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)*** | ***BIN-1 (M-Room 2)*** | ***EMD-1 (Main Hall)*** | ***EMD-2 (M-Room 3)*** | ***ENM-1 (M-Room 4)*** |
|---|---|---|---|---|
| QMA-K1 Nguyen Tien Son (Sw) | BIN-K1 Kytai T. Nguyen (USA) | EMD-K1 Nguyen Hoang Luong (VN) | EMD-K2 CheolGi Kim (Korea) | ENM-K1 Jyh-Ming Ting (TW) |
| QMA-I1 Yoshichika Onuki (JP) | BIN-I1 Toan T. Nguyen (VN) | EMD-I1 Kao-Shuo Chang (TW) | EMD-I3 Dang Ngoc Toan (VN) | ENM-I1 Nobuhiro Matsushita (JP) |
| QMA-I2 Jungdae Kim (Korea) | BIN-I2 Bor-Yann Chen (TW) | EMD-I2 Akihiko Fujiwara (JP) | EMD-I4 Takanori Shirokura (JP) | ENM-I2 Nguyen Quang Hung (VN) |
| QMA-I3 (online) Ramanathan Mahendiran (Sing) | BIN-O1 Nguyen Dinh Thang (VN) | EMD-O1 Viet Phuong Han (VN) | EMD-O2 Trong Tuan Anh Tran (Australia) | ENM-O1 Nguyen Hoang Giang (VN) |

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|---|---|---|---|---|
| ***12:10 – 13:30*** | ***Lunch*** | | | |
| ***13:30 – 15:10*** | ***Parallel Sessions*** | | | |
| ***QMA-2*** | ***BIN-2*** | ***EMD-3*** | ***EMD-4*** | ***ENM-2*** |
| ***(M-Room 1)*** | ***(M-Room 2)*** | ***(Main Hall)*** | ***(M-Room 3)*** | ***(M-Room 4)*** |
| QMA-I4<br>Nguyen Quoc Hung (VN) | BIN-K2<br>Trinh Chu Duc (VN) | EMD-K3<br>Tran Thanh Tung (Australia) | EMD-I8<br>Shin-Ichiro Kuroki (JP) | ENM-K2<br>Phan Bach Thang (VN) |
| QMA-I5<br>Xuan Hoa Vu (VN) | BIN-I3<br>Loi Tonthat (JP) | EMD-I5<br>Nguyen Quang Chinh (Hu) | EMD-I9<br>Ngoc-Loan Phan (VN) | ENM-I3<br>Phong D. Tran (VN) |
| QMA-I6 (online)<br>Ngoc Diep Lai (Fr) | BIN-I4<br>Van-Tinh Nguyen (VN) | EMD-I6<br>Shaohai Chen (Sing) | EMD-I10<br>Peng Song (Sing) | ENM-I4<br>Tu Le Manh (VN) |
| QMA-I7<br>Son Tung Ha (Sing) | BIN-I5<br>Viet Tuyen Nguyen (VN) | EMD-I7<br>Susumu Horita (JP) | EMD-I11<br>Nguyen Duc Hoa (VN) | ENM-O2<br>Akihiko Fujiwara (JP) |
| QMA-I8 (online)<br>Hai Son Nguyen (Fr) | BIN-O2<br>Tan Thi Pham (VN) | EMD-O3<br>Kyle Alfred Paz (Philippines) | EMD-O4<br>Viet Huong Nguyen (VN) | ENM-O3<br>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** | ***BIN-3*** | ***EMD-5*** | ***EMD-6*** | ***ENM-3*** |
| ***(M-Room 1)*** | ***(M-Room 2)*** | ***(Main Hall)*** | ***(M-Room 3)*** | ***(M-Room 4)*** |
| AIM-K1 (online)<br>Jenő Gubicza (Hu) | BIN-K3<br>Vu Dinh Lam (VN) | EMD-K4<br>Dang Mau Chien (VN) | EMD-K5 (online)<br>Xavier Moya (UK) | ENM-K3 (online)<br>Victorino Franco (Spain) |
| AIM-I1<br>Yen-Hsun Su (TW) | BIN-I6<br>Thu Thao Pham (JP) | EMD-I12<br>Cuong Dang (Sing) | EMD-I14<br>Barnali Ghosh (India) | ENM-I5<br>Thi Xuyen Nguyen (TW) |
| AIM-I2 (online)<br>Phuong Tran (Australia) | BIN-I7<br>Tien Duc Pham (VN) | EMD-I13<br>Kazunori Sato (JP) | EMD-I15 (online)<br>Chun-Yeol You (Korea) | ENM-I6<br>Katsunori Wakabayashi (JP) |
| AIM-I3<br>Anh D. Phan (VN) | BIN-O3<br>Nguyen T. T. Trang (VN) | EMD-O5<br>Nguyen Duc Thanh (VN) | EMD-O7<br>Vu Hoang Viet (VN) | ENM-O4<br>Van-Chuong Ho (Korea) |
| AIM-I4 (online)<br>Minh-Son Pham (UK) | BIN-O4<br>Nguyen Thuy Chinh (VN) | EMD-O6<br>Van-Quy Hoang (Korea) | EMD-O8<br>Tran Thi Thanh Van (VN) | ENM-O5<br>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 Ngọc Pham (VN) | EMD-O15 Hoang Minh Kien (VN) | EMD-I27 Masashi Akabori (JP) | ENM-O10 Ho Viet Thang (VN) |
| AIM-O2 | EMD-O16 | EMD-O17 | ENM-O11 |

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|---|---|---|---|---|
| | Nguyen Duc Long (VN) | Dinh The Nam (VN) | Thanh Hai Phan (VN) | 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 $ScV_6Sn_6$*

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 Flordia, 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
*Developing silicon carbide for quantum spintronics*
Nguyen Tien Son
Department of Physics, Chemistry and Biology, Linköping University, Sweden

11:10 – 11:30 QMA-I1
*Characteristic electronic states of Eu-based compounds*
Yoshichika Onuki
RIKEN and Tokyo Metropoilitan University, Japan

