ICEBA

Since 2013

International Conference

Booklet and Program

The 7th International Conference on Engineering, Physics, Mems – Biosensors and Applications

November 2 – 4, 2026, Hochiminh City, Vietnam



Venue: Opening Ceremony of ICEBA2026

PUBLICATION & TECHNICAL SUPPORTS

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THE 7TH ICEBA (2026) OVERVIEW

The 7th International Conference on Engineering, Physics, MEMS – Biosensors and Applications (ICEBA 2026) aims to link researchers and scientists globally in the fields of engineering, physics, microelectronics, and semiconductors.

CONFERENCE PROFILE

Format	Hybrid conference hosted in Ho Chi Minh City & Vung Tau
Dates	November 2, 3 & 4, 2026
Venues	University of Science, VNUHCM (Opening)
Networking	150+ international experts
Website	phys.hcmus.edu.vn/ICEBA2026



VNUHCM – University of Science
227 Nguyen Van Cu Str.,
Cho Quan ward, HCMC



R&D Center, SHTP, HCMC



Palace Hotel Vung Tau, HCMC



BR – VT University, HCMC

HOST AND CO – ORGANIZERS

CO – ORGANIZERS

VNUHCM
University of Science

Tohoku University
Sendai, Japan

HCMC Department of
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R&D Center, Saigon High
Tech Park, HCMC

Ba Ria – Vung Tau
University, HCMC

Institute of Electrical Engineering Japan:
Sensors & Micromachines

PUBLICATION & TECHNICAL SUPPORTS

IEEJ – Transactions on
Electrical and Electronic Engineering

Proceeding of ICEBA2026: Springer Nature
Note Book on Electrical Engineering

Chinese Journal of Physics:
Special Issue Adv. Life. Scie

ASSOCIATED ORGANIZATIONS

University of Technology, Viet Nam
National University – Hochiminh City

University of Information
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Technology and Engineering

Institute for Research and Executive
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Vietnamese – German University

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VNUHCM – US, Vietnam



Assoc. Prof. Nguyen Ba Hoang

President, BVU, Vietnam

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RESEARCH TOPICS AND SUBJECT AREAS

There are 11 parallel Oral Sessions and 5 Poster Sessions with over 200 paper presentions of ICEBA2026. Their topics are:

01 **Applied Physics, Engineering Physics, Electronic Engineering**

02 **Optics & Photonics, Earth Sciences and Related**

03 **Thin Film Optics, Optical Engineering and Vacuum Technologies**

04 **Semiconductors, MEM – Biosensors and Applications**

05 **Biomedical Engineering, Bio – devices and Healthcare Technologies**

06 **Microelectronics, IC Design, Low Consumption Devices, Renewable Energy**

07 **Computing Science, Simulations and Modeling**

08 **Embedded Systems, IoT, Machine Learning, Artificial Intelligence**

09 **Medical Physics and Nuclear Engineering**

10 **Robotic, Automation and Intelligent System**

11 **Life Science**

12 **Smart Cities and Smart Transportation System**

13 **Intelligent System in Logistics and Harbor Design, Contractor and Maintenance**

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- Nguyen Ngoc Tram Anh, VNUHCM – University of Science, Vietnam
- Nguyen Thi Thanh Huyen, BVU, Vietnam
- Others (FPEP-HCMUS, HSIA, BVU, SHTP Labs,...)

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PROGRAM

DAY 0 — NOVEMBER 1, 2026: Welcome day
Ho Chi Minh city, Vietnam

Time	Activity
7:00 – 20:00	Pick up at airport: 07:00 – 20:00 (By the secretariat of ICEBA) Welcome International speakers, VIPs: 18:00 at Ky Hoa Hotel Saigon

DAY 1 — NOVEMBER 2, 2026: Opening Ceremony (VNUHCM – US)
(227 Nguyen Van Cu Street, Cho Quan Ward, HCMC)

Time	Activity
07:30 – 08:00	**Reception and registration of delegates at Hall I, VNUHCM – US**
08:00 – 11:30	**Opening Ceremony and Plenary Session**
	1. Introduce of ICEBA2026 at VIPs, International Guests 2. Opening Remarks: VNUHCM – US, HCMC DOST, General Co – Chair 3. Welcome speech: Assoc. Prof. Huynh Thanh Dat Former Minister, Ministry of Science and Technology, Vietnam 4. Welcome speech: HCMC Government 5. Giving Gifts (Plenary/Invited speakers, VIPs, Sponsors,) 6. The Organizing Committee announces the conference program.
09:00 – 09:15	***Group Photo and Coffee Break***
	Plenary Session 1 Chairs: Prof. Han Sen Soo (NTU, Sigapore) and Assoc. Prof. Nguyen Van Hieu (VNUHCM, Vietnam)
09:15 – 09:35	**PL1 – 01: Prof. Takahito Ono,** Tohoku Univ, Japan Magneto – Electromechanical Microsystems Based on Magnetostriction: Integrated Sensors, Actuators, and Spin – mechatronic Transducers
09:35 – 09:55	**PL1 – 02: Mr. Kevin Koh**, president – Faraday Technology – Vietnam AI ASIC For Vietnam – From Cloud to Edge/Endpoint AI
09:55 – 10:15	**PL1 – 03: Assoc. Prof. Tran Minh Triet,** VNUHCM – Univ of Science, Vietnam Multimedia Intelligence and Interactive AI for Smart Healthcare
10:15 – 10:25	Introduction about ICEBA 2027 **Assoc. Prof. Nguyen Van Hieu,** General Co-chair
10:25 – 10:45	**PL1 – 04: Mrs. La Thi Thu Hang,** DG Sensors, SHTP, Vietnam Digisenor JSC and its products
10:45 – 11:05	**PL1 – 05: Assoc. Prof. Zai – Fu Yao,** National Tsing Hua Univ, Taiwan From Brainwaves to Biomarkers: EEGBased Multimodal Neurotechnology for Brain Health, Cognition, and Human Performance
11:05 – 11:25	**PL1 – 06: Prof. Hirokazu Tada,** Osaka Univ, Japan Carrier, Spin and Heat Transport in Single – Molecule Junctions
	The end of Opening Ceremony
11:45 – 12:45	**Lunch and Break**
13:30 – 14:30	**A short tour at SHTP Labs. 14:30 Leave for Vung Tau** (Foreign professors & authors and Guests)
13:30	**Departure for Vung Tau** (check – in hotel at 16:00 – 17:00)
18:00 – 20:30	**Welcome Dinner at the Hotel** (Plenary/invited speakers, guests, VIPs, Session chair, organizers only)

DAY 2 — NOVEMBER 3, 2026: Palace Hotel, Vung Tau
(01 Nguyen Trai Street, Vung Tau Ward, HCMC)

Time	Activity
07:00 – 16:00	**Welcome and registration of delegates**
07:30 – 08:30	**Poster Presentations** (05 sessions, Grand Conference)
08:30 – 16:10	**Parallel Oral Presentations** (11 oral sessions, according to the separate schedule)
16:00 – 18:20	Plenary Session 2 and the closing Ceremony
1. Plenary Session 2: Chairs: Prof. Takahito Ono and Assoc. Prof. Huynh Van Tuan	
16:10 – 16:30	**PL2 – 01: Prof. Hidekuni Takao,** Kagawa University, Japan Quantifying the Sense of Touch: Nano – Tactile MEMS Sensors for Materials, Healthcare, and Tactile AI
16:30 – 16:50	**PL2 – 03: Prof. Han Sen Soo,** Nanyang Technological University, Singapore Metal halide perovskites for catalysis and indoor device applications
16:50 – 17:10	**PL2 – 04: Prof. Yun – Chorng Chang**, RCAS, Academia Sinica, Taiwan Developing High – through put nanofabrication Methods for Nanophotonics and Biosensing Applications
2. Outstanding Awards (Oral and Poster) and Giving gifts for the chair&co – chair Session (10 mins)	
17:20 – 17:40	**PL2 – 05: Prof. Mohd FAIZUL Mohd Sabri,** University of Malaya, Malaysia From Waste Heat to Watts: A Multi – Scale Approach to Thermoelectric Energy Harvesting
17:40 – 18:00	**PL2 – 06: Prof. Kyeong – Sik Min,** Kookmin University, Korea Embracing Nonidealities: GPU – Accelerated Simulation and Nonideality – Aware Training for RRAM Compute – in – Memory — Toward 1000 TOPS/W
3. Report of ICEBA2026	
4. The closing speech of ICEBA2026 (Assoc. Prof. Nguyen Ba Hoang – President of BVU)	
18:30 – 20:30	**ICEBA 2026 Conference Banquet at Grand Palace Hotel (all authors, participants)**
After 20:30	**Deaparture for the University of Sciencce, VNUHCM** (Advance Registration Required)

DAY 3 — NOVEMBER 4, 2026: Ba Ria – Vung Tau University (Host Institution)
(01 Truong Van Bang Street, Tam Thang Ward, HCMC)

Time	Activity
08:00 – 10:00	**1. International Lectures for Students** (35 mins talk and 5 mins Q&A)
08:00 – 08:10	Introduction about Invited Speakers
08:10 – 08:50	**Prof. Han Sen Soo**, Nanyang TechnologicalUniversity, Singapore Introduction to Nanyang Technological University Singapore and my research on Metal Halide Perovskites and Plastics Upcycling
08:50 – 09:30	**Prof. Kyeong – Sik Min**, Kookmin University, Seoul, Korea Short introduction of Kookmin University and my research topic: Low – Power VLSI, Emerging Memory and Memristor Crossbar Circuits for Neuromorphic and Compute – inMemory Systems
	Dr. Le Van Thuc, Hochiminh City Port Authority, Vietnam Developing and Using Shared Data to Improve Port Operations Shipping and Port Logistics in Southern Vietnam
09:30 – 10:20	Thanks the invited speakers and certificates
10:30 – 11:45	**2. F&F International Cooperation Meeting:** Discussion & MoU/MoA between Vietnam, Japan, Korea, Australia, Singapore, Malaysia, Thailand,…
	1. Introduction and Program
	2. Welcome speech from BVU
	3. International Exchance Program (5 minutes/talk): BRVT University (BVU), Vietnam Tohoku University (TU), Japan Griffth University, Australia Kookmin University, Korea, University of Malaya, Malaysia BSR University, Thailand Ho Chi Minh city Semiconductor Industry Association (HSIA), Vietnam
	4. MOU Signing Ceremonies: BVU, HSIA and BRSU HCMUS – US and BVU
	5. Flowers and souvenirs
	6. Group photos
~12:00	**Leave Vung Tau for Airport/ University of Science** *(for ~2 – 3 hours)*

OPENING REMARK
FROM VNUHCM- UNIVERSITY OF SCIENCE

Distinguished Leaders and Delegates, Esteemed Professors,
Colleagues and the authors,
Ladies and Gentlemen,
Good Morning!

On behalf of VNUHCM–University of Science, I am pleased to welcome all of you to the 7th International Conference on Engineering, Physics, MEMS-Biosensors and Applications (ICEBA 2026), which are organized by VNUHCM- University of Science, Tohoku University (Japan), HCMC Department of Science and Technology, HCMC Semiconductor Microelectronics Association, R&D Center -High-Tech Park, Ba Ria - Vung Tau University, and IEEJ Japan Journal.

We are honored to welcome our international guests, researchers, industry partners, and authors to join this conference. Thank you for joining us and sharing your knowledge and experience.ICEBA offers an opportunity to exchange research findings, discuss technical challenges, and identify shared interests. We hope that the conversations during this conference will lead to joint projects, academic exchanges, and lasting partnerships.

As the report of the ICEBA organization, there are more than 270 full paper submissions. And after peer review, several papers have been recommended to further consideration on The special issue of Chinese Journal of Physics and the IEEJ Transactions on Electrical and Electronic Engineering and more than 50% of tall papers will be accepted for the conference proceedings, which will be published by Springer Nature in the Lecture Notes in Electrical Engineering series. Congratulations to the authors whose work has been reviewed and accepted for publication; this also offers an opportunity to share expertise and foster collaboration within the scope of this conference.

We highly value the collaborative efforts of the 7x participating institutions in preparing for and successfully organizing ICEBA2026. The conference brought together over 250 authors presenting their research, alongside numerous distinguished speakers, professors and scientists from various countries, including Japan, South Korea, Australia, Singapore, Taiwan, Malaysia, Thailand, and, most notably, Vietnam. Spanning three days across three different venues, the conference featured a diverse program designed to foster exchange, knowledge sharing, and international cooperation within the fields covered by the event.

VNUHCM-University of Science commends the active and effective coordination among the participating institutions, as well as the professional and dynamic work of the General Co-Chairs and the various conference committees. I would like to express my sincere gratitude to the leadership of each institution for their guidance and for assigning personnel to contribute to the success of this conference. I also wish to acknowledge the diligent preparation and thoughtful organization carried out by the Faculty Board and the faculty members of the Department of Physics and Engineering Physics over the past six months.

I would like to express our sincere appreciation to our co-organizers: Tohoku University; the Ho Chi Minh City Department of Science and Technology; the Ho Chi Minh City Semiconductor Industry Association; the Saigon Hi-Tech Park Research and Development Center; and Ba Ria–Vung Tau University, 6 associated organization, sponsors and technical supports. All of the universities, companies, colleagues and persons have contributed to the success of ICEBA2026.

We also thank our plenary/invited speakers, session chairs, reviewers, and authors for their academic contributions. We also appreciate the support of our partner organizations and the efforts of the Organizing Committee, Secretariat, staff, and students in preparing this conference.
I wish all participants productive discussions and useful exchanges. We hope ICEBA 2026 provide new ideas and opportunities for future cooperation. To our visiting guests, I wish you a pleasant and memorable stay in Vietnam.
Once again, welcome to VNUHCM-University of Science and ICEBA 2026.

On behalf of the 7 organizers, VNUHCM-US declares the opening of ICEBA2026!

WELCOME REMARK
FROM THE GENERAL CO - CHAIRS

Dear Distinguished Professors, Colleagues, Guests and All authors,

On behalf of the Organizing Committee, it is my great pleasure to warmly welcome you to the 7th International Conference on Engineering, Physics, MEMS – Biosensors & Applications (ICEBA 2026).

ICEBA 2026 brings together researchers, academics, engineers, students, and industry professionals to exchange knowledge, share recent advances, and foster international collaboration. Covering engineering, physics, MEMS and biosensors, semiconductor technologies, biomedical engineering, and emerging interdisciplinary fields, the conference provides a valuable platform connecting fundamental research with innovative applications.

We sincerely thank our plenary and invited speakers, authors, reviewers, session chairs, committees, organizing team, participating institutions, partners, and supporters for their valuable contributions and continued support.

