vietnam

- 11:30 – 11:45 EMD-O15
Effect of solvent on size control of Poly(methyl methacrylate) microspheres and applications in large scale manufacturing
Hoang Minh Kien¹, Bui Thi Nga¹, Chu Hong Hanh¹, Nguyen Trong Khang², and Nguyen Tran Thuat³
¹MK Hi-Tech JSC, Vietnam; ²MK Group JSC, Vietnam; ³Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam
- 11:45 – 12:00 EMD-O16
P-type oxide-semiconductor thin films with three metallic elements Cu, Mn, and Sn: Preparation and characterization
Dinh The Nam¹, La Thi Ngoc Mai², Nguyen Van Loi^{1,3}, Do Hong Minh⁴, Nguyen Quang Hoa¹, Nguyen Ngoc Dinh¹, and Bui Nguyen Quoc Trinh²
¹Faculty of Physics, University of Science, Vietnam National University, Hanoi, Vietnam; ²Faculty of Advanced Technology and Engineering, Vietnam Japan University, Vietnam National University, Hanoi, Vietnam; ³Department of Foundation, Academy of Cryptography Techniques, Vietnam; ⁴Faculty of Physical and Chemical Engineering, Le Quy Don Technical University, Vietnam

EMD-10 Chairs: Masashi Akabori and Tam D. Nguyen

- 10:30 – 10:50 EMD-I24 (online)
Thermo-spin transport in rare-earth Iron Garnet based thin films and heterostructures
Amit Chanda¹, Christian Holzmann², Manfred Albrecht², Miela J. Gross³, Caroline A. Ross³, Dario. A. Arena¹, Manh-Huong Phan¹, and Hariharan Srikanth¹
¹Department of Physics, University of South Florida, USA; ²Institute of Physics, University of Augsburg, Germany; ³Department of Materials Science and Engineering, Massachusetts Institute of Technology, USA
- 10:50 – 11:10 EMD-I25
Advanced metallic frameworks for development of robust and efficient water splitting electrodes
Tam D. Nguyen^{1,2}, Joe Varga², Douglas MacFarlane¹, and Alexandr Simonov¹
¹School of Chemistry, Monash University, Clayton, VIC 3800, Australia; ²Energys Australia Pty Ltd, 2 Anzed Court, Mulgrave, VIC 3170, Australia
- 11:10 – 11:30 EMD-I26
Martensitic-austenitic transformation in Ni-Co-Mn-Al ferromagnetic shape memory alloy
Nguyen Huy Dan^{1,2}, Kieu Xuan Hau^{1,2}, Nguyen Hai Yen^{1,2}, Pham Thi Thanh^{1,2}, Nguyen Huy Ngoc¹, Truong Viet Anh¹, and Nguyen Van Toan^{1,2}
¹Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; ²Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam
- 11:30 – 11:50 EMD-I27
Molecular beam epitaxial growth of MnAs/InAs and MnSb/InSb hybrid structures for spintronic device applications

- Md. Tauhidul Islam, Md. Faysal Kabir, and Masashi Akabori
Japan Advanced Institute of Science and Technology, Japan
- 11:50 – 12:05 EMD-O17
Functionalization of graphitic surfaces by integrated 2D organic self-assemblies and diazonium chemistry
Thi Mien Trung Huynh, Tan Lam Nguyen, Van Ban Ho, Quoc Viet Dinh, Phi Hung Nguyen and Thanh Hai Phan
Quy Nhon University, Vietnam
- 12:05 – 12:20 EMD-O18
Exploring machine learning and an acoustic sensor for snoring detection
Ngoc Thai Tran^{1,2}, Duc Anh Pham¹, and Anh Tuan Mai¹
¹VNU University of Engineering and Technology, Vietnam; ²Hung Yen University of Technology and Education, Vietnam

ENM-5 Chairs: Van-Duong Dao and Sunglae Cho

- 10:30 – 10:55 ENM-K5
Multifunctional materials for selective organic transformations and sustainable hydrogen evolution
Tokeer Ahmad
Department of Chemistry, Jamia Millia Islamia, Jamia Nagar, New Delhi, India
- 10:55 – 11:15 ENM-I8
Solar energy technology for sustainable development
Van-Duong Dao
Faculty of Biotechnology, Chemistry and Environmental Engineering, Phenikaa University, Vietnam
- 11:15 – 11:35 ENM-I9
Unidentified major p-type source in SnSe: Multivacancies
Van Quang Nguyen^{1,7}, Thi Ly Trinh¹, Cheng Chang^{2,3}, Li-Dong Zhao², Thi Huong Nguyen^{1,4}, Van Thiet Duong¹, Anh Tuan Duong⁵, Jong Ho Park⁶, Sudong Park⁶, Jungdae Kim¹, and Sunglae Cho¹
¹University of Ulsan, Korea; ²Beihang University, China; ³Institute of Science and Technology, Austria; ⁴Kyung Hee University, Korea; ⁵Phenikaa University, Vietnam; ⁶Korea Electrotechnology Research Institute (KERI), Korea; ⁷Korea Atomic Energy Research Institute, Korea
- 11:35 – 11:50 ENM-O10
DFT insight into the nature of the high stability of single atom catalysts
Ho Viet Thang
The University of Danang, University of Science and Technology, Vietnam
- 11:50 – 12:05 ENM-O11
Killing two birds with one stone: Rice Husk-derived materials for Anodic materials in Li-ion battery and supercapacitor
Cu Dang Van¹, Thuy Luong Thi Thu², Khu Le Van², and Min Hyung Lee¹
¹Department of Applied Chemistry, Kyung Hee University, Korea; ²Faculty of Chemistry, Hanoi National University of Education, Vietnam