11:30 – 11:50 QMA-I2
*STM investigation of type-II Dirac materials*
Younghun Hwang[1], Young Jun Chang[2], Jaekwang Lee[3], and Jungdae Kim[4]
[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)
*Electrically detected magnetic resonance in transition metal oxides*
Ramanathan Mahendiran
National University of Singapore, Singapore

**BIN-1 Chairs: Nguyen The Toan and Anh-Tuan Le**

10:45 – 11:10 BIN-K1
*Polymeric nanoparticles for the treatments of cardiovascular and lung diseases*
Kytai T. Nguyen
University of Texas at Arlington, USA

11:10 – 11:30 BIN-I1
*Machine learning application to biomedicine research at the VNU Key Laboratory for Multiscale simulation of Complex Systems*
Cong Phuong Cao, Hien T.T. Lai, Tran-Nam Nguyen, and Toan T Nguyen
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
*Deciphering characteristics of Herbal medication for Antiviral treatment through ancient oriental philosophy*
Bor-Yann Chen and Chung-Chuan Hsueh
Department of Chemical and Materials Engineering, National I-Lan University, Taiwan

11:50 – 12:05 BIN-O1
*Novel biomaterial complex applied in affinity chromatography to selectively purify recombinant proteins fused with poly-histidine tags*

Le Thi Hong Nhung[1], Le Ngoc Tram[1], Bui Thi Thu Hoai[1], Nguyen Thi Hong Loan[1], Ha Minh Ngoc[2], Pham Thi Luong Hang[1], and Nguyen Dinh Thang[1,3]
[1]Department of Biochemistry and Molecular Biology, Faculty of Biology, VNU University of Science, Vietnam National University, Hanoi, Vietnam; [2]VNU Key Laboratory of Advanced Materials for Green Growth, VNU University of Science, Vietnam National University, Hanoi, Vietnam; [3]Faculty 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 Nguyen[1], Takahiro Nagata[2], and Kao-Shuo Chang[1]
[1]Department of Materials Science and Engineering, National Cheng Kung University, Taiwan; [2]International 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 Han[1], Nguy Phan Tin[1], Kwanil Lee[2], Sang Bae Lee[2], Tran Quoc Tien[3], and Truong TN Lien[1]
[1]Vietnam – Korea Institute of Science and Technology (VKIST), Vietnam; [2]Korea Institute of Science and Technology (KIST), Korea; [3]Institute 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 $Fe_3GeTe_2$: Emergence of a magnetic quantum critical point*

N.T. Dang[1,2], D.P. Kozlenko[3], O.N. Lis[3,4], S.E. Kichanov[3], E.V. Lukin[3], N.O. Golosova[3], B.N. Savenko[3], D.L. Duong[5], T.L. Phan[6], T.A. Tran[7], and M.H. Phan[8]
[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 $Cu_2O$ 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 Hung[1], Luu Anh Tuyen[2], Phan Trong Phuc[2], Lo Thai Son[2], Pham Thi Ngoc Hue[2], Nguyen Thi Ngoc Hue[2], and La Ly Nguyen[2]
[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 Hung[1], Nguyen Trung Kien[1], Nguyen Tran Thuat[1], and Hoang Chi Hieu[2]

[1]Nano and Energy Center, VNU University of Science, Ha Noi, Vietnam; [2]Faculty 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]

[1]Université de Lyon, Ecole Centrale de Lyon, CNRS, INSA Lyon, Université Claude Bernard Lyon 1, CPE Lyon, France; [2]Institut 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 Quang[1], Hang Nguyen Thu[2], Tung Bui Thanh[2], and Trinh Chu Duc[2]

[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]
[1]School of Medicine, Vietnam National University Ho Chi Minh City,Vietnam; [2]Vietnam National University Ho Chi Minh City (VNUHCM), Vietnam; [3]Ho 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 chemoresitive 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 $H_2$ 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
Kwansei Gakuin University, Japan

14:50 – 15:05 ENM-O3
*Oxide materials for thermoelectric applications*
Q. Nghi Pham
Insititut 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 Kaszás[3], István Csabai[4], Zoltán Hegedűs[5], Johann Michler[2], László Pethö[2], and Jenő Gubicza[1]
[1]Department of Materials Physics, ELTE Eötvös Loránd University, Hungary; [2]Laboratory for Mechanics of Materials and Nanostructures, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; [3]Institute for Mechanical Systems, ETH Zürich, Switzerland; [4]Department of Physics of Complex Systems, Eötvös Loránd University, Hungary; [5]Deutsches 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 Lam[1], Nguyen Thanh Tung[1,2], Bui Son Tung[1,2], Bui Xuan Khuyen[1,2], and Pham Thanh Son[1,2]
[1]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; [2]Institute 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 Pham[1], Seito Aibara[2], Takehiro Omori[2], Yoshihiro Kimura[2], and Shin-ichi Yusa[1]
[1]University of Hyogo, Japan; [2]Japan 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 Vu[1], Pham Hai Phong Le[2], Thi Thuy Trang Truong[1], Trung Kien Tran[2], Thu Ha Hoang[3], and Tien Duc Pham[1]
[1]Faculty of Chemistry, University of Science, Vietnam National University, Hanoi, Viet Nam; [2] Hanoi Medical University, Viet Nam; [3]University 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. Quynh[1], Nguyen T. T. Trang[2], Luong T. P. Thao[2], Do D. Linh, Tran T. N. Anh[2], Pham T. Dat[1], Kieu T. Kien[2], Dinh D. Thanh[2], Nguyen H. Nam[3], Nguyen L. Thanh[2], and Hoang T. M. Nhung[2]
[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 Lan[2], Mai Duc Huynh[1], Nguyen Xuan Thai[1], Nguyen Phi Hung[3], Thi Cam Quyen Ngo[2,4], Tien Dung Nguyen[5], and Hoang Thai [1,2]
[1]Institute for Tropical Technology, Vietnam Academy of Science and Technology, Viet Nam; [2]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Viet Nam; [3]Institute of Natural Products Chemistry, Vietnam Academy of Science and Technology, Viet Nam;