I hope ICEBA 2026 will inspire productive discussions, new collaborations, and future research opportunities. May the connections established during the conference continue to contribute to meaningful scientific and technological advances. Once again, welcome to ICEBA 2026, and I wish you a productive and memorable conference.

Sincerely,
The General Co-chairs of ICEBA 2026

Prof. Takahito Ono
Tohoku University, Japan
Assoc. Prof. Tran Minh Triet
VNUHCM -University of Science
Assoc. Prof. Nguyen Van Hieu
HSIA &VNUHCM -University of Science
Assoc. Prof. Huynh Van Tuan
VNUHCM -University of Science
Assoc. Prof. Nguyen Ba Hoang
Ba Ria -Vung Tau University

WELCOME REMARK FROM HOCHIMINH CITY DEPARTMENT OF SCIENCE AND TECHNOLOGY

Distinguished Delegates, Professors, Scientists and Experts;

The authors of ICEBA2026,

Ladies and Gentlemen,

As assigned by the HCMC Government leadership, I am very pleased to attend the Opening Ceremony of the ICEBA 2026 Conference today. On behalf of the Department of Science and Technology (DOST), I warmly welcome the scientists, experts, representatives of research institutions, universities, and domestic and international businesses attending the Conference.

Ladies and Gentlemen,

In this new phase of development, Ho Chi Minh City identifies science, technology, and innovation as crucial drivers for improving the quality of growth, competitiveness, and addressing the practical challenges of a major urban center. This is also the overarching direction in implementing Resolution No. 57-NQ/TW and Resolution No. 09-NQ/TW of the Politburo on building and developing Ho Chi Minh City in the new era.

Ho Chi Minh City has issued the Science and Technology Program and the Enhancement of Science and Technology Potential for the period 2026-2030, focusing on developing strategic technologies, including semiconductor microchips, artificial intelligence, biotechnology, new materials, and automation. The city is also promoting linkages between state management agencies, universities, research institutes, and businesses, directing research activities towards solving practical problems, developing products, and commercializing scientific results.

Specifically, within the framework of the cooperation program between the HCMC Government and VNUHCM for the period 2026-2030, DOST, in coordination with the Vietnam National University Ho Chi Minh City and related units, will implement cooperation contents on scientific research, research infrastructure development, and technology transfer. The Department will also focus on connecting research and training institutions with businesses and domestic and international partners to develop human resources and enhance research and application capabilities in the field of semiconductor microchips and high technology.

These activities demonstrate the consistent orientation of the City: scientific research must be linked to development needs, produce concrete products, and create practical value.

In this context, the ICEBA 2026 Conference is of practical significance as it focuses on the fields of engineering, physics, MEMS, and biosensors. These are crucial technological platforms with potential applications in biomedicine, smart manufacturing, high-tech agriculture, environmental monitoring, and urban management.

WELCOME REMARK FROM HOCHIMINH CITY DEPARTMENT OF SCIENCE AND TECHNOLOGY

DOST highly appreciates the proactive efforts of VNUHCM - University of Science, HCMC Semiconductor Industry Association (HSIA), and Tohoku University (Jaoan) in collaborating with SHTP Labs, BRVT University, and IEEJ (Japan) to co-organize ICEBA2026, creating a forum for domestic and international scientists to publish research results, exchange experiences, connect with partners, and seek opportunities for technology application. According to the conference organizers, over 100 high-quality papers were peer-reviewed and evaluated at ICEBA2026 and will be published in scientific proceedings and international journals in the Scopus/WoS database.

Ladies and Gentlemen,

DOST hopes that the exchanges at this Conference will open up programs for collaborative research, technology development, and the transfer of concrete results. We are particularly interested in technological solutions that can serve the development of high-tech industries, healthcare, environmental protection, and improving the quality of life for the people.

We encourage universities, research institutions, and businesses to strengthen cooperation from the stages of identifying needs, organizing research and testing, to application and commercialization of products. We will advise on mechanisms and policies to support research, application, and technology transfer.

I believe that, with the participation of scientists, experts, and international partners, the ICEBA 2026 Conference will make a practical contribution to developing research capacity, training high-quality human resources, and expanding the scientific and technological cooperation network of Ho Chi Minh City.

Once again, on behalf of DOST, I would like to express my sincere gratitude to the co-organizers of this Conference and to the international scientists, professors, and experts who attended, exchanged ideas, and promoted cooperation.

I wish all delegates good health, happiness, and success. We hope ICEBA 2026 Conference will be a great success.

With our best thanks,

WELCOME REMARK FROM THE FORMER MINISTER



Assoc. Prof. Huynh Thanh Dat

The former Minister, Ministry of Science and Technology, Vietnam

Dear Professors, Scientists, Guests and Authors of ICEBA2026,

Today, I am very pleased to attend and speak at the 7th International Conference on Engineering, Physics, MEMS – Biomedical Sensors and Applications, co – organized by VNUHCM – University of Science, Tohoku University (Japan), HCMC Department of Science and Technology, HCMC Semiconductor Microelectronics Association, R&D Center – High – Tech Park, Ba Ria – Vung Tau University, and IEEJ Japan Journal. This conference is an opportunity to share and exchange research results from professors, scientists, and experts from both international and Vietnamese fields in research, training, and international cooperation. I hope that this conference will make a significant contribution to promoting the fields of science, technology, and innovation in HCMC and Vietnam.

Congratulations to the organizerss and best wishes for the International Conference!

Professors, scientists, and authors,

Due to the invitation and the nature of this conference, and with many years of experience as a Chancelor of Vietnam National University HCMC and Minister of Ministry of Science and Technology, I would like to share my thoughts on the current state of development in the semiconductor and electronics technology fields:

1. Semiconductor Industry Development in Southeast Asian Countries:
Besides leading countries in the world's semiconductor technology and industry (USA, Japan, Germany, UK, Italy, Russia, Czech Republic, South Korea, Taiwan, etc.), Southeast Asia is emerging with many important strategies in the global semiconductor value chain, with a projected market of over $55 billion in the following segments:
. Singapore: Focusing on Research & Development (R&D), integrated circuit design, and semiconductor wafer fabrication with high – tech centers and modern infrastructure, attracting major R&D centers and wafer fabrication plants from around the world.
. Malaysia: Developing assembly and testing (OSAT) and known as the "Assembly & Testing Capital" of the world, attracting significant investment from Intel and Infineon.
. Thailand: Assembles microchips, manufactures components and circuit boards, and focuses on serving the electric vehicle and home appliance industries.

2. Situation of Vietnam's electronics industry:

Vietnam has been behind East Asian countries, but has made progress in the world with a large increase in output in the last 3 decades from FID and domestic enterprises:

Period before 1975:

.The North: only has facilities to repair radios and information equipment serving the military. In 1970, an electronics factory was established in Hai Phong to produce simple components and radio receivers.

The South: There are factories assembling consumer electronics (TVs, radios) from Japanese and American components for civil use.

Period 1975 – 1985: Taking over electronic establishments in the South and establishing state – owned enterprises. In 1979, Vietnam Electronics and Informatics Corporation was established (due to embargo and outdated technology, it only assembled discrete components for electronic devices (Z181, Binh Hoa electronics, Hanel, Sagel,..).

. Opening period 1986 – 2000: when the Foreign Investment Law (1987) was introduced, many electronic joint ventures (Sony, JVC, Samsung, Daewoo,..) invested in assembling televisions and household electronics, many electronic devices appeared but the value of the electronics industry was not high and the localization rate was low.

. FDI boom period 2000 – 2015: Vietnam joined the WTO (2007) creating a big push, shifting from consumer electronics to telecommunications and computer equipment: Samsung invested in a factory in Bac Ninh (2008) and then Intel, Foxconn, LG, Canon,.. with many leading mobile phones and components.

. Strong development period from 2015 to present: Vietnam has expanded into tablets, smart wearable devices, and semiconductor components. In 2022, electronic goods will contribute nearly 165 billion USD to total export turnover due to the new policy focusing on efforts to shift from "processing" to "creation" (Make in Vietnam) and many domestic businesses appearing.

3. Vietnam's Semiconductor Industry Development Strategy:

Vietnamese government has issued the Strategy for the Development of Vietnam's Semiconductor Industry to 2030 and Vision 2050 (Decision 1018/QD – TTg) with the desire to make Vietnam a global semiconductor industry center: deeply involved in design, packaging, and testing stages, building a self – reliant ecosystem, training 50,000 specialized engineers, and promoting foreign direct investment (FDI) according to the formula C=SET + 1.

According to Statista's report, the Vietnamese semiconductor market is growing at an average rate of 13.73% per year and aims for a size of US$46.54 billion by 2030.

The government has also issued the "List of Strategic Technologies and List of Strategic Technology Products" (Decision 21/2026/QD – TTg):

. 10 Strategic Technology Groups: Digital technology, next – generation mobile networks Following this, robotics and automation, advanced biology and biomedicine, advanced energy and materials, semiconductor chips, cybersecurity and quantum computing, marine and subsurface technologies, aerospace, and high – speed rail and urban rail.

.List of 30 strategic technology products: for socio – economic development and ensuring national self – reliance, the list focuses on core products

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4. Assessments and Recommendations:

(1) Growth of digital technology: The annual growth rate of the industry is usually twice the national GDP growth rate.

(2) Main orientation: Increase the localization rate, shift from processing to designing/manufacturing application components. Promote domestic enterprises to participate in the global supply chain through incentives; Focus on IoT, AI and take advantage of FTAs.

(3) Trends and position of Vietnam: Vietnam is becoming an important link and rising to become one of the top 5 electronic product exporting countries in the world (due to Intel, Samsung and LG). However, it is heavily dependent on FDI and mainly in the assembly stage, with low domestic added value.

(4) Efficiency and added value: R&D investment, including hardware and services, has a growth rate of R&D costs maintained at 10%, in traditional industries (automobiles, consumer goods). The electronics, semiconductor, and information technology industry is no longer a supporting sector but has become a pillar of the digital economy, with rapidly increasing revenue and export turnover.

(5) Proposing major orientations: In order to implement the major orientations for scientific and technological research and innovation in the field of electronics and semiconductor microchips in Vietnam from now until 2035, with a vision to 2045, we need to focus on and have key strategic solutions including: Research and development (R&D) platform and infrastructure; Human resource and talent development; Ecosystem and network of strategic enterprises.

Once again, I would like to thank the speakers, scientists, and experts twho have come to Vietnam, and I wish the ICEBA2026 Conference much success

Thanks.

Meet the Plenary Speakers of ICEBA 2026



Assoc. Prof. **Huynh Thanh Dat**
(Nguyên UVBCHTW Đảng, nguyên Phó trưởng Ban Tuyên giáo và Dân vận TW, nguyên Giám đốc ĐHQG – HCM)
Former Minister, Ministry of Science and Technology Vietnam



Prof. **Takahito Ono**
Tohoku University, Sendai, Japan; General Co-chair of ICEBA2026



Assoc. Prof. **Tran Minh Triet**
Vice President, VNUHCM – University of Science, Vietnam



Mr. ***Kevin Koh***
President of Faraday Technology Company,Vietnam



Mrs. **La Thi Thu Hang**
General Director, D.G.S Electronic JSC, SHTP, Vietnam



Prof. **Yun – Chorng (Jeff) Chang**
Research Center for Applied Sciences, Academia Sinica, Taiwan (R.O.C)



Prof. **Hirokazu Tada**
Graduate School of Engineering Science, Osaka Univerity, Japan



Prof. **Hidekuni Takao**
·Director, Nano-Micro Structure Device Integrated Research Center, Kagawa University, Japan



Assoc. Prof. **Han Sen Soo**
Nanyang Technological University, Singapore



Assoc. **Prof. Zai – Fu Yao**
National Tsing Hua University, Hsinchu, Taiwan



Prof. **Mohd Faizul Mohd Sabri**
Vice Dean, Faculty of ME, University of Malaya, Kuala Lumpur, Malaysia



Prof. **Kyeong – Sik Min**
School of Electrical Engineering, Kookmin University, Seoul, Korea



Prof. Takahito Ono

Ono-Toan-Toda Lab,Department of Mechanical Systems Engineering, Tohoku University, Japan

PRESENTATION TITLE

Magneto – Electromechanical Microsystems Based on Magnetostriction: Integrated Sensors, Actuators, and Spin – mechatronic Transducers

BIOGRAPHY

Prof. Takahito Ono is Professor in the Department of Mechanical Systems Engineering, Tohoku University, and Co – Director of the Micro System Integration Center (μ – SiC), Tohoku University, Japan. He received his D.E. in Mechatronics and Precision Engineering from Tohoku University in 1996, serving there as Research Associate (1996–1999) and Associate Professor (1999–2009) before becoming Professor. From 2013 to 2016 he held a concurrent Professorship at the Department of Mechanical Engineering, Graduate School of Engineering, The University of Tokyo, and he served as Director of the Micro System Integration Center, Tohoku University from 2018 to 2022.

His research focuses on IoT sensors and their applications, including microelectromechanical and nanoelectromechanical systems (MEMS/NEMS), silicon – based nanofabrication, ultra – sensitive resonant sensing devices, and the integration of nanomaterials into microsystems for environmental monitoring, biomedical sensing, nano – energy, and scientific instrumentation. He has authored over 340 journal papers.

He is a Board Member of the Institute of Electrical Engineers of Japan (IEEJ) and President of its Electronics, Information and Systems Society (E Division), a member of the Executive Committee of the Electrochemical Society (ECS, USA), and an editor of Microsystems & Nanoengineering (Springer Nature) and the Journal of Micromechanics and Microengineering (IOP Publishing).

ABTRACT

Magnetostrictive materials provide a versatile platform for coupling magnetic, mechanical, electrical, and spin – current signals in microscale systems. In this invited talk, recent progress on magneto – electric microsystems based on magnetostrictive thin films and hybrid transducer structures is presented.

First, FeGa thin films, including electroplated Galfenol films, are introduced as MEMS – compatible magnetostrictive materials for magnetic – field and strain sensing. Their inverse magnetostrictive effect is used for vibration and strain readout, where strain – induced magnetisation changes in FeGa are detected by integrated Hall sensors.

Second, rare – earth transition – metal films such as TbFeCo and DyTbFe are discussed in terms of deposition, magnetic anisotropy, and magnetostrictive properties. These films also provide a platform for spin – current – induced mechanical actuation: by injecting spin current generated through the spin Hall effect, volume strain can be induced in magnetostrictive films, opening a route toward spin – current – driven microactuators.

Third, resonant magnetic sensors based on soft – magnetic – film – coated microresonators are presented, where external magnetic fields modulate resonance frequency or vibration amplitude. Finally, hybrid magnetostrictive/piezoelectric devices, including Metglas – based structures, are discussed for magnetoelectric conversion and magnetoelastic wave generation/detection.