Poster Presentations

- AIM-P1 *Enhancing machine learning model performance through hyperparameter tuning in inverse design of electromagnetic metamaterial structures*
Nguyen Thanh Son, Nguyen Thanh Long, Nguyen Hoang Tung, and Nguyen Thanh Tung
Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam
- AIM-P2 *Machine learning models for the prediction of atomic energies of magnetic materials*
Nguyen Viet Anh¹, Nguyen Van Quyen², Pham Tien Lam², and Nguyen Tien Cuong¹
¹VNU University of Science, Hanoi, Vietnam; ²Phenikaa University, Vietnam
- AIM-P3 *Analyse multi-component quantitative structure–activity relationships of flavonoids in interact with MRSA by Artificial neural network model*
Nguyen Hoa Mi
Center for Computational Chemistry, Faculty of Chemistry, VNU University of Science, Hanoi, Vietnam
- AIM-P4 *Analyse multi-component spectra by combining principal component analysis with nonlinear iterative partial least squares technique, partial least square method, artificial neural networks*
Nguyen Hoa Mi, Dang Ung Van, and Nguyen Canh Hao
Faculty of Chemistry, VNU University of Science, Hanoi, Vietnam
- AIM-P5 *Simulation of various wall-like obstacle-integrated T-shape microfluidic mixing system aiming toward material synthesis*
Nguyen Thi Thanh Van¹, Luu Manh Quynh², Nguyen Hoang Nam³, Do Quang Loc², Nguyen Van Phu², Nguyen Ngoc Quynh¹, and Nguyen Chung Tien¹
¹Vietnam Academy of Cryptography Techniques, Hanoi, Vietnam; ²Faculty of Physics, VNU University of Science, Hanoi, Vietnam; ³Nano and Energy Center, VNU University of Science, Hanoi, Vietnam
- BIN-P1 *Artificial bio-receptor based on the combination of anti-PSA and MIP for the development of ultra-sensitivity impedimetric sensor*
Nguyen Thi Thanh Huyen¹, Nguy Phan Tin¹, and Truong T N Lien^{1,2}
¹Convergence Technology Division, Vietnam-Korea Institute of Science and Technology, Vietnam; ²School of Engineering Physics, Hanoi University of Science and Technology, Vietnam
- BIN-P2 *Investigation of the influence of microwaves on the synthesis of superparamagnetic Fe₃O₄ nanoparticles by microwave hydrothermal method, applied as a signal enhancer for electrochemical sensors*
Pham Tien Thanh¹, Tran Van Dinh¹, Nguyen Van Khanh¹, Bui Van Viet¹, Ngo Thi Thanh¹, Nguyen Truong An¹, Le Doan Phuc¹, Q. Nghi Pham², Eric Riviere², and Nguyen Thi Minh Hong¹
¹University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam; ²Institut de Chimie Moléculaire et des Matériaux d'Orsay, ICMO, CNRS UMR 8182, Université Paris Saclay, 91405, Orsay, Cedex, France