[4]Institute of Environmental Sciences, Nguyen Tat Thanh University, Viet Nam; [5]Faculty 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]
[1]Graduate School of Engineering, Osaka University, Japan; [2]CSRN, Graduate School of Engineering Science, Osaka University, Japan; [3]Spintronics 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 Thuy[1], Vu Hoang Viet[1], and Nguyen Tran Thuat[1]
[1]Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam; [2]Nanotechnology 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 Lee[1], Dongryul Kim[1], Suhyeok An[1], Seong Bok Kim[2], Woo Ri Ju[2], Jae Yong Cho[1], Jun-Su Kim[1], June-Seo Kim[2], and Chun-Yeol You[1]

[1]Department of Physics and Chemistry, Daegu Gyeongbuk Institute of Science & Technology, Korea; [2]Division 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 Nguyen[1], Jagabandhu Patra[1,2], Chia-Chien Tsai[1], Wen-Ye Xuan[3,4], Hsin-Yi Tiffany Chen[3], Matthew S. Dyer[4], Oliver Clemens[5], Ju Li[5], Subhasish Basu Majumder[7,8], Jeng-Kuei Chang[1,2], and Jyh-Ming Ting[1]

[1]National Cheng Kung University, Taiwan; [2]National Yang Ming Chiao Tung University, Taiwan; [3]National Tsing Hua University, Taiwan; [4]University of Liverpool, UK; [5]Universität Stuttgart, Germany; [6]Massachusetts Institute of Technology, UK; [7]Indian Institute of Technology, India; [8]Kansas State University, USA

16:10 – 16:30 ENM-I6

*Nonlinear optical effect and DC photocurrent for few-layered metallic TMDC*

Katsunori Wakabayashi

Kwansei 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 Ho[1], Hai Yen Nguyen Thi[2], Jeong F Kim[2], and Junyoung Mun[1, 3]
[1]School of Advanced Materials Science and Engineering, Sungkyunkwan University, Republic of Korea; [2]Department of Energy and Chemical Engineering, Incheon National University, South Korea; [3]SKKU 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 $Ba(Zr_xTi_{1-x})O_3$ 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 $MoSe_2$-$TiSe_2$ heterostructures*

Jaydeep Joshi[1,2], Benedikt Scharf[3], Igor Mazin[1,2], Sergiy Krylyuk[4], Daniel J. Campbell[5], Johnpierre Paglione[5,6], Albert Davydov[2,4,5], Igor Žutić[7], and Patrick M. Vora[1,2]
[1]Department of Physics and Astronomy, George Mason University, USA; [2]Quantum Science and Engineering Center, George Mason University, USA; [3]Institute for Theoretical Physics and Astrophysics and Würzburg-Dresden Cluster of Excellence ct.qmats, University of Würzburg, Germany; [4]Materials Science and Engineering Division, National Institute of Standards and Technology, USA; [5]Maryland Quantum Materials Center, Department of Physics, University of Maryland, USA; [6]Canadian Institute for Advanced Research, Canada; [7]Department 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 Technlogy, 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 $Bi_2Te_{3-x}Se_x$ 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 Anh[3], Bui Thao Linh[3], Tien Dung Nguyen[3], Tran Thanh Thuy[4], and Hoang Thai [1,2]

[1]Institute for Tropical Technology, Vietnam Academy of Science and Technology, Vietnam; [2]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; [3]Faculty 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 Dinh[1], Luu Manh Quynh[1], Pham Van Thanh[1], Tran Vinh Thang[1], Hoang Van Huy[1], Do Dieu Linh[1], Tran Trung Nghia[1], Nguyen Van Son[1], Dinh Khanh Manh[1], Nguyen Thi Yen Lan[1], Ngo Duy Minh[1], Do Xuan Hai[2], Than Thi Trang Uyen[3], Hoang Thi My Nhung[1], and Nguyen Hoang Nam[1]

[1] VNU University of Science, Vietnam; [2] Vietnam Military Medical University, Vietnam; [3] Vinmec 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/$SiO_2$ and $NiFe_2O_4$/$SiO_2$ core-shell structure synthesis*

Phi Thi Huong[1], Hoang V. Huy[1], Doan H. Anh[2], Nguyen H. Nam[1], Tran T. Hong[3], and Luu M. Quynh[2]

[1]Nano and Energy Center, VNU University of Science, Hanoi, Vietnam; [2]Faculty of Physics, VNU University of Science, Hanoi, Vietnam; [3]Faculty 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]

[1]International University, Vietnam; [2]Vietnam National University, Ho Chi Minh City, Vietnam

**EMD-7 Chairs: Takehito Nakano and Ivan Škorvánek**

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 Škorvánek[1], Jozef Marcin[1], Branislav Kunca[1], and Peter Švec[2]

[1]Institute of Experimental Physics, Slovak Academy of Sciences, Slovakia; [2]Institute 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 Nguyen[4], 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 Fumihiro

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 Dinh[1], Nguyen Tuan Anh[1], Nguyen Ngoc Huyen[1], Phung Thi Lan Huong[1], Nguyen Le Nhat Trang[1], Tien Van Manh[1], Ong Van Hoang[1], Pham Thi Tuyet Nhung[1], Le Minh Tung[2], and Anh-Tuan Le[1]

[1]Phenikaa University Nano Institute (PHENA), PHENIKAA University, Vietnam; [2]Department 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. Watanabe[2], H. Momida[2], and S. Hyun[3]

[1]Vietnam Japan University, Vietnam National University, Hanoi, Vietnam; [2]SANKEN, Osaka University, Japan; [3]Korea 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 Thuy[1], Pham Do Thanh Dat[1], Pham Phu Quan[3], Phan Bach Thang[4], Dang Van Son[1], Pham Kim Ngoc[3], and Nguyen Tran Thuat[1]

[1]Nano and Energy Center, University of Science, Vietnam National University, Hanoi, Vietnam; [2]Nanotechnology program, Vietnam Japan University, Vietnam National University, Hanoi, Vietnam; [3]Faculty of Material Science and Technology, University of Science, Vietnam National University, Ho Chi Minh City. Vietnam; [4]Center 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 Phan[1], Shun Takahashi[2], Satoshi Iwamoto[3], and Katsunori Wakabayashi[1]