These studies demonstrate the potential of magnetostriction as a key transduction mechanism for integrated sensors, actuators, resonators, and spintronic microsystems.



Assoc. Prof. Tran Minh Triet

AI Lab, Faculty of Information Technology, VNUHCM – University of Science, Vietnam

PRESENTATION TITLE

Multimedia Intelligence and Interactive AI for Smart Healthcare

BIOGRAPHY

Assoc. Prof. Dr. Minh – Triet Tran is the Vice President of the University of Science, Vietnam National University – Ho Chi Minh City (VNU – HCM), and Director of the John von Neumann Institute. He received his B.Sc., M.Sc., and Ph.D. degrees in Computer Science from the University of Science, VNU – HCM, in 2001, 2005, and 2009, respectively.

He was a visiting scholar at the National Institute of Informatics, Japan (2008–2010), and the University of Illinois at Urbana – Champaign, USA (2015–2016). His research interests include artificial intelligence, computer vision, multimedia analysis, information security, privacy protection, and human–computer interaction.

He has led and participated in numerous research projects and published extensively in international journals and conferences. His contributions encompass both fundamental research and practical applications of intelligent technologies. In addition to his research activities, he is actively involved in academic leadership, international collaboration, and the development of highly qualified researchers and professionals in computer science and artificial intelligence.

ABTRACT

This research focuses on advancing Multimedia Intelligence and Interactive AI to support smart healthcare applications. By integrating computer vision, multimodal learning, intelligent interaction, and knowledge – driven reasoning, the research aims to develop AI – powered solutions for medical image analysis, patient monitoring, clinical decision support, and personalized healthcare. Particular emphasis is placed on understanding and interpreting multimodal medical data, enabling natural human–AI interaction, and providing explainable and context – aware assistance to healthcare professionals and patients. The research also explores immersive technologies, including augmented and virtual reality, to enhance medical training, rehabilitation, and clinical workflows, contributing to more accessible, efficient, and intelligent healthcare services.



Mr. Kevin Koh

President of FARADAY Technology Vietnam Company Limited

PRESENTATION TITLE

AI ASIC for Vietnam: From Cloud to Edge and Endpoint AI

BIOGRAPHY

Mr. Kevin Koh is the President of Faraday Technology Vietnam Company Limited, a subsidiary of Faraday Technology Corporation, a leading provider of ASIC design services and silicon intellectual property (IP) solutions.He holds Bachelor's and Master's degrees in Electrical Engineering from the National University of Singapore and has over 15 years of experience in semiconductor design and development. His technical expertise includes physical design, design – for – test (DFT), power integrity, RTL verification, post – silicon validation, and analog and RF design.Since 2019, Mr. Koh has led Faraday Technology Vietnam, overseeing business strategy, research and development operations, and engineering team development. He has extensive experience managing multinational engineering teams and semiconductor projects for leading international customers.He is actively involved in advancing Vietnam's semiconductor ecosystem through IC design innovation, industry collaboration, and engineering talent development, with a particular focus on ASIC technologies and emerging AI applications.

ABTRACT

Artificial intelligence (AI) is transforming the global semiconductor industry, creating new opportunities for application – specific integrated circuits (ASICs) across cloud, edge, and endpoint computing platforms. This presentation explores the evolving AI ASIC landscape, highlighting technological trends, architectural differences, and strategic opportunities for Vietnam’s semiconductor ecosystem. At the cloud level, increasing computational demands are driving the development of specialized AI accelerators and companion chips to improve processing efficiency, system integration, and performance per watt. At the edge level, AI capabilities are increasingly integrated into system – on – chip (SoC) platforms, enabling intelligent applications in consumer electronics, automotive systems, robotics, and medical devices. Meanwhile, endpoint AI is emerging as a critical technology for ultra – low – power, real – time intelligence through microcontrollers (MCUs) incorporating neural processing units (NPUs). The presentation also examines the transition from traditional hardware – centric designs toward software – defined intelligence, emphasizing the importance of heterogeneous computing architectures, modular intellectual property (IP), and advanced semiconductor manufacturing technologies. Drawing on Faraday Technology’s experience in ASIC design services, silicon IP development, and semiconductor ecosystem collaboration, the discussion introduces flexible business models supporting both standardized and customized AI solutions. Particular attention is given to potential collaboration involving Faraday, Artery Technology, and foundry partners to accelerate innovation in endpoint AI. Ultimately, this presentation outlines strategic pathways for strengthening Vietnam’s semiconductor capabilities through comprehensive cloud – to – endpoint AI design services, industry partnerships, and the development of application – specific semiconductor solutions that address emerging market demands.



Mrs. La Thi Thu Hang

General Director, D.G.S Electronic JSC (Digisensor), Saigon Hi – Tech Park, Ho Chi Minh City, Vietnam

PRESENTATION TITLE

Our Digisensor JSC and Its Products

BIOGRAPHY

Mrs. La Thi Thu Hang is General Director of D.G.S Electronic JSC (Digisensor JSC), originally established in 2000 and now operating as the Digisensor Joint Stock Company. Under her leadership, the company has focused on electronic sensor applications design (ODM) and manufacturing (OEM), building over 20 years of continuous product development and long – term partnerships with worldwide suppliers such as Marathon, Hakuto, SpotSee, Toyo Keiki, and Hanbit. Digisensor's products are now distributed across the US, EU, and Asia.

Company address: Lot I 3 – 2, N2 Road, Saigon Hi – Tech Park, Ho Chi Minh City, Vietnam. Contact: jackie.la@dg – sensor.com

Website: www.dg – sensor.com.

ABTRACT

Digisensor Co., Ltd. (Digisensor JSC), originally established in 2000 and now operating as Digisensor Joint Stock Company (D.G.S JSC), has focused on electronic sensor applications design (ODM) and manufacturing (OEM) from the beginning. Over 20 years of continuous development, the company has successfully designed and manufactured a wide variety of electronics products, establishing long – term relationships with worldwide suppliers including Marathon, Hakuto, SpotSee, Toyo Keiki, and Hanbit. Its products are distributed across the US, EU, and Asia markets.

As the world moves quickly with the Industry 4.0 revolution — led by IoT and Cloud Computing — Digisensor's long – term vision is to fulfil market demand for smart IoT products. The company is investing in various IoT product lines including smart water meters, smart electricity meters, and smart gas meters, and is establishing partnerships with leading Cloud Computing companies to integrate Digisensor's IoT products into popular IoT ecosystems, providing end – customers with complete IoT solutions and enhanced customer experiences.

With over 20 years of experience designing and manufacturing electronics products for worldwide customers, Digisensor offers a wide range of services from Design Consulting to Product Manufacturing and Turn – Key solutions, with a focus on:

1. Expert precision — certified experts ensuring precision in every product.
2. Sustainable innovation — eco – friendly materials and processes (ultrasonic water meters, LoRaWAN devices).
3. Premium quality — top – quality materials for durability and accuracy.
4. Smart connectivity — integration of NFC, LoRaWAN, and NB – IoT technologies for water management and industrial applications.

Digisensor JSC aims to deploy smart water management systems for smart – city projects and residential areas, and is open to collaborating with universities and research institutes for R&D in sensors, electronic circuits, IoT solutions, and big data.



Prof. Yun – Chorng (Jeff) Chang

Research Center for Applied Sciences, Academia Sinica, Taiwan (R.O.C)

PRESENTATION TITLE

Developing High – throughput Nanofabrication Methods for Nanophotonics and Biosensing Applications

BIOGRAPHY

Dr. Yun – Chorng Chang is a Research Fellow at the Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan. He earned his Bachelor's degree in Physics from National Taiwan University in 1996 and his Ph.D. in electrical engineering from North Carolina State University in 2001.

Between 2003 and 2014, he was a faculty member in the Department of Photonics, National Cheng Kung University, Tainan. In 2014, he joined the Research Center for Applied Sciences, Academia Sinica, as an associate research fellow, and was promoted to research fellow in 2025.

Dr. Chang has published about 48 SCI journal papers and delivered 37 oral presentations at international conferences, including 17 invited talks. His research areas include nanophotonics, plasmonics, and nanofabrication. He is a Fellow of the Taiwan Photonics Society and a senior member of SPIE and IEEE.

ABTRACT

Over the past two decades, rapid advances in nanotechnology have enabled a wide range of emerging concepts in nanophotonics, optoelectronics, and biosensing. However, the high cost, limited throughput, and scalability constraints of conventional nanofabrication techniques remain major obstacles to translating many laboratory – scale demonstrations into practical technologies.

In this talk, we will present our efforts toward developing low – cost, high – throughput nanofabrication strategies, with particular emphasis on nanosphere – assisted approaches. Among these techniques, nanosphere lens lithography (NLL) exploits the optical focusing properties of self – assembled dielectric nanospheres to achieve large – area nanoscale patterning without relying on conventional electron – beam lithography. By integrating NLL with multi – angle exposure, oblique – angle deposition, and other process engineering strategies, increasingly complex two – and three – dimensional nanostructures can be realized with controllable geometry and optical functionality.

We will highlight how these scalable fabrication platforms have evolved from fundamental nanostructure patterning toward functional photonic and sensing devices. Representative examples will demonstrate their applications in nanophotonics and biosensing. These studies illustrate a promising pathway toward scalable and application – oriented nanophotonic devices.



Prof. Hirokazu Tada

Department of Materials Engineering Science, Graduate School of Engineering Science, The University of Osaka · OTRI – Spin, The University of Osaka, Japan

PRESENTATION TITLE

Carrier, Spin and Heat Transport in Single – Molecule Junctions

BIOGRAPHY

Hirokazu Tada is Professor in the Department of Materials Engineering Science, Graduate School of Engineering Science, The University of Osaka, Japan. He received his Doctor of Science degree from the University of Tokyo in 1993. His professional career began in 1989 as Assistant Professor in the Department of Chemistry, Faculty of Science, at the University of Tokyo. He subsequently served as Researcher at the Communications Research Laboratory (1993–1996), Lecturer at Kyoto University (1996–2000), and Associate Professor at the Institute for Molecular Science (2000–2005). Since April 2005, he has been Professor at Osaka University.

Professor Tada leads the Molecular Electronics Research Group, investigating molecular and nanoscale systems for future electronic, spintronic, thermoelectric, and information – processing devices. His research integrates materials science, nanotechnology, surface and interface science, chemistry, and device physics, with particular interests in single – molecule electronics, molecular spintronics, organic field – effect transistors, thin films, nanogap electrodes, and microfabricated molecular devices.

ABTRACT

Single molecules provide an ultimate platform for exploring how carriers, spins, and heat move through matter at the smallest possible scale. In molecular junctions, transport properties are governed by molecular orbitals, spin states, vibrations, symmetry, and molecule–electrode coupling. Understanding these factors is central to molecular electronics, spintronics, energy conversion, and nanoscale thermal management.

This talk presents carrier, spin, and heat transport in molecularly modified nanogaps from the viewpoint of molecular design and interfacial coupling. Carrier transport is discussed through single – molecule rectification based on electric – field – induced orbital deformation, which controls asymmetric electronic hybridisation with electrodes. Spin – dependent transport is highlighted through magnetoresistance in gold – electrode single – molecule junctions, revealing the roles of exchange interactions, singlet–triplet modulation, and π – orbitals. Heat transport is discussed using suspended break – junction devices with simultaneous electrical and thermal conductance measurements.



Prof. Hidekuni Takao

Faculty of Engineering and Design · Director, Nano – Micro Structure Device Integrated Research Center, Kagawa University, Japan

PRESENTATION TITLE

Quantifying the Sense of Touch: Nano – Tactile MEMS Sensors for Materials, Healthcare, and Tactile AI

BIOGRAPHY

Hidekuni Takao received the B.E., M.E., and Ph.D. degrees all from Toyohashi University of Technology, Japan, in 1993, 1995, and 1998, respectively. He is currently Professor and Director of the Nano – Micro Structure Device Integrated Research Center at Kagawa University, Japan.

His research focuses on ultra – high – performance MEMS tactile sensors, multimodal sensing systems, and their applications in medicine, healthcare, robotics, precision manufacturing, and human – interface technologies. His recent work aims to establish nano – tactile sensing as a platform for quantitative touch, enabling high – resolution measurement of surface texture, friction, softness, thermal properties, and tactile perception for AI – assisted sensing systems.

His contributions have been recognized by several awards, including the MEXT Award for Science and Technology in the Research Category in 2023, the Grand Prix Award in the Device Category of the CEATEC AWARD 2023, and the 24th Yamazaki – Teiichi Prize in 2024. He currently serves as Vice President of the Sensors and Micromachines Division of the Institute of Electrical Engineers of Japan (IEEJ).

ABTRACT

Human touch is one of the most sophisticated sensing modalities, integrating mechanical, thermal, and interfacial information into a unified perception of material quality. In this keynote talk, recent progress on nano – tactile MEMS sensors for quantitative touch and tactile intelligence is presented.

Nano – tactile MEMS sensors with laterally arranged micro – contact probes are introduced as a platform for measuring fine surface topography and frictional force. By scanning material surfaces with micrometer – scale spatial resolution and sub – micrometer height sensitivity, tactile textures that are difficult to evaluate by conventional optical or macroscopic methods can be visualized.

The sensor platform is extended toward multimodal tactile sensing by integrating mechanical sensing structures, temperature sensors, microheaters, and protective packaging. Surface texture, friction, softness, thermal properties, and adhesive characteristics related to dry–wet perception can be acquired from the same region of a sample, providing a quantitative description of material feel beyond simple roughness or hardness.

Applications in healthcare, precision manufacturing, robotics, and human – interface technologies are presented, including the evaluation of skin, hair, paper, fabrics, and precision – machined surfaces. Integration with AI – based recognition further demonstrates how high – dimensional tactile data can be used to classify materials and estimate sensory qualities.

These studies demonstrate the potential of nano – tactile MEMS sensors as a key platform for transforming human touch into measurable data, bridging materials, biomedical sensing, robotics, and tactile AI.



Assoc. Prof. Han Sen Soo

School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University, Singapore

PRESENTATION TITLE

Metal halide perovskites for catalysis and indoor device applications

BIOGRAPHY

Han Sen Soo is an Associate Professor in the School of Chemistry, Chemical Engineering & Biotechnology at Nanyang Technological University (NTU), Singapore. After graduating from MIT with Bachelor of Science and Master of Science degrees, he completed his Ph.D. research at U.C. Berkeley and a postdoctoral fellowship at the Lawrence Berkeley National Laboratory. He started his independent career at NTU in 2012.