- BIN-P3 *A review of Langmuir-Blodgett films of fatty acids*
Tri Duc Luong¹, Duc Cuong Nguyen², Tuan Canh Nguyen², Phuong Hoai Nam Nguyen², Larissa A. Maiorova³, and Thi Thao Vu²
¹Foreign Language Specialized School, University of Language and International Studies, Vietnam National University, Hanoi, Vietnam; ²University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam; ³Research Institute of Macroheterocycles, Ivanovo State University of Chemistry and Technology, Russian Federation
- BIN-P4 *Preparation of polyion complex aggregates with sugar-polymer shells*
Tomoki Ando¹, Rintaro Takahashi², and Shin-ichi Yusa¹
¹Graduate School of Engineering, University of Hyogo, Japan; ²Graduate School of Engineering, The University of Nagoya, Japan
- BIN-P5 *Photo- and pH-response behavior of clear liquid marbles with water droplets covered with hydrophobic silica particles*
Emma Onodera¹, S. Fujii², N. Yoshinobu², and S. Yusa¹
¹Grad. Sch. of Eng., Univ. of Hyogo, Japan; ²Grad. Sch. of Eng., Osaka Institute of Technology, Japan
- BIN-P6 *Fabrication of luminescent polydimethylsiloxane/Rhodamine B (PDMS/RhB) and magnetic polydimethylsiloxane/Nickel ferrite (PDMS/NFO) microspheres using microfluidic system*
Hoang Van Huy¹, Nguyen Thi Thuy Linh², Nguyen Thao Hien³, Ngo Duc Minh², Nguyen Hoang Nam¹, Luu Manh Quynh¹, and Nguyen Hoang Luong¹
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- BIN-P7 *Harnessing for optical imaging and drug delivery of Cyanine 5.5-Adorned Doxorubicin-loaded iron oxide nanoparticles with Alginate coating*
Phan Ke Son¹, Le Thi Thu Huong², Mai Thi Thu Trang¹, Doan Bich Thuy³, and Ha Phuong Thu¹
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- BIN-P8 *Synthesis and application of silver nanoparticles in disinfecting of micropropagation medium and growth of Caladium bicolor during rooting stage*
Vu Thi Huyen, Le Thi Hien, Nguyen Le Khanh, Ta Thi Bich Loan, and Pham Thu Thuy
 VNU University of Engineering and Technology, Vietnam
- BIN-P9 *Trend in biodegradable porous Silica nanoparticles for potential drug delivery in cancer treatment*
 Ngoc Xuan Dat Mai and Tan Le Hoang Doan
 Center for Innovative Materials and Architectures, Vietnam National University Ho Chi Minh City, Vietnam

- BIN-P10 *Fabrication electrospun PVA-based nanofibers for antibacterial applications*
Nguyen Tuan Canh
 University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam
- BIN-P11 *Effect of sputtering time on Raman enhancement of CuO/Au core/shell nanowires*
Minh Phuong Le, Thi Ha Tran, Van Tan Tran, Quang Hoa Nguyen, Van Thanh Pham,
 Cong Doanh Sai, An Bang Ngac, Viet Tuyen Nguyen, and Nguyen Hai Pham
 University of Science, Vietnam National University, Hanoi, Vietnam
- BIN-P12 *Growth of well aligned ZnO nanorods by hydrothermal method*
Thi Ha Tran, Thi Hien Dinh, Thi Huyen Trang Bui, Minh Phuong Le, Van Tan Tran, Quang
 Hoa Nguyen, Van Thanh Pham, Cong Doanh Sai, An Bang Ngac, Viet Tuyen Nguyen,
 and Nguyen Hai Pham
 University of Science, Vietnam National University, Hanoi, Vietnam
- BIN-P13 *Evaluating the impact of spray gun on human umbilical cord-derived mesenchymal
 stem cells*
 Pham B. Hanh¹, Le H. Hai¹, Hoang V. Huy², Pham V. Thanh³, Hoang T.M. Nhung¹, and
 Nguyen H. Nam²
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 University of Science, Hanoi, Vietnam; ³Faculty of Physics, VNU University of Science, Hanoi,
 Vietnam
- BIN-P14 *An effective carbon electrode modification process for protein detection based on gold
 nanoparticles and immunosensing approach*
Linh Huynh Thi Thuy^{1,2}, Phu Nguyen Dang², Chi Tran Nhu², Trinh Chu Duc², Tung Thanh
 Bui², Ha Tran Thi Thuy³, and Loc Do Quang⁴
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 Technology, Vietnam National University, Hanoi, Vietnam; ³Faculty of Electronics Engineering,
 Posts and Telecommunications Institute of Technology, Hanoi, Vietnam; ⁴University of Science,
 Vietnam National University, Hanoi, Vietnam
- BIN-P15 *Ultrahigh-sensitive flexible cortisol biosensor based on all carbon liquid gate field-effect
 transistor*
Nguyen Van Anh¹, Le Khanh Toan¹, Nguyen Van Thuc¹, Pham Quang Trung¹, Vu Ngoc
 Duy¹, Nguyen Minh Ngoc¹, Yutaka Ohno², and Nguyen Xuan Viet¹
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 Research of Future Electronics, Institute of Materials and Systems for Sustainability (iMASS),
 Nagoya University, Japan
- BIN-P16 *Preparation of Houltuynia cordata extract loaded niosome formulation by ethanol
 injection method*
Nguyen Thien Han Le^{1,2}, Tran Phuoc Thuan Nguyen^{1,2}, Binh Minh Do^{1,2}, Ngoc Trong
 Nghia Chau^{1,2}, Tan Thi Pham^{2,3}, Minh Tri Le^{1,2}, and Hien Minh Nguyen^{1,2}
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 National University Ho Chi Minh City, Vietnam; ³Ho Chi Minh City University of Technology,
 Vietnam National University Ho Chi Minh City, Vietnam