[1]Kwansei Gakuin University, Japan; [2]Kyoto Institute of Technology, Japan; [3]The 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 Quang[3], Tran Duc Canh[3], Pham Thu Ha[3], Nguyen Thi Tuyet Nhung[3], Vu Thi Hau[3], Nguyen Van Dang[1,4], Dang Van Thanh[1,5], Pham Thi Thuy[5], Nguyen Quoc Dung[3]

[1]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; [2]TNU-University of Information and Communication Technology, Vietnam; [3]Faculty of Chemistry, Thai Nguyen University of Education, Vietnam; [4]Faculty of Physics and Technology, TNU-University of Sciences, Vietnam; [5]Faculty 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
*Nanocystal 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 $BiFeO_3/SrTiO_3$ lead-free multilayer thin films via compositional tailoring and domain engineering*
Thi-Ha Dang[1,2], Van-Hai Dinh[1], and Le Van Lich[1]
[1]School of Materials Science and Engineering, Hanoi University of Science and Technology, Vietnam; [2]Vietnam 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 Hong[1], Nguyen Trung Kien[1], Nguyen Viet Tuyen[2], Hung Q. Nguyen[1], and H. T. M. Nghiem[3]
[1]Nano and Energy Center, VNU University of Science, Vietnam; [2]Faculty of Physics, VNU University of Science, Vietnam; [3]Phenikaa Institute of Advanced Study, Phenikaa University, Vietnam

09:45 – 10:00 ENM-O8
*Nitrogen doped $MoS_2$ nanosheets and Graphene/$MoS_2$ composite prepared by Electrolysis Plasma-induced process toward hydrogen evolution reaction*
Van-Truong Nguyen[1], Pham Minh Tan[1], Hoang Tien Dat[1], and Khieu Thi Tam[2]
[1]Thai Nguyen University of Technology, Vietnam; [2]Thai 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 Pham[3], and Thi Minh Hoa Nghiem[2]
[1]Faculty of Materials Science and Engineering, Phenikaa University, Vietnam; [2]PHENIKAA Research and Technology Institute (PRATI), A&A Green Phoenix Group JSC, Vietnam; [3]Phenikaa 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. Pham[1], Y. Hamamoto[1,2], K. Inagaki [1,2], I. Hamada [1,2], and Y. Morikawa[1,2,3]
[1]Department of Precision Engineering, Osaka University, Japan; [2]Elements Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Japan; [3]Research 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]
[1]Center for Integrated Nanostructure Physics (CINAP), Institute for Basic Science (IBS), Suwon 16419, Republic of Korea; INAP, [2]Sungkyunkwan University, Korea

11:10 – 11:30 EMD-I23

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

Vu Hoang Viet[1], Nguyen Duc Thanh[2], Nguyen Danh Thanh[2], Nguyen Quoc Hung[1], Mai Anh Tuan[3], Nguyen Quang[4], and Nguyen Tran Thuat[1]
[1]University of Science, Vietnam National University, Hanoi, Vietnam; [2]Vietnam Japan University, Vietnam National University, Hanoi, Vietnam; [3]University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam; [4]International 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 Kien[1], Bui Thi Nga[1], Chu Hong Hanh[1], Nguyen Trong Khang[2], and Nguyen Tran Thuat[3]

[1]MK Hi-Tech JSC, Vietnam; [2]MK Group JSC, Vietnam; [3]Nano 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 Nam[1], La Thi Ngoc Mai[2], Nguyen Van Loi[1,3], Do Hong Minh[4], Nguyen Quang Hoa[1], Nguyen Ngoc Dinh[1], and Bui Nguyen Quoc Trinh[2]

[1]Faculty of Physics, University of Science, Vietnam National University, Hanoi, Vietnam; [2]Faculty of Advanced Technology and Engineering, Vietnam Japan University, Vietnam National University, Hanoi, Vietnam; [3]Department of Foundation, Academy of Cryptography Techniques, Vietnam; [4]Faculty 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 Chanda[1], Christian Holzmann[2], Manfred Albrecht[2], Miela J. Gross[3], Caroline A. Ross[3], Dario. A. Arena[1], Manh-Huong Phan[1], and Hariharan Srikanth[1]

[1]Department of Physics, University of South Florida, USA; [2]Institute of Physics, University of Augsburg, Germany; [3]Department 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 Varga[2], Douglas MacFarlane[1], and Alexandr Simonov[1]

[1]School of Chemistry, Monash University, Clayton, VIC 3800, Australia; [2]Energys 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 Ngoc[1], Truong Viet Anh[1], and Nguyen Van Toan[1,2]

[1]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [2]Graduate 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 abd 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 Pham[1], and Anh Tuan Mai[1]

[1]VNU University of Engineering and Technology, Vietnam; [2]Hung 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 Trinh[1], Cheng Chang[2,3], Li-Dong Zhao[2], Thi Huong Nguyen[1,4], Van Thiet Duong[1], Anh Tuan Duong[5], Jong Ho Park[6], Sudong Park[6], Jungdae Kim[1], and Sunglae Cho[1]

[1]University of Ulsan, Korea; [2]Beihang University, China; [3]Institute of Science and Technology, Austria; [4]Kyung Hee University, Korea; [5]Phenikaa University, Vietnam; [6]Korea Electrotechnology Research Institute (KERI), Korea; [7]Korea 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 Van[1], Thuy Luong Thi Thu[2], Khu Le Van[2], and Min Hyung Lee[1]

[1]Department of Applied Chemistry, Kyung Hee University, Korea; [2]Faculty 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 Anh[1], Nguyen Van Quyen[2], Pham Tien Lam[2], and Nguyen Tien Cuong[1]
[1]VNU University of Science, Hanoi, Vietnam; [2]Phenikaa 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 Van[1], Luu Manh Quynh[2], Nguyen Hoang Nam[3], Do Quang Loc[2], Nguyen Van Phu[2], Nguyen Ngoc Quynh[1], and Nguyen Chung Tien[1]
[1]Vietnam Academy of Cryptography Techniques, Hanoi, Vietnam; [2]Faculty of Physics, VNU University of Science, Hanoi, Vietnam; [3]Nano 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 Huyen[1], Nguy Phan Tin[1], and Truong T N Lien[1,2]
[1]Convergence Technology Division, Vietnam-Korea Institute of Science and Technology, Vietnam; [2]School of Engineering Physics, Hanoi University of Science and Technology, Vietnam