His research team has focused on artificial photosynthesis with the aim of finding ways to use renewable energy to transform 'waste' materials into value – added feedstocks. His team is currently interested in applying metal halide perovskites for photoelectrocatalysis and indoor device applications. He has been recognized by several awards including the Asian Photochemistry Association's Prize for Young Scientists, the Distinguished Lectureship Award in Electrochemistry from the Chemical Society of Japan, and the NTU College of Science Innovation/Impact Award.

ABTRACT

Since 2009, metal halide perovskites have undergone a renaissance in the scientific community and been widely explored in photovoltaics, light – emitting diodes, and other optoelectronic applications. However, several remaining challenges include their inherent phase instability, the use of hazardous solvents in solution processing, and the toxicity of lead.

To overcome some of these challenges, my team has adopted the use of solvent – free mechanochemistry to synthesize lead – free metal halide perovskites and even fabricated a photodetector without solution processing. Besides indoor device applications, we have demonstrated the synergy of artificial intelligence and high – throughput experimentation to discover new perovskite photocatalysts. I will also present my team's breakthroughs in the application of perovskites for the photoelectrocatalytic synthesis of fine chemicals and the development of a new in situ optical spectrometer to monitor the mechanochemical synthesis of perovskites.



Assoc. Prof. Zai – Fu Yao

Research Center for Education and Mind Sciences, College of Education & Department of Educational Psychology and Counseling / Kinesiology / Ph.D.

PRESENTATION TITLE

From Brainwaves to Biomarkers: EEG – Based Multimodal Neurotechnology for Brain Health, Cognition, and Human Performance

BIOGRAPHY

Zai – Fu Yao is an Associate Professor in the College of Education (including PhD program in interdisciplinary education science) and Director of the Research Center for Education and Mind Sciences at National Tsing Hua University (NTHU), Taiwan, where he also holds adjunct appointments in the Department of Educational Psychology and Counseling, the Department of Kinesiology, and the Ph.D. Program in Precision Medicine.

He received his Ph.D. in Psychology (Brain and Cognition) from the University of Amsterdam and conducted research at the Spinoza Centre for Neuroimaging, the Netherlands. A former competitive swimmer, Dr. Yao studies how experience, training, aging, and stress shape the human brain, combining EEG/ERP, structural and functional MRI, and machine learning – based neuroinformatics, network analysis, cognitive modeling, and wearable signals.

His work spans brain – age biomarkers of brain health, executive functions and cognitive control, resilience and well – being, brain–computer interfaces, and neuroplasticity across populations including elite and Olympic – level athletes, gifted learners, Indigenous communities, aging and mild cognitive impairment, and childhood adversity. He serves as Deputy Secretary – General of the Taiwanese Psychological Association and actively promotes interdisciplinary and international collaboration linking cognitive neuroscience with engineering, sensor technology, education, and sports science.

ABTRACT

Advances in sensor miniaturization, dry – electrode design, and MEMS – based wearable technologies now allow the brain's electrical activity to be recorded far beyond the laboratory. This talk presents a research program that treats electroencephalography (EEG) as a scalable brain biosensor and asks how neural signals can be transformed into actionable biomarkers of cognition, brain health, and human performance.

First, how EEG and event – related potentials capture the neural dynamics of attention, executive control, and spatial navigation is presented, and how machine – learning approaches — including graph neural networks for EEG connectivity and learnable frequency – weighting architectures — can improve the decoding of cognitive states for brain–computer interface (BCI) applications.

The talk then broadens to multimodal neuroimaging, showing how combining EEG with structural and functional MRI yields individual – level markers such as 'brain age' that index brain health across the lifespan and relate to resilience, stress, and psychological well – being. Findings from special populations, including Olympic – level and elite athletes, illustrate how long – term training shapes brain structure and function, providing a natural model of neuroplasticity and performance optimization.

Together, these lines of work outline a translational pipeline — from sensors to signals, biomarkers, and applications in precision education, sports science, and digital health — and highlight concrete opportunities for collaboration between cognitive neuroscience and the MEMS – biosensor engineering community in designing the next generation of wearable neurotechnology.



Prof. Ir. Dr. Mohd Faizul Mohd Sabri

Department of Mechanical Engineering, Faculty of Engineering, Universiti Malaya, Kuala Lumpur, Malaysia

PRESENTATION TITLE

From Waste Heat to Watts: A Multi – Scale Approach to Thermoelectric Energy Harvesting

BIOGRAPHY

Mohd Faizul Mohd Sabri is a Professor and Deputy Dean of Research and Innovation at the Faculty of Engineering, Universiti Malaya (UM), Malaysia, based in the Department of Mechanical Engineering. His research expertise spans thermoelectric materials and energy systems, lead – free solder alloys and electronic packaging, nanocomposite materials, waste heat recovery, and palm oil biorefinery applications, with a sustained research record in electronic packaging and solder alloy development since 2012.

He maintains active international research collaborations with Tohoku University, Osaka University, Beihang University, and Sejong University, working with partner groups on materials development and device – level applications in thermoelectric and related energy technologies.

ABTRACT

Waste heat is one of the largest untapped energy resources in both industrial and everyday environments, yet its recovery requires solutions spanning vastly different scales, from civil infrastructure down to the microdevice. This talk presents a multi – scale strategy for thermoelectric and piezoelectric energy harvesting.

At the infrastructure scale, subterranean thermoelectric systems embedded in asphalt pavement and thermoelectric – cooled solar stills are discussed, including recent work on emissivity effects that improve the temperature differential driving TE modules under realistic outdoor conditions.

At the material scale, strategies for enhancing the thermoelectric figure of merit are examined through doping and nanostructuring, including indium – doped $CoSb_3$ skutterudites, SiC nanoparticle – incorporated Bi – Sr – Co – O oxide composites, and metal – assisted chemically etched silicon nanostructures, illustrating how grain boundaries and dopant distribution govern the balance between electrical conductivity, Seebeck coefficient, and thermal conductivity.

At the device scale, micropatterning and integration of electrospun PVDF membranes into flexible microarrays demonstrate a pathway toward MEMS – compatible harvesters combining piezoelectric and thermal response. Together, these results illustrate how coordinated materials – to – device research — moving from asphalt to atoms — can accelerate the path toward practical, sustainable waste heat recovery for industrial, automotive, and wearable applications.



Prof. Kyeong – Sik Min

School of Electrical Engineering, Kookmin University, Seoul, Korea

PRESENTATION TITLE

Embracing Nonidealities: GPU – Accelerated Simulation and Nonideality – Aware Training for RRAM Compute – in – Memory — Toward 1000 TOPS/W

BIOGRAPHY

Kyeong – Sik Min received his B.S. degree from Korea University in 1991 and his M.S.E.E. and Ph.D. degrees from KAIST in 1993 and 1997, respectively. He joined Hynix Semiconductor in 1997, focusing on low – power and high – speed DRAM circuits, and later worked as a Research Associate at the University of Tokyo (2001–2002). Since 2002, he has been a Professor at Kookmin University, Seoul, Korea. He was also a Visiting Professor at the University of California, Merced (2008–2009).

Prof. Min has served on numerous international conference committees, including ASSCC, ISOCC, AICAS, and ISCAS. He served as President of IKEEE (2022) and Chairperson of the IEIE SoC Research Group (2021). His honors include the KSIA Distinguished Service Award (2023), Seoul City's Award of Excellence in Academy–Industry R&D Cooperation (2021), the Haedong Best Paper Award (2020), and the Korean Ministry of Science and ICT Distinguished Service Award (2020).

An IEEE member since 2002, his research interests include memory, analog, and neuromorphic circuits.

ABTRACT

Analog compute – in – memory (CIM) on resistive RAM (RRAM) can deliver orders – of – magnitude energy efficiency for edge AI, yet interconnect IR – drop, strongly nonlinear devices, and the non – negativity of conductance routinely collapse its accuracy. This plenary presents our laboratory's approach: rather than tolerate these nonidealities, we model them exactly and train through them.

At the core is a GPU – accelerated circuit simulator with SPICE – level 1T1R fidelity whose batched sparse solver makes exact, circuit – accurate training tractable at network scale. Building on it, a training method that back – propagates through the true resistive network — including its parasitic wire resistance — recovers accuracy that resistance – oblivious training loses, from below 20% to over 90% under realistic line resistance; an equilibrium – propagation – based scheme learns signed weights within the non – negative – conductance constraint using local, physically realizable updates; and a low – rank weight mapping that keeps exact – circuit training tractable deploys MLPs, CNNs, and Transformers with IR – drop resilience.

These algorithms guide dedicated circuit – and layout – level co – designs. A new crossbar architecture, where the device threshold voltage realizes a device – intrinsic ReLU, folds the nonlinear activation into the array itself. A new power – delivery network model with power – gating switches casts the CIM read load, footer, and mesh as a single nonlinear network solved on the GPU, exposing and mitigating IR – drop in SRAM CIM across technology nodes. A new RRAM CIM macro that cancels the RRAM nonlinearity, together with reinforcement – learning – driven macro physical design, targets a system efficiency on the order of 1000 TOPS/W.

Throughout, results are verified end – to – end, from GPU – accelerated exact simulation to commercial – PDK HSPICE, outlining a coherent, nonideality – aware path toward accurate and ultra – efficient in – memory computing.



Prof. Aparporn Sakulkalavek

Department of Physics, School of Science, King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand

PRESENTATION TITLE

Scalable Flexible Thermoelectrics for Self – Powered IoT and Wearable Thermal Management

BIOGRAPHY

Prof. Aparporn Sakulkalavek received her Ph.D. (2011) and M.Sc. (2006) in Physics from Chulalongkorn University and her B.Sc. (2002) from Silpakorn University. She is currently a Professor of Physics at King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand. Her research focuses on thin films, thermoelectric materials, thermal properties, and energy – harvesting technologies, particularly flexible thermoelectric devices and protective coatings. She received the Thailand National Research Award (2024) for her innovative anti – tarnish coating technology and holds several patents related to thermoelectric devices and advanced coatings. She currently leads an NRCT – funded project on high – efficiency flexible thermoelectric modules. Her research has been published in leading international journals, including Applied Thermal Engineering, Applied Surface Science, and Journal of Alloys and Compounds.



Asst. Prof. Dr. Hoai Luan Pham

Nara Institute of Science and Technology (NAIST), Ikoma, Nara, Japan

PRESENTATION TITLE

Energy – Efficient AI Accelerators for Wearable Healthcare Applications

BIOGRAPHY

Hoai Luan Pham received the M.E. and Ph.D. degrees in Information Science from the Nara Institute of Science and Technology (NAIST), Japan, in 2020 and 2022, respectively. He is currently an Assistant Professor at NAIST and a Visiting Lecturer at the University of Information Technology (UIT), Vietnam National University Ho Chi Minh City.

His research interests include AI accelerator design, cryptography, circuit design, and reconfigurable computing.

INVITED SPEAKERS



Prof. Dr. Nguyen Hoang Nam

Nano and Energy Center, Faculty of Physics, VNU University of Science, Hanoi, Vietnam

PRESENTATION TITLE

Development of Biomedical nanomaterials and devices

BIOGRAPHY

Nguyen Hoang Nam is a Professor and Director of the Nano and Energy Center, as well as Vice Dean of the Faculty of Physics at VNU University of Science, Hanoi, Vietnam. He obtained his Master's degree from Eötvös Loránd University, Hungary, and his Ph.D. from Osaka University, Japan.

His research interests include magnetic materials, nanomaterials for life – science applications, biosensors, and biomedical devices. He has published approximately 120 scientific articles, 3 book chapters, and holds 6 intellectual property registrations in the field of nanomaterials and applications.



Assoc. Prof. Dr. Van Thanh Dau

School of Engineering and Built Environment, Griffith University, Gold Coast, Queensland, Australia

PRESENTATION TITLE

Electrohydrodynamic in sensing, drug delivery and biomedical applications

BIOGRAPHY

Assoc. Prof. Van Thanh Dau is an Associate Professor of Mechanical Engineering at Griffith University, Australia. He received his Ph.D. in micro/nano electro – mechanical systems from Ritsumeikan University, Japan, and spent nine years as an industrial research scientist in Japan and the UK before joining Griffith University in 2019. His research focuses on electrohydrodynamic atomisation, including electric – field – driven sprays, droplets, and nanofibres, for drug delivery, biomedical devices, and environmental sensing. He also develops IoT sensors for harsh environments. He is an IEEE Senior Member and has authored or co – authored over 200 scientific publications and 25 inventions.



Dr. Vu The Dang

Faculty of Electrical and Electronics Engineering, Ho Chi Minh City University of Technology and Education (HCMUTE), Vietnam

PRESENTATION TITLE

Neutron Transmission Images of Metals with Negative and Positive Scattering Lengths Using a CB – KID Sensor

BIOGRAPHY

Dr. Vu The Dang received his B.E. (2007) and M.E. (2010) from Ho Chi Minh City University of Technology and Education, Vietnam, and his Ph.D. from Osaka Prefecture University, Japan. He was a postdoctoral fellow at the J – PARC Center, Japan Atomic Energy Agency (2018–2021), and an Assistant Professor at Osaka Metropolitan University (2021–2025). Since 2025, he has been a lecturer at the Faculty of Electrical and Electronics Engineering, HCMUTE. His research focuses on vortex physics, superconducting devices, including SQUID sensors and neutron detectors, imaging data processing, and non – destructive measurement techniques. His recent interests include sensor networks, self – energy systems, biosensors, IC fabrication processes, and IC packaging engineering.



Prof. Chien – Cheng Kuo

Department of Optics and Photonics, National Central University, Taiwan

PRESENTATION TITLE

Performance – Enhancement of the Absorber Layer in Extreme Ultraviolet Mirrors

BIOGRAPHY

Chien – Cheng Kuo is a Professor in the Department of Optics and Photonics at National Central University (NCU), Taiwan. He received his B.S. in Physics from National Cheng Kung University (1996), his M.S. from the Institute of Optical Sciences, NCU (1998), and his Ph.D. from the Department of Optics and Photonics, NCU (2007). He has published over 60 journal papers and 100 conference papers, and holds 9 patents.

His research interests include optical thin films, vacuum equipment technology, plasma polymerization thin film applications, and functional thin films. Specific areas cover extreme ultraviolet, vacuum ultraviolet, and deep ultraviolet optical films; high – damage – threshold laser films; transparent conductive films; diamond – like carbon films; and anti – plasma corrosion films.



Assoc. Prof. Dr. Li – Chen Su

General Education Center and Organic Electronics Research Center, Ming Chi University of Technology (MCUT), Taiwan

PRESENTATION TITLE

Toward Portable Surface Plasmon Resonance Biosensing: Advances in Optical Interrogation and Near – Infrared Optoelectronic Integration

BIOGRAPHY

Li – Chen Su is an Associate Professor at the General Education Center and a member of the Organic Electronics Research Center, Ming Chi University of Technology (MCUT), Taiwan. She also serves as Head of the Teaching and Learning Excellence Project Section at MCUT.