- BIN-P17 *Fabrication of polyvinylidene fluoride/graphene oxide/chitosan (PVDF/GO/CS) dual-layer membrane and its antibacterial activity*
Nguyen Thi Thu Thuy, Le Thi Le, Nguyen Thi Hue, and Tran Quang Huy
 Phenikaa University, Vietnam
- BIN-P18 *Highly adsorptive removal of pharmaceutical residues from water using synthesized bamboo-biochar*
Tien Duc Pham¹, Duc Thang Nguyen¹, Manh Quoc Nguyen¹, Thanh Mai Tran¹, Thi Diu Dinh², Manh Khai Nguyen², Kaisei Namakamura³, and Toshiki Tsubota³
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²Faculty of Environmental Sciences, University of Science, Vietnam National University, Hanoi, Vietnam; ³Department of Materials Science, Faculty of Engineering, Kyushu Institute of Technology, Japan
- BIN-P19 *Development of a biosensor for the detection of botulinum neurotoxin serotypes A and B using functionalized magnetic nanoparticles*
 Huong-Ly Nguyen, Hong-Loan T. Nguyen, and Yen Pham
 Vietnam National University, University of Science, Hanoi
- BIN-P20 *Electronic thermal conductivity of semiconductor bismuth oxytelluride*
Do Quynh Anh¹, Nguyen Anh Son², Tran Van Quang³, and Bui Thanh Tung⁴
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³Faculty of Electronics and Telecommunications, VNU University of Engineering and Technology, Hanoi, Viet Nam; ⁴Faculty of Electronics and Telecommunications, VNU University of Engineering and Technology, Hanoi, Viet Nam
- BIN-P21 *Novel FITC conjugated silica nanoparticles for cell tracking in 2D and 3D cultures*
 Thi Thuy Nguyen¹, Thi My Nhung Hoang², Thi Ha Lien Nghiem¹, Xuan-Hai Do³, Thi Xuan Phuong Do², Dieu Linh Do², Ngoc Dinh Nguyen⁴, Manh Quynh Luu⁴, Trong Nghia Nguyen¹, Thi Bich Ngoc Nguyen¹, Van Toan Nguyen¹, Van Thanh Pham⁴, Uyen Thi Trang Than⁵, and Hoang Nam Nguyen⁶
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- BIN-P22 *Research and detection of bovine serum albumin (BSA) using the screen-printed gold electrode*
Chi Tran Nhu¹, Loc Do Quang², Tung Bui Thanh¹, Chun-Ping Jen³, and Trinh Chu Duc¹
¹University of Engineering and Technology, Vietnam; ²VNU University of Science, Hanoi, Vietnam; ³National Chung Cheng University, Taiwan
- EMD-P1 *Utilizing dual-source evaporation method to grow CsPbBr₃ film for room-temperature detection of NH₃ gas*
Dang Thi Huong Thao¹, Phung Dinh Hoat², Vo Van Khoe¹, Kim Juhan¹, Jo Hyunil¹, and Heo Young-Woo¹

¹School of Materials Science and Engineering Kyungpook National University – Daegu, Korea;
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- EMD-P2 *NiO nanoparticles with high dispersion achieved through ligand exchange as a hole injection layer for Quantum Dot LEDs*
Dang Thi Huong Thao, Lim Hyojun, Jin Sunwoo, Lee Nayoon, and Heo Young-Woo
School Of Materials Science and Engineering, Kyungpook National University – Daegu, Korea
- EMD-P3 *Al-air battery/hydrocapacitor-inspired hybrid device for energy conversion from micro water droplets achieving high output*
Vuong Dinh Trung¹, Jun Natsuki², Phuoc-Anh Le³, and Toshiaki Natsuki^{4,5}
¹Interdisciplinary Graduate School of Science and Technology, Shinshu University, Japan;
²Institute of Frontier Fibers, Institute for Fiber Engineering (IFES), Interdisciplinary Cluster for Cutting Edge Research (ICCER), Shinshu University, Japan; ³College of Engineering and Computer Science, VinUniversity, Vietnam; ⁴College of Textiles and Apparel, Quanzhou Normal University, China; ⁵Institute of Frontier Fibers, Institute for Fiber Engineering (IFES), Interdisciplinary Cluster for Cutting Edge Research (ICCER), Shinshu University, Japan
- EMD-P4 *An effective preparation procedure of FTO/AuNP electrodes for arsenic (III) detection*
Van Vien Nguyen^{1,2}, My Trang T. Dau^{1,2}, Canh Minh Thang Nguyen^{1,2}, Hoang Long Ngo³, Thanh Tung Nguyen³, Viet Hai Le^{1,2}, and Thai Hoang Nguyen^{1,2}
¹University of Science, Ho Chi Minh City, Vietnam; ²Vietnam National University Ho Chi Minh City (VNUHCM), Vietnam; ³VKTech Research Center, NTT Hi-Tech Institute, Nguyen Tat Thanh University, Vietnam
- EMD-P5 *The use of waste sugarcane bagasse for the fabrication of carbon aerogel electrode in CDI desalination*
Ngan Tuan Nguyen^{1,2,3}, Van Vien Nguyen^{1,2}, Thanh Tung Nguyen³, Hoang Long Ngo³, Le Thanh Nguyen Huynh^{1,2}, Viet Hai Le^{1,2}, and Thai Hoang Nguyen^{1,2}
¹University of Science, Ho Chi Minh City, Vietnam; ²Vietnam National University Ho Chi Minh City (VNUHCM), Vietnam; ³VKTech Research Center, NTT Hi-Tech Institute, Nguyen Tat Thanh University, Vietnam
- EMD-P6 *Room-temperature magnetocaloric effect of a second-order phase transition $Pr_{0.5}La_{0.2}Sr_{0.3}MnO_3$ compound and its correlation with critical behavior*
Nguyen Thi Dung¹, Nguyen Van Dang¹, and Tran Dang Thanh²
¹Thai Nguyen University of Sciences, Vietnam; ²Institute of Materials Science, Vietnam
- EMD-P7 *Degradability of synthetic methylene blue dyes of BTO-based composite multiferroic materials*
Tran Dang Thanh¹, Dang Duc Dung², Ngo Thu Huong³, Dinh Chi Linh¹, Nguyen Thi Dung⁴, Nguyen Thi Viet Chinh¹, and Dao Son Lam¹
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- EMD-P8 *Synthesize MoS_2 nanoflower (NF- MoS_2) and $g-C_3N_4/NF-MoS_2$ nanocomposite material by hydrothermal method for piezocatalytic application*