BIN-P2 *The infuence of microwave power on $Fe_3O_4$ superparamagnetic nanoparticles properties*
Pham Tien Thanh[1], Bui Van Viet[1] , Tran Van Dinh[1], Nguyen Van Khanh[1] , Ngo Thi Thanh[1], Nguyen Truong An[1], Le Doan Phuc[1], Pham Quoc Nghi[2] , Eric Riviere[2], and Nguyen Thi Minh Hong [1]
[1]Faculty of Engineering Physics and Nanotechnology, VNU University of Engineering and Technology, Vietnam; [2]Institut de Chimie Moléculaire et des Matériaux d'Orsay, Université Paris Saclay, France

BIN-P3 *A review of Langmuir-Blodgett films of fatty acids*
Tri Duc Luong[1], Duc Cuong Nguyen[2], Tuan Canh Nguyen[2], Phuong Hoai Nam Nguyen[2], Larissa A. Maiorova[3], and Thi Thao Vu[2]

[1]Foreign Language Specialized School, University of Language and International Studies, Vietnam National University, Hanoi, Vietnam; [2]University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam; [3]Research Institute of Macroheterocycles, Ivanovo State University of Chemistry and Technology, Russian Federation

BIN-P4 *Preparation of polyion complex aggregates with sugar-polymer shells*

Tomoki Ando[1], Rintaro Takahashi[2], and Shin-ichi Yusa[1]
[1]Graduate School of Engineering, University of Hyogo, Japan; [2]Graduate 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*

Ema Onodera[1], S. Fujii[2], N. Yoshinobu[2], and S. Yusa[1]
[1]Grad. Sch. of Eng., Univ. of Hyogo, Japan; [2]Grad. 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 Huy[1], Nguyen Thi Thuy Linh[2], Nguyen Thao Hien[3], Ngo Duc Minh[2], Nguyen Hoang Nam[1], Luu Manh Quynh[1], and Nguyen Hoang Luong[1]
[1]Nano and Energy Center, VNU University of Science, Hanoi, Vietnam; [2]Faculty of Physics, VNU University of Science, Hanoi, Vietnam; [3]Faculty of Biology, VNU University of Science, Hanoi, Vietnam

BIN-P7 *Harnessing for optical imaging and drug delivery of Cyanine 5.5-Adorned Doxorubicin-loaded iron oxide nanoparticles with Alginate coating*

Phan Ke Son[1], Le Thi Thu Huong[2], Mai Thi Thu Trang[1], Doan Bich Thuy[3], and Ha Phuong Thu[1]
[1]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [2]Faculty of Natural Resources and Environment, Vietnam National University of Agriculture, Vietnam; [3]The Institut I-CLeHS Institute of Chemistry for Life and Health Sciences, Chimie ParisTech, CNRS, France

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 Thi Dao[1], Nguyen Duc San[1], Nguyen Hai Binh[2], and Nguyen Tuan Canh[1]
[1]Faculty of Engineering Physics and Nanotechnology, VNU University of Engineering and Technology; [2]Institute of materials science, Vietnam academy of science and technology

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. Hanh[1], Le H. Ha$_1$, Hoang V. Huy[2], Pham V. Thanh[3], Hoang T.M. Nhung[1], and Nguyen H. Nam[2]
[1]Faculty of Biology, VNU University of Science, Hanoi, Vietnam; [2]Nano and Energy Center, VNU University of Science, Hanoi, Vietnam; [3]Faculty 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 Dang[2], Chi Tran Nhu[2], Trinh Chu Duc[2], Tung Thanh Bui[2], Ha Tran Thi Thuy[3], and Loc Do Quang[4]
[1]School of Engineering and Technology, Hue University, Vietnam; [2]University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam; [3]Faculty of Electronics Engineering, Posts and Telecommunications Institute of Technology, Hanoi, Vietnam; [4]University 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 Anh[1], Le Khanh Toan[1], Nguyen Van Thuc[1], Pham Quang Trung[1], Vu Ngoc Duy[1], Nguyen Minh Ngoc[1], Yutaka Ohno[2], and Nguyen Xuan Viet[1]
[1]Faculty of Chemistry, VNU University of Science, Ha Noi, Viet Nam; [2]Center for Integrated Research of Future Electronics, Institute of Materials and Systems for Sustainability (iMASS), Nagoya University, Japan

BIN-P16 *Preparation of Houttuynia 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]
[1]School of Medicine, Vietnam National University at Ho Chi Minh City, Vietnam; [2]Vietnam National University Ho Chi Minh City, Vietnam; [3]Ho 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 Pham[1], Duc Thang Nguyen[1], Manh Quoc Nguyen[1], Thanh Mai Tran[1], Thi Diu Dinh[2], Manh Khai Nguyen[2], Kaisei Namakamura[3], and Toshiki Tsubota[3]
[1]Faculty of Chemistry, University of Science, Vietnam National University, Hanoi, Viet Nam; [2]Faculty of Environmental Sciences, University of Science, Vietnam National University, Hanoi, Vietnam; [3]Department 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 Anh[1], Nguyen Anh Son[2], Tran Van Quang[3], and Bui Thanh Tung[4]
[1]Hanoi-Amsterdam High School for the Gifted, Vietnam; [2]Vietnam Metrology Institute, Vietnam; [3]Faculty of Electronics and Telecommunications, VNU University of Engineering and Technology, Hanoi, Viet Nam; [4]Faculty 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 Nguyen[1], Thi My Nhung Hoang[2], Thi Ha Lien Nghiem[1], Xuan-Hai Do[3], Thi Xuan Phuong Do[2], Dieu Linh Do[2], Ngoc Dinh Nguyen[4], Manh Quynh Luu[4], Trong Nghia Nguyen[1], Thi Bich Ngoc Nguyen[1], Van Toan Nguyen[1], Van Thanh Pham[4], Uyen Thi Trang Than[5], and Hoang Nam Nguyen[6]
[1]Center for Quantum and Electronics, Institute of Physics, Vietnam Academy of Science and Technology, Vietnam; [2]Faculty of Biology, VNU University of Science, Hanoi, Vietnam; [3]Department of Practical and Experimental Surgery, Vietnam Military Medical University, Vietnam; [4]Faculty of Physics, VNU University of Science, Hanoi, Vietnam; [5]Vinmec Hitech Center and Regenerative Medicine, Vinmec Healthcare system, Vietnam; [6]Nano and Energy Center, VNU University of Science, Hanoi, Vietnam