Her research lies at the interface of optics, optoelectronics, and biosensing, with a focus on surface plasmon resonance (SPR) technology. Her group develops portable SPR biosensing platforms combining innovative optical interrogation methods with near – infrared optoelectronic devices. She has applied these platforms to the rapid detection of SARS – CoV – 2, H5N1 avian influenza, African swine fever, and disease – related microRNA biomarkers.



Assoc. Prof. Dr. Le Van Anh Cuong

Department of Geophysics, Faculty of Physics and Engineering Physics, VNUHCM – University of Science, Vietnam

PRESENTATION TITLE

Constrained Inversion of Magnetotelluric Data for Investigating Deep Crust–Mantle Structures in the Northern Territory, Australia

BIOGRAPHY

Le Van Anh Cuong is an Associate Professor in the Department of Geophysics, Faculty of Physics and Engineering Physics, VNUHCM – University of Science, Vietnam. He completed his Ph.D. at Curtin University, Australia, in 2018.

His research expertise spans: (i) applications of multi – geophysical methods in mineral exploration and civil engineering, and (ii) supercomputing, machine learning, and artificial neural networks for geophysics.



Dr. Le Thanh Sach

Faculty of Computer Science and Engineering, VNUHCM – University of Technology, Vietnam

PRESENTATION TITLE

From Deep Learning to Foundation Models: Advances and Challenges in Medical Image Analysis

BIOGRAPHY

Dr. Thanh – Sach Le is a faculty member at the Faculty of Computer Science and Engineering, Ho Chi Minh City University of Technology (HCMUT), VNU – HCM, Vietnam, and Head of the Data Science Laboratory. He received his Bachelor's degree (1998) from HCMUT, Master's degree (2007) from King Mongkut's Institute of Technology Ladkrabang, Thailand, and Ph.D. (2010) from Tokai University, Japan. With over 15 years of experience, his research focuses on computer vision, image processing, machine learning, and deep learning, with applications in medical imaging, security and surveillance, and intelligent transportation systems. His current interests include foundation models, multimodal AI, and data visualization.



Dr. Le Xuan Bach

RAISE Lab, Faculty of Computer Science and Engineering, VNUHCM – University of Technology, Vietnam

PRESENTATION TITLE

Software Engineering in the Era of LLMs: From Formal Verification to Auditable Agents

BIOGRAPHY

Xuan – Bach Le is a Lecturer at Ho Chi Minh City University of Technology (HCMUT), Vietnam National University HCMC, where he leads the RAISE Lab (Reasoning in Artificial Intelligence and Software Engineering).

He works on safe and explainable AI, LLM agents for software engineering, program verification, and retrieval – augmented generation, with publications at premier AI and software engineering venues including NeurIPS, POPL, ICALP, ASE, ICDM, CIKM, EMNLP, and ICSOC.

INVITED SPEAKERS



Assoc. Prof. Dr. Tran Duc Thien

Faculty of Electrical and Electronic Engineering, Ho Chi Minh City University of Technology and Engineering (HCMUTE), Vietnam

PRESENTATION TITLE

From Robust to Learning – Based Control: Research Advances and Real – World Applications in Intelligent Robotics

BIOGRAPHY

Assoc. Prof. Dr. Duc – Thien Tran is an Associate Professor at Ho Chi Minh City University of Technology and Engineering (HCMUTE), Vietnam. He serves as Deputy Head of the Automatic Control Department and leads the Robotics and Intelligent Control Laboratory (RIC Lab). He received his Ph.D. from the University of Ulsan, South Korea, in 2020. He became an Associate Professor in 2024 and an IEEE Senior Member in 2026. His research focuses on robotics, robust and adaptive control, intelligent control systems, and industrial and rehabilitation robotics.



Assoc. Prof. Dr. Le Vu Tuan Hung

Faculty of Physics and Engineering Physics, VNUHCM – University of Science,

PRESENTATION TITLE

The High – Performance SERS Substrate and Machine Learning for Detecting Bacteria and Chemical Trace in Food, Drug, and Cosmetic

BIOGRAPHY

Dr. Le Vu Tuan Hung is an Associate Professor in the Faculty of Physics and Engineering Physics at the University of Science, VNUHCM, Vietnam, where he also serves as Head of the Applied Physics Department.

He has over 25 years of experience in nanomaterial applications for photocatalysis and solar cells. Currently, his research focuses on nano – optoelectronic materials and biosensing, particularly Surface Plasmon Resonance (SPR) technologies, such as semiconductor–noble metal hybrid nanostructures for detecting bacteria and chemical traces in food, pharmaceutical, and cosmetic products.



Assoc. Prof. Dr. Huynh Chan Khon

iBioSys Research Group, Institute of Biotechnology and Food Technology, Industrial University of Ho Chi Minh City (IUH), Vietnam

PRESENTATION TITLE

Microfluidic Vessel – on – a – Chip for Studying Hemodynamic Regulation of Plasma Proteins and Platelet Thrombosis

BIOGRAPHY

Dr. Khon Huynh is an Associate Professor of Medical Biology at the Institute of Biotechnology and Food Technology, Industrial University of Ho Chi Minh City (IUH), Vietnam, and the founder and leader of the Integrative Biology and Biotechnology Research Group (iBioSys).

His research focuses on Lab – on – a – Chip technologies for biomedical applications, with two main directions: vessel – on – a – chip platforms for investigating the effects of hemodynamics on thrombosis, and point – of – care diagnostic technologies. His work integrates engineering, biology, and biotechnology to develop innovative platforms for biomedical research and diagnostics.t



Assoc. Prof. Dr. Hieng Kiat Jun

Department of Mechanical and Materials Engineering, Lee Kong Chian Faculty of Engineering and Science, Universiti Tunku Abdul Rahman (UTAR), Malaysia

PRESENTATION TITLE

From Biomass Waste to Energy Storage: Carbon Quantum Dots Derived from Spent Coffee Grounds

BIOGRAPHY

Jun Hieng Kiat is an Associate Professor in the Department of Mechanical and Materials Engineering at Universiti Tunku Abdul Rahman (UTAR), Malaysia. He received his M.Eng.Sc. (2007) and Ph.D. (2014) from the University of Malaya.

His research focuses on renewable and sustainable energy technologies, including sensitizing – type solar cells, perovskite solar cells, electrolyte characterization, and nanostructured energy storage devices such as supercapacitors and electric double – layer capacitors (EDLCs). He also works on hybrid energy systems, photoluminescent materials for photovoltaics, biomass – derived carbon materials, thermoelectric generators, and radiative cooling materials. He serves as a reviewer for several international journals and is a member of The Institution of Engineering and Technology (IET).

INVITED SPEAKERS



Prof. Kun – Yu Lai

Department of Optics and Photonics, National Central University, Taiwan

PRESENTATION TITLE

A Rapid Lung Cancer Screening in 25 Minutes

BIOGRAPHY

Dr. Kun – Yu Lai is currently a professor and the chairman of the Department of Optics and Photonics (DOP) at National Central University (NCU), Taiwan. He received his Ph.D. degree in Electrical Engineering from North Carolina State University, USA, in 2009. After working as a postdoctoral fellow in the Graduate Institute of Photonics and Optoelectronics at National Taiwan University in 2009–2011, he joined the faculty of DOP at NCU.

Prof. Lai specializes in the growth and fabrication of novel III – nitride optoelectronic devices, including plasmonic biosensors and LEDs. He has authored 58 articles in peer – reviewed SCI journals, with a total of over 2,047 citations (H – index: 26).



Dr. Nguyen Minh Son

ASICLab, Faculty of Computer Engineering, VNUHCM – University of Information Technology (UIT), Vietnam

PRESENTATION TITLE

Embedded Edge AI for Smart Camera Systems

BIOGRAPHY

Dr. Minh Son Nguyen is a faculty member of the Faculty of Computer Engineering at the University of Information Technology (UIT), VNU – HCM, Vietnam, where he serves as Dean of the Faculty of Computer Engineering and Head of ASICLab.

He received his Bachelor of Engineering (2001) and Master of Engineering (2005) degrees in Computer Engineering from Ho Chi Minh City University of Technology, Vietnam, and his Ph.D. degree in Electrical Engineering from the University of Ulsan, South Korea, in 2010.

His research interests include embedded Edge AI, Smart Camera systems, SoC and IC design, AI acceleration, and hardware–software co – design, with an emphasis on integrating sensing, computation, and embedded software into practical intelligent systems.



Prof. Tadao Matsunaga

Dept. of Electrical Engineering and Computer Science, Faculty of Engineering, Tottori University, Japan

PRESENTATION TITLE

Professor of Biomedical Microelectromechanical Systems (MEMS) and Medical Device Engineering

BIOGRAPHY

Prof. Tadao Matsunaga is a Professor in the Department of Electrical Engineering and Computer Science, Faculty of Engineering, Tottori University, Japan. He received his Ph.D. in Engineering from Tohoku University, Japan, in 2002. Before joining Tottori University in 2019, he held academic and research positions at Tohoku University, where he contributed to research in microelectromechanical systems (MEMS) and biomedical engineering. His research focuses on the development of MEMS-based medical devices and microsensors for minimally invasive diagnosis and treatment. His major research interests include ultra-thin fiber-optic sensors, microsensors for robotic surgery, tactile displays using micro actuators, and microfabrication techniques for non-planar surfaces. His work integrates semiconductor microfabrication, sensor technologies, and biomedical engineering to advance innovative medical devices and healthcare applications.



Dr. Tran Nguyen Lan

Faculty of Physics and Engineering Physics, University of Science
Vietnam National University

PRESENTATION TITLE

Lecturer and Researcher in Theoretical Physics, Quantum Chemistry, and Quantum Computing

BIOGRAPHY

Dr. Tran Nguyen Lan is a Lecturer and Researcher in the Department of Theoretical Physics, Faculty of Physics and Engineering Physics, University of Science, Vietnam National University Ho Chi Minh City (VNU-HCM), Vietnam. He received his Ph.D. in Physics from the Graduate University for Advanced Studies (SOKENDAI), Japan, in 2014.

His research focuses on theoretical and computational physics, particularly electronic structure theory, quantum chemistry, and quantum computing. His work involves developing advanced computational methods for accurately describing molecular electronic structures, investigating quantum many-body systems, and exploring quantum algorithms for molecular simulations. His current research interests also include integrating quantum computing with machine learning to address complex scientific problems. He has published research in international scientific journals and actively contributes to interdisciplinary developments in computational quantum science.



Assoc. Prof. Ho Manh Dung

Ho Chi Minh City Nuclear Center, Vietnam

PRESENTATION TITLE

Associate Professor of Nuclear Physics and Nuclear Analytical Techniques

BIOGRAPHY

Assoc. Prof. Dr. Ho Manh Dung is a senior researcher in nuclear physics and nuclear technology, and former Director of the Ho Chi Minh City Nuclear Center, Vietnam. His research focuses on nuclear analytical techniques, neutron activation analysis, and applications of nuclear technology in environmental monitoring, material characterization, and cultural heritage preservation. He has extensive experience in scientific research, international collaboration, and the development of nuclear science and technology in Vietnam.



Prof. Suhana Mohd Said

Department of Electrical Engineering, Faculty of Engineering, University of Malaya, Malaysia

PRESENTATION TITLE

Development of Spin-Crossover Metal Complex based CO2 Sensors

BIOGRAPHY

Prof. Ir. Dr. Suhana Mohd Said is a Professor in the Department of Electrical Engineering, Faculty of Engineering, Universiti Malaya, Malaysia, and currently serves as Executive Director of Research Management at the university. She obtained her Ph.D. in Engineering Science from the University of Oxford, UK, in 2003. Her research interests include liquid crystal technology, thermoelectric materials and devices, printable electronics, and lead-free solder alloys. She has extensive experience in academic research, postgraduate supervision, and international scientific collaboration, with numerous publications in materials science and electronic engineering.

AGENDA – ORAL SESSIONS 1

08:30 – 11:20, Room E
Chair and Co – chair:
Assoc.Prof. Le Vu Tuan Hung (VNUHCM – US,Vietnam) Prof. Kun – Yu Lai (National Central University, Taiwan)

Applied Physics, Materials Science and Photonics			
TIME	**CODE**	**TITLE**	**AUTHOR**
08:30 – 08:45	**OS.1 – I.1**	Performance – Enhancement of the Absorber Layer in Extreme Ultraviolet Mirrors	**Prof. Chien Cheng Kuo** National Centra University, Taiwan
08:45 – 09:00	**OS.1 – I.2**	Development of Biomedical nanomaterials and devices	**Prof. Nguyen Hoang Nam** VNU – Ha noi University of Science, Vietnam
09:00 – 09:15	**OS.1 – I.3**	A rapid lung cancer screening in 25 minute	**Prof. Kun – Yu Lai** National Centra University, Taiwan
09:15 – 09:30	**OS.1 – I.4**	The high performance SERS substrate and machine learning for detecting bacteria and chemical trace in food, drug, and cosmetic	**Assoc.Prof. Le Vu Tuan Hung** VNUHCM – University of Science
Coffee break (5 mins)			
09:35 – 09:47	**O.S1 – 149**	Nitrogen – Modified Silicon Dioxide Protective Coatings for Cu–Ag–Au Alloys with Improved Mechanical Hardness and High Optical Transparency	Suphakorn Chaisol
09:48 – 10:10	**O.S1 – 147**	Thin Films on Copper Printed Circuit Boards for Corrosion and Electrochemical Migration Protection	Woraprach Kaewbuadee
10:11 – 10:23	**O.S1 – 6**	First Principles Calculations Study the Onset of Magnetism in Pd	Do Duc Cuong
10:24 – 10:36	**O.S1 – 148**	Development of Surface – Enhanced Raman Scattering substrate via the Integration of Physical and Chemical Techniques	Tawisa Patcharanan
Coffee break (5 mins)			
10:42 – 10:54	**O.S1 – 275**	Scaffolds by the Ceramic Replica Method Combined with Sequential Aqueous Conversion of Calcium Sulfate Hemihydrate	Tran Trung Tin
10:55 – 11:07	**O.S1 – 82**	Hydrothermal systhesis of nitrogen and sulfur co – dopped Carbon Quantum dots from chive leaves for Tetracycline detection	Vo Thi Ngoc Thuy
10:8 – 11:20	**O.S1 – 76**	Machine Learning – Assisted Raman Spectroscopy for Intelligent Chemical Identification.	Nguyen Viet Trung

AGENDA – ORAL SESSIONS 2

13:00 – 15:00, Room E
Chair and Co – chair:
Assoc.Prof. Le Van Anh Cuong (VNUHCM – US,Vietnam); Prof. Nguyen Hoang Nam (VNU – HUS, Vietnam)