Thuy Lac Yen Nguyen, Minh Dai To, Minh Thu Le, Chi Thien Nguyen, and Thai Hoang Nguyen

University of Science, Ho Chi Minh City, Vietnam

EMD-P9 *Copper foam-incorporated Au-CuO nanorods: A SERS substrate with outstanding durability and recyclability*

Cong Doanh Sai¹, Tung Duy Vu², Ngoc Anh Tran Thi¹, Nguyen Hai Pham¹, Viet Tuyen Nguyen¹, Thi Hong Pham¹, and An Bang Ngac¹

¹Faculty of Physics, University of Science, VNU, Vietnam; ²Faculty of Chemistry, University of Science, VNU, Vietnam

EMD-P10 *Selective extraction of free manganese out of MnBi alloy*

Vuong Kha Anh, Le Nguyen Nhut Tan, Le Thanh Hoang, Nguyen Xuan Truong, Nguyen Van Khanh, Nguyen Van Vuong

Hanoi Metropolitan University, Graduate University of Science and Technology, Vietnam

EMD-P11 *Preparation and mechanical properties of hexagonal boron nitride nanosheet reinforced Ni-Mo nanocomposite alloy coating*

Dinh Trong Thang, Pham Hong Hanh, Pham Van Trinh, Nguyen Van Tu, Bui Hung Thang, and Tran Van Hau

Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam

EMD-P12 *A novel heterojunction CuWO₄/g-C₃N₄ photocatalyst for removal of Methylene Blue from aqueous solution under visible light irradiation*

Giang Truong Hoang and Dang Van Do

VNU University of Science, Ha Noi, Vietnam

EMD-P13 *Growth mechanism of tin-oxide nanowires synthesized by chemical vapor deposition: A gold-catalytic vapor-liquid-solid process*

Minh Hieu Nguyen¹ and Hoang Hai Nguyen²

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EMD-P14 *Ellipsometry study on temperature dependent critical points of MoS₂/WS₂ heterostructure*

Nguyen Hoang Tung¹, Nguyen Xuan Au², Kim Tae Jung², and Kim Young Dong²

¹Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; ²Kyung Hee University, Korea

EMD-P15 *Investigation of antibiotic photodegradation on CeO₂/C₃N₄ heterojunction catalyst*

Nhung Ngoc Hong Nguyen and Dang Van Do

VNU University of Science, Hanoi, Vietnam

EMD-P16 *Development of electrochemical sensor based on 3D Gr-CNTs hybrid material for highly sensitive detection of pesticide residues*

Nguyen Thi Huyen, Cao Thi Thanh, Pham Van Trinh, Nguyen Van Tu, Nguyen Hai Binh, Bui Hung Thang, Tran Van Hau, Mai Thi Phuong, and Nguyen Van Chuc

Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam

- EMD-P17 *One step preparing of the WO_3 nanoparticles using liquid-assisted grinding method for photodegradation of methylene blue from aqueous solution*
 Pham Huong Quynh¹, Dang Van Thanh^{2,3}, Tran Thi Minh Hang³, Nguyen Manh Khai³, Pham Tien Duc³, Pham Van Hao⁴, Do Danh Bich⁵, and Nguyen Thi Khanh Van⁶
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- EMD-P18 *One-step synthesis of magnetic recyclable Fe_3O_4 /biochar photocatalysts for the decolorization of methylene blue dye*
Nguyen Doan Trang¹, Tran Minh Phuong¹, Nguyen Thi Mai^{2,3}, Hoang Minh Trang², Nguyen Nhat Huy^{4,5}, Nguyen Thi Thuy⁴, Dang Van Thanh^{2,6}, and Tran Quoc Toan¹
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- EMD-P19 *Silicon pyramid coated with silver nanoparticles for detecting rhodamine B by Surface enhanced Raman Scattering (SERS)*
Nguyen Anh Tuan¹, Do Thuy Chi¹, and Nguyen Thuy Van²
¹Thai Nguyen Education University, Vietnam; ²Institute of Materials Science, VAST, Vietnam
- EMD-P20 *Large energy storage density response in ternary lead-free NBT-BKT-BZ piezoceramics*
Thi Hinh Dinh¹ and Vu Diem Ngoc Tran²
¹Faculty of Materials Science and Engineering, Phenikaa University, Vietnam; ²School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam
- EMD-P21 *Structural and optical characterization of 1,5-diaminonaphthalene lead iodide two-dimensional perovskite thin films by using cast-capping method*
Do Dinh Khai¹, Nguyen Thi Thi¹, Hoang Chi Hieu¹, Tran Thi Kim Chi², Le Si Dang³, Truong Thanh Tu¹, and Nguyen Tran Thuat¹
¹University of Science, Vietnam National University, Hanoi, Vietnam; ²Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; ³Institut NEEL, CNRS/UGA UPR2940, France
- EMD-P22 *Preparation and functionalization of hexagonal boron nitride nanoplatelets by chemical-assisted high energy ball milling technique*
Nguyen Dang Huy¹, Dinh Trong Thang¹, Cao Tien Dung¹, Nguyen Ba Kien¹, Nguyen Thi Huyen², Nguyen Duc Chung², Le Danh Chung², Tran Van Hau², Nguyen Van Hao³, Nguyen Van Chuc², Bui Hung Thang², Nguyen Van Tu², Doan Dinh Phuong², and Pham Van Trinh²

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²Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam;
³Institute of Science and Technology, TNU - Thai Nguyen University of Science, Vietnam

- EMD-P23 *Investigating PEPI material using low-temperature photoluminescence spectroscopy*
Duong Duc Thang, Trinh Thi Nguyet, Nguyen Tran Thuat, and Hoang Chi Hieu
Faculty of Physics, VNU University of Science, Vietnam
- EMD-P24 *Computational and experimental correlations in P-type semiconducting CuO and Sn-doped CuO thin films*
Vu Dinh Hong Phuc¹, Nguyen Van Loi^{2,3}, Nguyen Ngoc Dinh², and Nguyen Trung Hieu^{4,5},
and Bui Nguyen Quoc Trinh¹
¹Vietnam National University, Hanoi, Vietnam Japan University, Faculty of Advanced Technology and Engineering, Vietnam; ²Vietnam National University, Hanoi, University of Science, Faculty of Physics, Vietnam; ³Academy of Cryptography Techniques, Department of Foundation, Vietnam; ⁴Duy Tan University, Vietnam; ⁵Duy Tan University, Institute of Theoretical and Applied Research, Vietnam
- EMD-P25 *Effect of annealing temperature on I-V curves of ITO/Si junction*
Nguyen Huy Tiep, Nguyen Duc Hieu, Bui Dinh Tu, and Le Viet Cuong
Faculty of Engineering Physics and Nanotechnology, VNU University of Engineering and Technology, Vietnam
- EMD-P26 *Design and manufacturing of thin film planar coil-based magneto-impedance sensors*
H.A Tam, N.T. Ngoc, N.V. Tuan, V.N. Thuc, P.T. Hien, N.T.P. Thao, B.T. Sang, D.T. Hien, and D.T. Huong Giang
University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam
- EMD-P27 *Enhancing refrigerant capacity of soft magnetocaloric microwires for energy-efficient refrigeration*
N.T.M. Duc^{1,2}, Y.F. Wang^{2,3}, Y.Y. Yu², H. Belliveau², H.X. Shen⁴, J.F. Sun⁴, J.S. Liu⁵, F.X. Qin³, S.C. Yu⁶, H. Srikanth², and M.H. Phan²
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- EMD-P28 *Fabrication of anisotropic conductive films using nickel-plated polymer microspheres*
Bui Thi Nga¹, Chu Hong Hanh¹, Hoang Minh Kien¹, Nguyen Trong Khang², and Nguyen Tran Thuat³
¹MK Hi-Tech JSC, Vietnam; ²MK Group JSC, Vietnam; ³Nano and Energy Center, VNU University of Science, Hanoi, Vietnam
- EMD-P29 *Computational analysis of the electrical characteristics of individual cells in a microfluidic system utilizing complex impedance flow cytometry method*
Phu Nguyen Van, Van-Anh Bui, Thuy Luong Thi Minh, Thuy Dang Thi Thanh, Kien Do Trung, and Loc Do Quang