BIN-P22 *Research and detection of bovine serum albumin (BSA) using the screen-printed gold electrode*
Chi Tran Nhu[1], Loc Do Quang[2], Tung Bui Thanh[1], Chun-Ping Jen[3], and Trinh Chu Duc[1]
[1]University of Engineering and Technology, Vietnam; [2]VNU University of Science, Hanoi, Vietnam; [3]National Chung Cheng University, Taiwan

EMD-P1 *Utilizing dual-source evaporation method to grow $CsPbBr_3$ film for room-temperature detection of $NH_3$ gas*
Dang Thi Huong Thao[1], Phung Dinh Hoat[2], Vo Van Khoe[1], Kim Juhan[1], Jo Hyunil[1], and Heo Young-Woo[1]

[1]School of Materials Science and Engineering Kyungpook National University – Daegu, Korea; [2]Department of Physics, Le Quy Don Technical University, Vietnam

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 Trung[1], Jun Natsuki[2], Phuoc-Anh Le[3], and Toshiaki Natsuki[4,5]
[1]Interdisciplinary Graduate School of Science and Technology, Shinshu University, Japan; [2]Institute of Frontier Fibers, Institute for Fiber Engineering (IFES), Interdisciplinary Cluster for Cutting Edge Research (ICCER), Shinshu University, Japan; [3]College of Engineering and Computer Science, VinUniversity, Vietnam; [4]College of Textiles and Apparel, Quanzhou Normal University, China; [5]Institute 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 Ngo[3], Thanh Tung Nguyen[3], Viet Hai Le[1,2], and Thai Hoang Nguyen[1,2]
[1]University of Science, Ho Chi Minh City, Vietnam; [2]Vietnam National University Ho Chi Minh City (VNUHCM), Vietnam; [3]VKTech 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 Nguyen[3], Hoang Long Ngo[3], Le Thanh Nguyen Huynh[1,2], Viet Hai Le[1,2], and Thai Hoang Nguyen[1,2]
[1]University of Science, Ho Chi Minh City, Vietnam; [2]Vietnam National University Ho Chi Minh City (VNUHCM), Vietnam; [3]VKTech 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 Dung[1], Nguyen Van Dang[1], and Tran Dang Thanh[2]
[1]Thai Nguyen University of Sciences, Vietnam; [2]Institute of Materials Science, Vietnam

EMD-P7 *Degradability of synthetic methylene blue dyes of BTO-based composite multiferroic materials*

Tran Dang Thanh[1], Dang Duc Dung[2], Ngo Thu Huong[3], Dinh Chi Linh[1], Nguyen Thi Dung[4], Nguyen Thi Viet Chinh[1], and Dao Son Lam[1]
[1] Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [2] School of Engineering Physics, Hanoi University of Science and Technology, Vietnam; [3] Hanoi University of Science, Vietnam National University, Vietnam; [4] Thai Nguyen University of Sciences, Thai Nguyen University, Vietnam

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 Sai[1], Tung Duy Vu[2], Ngoc Anh Tran Thi[1], Nguyen Hai Pham[1], Viet Tuyen Nguyen[1], Thi Hong Pham[1], and An Bang Ngac[1]
[1]Faculty of Physics, University of Science, VNU, Vietnam; [2]Faculty 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 $CuWO_4$/g-$C_3N_4$ 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 Nguyen[1] and Hoang Hai Nguyen[2]
[1]Nano and Energy Center, VNU University of Science, Hanoi, Vietnam; [2]Vietnam National University, Hanoi, Vietnam

EMD-P14 *Ellipsometry study on temperature dependent critical points of $MoS_2$/$WS_2$ heterostructure*
Nguyen Hoang Tung[1], Nguyen Xuan Au[2], Kim Tae Jung[2], and Kim Young Dong[2]
[1]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [2]Kyung Hee University, Korea

EMD-P15 *Investigation of antibotic photodegradation on $CeO_2$/$C_3N_4$ 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 Quynh[1], Dang Van Thanh[2,3], Tran Thi Minh Hang[3], Nguyen Manh Khai[3], Pham Tien Duc[3], Pham Van Hao[4], Do Danh Bich[5], and Nguyen Thi Khanh Van[6]
[1]Hanoi University of Industry, Vietnam; [2]Faculty of Basic Science, Thai Nguyen University of Medicine and Pharmacy, Vietnam; [3]Faculty of Environmental Sciences, University of Science, Vietnam National University, Hanoi, Vietnam; [4]Faculty of Basic Sciences, Thai Nguyen University of Information and Communication Technology, Vietnam; [5]Faculty of Physics, Hanoi National University of Education, Viet Nam; [6]Institute of Science and Technology, TNU-University of Sciences, Vietnam

EMD-P18 *One-step synthesis of magnetic recyclable $Fe_3O_4$/biochar photocatalysts for the decolorization of methylene blue dye*

Nguyen Doan Trang[1], Tran Minh Phuong[1], Nguyen Thi Mai[2,3], Hoang Minh Trang[2], Nguyen Nhat Huy[4,5], Nguyen Thi Thuy[4], Dang Van Thanh[2,6], and Tran Quoc Toan[1]
[1]Faculty of Chemistry, Thai Nguyen University of Education, Vietnam; [2]Faculty of Environmental Sciences, University of Science, Vietnam National University, Hanoi, Vietnam; [3]Faculty of Basic Science, Thai Nguyen University of Agriculture and Forestry, Vietnam; [4]School of Chemical and Environmental Engineering, International University, Vietnam; [5]Vietnam National University Ho Chi Minh City, Vietnam; [6]Faculty of Basic Science, Thai Nguyen University of Medicine and Pharmacy, Vietnam

EMD-P19 *Silicon pyramid coated with silver nanoparticles for detecting rhodamine B by Surface enhanced Raman Scattering (SERS)*