Engineering Physics and Life Sciences			
TIME	**CODE**	**TITLE**	**AUTHOR**
13:00 – 13:15	**OS.2 – I.1**	Toward Portable Surface Plasmon Resonance Biosensing: Advances in Optical Interrogation and Near – Infrared Optoelectronic Integration	**A.Prof. Li – Chen Su** MCUT, Taiwan
13:15 – 13:30	**OS.2 – I.2**	Constrained Inversion of Magnetotelluric Data for Investigating Deep Crust–Mantle Structures in the Northern Territory, Australia	**A.Prof. Le Van Anh Cuong** VNUHCM – US, Vietnam
13:30 – 13:45	**OS.2 – I.3**	Development of Spin – Crossover Metal Complex based CO2 Sensors	**Prof. Suhana Mohd Said** University of Malaya, Malaysia
Coffee break (5 mins)			
14:05 – 14:17	**O.S2 – 137**	Automated identification of microplastic polymers in soil and water samples using FTIR spectral processing and machine learning	Vo Luong Hong phuoc
14:18 – 14:30	**O.S2 – 10**	Adaptive Observer Output Filter for ERL Sliding – Mode PMSM Speed Control Under Load Disturbance and Measurement Noise	Pham Minh Duc
14:31 – 14:43	**O.S2 – 68**	Improving the Robustness of sEMG – Based Hand Gesture Recognition Models Against Sensor Shift Using Geometry – Aware Spatial Reconstruction and Random – Angle Augmentation	Tran Thi Cam Ly
14:44 – 14:56	**O.S2 – 37**	Diagnosis of schizophrenia based on Machine Learning models using Electroencephalographic (EEG) signals	Trung Tin Nguyen
14:57 – 15:09	**O.S2 – 190**	A Hybrid LassoCV – SVR Framework for Urban Bedrock Topography Mapping under Sparse Borehole Constraints	Cao Dinh Trong

AGENDA – ORAL SESSIONS 3

08:30 – 12:00 and 13:00 – 14:30, Room C
Chair and Co – chair:
Assoc. Prof. Huynh Chan Khon (IUH, Vietnam); Dr. Dao Hong Nam (HCMCUMP, Vietnam

Biosensors, Biomedical Engineering and Related			
TIME	**CODE**	**TITLE**	**AUTHOR**
08:30 – 08:45	**OS.3 – I.1**	Microfluidic Vessel – on – a – Chip for Studying Hemodynamic Regulation of Plasma Proteins and Platelet Thrombosis	**Assoc. Prof. Huynh Chan Khon** Industrial University of Ho Chi Minh City, Vietnam
08:45 – 09:00	**OS.3 – I.2** (O.S3 – 73)	Development of a Non – Invasive Impedance Based Platform for Real – Time Monitoring of Cell Coverage Dynamics in a Customized Cell Culture Dish	**Dr. Phan Thien Luan** VNUHCM – US,Vietnam
09:00 – 09:12	**O.S3 – 199**	A Multi – Dataset Benchmark of Heatmap Based Deep Networks for Dental Cephalometric Landmark Detection	Tran Duc Anh
09:13 – 09:25	**O.S3 – 20**	YANA: A Multimodal AR Companion System for Emotional Well – Being Support in Young Adults	Phan Thi Hai Yen
Coffee break (5 mins)			
09:30 – 09:42	**O.S3 – 141**	Biomedical Sensor Structure with Optimized Electrode Geometry for Food Safety Applications	Phan Thi Khanh Thuan
09:43 – 09:55	**O.S3 – 74**	Development of a 16x8 DMF system lab – on Board for the movement of droplet using in Biomedical Engineering studies	Hoang Khang Nguyen Phuoc
09:56 – 10:08	**O.S3 – 87**	Machine Learning – Assisted Glucose Quantification Using Plasmonic Gold Nanostructures	Duc Dat Pham
10:09 – 10:21	**O.S3 – 131**	A Lightweight and Interpretable Deep Learning Framework for Automated Ocular Disease Diagnosis	Do Thai Khue Tu
Coffee break (5 mins)			
10:26 – 10:38	**O.S3 – 251**	WaRD – Net: A Wavelet – ROI Dual – Stream Network for Brain – Tumor MRI Classification	Ngan V.T. Nguyen
10:39 – 10:51	**O.S3 – 198**	Benchmarking Deep Object Detectors for Lung – Nodule Localization on Chest Radiographs: A Controlled FROC Comparison using Anatomy – Guided Preprocessing	Tran Chi Thien
10:52 – 11:04	**O.S3 – 272**	A Systematic Study of Multimodal Skin Lesion Classification Using Clinical Images, Dermoscopy, Metadata, and Dermoscopic Concepts	Do Minh Tien
11:05 – 11:17	**O.S3 – 13**	From Brain Signals to Text: A Multi – Subject EEG – to – CLIP – to – Language Pipeline	Tran Nguyen Anh Minh
11:18 – 11:30	**O.S3 – 14**	An Efficient Hybrid MLP – k – NN Framework for Alzheimer's Diagnosis Integrating Approximate Entropy and Recurrence Quantification Analysis	Ngo Ngoc Cam Ly
11:31 – 11:43	**O.S3 – 73**	Development of a Non – Invasive Impedance Based Platform for Real – Time Monitoring of Cell Coverage Dynamics in a Customized Cell Culture Dish	Tran Duc Anh

AGENDA – ORAL SESSIONS 4

08:30 – 12:00 and 13:00 – 14:00, Room B
Chair and Co – chair:
Assoc. Prof. Nguyen Van Toan (Tohoku Univ, Japan); Prof. Aparporn Sakulkalavek (KMITL, BKK,Thailand); Prof. Hieng Kiat Jun (UTAR, Malaysia)

Semiconductor Technologies, MEMS – Biosensor and Electronic device			
TIME	**CODE**	**TITLE**	**AUTHOR**
08:30 – 08:45	**OS.4 – I.1**	Minimally invasive devices enabled by non – planar MEMS fabrication techniques	**Prof. Tadao Matsunaga** Tottori University, Japan
08:45 – 09:00	**OS.4 – I.2**	From Biomass Waste to Energy Storage: Carbon Quantum Dots Derived from Spent Coffee Grounds	**Prof. Hieng Kiat Jun** UTAR, Malaysia
09:15 – 09:30	**OS.4 – I.3**	From Flexible Thermoelectric Modules to Self – Powered IoT: Design, Fabrication, and Applications	**Prof. Aparporn Sakulkalavek** KMITL, BKK,Thailand
09:30 – 09:42	**O.S4 – 187**	A bistable MEMS switch with restore mechanism based on different actuation method	Dr. Tran Ngoc Dang Khoa
Coffee break (5 mins)			
09:48 – 10:00	**O.S4 – 120**	CF – PT: A Compact Perceptron Helper Targeting Silent – Wrong Mispredictions in TAGE – SC Branch Predictor	Tran Quang Huy
10:01 – 10:13	**O.S4 – 24**	Development of a Water – Flow – Induced Power Generation Device Using MACE Processed Flow Channels	Riko Kazama
10:14 – 10:26	**O.S4 – 178**	An FP16 NPU for CNN Acceleration in Edge – Based Vehicle Congestion Analysis	Nguyen Thanh Phat
10:27 – 10:39	**O.S4 – 154**	Interesting insights into MQW structures for UVLEDs emitting in the UVC to near visible wavelength range.	Bui An Dong
Coffee break (5 mins)			
10:45 – 10:57	**O.S4 – 257**	Antisymmetric Double Cantilever Beam Resonators for Optimized d_{14} Shear – Mode Electromechanical Transduction in Biodegradable PLLA Microsystems	Nguyen Hoang Quan
10:58 – 11:10	**O.S4 – 62**	Functional application of ZnO microrods fabricated via Evaporation – induced self assembly	Duc Anh Le
11:11 – 11:23	**O.S4 – 79**	Magnetotransport, Kerr Microscopy, and MRAM – Relevant Switching Signatures in Perpendicularly Magnetized Ti/Pt/Co/Gd/Pt Hall Devices	Tran Xuan Bao
11:24 – 11:26	**O.S4 – 92**	Vibration Enhancement of Spin – Current Volume Effect Devices by Micro – Patterned CoPt – Oxide Magnetic Films	Taruku Osawa
11:37 – 11:49	**O.S4 – 93**	Fabrication and Evaluation of Chemically Modified Cellulose Nanofiber Sheets	Misaki Otsuki
11:50 – 12:02	**O.S4 – 235**	Bit – Exact Cross – Platform Implementation of a Two – Level Reversible Le Gall 5/3 Transform on CPU, CUDA GPU, and Streaming RTL	Le Pham Thai Hoang

13:00 – 15:00, Room D
Chair and Co – chair:
Prof. Hirokazu Tada (Osaka Univ, Japan); Dr. Tran Nguyen Lan (VNUHCM – US, Vietnam)

Quantum Computing, Simulation and Modeling			
TIME	**CODE**	**TITLE**	**AUTHOR**
13:00 – 13:15	**OS.5 – I.1**	Electrohydrodynamics in sensing, drug delivery and biomedical applications	**Assoc. Prof. Van Thanh Dau** *Griffith Science, Griffith University, Australia*
13:15 – 13:30	**OS.5 – I.2**	Towards Efficient Quantum Kernel Learning: Benchmarking Loss Functions and Automated Encoding Circuit Recommendation	***Dr.* Tran Nguyen Lan** *VNUHCM US, Vietnam*
13:30 – 13:42	**O.S5 – 11**	Enhancing the Anomalous Hall Conductivity of hcp – Co by Pt Substitution	Dr. Trinh Thi Ly
13:43 – 13:55	**O.S5 – 280**	Predicting saturation magnetization of co precipitated iron oxide nanoparticle using Machine Learning	Vu Duc Lan
Coffee break (5 mins)			
14:01 – 14:13	**O.S5 – 142**	Simulation – Based Surrogate Modeling of Natural Frequencies in Functionally Graded Beams Using Finite Element Data and Artificial Neural Networks	Mach Thi Bich Ngoc
14:14 – 14:26	**O.S5 – 250**	MoiraiVaR: VaR – Aware Adaptation of Time Series Foundation Models for Volatility Forecasting	Nguyen Thien Nhan
14:27 – 14:39	**O.S5 – 143**	Computational Optimization of Backpropagation Neural Network Architectures for Nonlinear Vibration Modeling of Functionally Graded Beams	Mach Thi Bich Ngoc

AGENDA – ORAL SESSIONS 6A

08:30 – 12:00, Room G
Chair and Co – chair:
Assoc. Prof. Tran Hoang Linh (VNUHCM – UT, Vietnam); Assoc. Prof. Pham Hoai Luan (NAIST, Japan)

Embedded Systems, Electrical & Electronic Engineering and AI&IoT (A)			
TIME	**CODE**	**TITLE**	**AUTHOR**
08:30 – 08:45	**OS.6A – I.1**	Software Engineering in the Era of LLMs: From formal	**Dr. Le Xuan Bach** VNUHCM – UT, Vietnam
08:45 – 09:00	**OS.6A – I.2**	Energy – Efficient AI Accelerators for Wearable Healthcare Applications	**Assoc. Prof. Pham Hoai Luan** NAIST, Japan
09:00 – 09:12	**O.S6A – 85**	Selective – Update Extended Kalman Filter Observer for Sensorless PMSM – FOC Drives Under Impulsive Measurement Disturbances	Nguyen Tran Quoc Bao
09:13 – 09:25	**O.S6A – 70**	Design and Implementation of an FPGA Based Machine Learning System for Driver Drowsiness Classification	Dr. Nguyen Chi Nhan, Cao Minh Thong
Coffee break (5 mins)			
9:31 – 09:43	**O.S6A – 169**	Structural Pruning and Fine – Tuning of YOLOv8 – Pose for Efficient Object Detection and Pose Estimation	The Tung Than
09:43 – 09:55	**O.S6A – 130**	An Embedded AI – Assisted Digital Workflow for Personalized 3D – Printed Facial WoundCovering Masks	Nguyen Thi Hoa Cuc
09:56 – 10:08	**O.S6A – 33**	A Novel Adaptive Fast Non – Singular Terminal Sliding Mode Control Strategy for Induction Motor Drive Applications	Mai Nhat Thien
10:09 – 10:21	**O.S6A – 71**	An Enhanced Deep Learning Framework for Rice Leaf Disease Diagnosis Using Combination of YOLO and SAHI	Dr. Nguyen Chi Nhan, Phan Thi Quynh Tram
Coffee break (5 mins)			
10:27 – 10:39	**O.S6A – 97**	A Custom BMS Platform and Physics Constraint GRU Model for Lithium – Iron Phosphate Batteries State – of – Charge Estimation in Solar Energy Storage	Dang Hoang Kiem
10:40 – 10:52	**O.S6A – 124**	CA – CSRT: Confidence – Aware CSRT for Visual Object Tracking on Edge Devices with Kalman Filtering and Lightweight Deep Scale Refinement	Nguyen Gia Bao
10:52 – 11:04	**O.S6A – 133**	An approach of dual on – boot programming for autonomous car	Nguyen Huu Dat
11:05 – 11:17	**O.S6A – 136**	A Feature – Driven Machine Learning Framework for Building Electricity Load Forecasting	Dinh Tuyen Do
11:18 – 11:30	**O.S6A – 26**	An IoT – Based Electronic Nose with Automated Sampling for Selective Detection of E10 Biofuel Leaks in Complex Workshop Environments Using Random Forest	Trinh Minh Tam

AGENDA – ORAL SESSIONS 6B

13:00 – 16:20, Room G
Chair and Co – chair:
Prof. Kyeong – Sik Min (KIEEE&KMU, Korea); Dr. Nguyen Minh Son (VNUHCM – UIT, Vietnam)