- EMD-P30 *High sensitivity contactless small magnetic metal measurement device based on tunneling magnetoresistance (TMR) sensor in differential configuration*
Pham Van Thanh¹, Do Trung Kien¹, Nguyen Tien Dat¹, Luong Thi Minh Thuy¹, Dang Thi Thanh Thuy¹, Luyen Van Nam², and Truong Thi Ngoc Lien²
¹VNU University of Science, Hanoi, Vietnam; ²IT-BT convergence technology Division, Vietnam – Korea Institute of Science and Technology, Hoa lac High-tech Park, Vietnam
- ENM-P1 *Enhanced photocatalytic water-splitting for hydrogen production by using transition metal doped g-C₃N₄*
Pham Thi Huong, Gu Hyuna, Tran Hieu Man, and Kim Taeyoung
Department of Materials Science and Engineering, Gachon University, Korea
- ENM-P2 *Temperature mediated electrochromic and electrochemical properties of hexagonal WO₃ nanostructure prepared via one-pot hydrothermal method*
Nguyen Ngo Tien Phu, Luu Thi Lan Anh, and Nguyen Cong Tu
School of Engineering Physics, Hanoi University of Science and Technology (HUST), Vietnam
- ENM-P3 *Solvothermal synthesis of CuO_x@WO₃ nanocomposites for the removal of organic dyes*
Nguyen Huy Hoang, Luu Thi Lan Anh, and Nguyen Cong Tu
School of Engineering Physics, Hanoi University of Science and Technology (HUST), Vietnam
- ENM-P4 *Synthesis NiTiO₃/BiOCl heterostructured composites and characterization of visible light photocatalytic activity*
Nguyen Thi Thom, Bui Phi Long, Nguyen Hoang Tuan, Duong Van Thiet, and Luong Huu Bac
Hanoi University of Science and Technology, Vietnam
- ENM-P5 *Fabrication of magnetically separable graphene/Fe₃O₄ photocatalyst using plasma electrochemical method and its application for photocatalytic degradation of methylene blue in aqueous solution*
Nguyen Long Tuyen^{1,2}, Nguyen Ngoc Dinh², Danh Bich Do³, Dang Van Thanh⁴, Nguyen Van Truong⁵, and Nguyen Ba Hung⁶
¹VNU University of Science, Hanoi, Vietnam; ²Hung Vuong University, Vietnam; ³Faculty of Physics, Hanoi National University of Education, Viet Nam; ⁴TNU-University of Medicine and Pharmacy, Vietnam; ⁵Faculty of fundamental and applied science, Thai Nguyen University of Technology, Vietnam; ⁶Vietnam Military Medical University, Vietnam
- ENM-P6 *Development of g-C₃N₄/ZnO photocatalysts for enhancing visible light degradation of diclofenac sodium solution: a role of the shape control*
Cam Tu Nguyen
Faculty of Chemistry, VNU University of Science Hanoi, Vietnam
- ENM-P7 *Enhanced photocatalytic activity of antibiotics on Ag/ZnO/C₃N₄ materials*
Trang Thi Huyen Le, Doanh Cong Sai, and Dang Van Do
VNU University of Science Hanoi, Vietnam

- ENM-P8 *Exploring dissociative adsorption of hydrogen on precious metal clusters for energy storage design*
Ngo Thi Lan^{1,2,3}, Nguyen Thi Mai^{1,2}, Nguyen Van Dang³, and Nguyen Thanh Tung^{1,2}
¹Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; ²Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; ³Institute of Science and Technology, TNU - University of Science, Vietnam
- ENM-P9 *Application of fly-ash from Thuy Nguyen thermal power plant in latent fingerprint developing*
Nguyen T. T. Ha¹, Pham H. Duc¹, Nguyen H. Nguyen², Pham N. Hung², Chu V. Tien³, and Luu M. Quynh¹
¹Faculty of Physics, VNU - University of Science, Hanoi, Vietnam; ²Electricpower University, Vietnam; ³Vietnam Electrical Engineering Association, Vietnam
- ENM-P10 *Fabrication and characterization of a novel nanocomposite membrane prepared from functionalized multiwalled carbon nanotubes and poly(vinyl alcohol)*
Le Thi Mai Hoa, Doan Duc Chanh Tin, and Dang Thi My Dung
 Institute for Nanotechnology (INT), Vietnam National University Ho Chi Minh City, Vietnam
- ENM-P11 *Magnetic, ferroelectric and energy storage properties of Bismuth Sodium-Potassium Titanate Lead-free ceramic and thin film prepared by Sol-Gel method*
N. D. Co^{1,2}, T.D. Hung¹, B.D. Phat³, D. D. Dung⁴, N. D. Quan⁴, D. T. H. Giang^{1,2}, T. M. Danh¹, B. D. Tu¹, and P. D. Thang^{1,5}
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- ENM-P12 *Effect of nanoclay and Mg(OH)₂ on the fire properties of epoxy-based intumescent coatings for steel substrate application*
Do Dang Trung
 Department of Fire Fighting and Prevention, Vietnam
- ENM-P13 *Effects of annealing temperature on microwave absorption properties of Ni_{0.4}Cu_{0.2}Zn_{0.4}Fe₂O₄/epoxy composites*
 C.T.A. Xuan¹, B.-J. Li², R.-B. Yang³, and N. Tran^{4,5}
¹Institute of Sciences and Technology, TNU-University of Sciences, Vietnam; ²Department of Electrical Engineering, National Cheng Kung University, Taiwan; ³Institute of Research and Development, Duy Tan University, Vietnam; ⁴Faculty of Natural Sciences, Duy Tan University, Vietnam; ⁵Department of Aerospace and Systems Engineering, Feng Chia University, Taiwan
- ENM-P14 *Preparation and characterization of three-dimensional porous Si/CNT-Gr composite*
Cao Tien Dung^{1,2}, Tran Van Hau², Pham Van Trinh², Nguyen Van Chuc², Cao Thi Thanh², Nguyen Van Hao³, and Nguyen Van Tu²
¹Faculty of Engineering Physics and Nanotechnology, University of Engineering and Technology, Vietnam; ²Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; ³Faculty of Physics and Technology, TNU – Thai Nguyen University of Science, Vietnam