Nguyen Anh Tuan[1], Do Thuy Chi[1], and Nguyen Thuy Van[2]
[1]Thai Nguyen Education University, Vietnam; [2]Institute of Materials Science, VAST, Vietnam

EMD-P20 *Large energy storage density response in ternary lead-free NBT-BKT-BZ piezoceramics*

Thi Hinh Dinh[1] and Vu Diem Ngoc Tran[2]
[1]Faculty of Materials Science and Engineering, Phenikaa University, Vietnam; [2]School 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 Khai[1], Nguyen Thi Thi[1], Hoang Chi Hieu[1], Tran Thi Kim Chi[2], Le Si Dang[3], Truong Thanh Tu[1], and Nguyen Tran Thuat[1]
[1]University of Science, Vietnam National University, Hanoi, Vietnam; [2]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [3]Institut 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 Huy[1], Dinh Trong Thang[1], Cao Tien Dung[1], Nguyen Ba Kien[1], Nguyen Thi Huyen[2], Nguyen Duc Chung[2], Le Danh Chung[2], Tran Van Hau[2], Nguyen Van Hao[3],

Nguyen Van Chuc[2], Bui Hung Thang[2], Nguyen Van Tu[2], Doan Dinh Phuong[2], and Pham Van Trinh[2]
[1]University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam; [2]Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam; [3]Institute 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 Phuc[1], Nguyen Van Loi[2,3], Nguyen Ngoc Dinh[2], and Nguyen Trung Hieu[4,5], and Bui Nguyen Quoc Trinh[1]
[1]Vietnam National University, Hanoi, Vietnam Japan University, Faculty of Advanced Technology and Engineering, Vietnam; [2]Vietnam National University, Hanoi, University of Science, Faculty of Physics, Vietnam; [3]Academy of Cryptography Techniques, Department of Foundation, Vietnam; [4]Duy Tan University, Vietnam; [5]Duy 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. Yu[2], H. Belliveau[2], H.X. Shen[4], J.F. Sun[4], J.S. Liu[5], F.X. Qin[3], S.C. Yu[6], H. Srikanth[2], and M.H. Phan[2]
[1]The University of Danang, University of Science and Education, Vietnam; [2]Department of Physics, University of South Florida, USA; [3]Institute for Composites Science Innovation (InCSI), School of Materials Science and Engineering, Zhejiang University, PR China; [4]School of Materials Science and Engineering, Harbin Institute of Technology, China; [5]School of Materials Science and Engineering, Inner Mongolia University of Technology, PR China; [6]School of Natural Science, Ulsan National Institute of Science and Technology, South Korea

EMD-P28 *Fabrication of anisotropic conductive films using nickel-plated polymer microspheres*
Bui Thi Nga[1], Chu Hong Hanh[1], Hoang Minh Kien[1], Nguyen Trong Khang[2], and Nguyen Tran Thuat[3]
[1]MK Hi-Tech JSC, Vietnam; [2]MK Group JSC, Vietnam; [3]Nano 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
University of Science, Vietnam National University, Hanoi, Vietnam

EMD-P30 *High sensitivity contactless small magnetic metal measurement device based on tunneling magnetoresistance (TMR) sensor in differential configuration*
Pham Van Thanh[1], Do Trung Kien[1], Nguyen Tien Dat[1], Luong Thi Minh Thuy[1], Dang Thi Thanh Thuy[1], Luyen Van Nam[2], and Truong Thi Ngoc Lien[2]
[1]VNU University of Science, Hanoi, Vietnam; [2]IT-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-$C_3N_4$*
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 $WO_3$ 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 $CuO_X$@$WO_3$ 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 $NiTiO_3$/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/$Fe_3O_4$ photocatalyst using plasma electrochemical method and its application for photocatalytic degradation of of methylene blue in aqueous solution*
Nguyen Long Tuyen[1,2], Nguyen Ngoc Dinh[2], Danh Bich Do[3], Dang Van Thanh[4], Nguyen Van Truong[5], and Nguyen Ba Hung[6]
[1]VNU University of Science, Hanoi, Vietnam; [2]Hung Vuong University, Vietnam; [3]Faculty of Physics, Hanoi National University of Education, Viet Nam; [4]TNU-University of Medicine and Pharmacy, Vietnam; [5]Faculty of fundamental and applied science, Thai Nguyen University of Technology, Vietnam; [6]Vietnam Military Medical University, Vietnam

ENM-P6 *Development of g-$C_3N_4$/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/$C_3N_4$ 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 Dang[3], and Nguyen Thanh Tung[1,2]
[1]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [2]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam; [3]Institute 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. Ha[1], Pham H. Duc[1], Nguyen H. Nguyen[2], Pham N. Hung[2], Chu V. Tien[3], and Luu M. Quynh[1]
[1]Faculty of Physics, VNU - University of Science, Hanoi, Vietnam; [2]Electricpower University, Vietnam; [3]Vietnam 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. Hung[1], B.D. Phat[3], D. D. Dung[4], N. D. Quan[4], D. T. H. Giang[1,2], T. M. Danh[1], B. D. Tu[1], and P. D. Thang[1,5]
[1]Faculty of Engineering Physics and Nanotechnology, VNU-University of Engineering and Technology, Vietnam; [2]Laboratory for Micro-Nano Technology, VNU University of Engineering and Technology, Vietnam; [3]School of Chemical, Biological and Materials Engineering, University of Oklahoma, United States; [4]School of Engineering Physics, Hanoi University of Science and Technology, Vietnam; [5]Phenikaa University Nano Institute, Phenikaa University, Vietnam

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 $Ni_{0.4}Cu_{0.2}Zn_{0.4}Fe_2O_4$/epoxy composites*

C.T.A. Xuan[1], B.-J. Li[2], R.-B. Yang[3], and N. Tran[4,5]
[1]Institute of Sciences and Technology, TNU-University of Sciences, Vietnam; [2]Department of Electrical Engineering, National Cheng Kung University, Taiwan; [3]Institute of Research and Development, Duy Tan University, Vietnam; [4]Faculty of Natural Sciences, Duy Tan University, Vietnam; [5]Department 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 Hau[2], Pham Van Trinh[2], Nguyen Van Chuc[2], Cao Thi Thanh[2], Nguyen Van Hao[3], and Nguyen Van Tu[2]