Embedded Systems, Electrical & Electronic Engineering and AI&IoT (B)			
TIME	**CODE**	**TITLE**	**AUTHOR**
13:00 – 13:15	**OS.6B – I.1**	From Deep Learning to Foundation Models: Advances and Challenges in Medical Image Analysis	**Dr. Le Thanh Sach** VNUHCM – UT, Vietnam
13:15 – 13:30	**OS.6B – I.2**	Embedded edge AI for smart camera systems	**Dr. Nguyen Minh Son** VNUHCM – UIT, Vietnam
13:30 – 13:42	**O.S6B – 205**	Design and Implementation of a Dual – Issue RISC – V Processor with a Custom Tournament Branch Predictor	Ngoc – Diem Ho
13:43 – 13:55	**O.S6B – 179**	FPGA – based Hardware Accelerator for Softmax Layer Using Block – Scan Lookahead Scheme	Le Minh Duc
Coffee break (5 mins)			
14:01 – 14:13	**O.S6B – 188**	A High – Throughput Streaming Hardware Accelerator for Real – Time Image Hole Filling on FPGA	Doan Van Quoc Bao
14:14 – 14:26	**O.S6B – 252**	Radio frequency energy harvesting network with intelligent reflective surfaces: Performance evaluation	Thiem Do – Dac
14:27 – 14:39	**O.S6B – 213**	Hybrid Encoder – Decoder Models for Vietnamese Natural Language Inference: A Study of Backbones and Fusion Strategies	Trinh Tran Tran
14:40 – 14:52	**O.S6B – 293**	Design and Implementation of a High – Precision Current Source Module for Sensor Applications	Dong Quoc Viet
Coffee break (5 mins)			
14:58 – 15:10	**O.S6B – 222**	A Wearable Edge – AI Fall – Detection Prototype with FSM–SVM Verification and SMS/MQTT Alerting	Ha Huu Thinh
15:11 – 15:23	**O.S6B – 229**	Predictive Routing Using Kalman Filtering under GPS Uncertainty in UAV 3D FANETs	Dang Van Phuoc
14:24 – 15:36	**O.S6B – 236**	VLM – based system for training vision system on human detection in thermal domain	Huynh Ngo Hoang Khang
14:37 – 15:49	**O.S6B – 268**	CasFormer: A Lightweight Transformer – Based Architecture for Cashew Leaf – Condition Recognition	Nguyen Minh Anh

AGENDA – ORAL SESSIONS 7A

08:30 – 11:30, Room F
Chair and Co – chair:
Prof. Duong Hoai Nghia (EIU, Vietnam); Prof. Mohd FAIZUL Mohd Sabri (University of Malaya, Malaysia)

Robotic, Automation, Intelligent System and Mechanical Engineering (A)			
TIME	**CODE**	**TITLE**	**AUTHOR**
08:30 – 08:42	**O.S7A – 108**	A Novel Method for Direct Control of a Single Tank Water System	Dr. Nguyen Quang Vinh
08:43 – 08:55	**O.S7A – 27**	Application of Mocap Technology In Developing Interactive Virtual Characters For Children's Visual Education	Tran Thien Vuong
08:56 – 09:07	**O.S7A – 156**	Subarea – Artificial Potential Field Model for Collaborative Transport and Dynamic Obstacle Avoidance in Swarm Robotics	Tran Hoai Thương
09:08 – 09:20	**O.S7A – 161**	MERIME: A Multi – Elite RIME Optimizer with Markov – Based Convergence for Robust Global Optimization	Tran Thi Nhu Quynh
Coffee break (5 mins)			
09:26 – 09:38	**O.S7A – 202**	Frontier – Based Active SLAM with Safe Viewpoint Selection for Indoor Mobile Robots	Truong Le Huy
09:39 – 09:51	**O.S7A – 35**	Simulation – Based Reinforcement Learning Locomotion Control for a 3 – DOF Anthropomorphic Robotic Leg Under Stochastic Friction Conditions	Vu Thi Thanh Thao
09:52 – 10:04	**O.S7A – 100**	Intelligent Evolutionary Optimization for UAV Quadcopter Flight Control Applications	Minh Bui Hoang
10:05 – 10:17	**O.S7A – 146**	LSTM – Based Predictive Trajectory Optimization for Intelligent Control of a 6 – DOF Welding Robot Arm	Nguyen Ngoc Duong
Coffee break (5 mins)			
10:23 – 10:35	**O.S7A – 158**	Deep Reinforcement Learning for Adaptive Binary Data Transmission in Resource Constrained IoT Sensor Networks: A Comparative Study of DQN, PPO, and A2C	Son Nguyen Minh
10:36 – 10:48	**O.S7A – 192**	Continuous – Time Ultra – Wideband–Inertial Sensor Fusion for Robust and Accurate Trajectory Estimation	Ho Van Phong

AGENDA – ORAL SESSIONS 7B

13:00 – 16:00, Room F
Chair and Co – chair:
Assoc.Prof. Tran Duc Thien (HCMUTE, Vietnam); Dr. Tran Thanh Phong (VNUHCM – US, Vietnam)

Robotic, Automation, Intelligent System and Mechanical Engineering (B)			
TIME	**CODE**	**TITLE**	**AUTHOR**
13:00 – 13:15	**OS.7B – I.1**	From Robust to Learning – Based Control: Research Advances and Real – World Applications in Intelligent Robotics	**Assoc. Prof. Tran Duc Thien** HCMUTE, Vietnam
13:15 – 13:27	**O.S7B – 203**	Event – Triggered Tracking Control for Autonomous Mobile Robots with SLAM State Estimation	Le Duy
13:28 – 13:40	**O.S7B – 206**	Liquid U – Net: A Hybrid CNN – LNN Architecture for Robust Singing Voice Separation	Tran Huy Hoang Anh
13:41 – 13:53	**O.S7B – 238**	A Comparative Evaluation of EKF and Factor Graph State Estimation for ROS 2 – Based Indoor Autonomous Mapping	Vo Tan Dat
Coffee break (5 mins)			
13:59 – 14:11	**O.S7B – 214**	ViBookRec: A Multimodal Dataset and Benchmark for Vietnamese E – commerce Book Recommendation	Lam Minh Thai
14:12 – 14:24	**O.S7B – 234**	Farthest – Point Hypothesis Pruning for Fast Frame – 0 Registration in FoundationPose	Pham Duc Duong
14:25 – 14:37	**O.S7B – 244**	Autonomous chess – playing robot arm applying computer vision and deep learning	Le Ngoc Quynh Nhu
14:38 – 14:50	**O.S7B – 266**	Adjacent Object – State Progression from Frozen Video Features: Elapsed Time and Ten Temporal Adaptations	Nguyen Hoai My
Coffee break (5 mins)			
14:56 – 15:08	**O.S7B – 267**	RAFR: Relation – Aware Foundation Routing for Semantic World Models in Scene Graph Anticipation	Do Minh Tien
15:09 – 15:21	**O.S7B – 271**	Practical anomaly detection and qualitative localization for multi – class industrial inspection with extremely limited normal only data	Do Minh Tien and co – author
15:22 – 15:34	**O.S7B – 273**	LeafFormer: An Adaptive CNN Transformer for Parameter – Efficient Plant Leaf Disease Classification	Do Minh Tien and co – author
14:56 – 15:08	**O.S7B – 267**	RAFR: Relation – Aware Foundation Routing for Semantic World Models in Scene Graph Anticipation	Do Minh Tien

AGENDA – ORAL SESSIONS 8

08:30 – 11:00, Room D
Chair and Co – chair:
Assoc.Prof. Ho Manh Dung (CNT – HCMC, Vietnam); Assoc.Prof. Le Cong Hao (VNUHCM – US, Vietnam)

Nuclear Engineering and Medical Physics			
TIME	**CODE**	**TITLE**	**AUTHOR**
08:30 – 08:45	**OS.8 – I.1 (O.S8 – 117)**	An Overview of Nuclear Techniques for Semiconductor Characterization and Material Modification	**Assoc. Prof. Ho Manh Dung** Center for Nuclear Technologies HCMC, Vietnam
08:45 – 09:00	**OS.8 – I.2**	Neutron Transmission Images of Metals with Negative and Positive Scattering Lengths Using a CB – KID Sensor	**Dr. Vu The Dang** HCMUTE, Vietnam
09:00 – 09:12	**O.S8 – 83**	A Novel Robust Optimization Method for Accounting for Patient Setup Errors in Intensity – Modulated Proton Therapy	Nguyen Thi Cam Thu
09:13 – 09:25	**O.S8 – 118**	A Methodological Framework for k0 – Standardized Neutron Activation Analysis at the IBR – 2 Fast Pulsed Reactor (JINR)	Ho Manh Dung and co – author
Coffee break (5 mins)			
09:31 – 09:43	**O.S8 – 125**	Survey of Radiation Dose Rates from Patients After Bone Scintigraphy Using the Radiopharmaceutical Technetium – 99m	Ngo Hong Thai
09:44 – 09:56	**O.S8 – 186**	ClinHGAT – RAG: A Hybrid Hypergraph Attention and Retrieval – Augmented Decision Support System for Dengue Severity Assessment and Progression Forecasting	Tran Quoc Cuong

14:30 – 16:00, Room C
Chair and Co – chair:
Assoc. Prof. Nguyen Ba Hoang (BVU, Vietnam); Dr. Nguyen Van Tam (DHV, Vietnam)

Smart cities, smart transportation, logistics and Related			
TIME	**CODE**	**TITLE**	**AUTHOR**
13:00 – 13:15	**OS.9 – I.1**	AI applications in logistics and maritime economy	**Assoc. Prof. Nguyen Ba Hoang** BVU, Vietnam
13:15 – 13:27	**O.S9 – 116**	A Co – Evolutionary Deep Reinforcement Learning Guided Particle Swarm Optimization Framework for Dynamic Flexible Job Shop Scheduling under Industrial Uncertainty	Thi Thai Huyen Nguyen
13:28 – 13:40	**O.S9 – 174**	A Capacitated Transshipment Model for Vietnam Rice Export Logistics: Formulation, Computational Verification, and Scenario Analysis	Van Hoan Tran
13:41 – 13:53	**O.S9 – 248**	BATS: GS1 EPCIS – Aligned Agricultural Traceability with Data Validation and Blockchain Evidence Anchoring	Dinh – Khang Nguyen
13:54 – 14:06	**O.S9 – 207**	AnviaNet: An Ultra – Lightweight Asymmetric Model for Real – Time Drivable Area and Lane Line Segmentation	Pham Gia An
14:07 – 14:19	**O.S9 – 220**	Does Trajectory Improve Peer – Country Selection? Evidence from Annual Ragged – Edge GDP Nowcasting	Vo Phan Kieu My

Grand Conference-Area of Oral Session

Part 2- Roon B

(2nd floor)

Grand Conference (Part 1-Roon A)

POSTER PRESENTATION LAYOUT AREA

(*Standee type X)*

PS1.44	PS1.47	PS1.49	PS1.54	PS1.56	PS1.58	PS1.60
PS2.42	PS2.28	PS2.21	PS2.19	PS2.16	PS2.12	PS1.292

PS1.63	PS1.65	PS1.81	PS1.91	PS1.98	PS1.102	PS1.175
PS1.288	PS1.287	PS1.285	PS1.276	PS1.261	PS1.219	PS1.216

PS2.126	PS2.127	PS2.132	PS2.170	PS2.193	PS2.200	PS2.217
PS4.150	PS4.104	PS4.72	PS4.53	PS4.45	PS4.18	PS4.8

PS3.15	PS3.48	PS3.77	PS3.78	PS3.90	PS3.106	PS3.110
PS3.283	PS3.233	PS3.232	PS3.225	PS3.197	PS3.123	PS3.121

PS4.195	PS4.211	PS4.227	PS4.243	PS4.258	PS4.259
PS5.256	PS5.246	PS5.242	PS5.226	PS5.223	PS5.208

PS4.260	PS5.67	PS5.99	PS5.115	PS5.122	PS5.129
PS5.185	PS5.166	PS5.164	PS5.159	PS5.145	

PS1 PS2 PS3 PS4 PS5

Room A1
Chairs:
Assoc. Prof. Van Thanh Dau, Griffith University, Australia; Dr. Vu The Dang, HCMUTE, Vietnam

Applied Physics, Materials Science and Photonics		
CODE	**TITLE**	**AUTHOR**
PS1.1 – 44	Bio – enhanced zno nanocomposite coatings on repurposed RFID tags for room – temperature wireless ammonia sensing	Nguyen Van Tam
PS1.2 – 47	Optimization of DC magnetron sputtering parameters for oxygen – deficient vanadium oxide thin films toward SERS applications	Nguyen Tong Ngoc Linh
PS1.3 – 49	Application of multichannel analysis of surface waves for dam safety assessment: a case study of plei krong hydroelectric power plant, vietnam	Nguyen Nhat Kim Ngan
PS1.4 – 54	Noise – aware preprocessing of SERS spectra for lung cancer classification: effects of spectrum selection on model performance and interpretability	Mai Thanh Tan Cuong
PS1.5 – 56	Engineering interfacial plasmon–defect coupling in moox/agnps/AZO heterostructures toward ultrasensitive SERS sensing of auramine O	Nguyen Bich Nhi
PS1.6 – 58	Quantum well – enhanced plasmonic substrate for EGFR raman signal amplification in single – molecule localization microscopy	Le Thanh Duy
PS1.7 – 60	Diffraction analysis in ground penetrating radar for underground utility detection in ho chi minh city, vietnam	Cuong Le
PS1.8 – 63	Tunable gold bipyramids with sharp – tip plasmonic hotspots for sensitive SERS detection	Le Minh Tri
PS1.9 – 65	The first principles calculation study on intrinsic spin hall conductivity of 5d heavy transition metal	Tran Thai Trong Duc
PS1.10 – 81	Electronic properties and photocatalytic water splitting performance of mosse/mos_2/mos_2 trilayer van der waals heterostructures	Nguyen Le Phuong Nhu
PS1.11 – 91	Ce – doped zno decorated with ag nanoparticles as high – performance SERS substrates for microplastic detection	Tran Le Anh Duc
PS1.12 – 98	Effect of biaxial strain on electronic structure and thermoelectric properties of reduced dimensional snse: A first principles study	Nga Nguyen

AGENDA — POSTER SESSION 1

Room A1
Chairs:
Assoc. Prof. Van Thanh Dau, Griffith University, Australia; Dr. Vu The Dang, HCMUTE, Vietnam

Applied Physics, Materials Science and Photonics		
CODE	**TITLE**	**AUTHOR**
PS1.13 – 102	A TEOS – Derived Single – Mode Fiber Sensor for Real – Time Ammonia Gas Monitoring	Dr. Le Duong Anh Duy
PS1.14 – 175	Reduced Graphene Oxide – Based Sulfide Nanocomposite Counter Electrodes for Enhanced QDSSC Performance	Le Doan Duy
PS1.15 – 216	Constraining phase stability and rheological evolution of silica – rich magma reservoirs: Rhyolite – MELTS simulation of the Van Canh granitoid, Kontum Massif, Vietnam	Pham Thanh Thuy
PS1.16 – 219	Physical characteristics of geo – materials and rock – slope instability: A multiscale discontinuity analysis along National Road 20 (Bao Loc Pass, Vietnam)	Pham Thanh Thuy
PS1.17 – 261	Broadband Diffraction Efficiency Measurement of Small – Sized Optical Gratings Using a White – Light Source	Ha Thu Hoang
PS1.18 – 276	Machine – Learning – Assisted classification and ML – LOD Assessment of R6G and crstal violet using VOx – Based Semiconductor	Hung Le
PS1.19 – 285	Interfacial Heat and Mass Transfer on Laser – Textured PMMA Surfaces during Low – Inclination Condensation	Nursyahirah Mohd Shatar
PS1.20 – 287	Comparative Evaluation of Functionalized Tilted Fiber Bragg Grating Sensors for Selective Heavy Metal Ion Detection	Noorhayati Idros
PS1.21 – 288	Synthesis of Cu_xS Nano Semiconductor for Potential Application as Noble – Metal – Free SERS Substrates	Do Thi Thanh Thuy
PS1.22 – 292	Effect of electrolyte concentrations on the electrochemical properties of MoS2/N – rGO material for supercapacitor applications	Tran Van Khai