- ENM-P15 *Synthesis and photocatalytic performance of boron nitride nanosheets decorated titanium dioxide nanorods*
Nguyen Thi Huyen^{1,2}, Nguyen Van Tu¹, Tran Van Hau¹, Pham Van Trinh¹, Cao Thi Thanh¹, and Nguyen Van Chuc¹
¹Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam;
²University of Science and Technology of Hanoi, Hanoi, Vietnam
- ENM-P16 *Cu_{0.5}Ni_{0.5}Fe₂O₄/biomass-derived carbon from coconut shell composite with improved microwave absorption performance*
Tran Quang Dat, Nguyen Thi Thanh, Nguyen Van Tuan, and Pham Van Thin
Faculty of Physical and Chemical Engineering, Le Quy Don Technical University, Vietnam
- ENM-P17 *Magnetic anisotropy in 2D Hybrid Organic-Inorganic (C₆H₅C₂H₄NH₃)₂(Ni_{1-x}Mn_x)Cl₄ perovskite crystals*
Le Viet Cuong, Bui Dinh Tu, Nguyen Duc Hieu, Vu Thi Thuong Thao, Nguyen Thi Tra My, and Nguyen Huy Tiep
Faculty of Engineering Physics and Nanotechnology, University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam
- ENM-P18 *Broadband microwave absorption properties of Fe₃O₄-BNKT composites in 2-18 GHz*
N. D. Co^{1,2}, T.Q. Dat³, N.T. Ha³, D. D. Dung⁴, N. D. Quan⁴, B. D. Tu¹, and P. D. Thang^{5,6}
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- ENM-P19 *Porous Cu-CNT composite for solar absorption*
Nghia Trong Phan Nguyen¹, Khanh Huu Vu², Hau Van Tran¹, Phuong Thi Mai¹, Anh Van Thi Nguyen¹, Thuy Thi Bui¹, Trung Bao Tran¹, Oleg Smorygo³, Phuong Dinh Doan¹, Minh Ngoc Phan², and Thang Hung Bui¹
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- ENM-P20 *Fabrication of few-layer graphene from graphite using high-powered ultrasonication*
Yen Nguyen Hai^{1,2}, Phuong Thi Mai¹, Hau Van Tran¹, Anh Van Thi Nguyen¹, Thuy Thi Bui¹, Tu Thi Ngoc Nguyen¹, Dung Viet Nguyen¹, Phuong Dinh Doan¹, Minh Ngoc Phan², and Thang Hung Bui¹
¹Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam;
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- QMA-P1 *Study of exciton-polariton in photonic and microcavity structures with 2D perovskite active layer*
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- QMA-P2 *Study of structure properties in Mg_2SiO_4 liquid under compression*
Pham Huu Kien, Vu Thi Van Anh, Tran Thi Quynh Nhu, Ninh Xuan Vinh, Dang Thi Huong, Phan Dinh Quang, and Giap Thi Thuy Trang
Department of Physics, Thai Nguyen University of Education, Vietnam
- QMA-P3 *High-quality Perovskite quantum dots prepared by a simple ultrasonic and hot-injection method*
Nguyen Tuan Canh
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- QMA-P4 *Synthesis, optical properties and biomedical application of N and S, N-doped graphene quantum dots*
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- QMA-P5 *Thermodynamics and magnetic properties of perovskite $La_{1-x}Sr_xMnO_3$ ($x = 0.2, 0.3$ and 0.4) in perspective of experiments and Monte Carlo simulations*
Hiep V. Vuong¹, Son N. Bui¹, Hoang Van Huy¹, Thien D. Nguyen¹, Thuy M.T. Luong¹, Hoa Q. Nguyen¹, Anh K.T. Do¹, Oanh K.T. Nguyen², Phong H. Nguyen¹, Cong T. Bach¹, Giang H. Bach¹
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- QMA-P6 *Optical properties and energy transfer processes of Tb^{3+} doped CdSe nanocrystals*
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- QMA-P7 *Synthesis, optical and magnetic properties of $CoAl_2O_4$ nanocrystals*
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- QMA-P8 *Fabrication and characterization of light-emitting diodes based on perovskite nanoparticles*
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