[1]Faculty of Engineering Physics and Nanotechnology, University of Engineering and Technology, Vietnam; [2]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [3]Faculty 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 Tu[1], Tran Van Hau[1], Pham Van Trinh[1], Cao Thi Thanh[1], and Nguyen Van Chuc[1]

[1]Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam; [2]University of Science and Technology of Hanoi, Hanoi, Vietnam

ENM-P16 *$Cu_{0.5}Ni_{0.5}Fe_2O_4$/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 $(C_6H_5C_2H_4NH_3)_2(Ni_{1-x}Mn_x)Cl_4$ 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 $Fe_3O_4$-BNKT composites in 2-18 GHz*

N. D. Co[1,2], T.Q. Dat[3], N.T. Ha[3], D. D. Dung[4], N. D. Quan[4], B. D. Tu[1], and P. D. Thang[5,6]

[1]Faculty of Engineering Physics and Nanotechnology, VNU-University of Engineering and Technology, Vietnam; [2]Laboratory for Micro-Nano Technology, VNU University of Engineering and Technology, Viet Nam; [3]Department of Physics, Le Quy Don Technical University, Vietnam; [4]School of Engineering Physics, Hanoi University of Science and Technology, Vietnam; [5]Faculty of Materials Science and Engineering, Phenikaa University, Hanoi, Vietnam; [6]Phenikaa University Nano Institute, Phenikaa University, Vietnam

ENM-P19 *Porous Cu-CNT composite for solar absorption*

Nghia Trong Phan Nguyen[1], Khanh Huu Vu[2], Hau Van Tran[1], Phuong Thi Mai[1], Anh Van Thi Nguyen[1], Thuy Thi Bui[1], Trung Bao Tran[1], Oleg Smorygo[3], Phuong Dinh Doan[1], Minh Ngoc Phan[2], and Thang Hung Bui[1]

[1]Institute of Materials Science, Vietnam Academy of Science and Technology; [2]Gradute University of Science and Technology, Vietnam Academy of Science and Technology; [3]O.V. Roman Powder Metallurgy Institute, National Academy of Sciences of Belarus, Belarus

ENM-P20 *Fabrication of few-layer graphene from graphite using high-powered ultrasonication*

Yen Nguyen Hai[1,2], Phuong Thi Mai[1], Hau Van Tran[1], Anh Van Thi Nguyen[1], Thuy Thi Bui[1], Tu Thi Ngoc Nguyen[1], Dung Viet Nguyen[1], Phuong Dinh Doan[1], Minh Ngoc Phan[2], and Thang Hung Bui[1]

[1]Institute of Materials Science, Vietnam Academy of Science and Technology, Vietnam; [2]Gradute University of Science and Technology, Vietnam Academy of Science and Technology, Vietnam

QMA-P1 *Study of exciton-polariton in photonic and microcavity structures with 2D perovskite active layer*

Trinh Thi Nguyet[1], Le Khanh Linh[2], Vu Anh Tuan[1], Do Dinh Khai[1], Truong Thanh Tu[1], Le Van Quynh[3], Nguyen Hai Son[4], Hoang Chi Hieu[1], Le Si Dang[2], and Nguyen Tran Thuat[1]

[1]University of Science, Vietnam National University, Hanoi, Vietnam; [2]Institut NEEL, CNRS/UGA UPR2940, France; [3]VinUniversity, Vinhomes Ocean Park, Vietnam; [4]Institut des Nanotechnologies de Lyon, INL/CNRS, Université de Lyon, France

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

VNU University of Engineering and Technology, Vietnam National University, Hanoi, Vietnam

QMA-P4 *Synthesis, optical properties and biomedical application of N and S, N-doped graphene quantum dots*

Trinh Thi Hue[1,2], Nguyen Thi Mai Huong[3], Le Xuan Hung[2,4], Phan Xuan Thien[3], and Pham Thu Nga[1,2]

[1]Institute of Theoretical and Applied Research, Duy Tan University, Vietnam; [2]Faculty of Environmental and Natural Sciences, Duy Tan University, Vietnam; [3]Institute of Physics, Vietnam Academy of Science and Technology, Viet Nam; [4]Institute of Research and Development, Duy Tan University, Vietnam

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. Vuong[1], Son N. Bui[1], Hoang Van Huy[1], Thien D. Nguyen[1], Thuy M.T. Luong[1], Hoa Q. Nguyen[1], Anh K.T. Do[1], Oanh K.T. Nguyen[2], Phong H. Nguyen[1], Cong T. Bach[1], Giang H. Bach[1]

[1]Faculty of Physics, VNU University of Science, Hanoi, Vietnam; [2]Electric Power University, Vietnam

QMA-P6 *Optical properties and energy transfer processes of $Tb^{3+}$ doped CdSe nanocrystals*

N. V. Ha[1], T. T. T. Huong[2], P. M. Tan[3], N. T. Kien[4], N. T. K. Van[4], N. T. Hien[4], and N. X. Ca[4]

[1]Department of Education and Training of Vinh Phuc, Vinh Phuc, Vietnam; [2]Department of Science and Technology, Ha Noi University of Industry, Ha Noi, Vietnam; [3]Faculty of Fundamental and Applied Sciences, TNU- University of Technology, Thai Nguyen, Vietnam; [4]Institute of Science and Technology, TNU-University of Sciences, Thai Nguyen, Vietnam

QMA-P7 *Synthesis, optical and magnetic properties of $CoAl_2O_4$ nanocrystals*

N. T. Kien[1], P. M. Tan[2], N. T. K. Van[1], N. X. Ca[1], and N. T. Hien[1]

[1]Institute of Science and Technology, TNU-University of Sciences, Vietnam; [2]Faculty of Fundamental and Applied Sciences, TNU- University of Technology, Vietnam

QMA-P8 *Fabrication and characterization of light-emitting diodes based on perovskite nanoparticles*

Vu Anh Tuan[1], D.T. Tuyet[1], D.D. Khai[1], T.T. Tu[1], L.V. Quynh[2], and N. T. Thuat[1]

[1]Nano and Energy Center, VNU University of Science, Ha Noi, Vietnam; [2]VinUniversity, Vinhomes Ocean Park, Vietnam