AGENDA — POSTER SESSION 2

Room A2
Chairs:
Prof. Han Sen Soo, Nanyang Technological University, Singapore; Dr. Phan Thien Luan VNUHCM – US, Vietnam

Biosensors, Biomedical Engineering and Related		
CODE	**TITLE**	**AUTHOR**
PS2.1 – 12	Decoding Intentional Control from EEG Signals for Assistive Technologies	Hoang Chi Si
PS2.2 – 16	Predicting 30 – Day Emergency Readmission after Transurethral Resection of the Prostate from Routine Preoperative Blood Tests: A Deep Stacked Ensemble Approach	Mao – Hsiang Hsu
PS2.3 – 19	A Convolutional Neural Network with Squeeze and Excitation Attention for EEG – Based Classification	Huynh Quoc Viet
PS2.4 – 28	Lie detection from EEG signals using a hybrid model	Hoang Thuy Tien Vo
PS2.5 – 42	Cross – Dataset Generalization of Deep Learning Models for Colorectal Polyp Segmentation	Nguyen Anh Thu
PS2.6 – 126	A Stain – Free Evaluation approach for Sperm Concentration, Motility, and Morphology via Deep Learning	Tran Minh Quan
PS2.7 – 127	Integrating sEMG, IMU Signals and Demographic Context for Gait Analysis	Nguyen Ky Son
PS2.8 – 132	An Intelligent Automated Framework for Infectious Disease Diagnosis	Duong Thi Kim Chi
PS2.9 – 170	Improving Medical Image Segmentation with Dual – Branch Edge Detection and Feature Fusion	Phan Ha Van Trang
PS2.10 – 193	Design of an embedded system for heart rate estimation via remote Photoplethysmography	Pham Quoc Hung
PS2.11 – 200	Cross – Dataset Robustness Analysis of Pretrained CNN Backbones for Gastrointestinal Endoscopic Image Classification	Le Van Tien
PS2.12 – 217	ASM – FreqNet: Adaptive Soft Frequency Masking for Generalizable Deepfake Image Detection	Nguyen Viet Nguyen
PS2.13 – 21	Mind – to – Speech: Enhancing Imagined Vowel Classification Accuracy in EEG – Based BCIs Using Advanced Machine Learning Frameworks	Thi Nhu Quynh Nguyen

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AGENDA — POSTER SESSION 3

Room A3
Chairs:
Prof. Takahito Ono, Tohoku Univ, Japan; Dr. Trinh Xuan Thang, SHTP Labs, Vietnam

Semiconductor devices, MEMS – Biosensor and Related		
CODE	**TITLE**	**AUTHOR**
PS3.1 – 15	A Smooth Continuous Control Set Model Predictive Current Controller for PMSM Drives Under SVPWM Voltage Constraints	Trinh Thi Ly
PS3.2 – 48	Low – Temperature Spark Plasma Sintering of Ca3Co4O9 Thermoelectric Ceramics: Low Thermal Conductivity and Improved Electrical Transport	Tinh Nguyen
PS3.3 – 77	In – Plane Magnetic Field – Assisted Spin – Orbit Torque Switching in Perpendicularly Magnetized Pt/Co/Gd/Pt Microstructures	Tran Xuan Bao
PS3.4 – 78	In – Plane – Field – Tunable Asymmetric Domain – Wall Propagation in a T – Shaped Perpendicularly Magnetized Nanotrack	Tran Xuan Bao
PS3.5 – 90	Low – temperature oxidation process for SiO2/Si formation using remote microwave plasma – enhanced chemical vapor deposition	Le Duc Anh
PS3.6 – 106	Assessing Sea – Level Rise Trends in the Coastal Waters of Hai Phong, Vietnam, Using Multi – Mission Satellite Altimetry and Advanced Machine Learning Models	Pham Van Tuyen
PS3.7 – 110	Simulation and experimental verification of SiO2/Si oxidation at various temperature ranges	Nguyen Tuong The Uy
PS3.8 – 121	A Voice – Controlled Intelligent Tailgate Automation System for Automotive Applications Using Arduino and Bluetooth Communication	Pham Viet Hung
PS3.9 – 123	A Fault – Tolerant RISC – V System – on – Chip for High Radiation Environments	Tran Ba Thanh
PS3.10 – 197	Research on optimal measurement arrays for electrical resistivity imaging data to detect resistivity anomaly	Nguyen Kim Truc Linh
PS3.11 – 225	Improving Hole Injection and External Quantum Efficiency in InGaN/GaN Micro – LEDs Using an Electrode – Confined Electron – Blocking Layer	Pham Quoc Hung
PS3.12 – 232	Development and experimental validation of a low – cost sub – micrometer contact profilometer with 2D surface – profile reconstruction	Van Cong Vuong Tung
PS3.13 – 233	On – Chip Spiral Inductor Engineering in 45 nm CMOS	Truong Tran Hai Ninh
PS3.14 – 283	The study of E. coli concentration using an impedance – based technique with circular electrode biosensors	Tran Thi Tuyet Nga

AGENDA — POSTER SESSION 4

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Room A4
Chairs:
Dr. Nguyen Chi Nhan, VNHCM – US, Vietnam; Assoc. Prof. Vo Hong Hai, VNUHCM – US, Vietnam

Applied Physics, Materials Science and Photonics		
CODE	**TITLE**	**AUTHOR**
PS4.1 – 8	Systematic Analysis of Loss Functions for Speckle Denoising in Retinal OCT Images Using U – Net Architecture	Than Thanh
PS4.2 – 18	Application of Deep Learning Models in PCB Defect Detection	Nguyen Thuy Van Anh
PS4.3 – 45	Study of Assault Frequency effects on Alpha and Cluster Decay half – lives within the WKB approximation	Nguyen Nga
PS4.4 – 53	A real – time FPGA – based vision enhancement system	Truong Trung Kien
PS4.5 – 72	Application of isotope hydrology to characterize groundwater dynamics in ca mau province, vietnam	Nguyen Pham Tuong Minh
PS4.6 – 104	Correlated mean – field downfolding for quantum resource optimization in quantum – centric supercomputing for chemistry simulation	Tran Ngoc Thien
PS4.7 – 150	Modeling the Transport and Dispersion of Plastic Waste from the Hau River Estuary	Tran Xuan Dung
PS4.8 – 195	EFFNETB3 – DUOKAN: Enhancing Tea Leaf Disease Classification Using a Dual Kolmogorov – Arnold Network Integrated with EfficientNet – B3	Dao Nguyen Duy Long
PS4.9 – 211	An Efficient RISC – V Core Co – Designed with an Integrated Non – blocking L1 Data Cache	Ho Ngoc Diem
PS4.10 – 227	Correlation – Aware and Permutation – Invariant Deep LAS Detection for MIMO – OFDM Systems	Ngo Bao Thien Khoi
PS4.11 – 243	Implementation of Environmental Monitoring Based on Wireless Sensor Network	Hoang Nguyen Anh Thu
PS4.12 – 258	SLNN – Assisted Decoding of a 7/9 – Rate Sparse Code for Reliable STT – MRAM	Giang Vinh Huy
PS4.13 – 259	Toward an End – to – End Energy – Optimized and Low – Cost MCU Platform Using STM32L0	Sang Ha
PS4.14 – 260	DG – GhostESP – 96: Dark – Guided Low – Light Image Enhancement on STM32H750VBT6	Tran Nam Truong

AGENDA — POSTER SESSION 5

Room A5
Chairs:
Assoc. Prof. Huynh Van Tuan, VNUHCM – US, Vietnam; Prof. Mohd FAIZUL Mohd Sabri, University of Malaya, Malaysia

Robotic, Automation, Intelligent System and Mechanical Engineering		
CODE	**TITLE**	**AUTHOR**
PS5.1 – 67	Vision – Based Micrometer Positioning of an XY Stepper Stage	Nguyen Manh Bao
PS5.2 – 115	High Fidelity Scheduling for Autonomous Mobile Robot Assisted Warehouses Considering Robot Dynamics and Buffer Blocking	Thi Thai Huyen Nguyen
PS5.3 – 122	Design and Prototyping of a Safety – Aware Mechatronic Tailgate Lifting System Using BTS7960 Motor Driver and Obstacle Detection	Pham Viet Hung
PS5.4 – 129	A Self – Aligning Wearable Sensor Frame for Gait Asymmetry Assessment Based on Databases	Bui Quang Vinh
PS5.5 – 145	A Kinematic Separation – Based Motion Control Framework for a 6 – DOF Industrial Welding Robot Arm	Nguyen Ngoc Duong
PS5.6 – 159	ElderBot: A Low – Cost Edge–Cloud Conversational Robot for Vietnamese In – Home Elderly Care	Son Nguyen Minh
PS5.7 – 164	Multi – Point Tri – Axial Vibration Measurement and Cumulative Indicators for Low – Cost 3D CNC Machine Diagnostics	Trinh Thi Nhu Quynh
PS5.8 – 166	Physics – Informed Vibration Digital Twin for Reinforcement – Oriented Response Prediction in Low – Cost CNC Machines	Trinh Thi Nhu Quynh
PS5.9 – 185	Constraint – Based Fourth – Order S – Curve Trajectory Planning for Short – Stroke Single – Axis Motion Systems	Van Binh Nguyen
PS5.10 – 208	A Hybrid Smishing Detection Framework: Integrating Machine Learning, Rule – Based Filtering, and Domain Reputation Analysis	Tran Hai Nguyen Nam
PS5.11 – 223	An Extreme Gradient Boosting Analytics Framework for Predictive Modeling in Steel Plate Defect Detection	Ngan V.T. Nguyen
PS5.12 – 226	A Fuzzy Gain – Scheduled ZVDD – PID Anti – Sway Control Scheme for Gantry Cranes	Do Lương Minh Hoang
PS5.13 – 242	Vision – Based Access Control System For Laboratory Management	Phan Trung Kien
PS5.14 – 246	Machine Learning – Based Edge Detection from 2D LiDAR for Robot Trajectory Generation	Le Tran Gia Bao
PS5.15 – 256	Beyond Blind Autonomy: A Provenance – Sensitive Delegation Framework for Large Language Model Trading Controllers	Khang Ha
PS5.16 – 99	Intelligent Optimization – Based Control Design for 3 – DOF Robot Manipulators	Huynh Huu Pho

The 7th International Conference on Engineering, Physics, MEMS – Biosensors and Applications (ICEBA 2026) also brings international lectures from top Universities to the students on the final day of the conference. The lectures are open to all participants.



Prof. Han Sen Soo

Nanyang Technological University, Singapore

LECTURE TOPIC

Introduction to Nanyang Technological University Singapore and my research on Metal Halide Perovskites and Plastics Upcycling.



Prof. Kyeong-Sik Min

Kookmin University, Seoul, Korea

LECTURE TOPIC

Short introduction of Kookmin University and research topic: Low-Power VLSI, Emerging Memory and Memristor Crossbar Circuits for Neuromorphic and Compute-in-Memory Systems.



Dr. Le Van Thuc

Hochiminh City Port Authority, Vietnam

LECTURE TOPIC

Topic: Developing and Using Shared Data to Improve Port Operations Shipping and Port Logistics in Southern Vietnam

VENUE AND CONTACT

ICEBA 2026 will be held from **November 2–4, 2026**, across three venues in Ho Chi Minh City and Vung Tau, Vietnam. The conference provides an excellent opportunity for international researchers, academics, and industry professionals to exchange knowledge, present research findings, and establish collaborations in a welcoming academic environment.

Contact Information

For inquiries regarding registration, conference arrangements, accommodation, or other matters, please contact the ICEBA 2026 Secretariat.

Email: *iceba@hcmus.edu.vn*
Hotline: +84 918 035 984
Address: Faculty of Physics – Engineering Physics, VNUHCM – University of Science, 227 Nguyen Van Cu Street, Ho Chi Minh City, Vietnam.

Conference Venues

November 2: VNUHCM – University of Science, Ho Chi Minh City.
November 3: Grand Palace Hotel, Vung Tau.
November 4: Ba Ria – Vung Tau University, Vung Tau.



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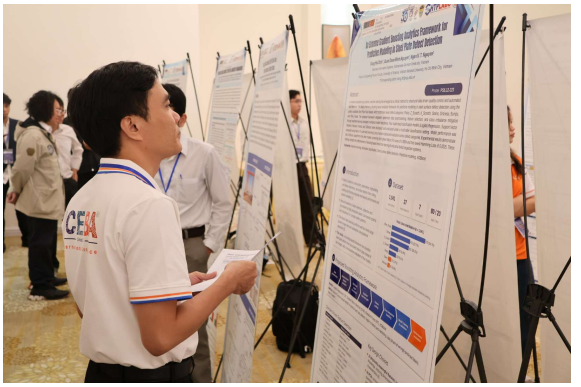


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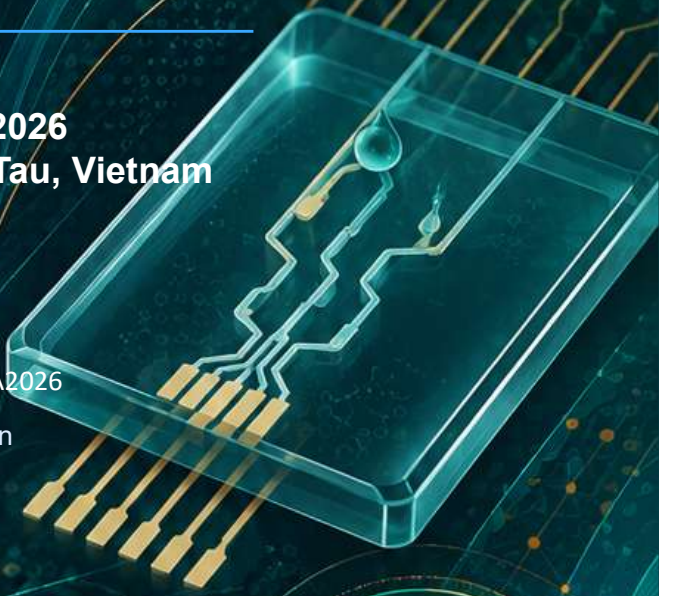

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