UNIVERSITI SAINS MALAYSIA

INSTITUTE OF NANO OPTOELECTRONICS RESEARCH AND TECHNOLOGY (INOR)

KEMENTERIAN SAINS, TEKNOLOGI DAN INOVASI

UNIVERSITI TEKNOLOGI MARA

MIMOS

CREST COLLABORATIVE RESEARCH IN ENGINEERING, SCIENCE & TECHNOLOGY

4th International Conference on Semiconductor Materials & Technology (ICoSeMT 2025)

CONCURRENT WITH

3rd International Invention, Innovation and Design Expo (INoDEx 2025)

29th & 30th September 2025

St. Giles Wembley Penang, Malaysia

PROGRAMME BOOK

Innovation Towards a Sustainable Tomorrow

Published by:
4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025) and 3rd International Invention, Innovation & Design Expo (INoDEx 2025).

Programme Book Prepared by:
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E-copy of this document can be obtained from http://icosemt.usm.my.

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FOREWORD FROM MINISTER OF SCIENCE, TECHNOLOGY, AND INNOVATION

It is with great honor that I extend a warm and heartfelt welcome to all distinguished speakers and participants of the 4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025) and the 3rd International Invention, Innovation & Design Expo (INoDEx 2025). Selamat Datang, welcome to Malaysia, and to the vibrant and beautiful island of Penang.

The theme of this year's conference, "Innovation Towards a Sustainable Tomorrow," resonates strongly with the vision of the Ministry of Science, Technology and Innovation (MOSTI). It is perfectly aligned with MOSTI's 2025 focus on community-driven, people-centric approaches and collaborative innovation in science, technology, and innovation (STI) as solutions to the pressing challenges faced by our society and nation.

I am truly impressed by the spirit of collaboration demonstrated in bringing this event to life. The collective efforts of Universiti Sains Malaysia's Institute of Nano Optoelectronics Research & Technology (INOR), with the unwavering support of the National Nanotechnology Centre (NNC), MOSTI, Universiti Teknologi MARA Cawangan Pulau Pinang (UiTMCPP), MIMOS Berhad, and Collaborative Research in Engineering, Science & Technology (CREST), deserve the highest commendation. Congratulations to all for making this conference and exhibition a remarkable success.

This international gathering has drawn together more than 140 esteemed presenters, experts, industry leaders, and participants for ICoSeMT 2025, as well as 75 participants for INoDEx 2025, representing institutions from across the globe, including Japan, Germany, Turkiye, France, China, Taiwan, United Kingdom, Thailand, Indonesia and the United Arab Emirates. Together, we will discuss, deliberate, and showcase both current advancements and future directions in semiconductor technology. With such an inspiring participation, I am confident that the objectives of ICoSeMT and INoDEx 2025, to underscore the significance of semiconductor materials and electronics, and to set a clear and shared vision for the future of semiconductor technology will indeed be realized.

Once again, my heartfelt congratulations to all organizers for their dedication and success. This exemplary collaboration is truly commendable, and I encourage it to flourish further in the years to come. To all participants, thank you for dedicating your time, passion, and expertise to this event. I wish you an intellectually enriching, engaging, and truly memorable experience.

Thank you.

YB TUAN CHANG LIH KANG
MINISTER OF SCIENCE, TECHNOLOGY AND INNOVATION (MOSTI)

FOREWORD FROM THE VICE CHANCELLOR OF UNIVERSITI SAINS MALAYSIA

Assalamualaikum and warm greetings.

On behalf of Universiti Sains Malaysia (USM), it is my great pleasure to extend a heartfelt welcome to all speakers, exhibitors, and participants of the 4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025) and the 3rd International Invention, Innovation & Design Expo (INoDEx 2025).

This year's conference has successfully brought together more than 140 distinguished presenters, experts, industry leaders, and participants for ICoSeMT 2025, representing institutions both local and international, including Japan, Germany, Turkiye, France, China, Taiwan, United Kingdom and the United Arab Emirates, alongside 85 participants for INoDEx 2025. Such strong participation is a testament to the global recognition and relevance of this platform.

I would like to record my deepest appreciation to the USM Institute of Nano Optoelectronics Research & Technology (INOR), Universiti Teknologi MARA Cawangan Pulau Pinang (UiTMCPP), National Nanotechnology Centre (NNC), MOSTI, MIMOS Berhad, and Collaborative Research in Engineering, Science & Technology (CREST), for co-organising this event.

My gratitude also extends to our esteemed industry partners and collaborators including Infineon Technologies, AT&S Malaysia, ams Osram Malaysia, SilTerra Malaysia, Inno Lab Engineering, Crest Analytics, Nanorian Technologies, Quasi-S, Atomic Solutions, Magna Value, and the Penang Convention & Exhibition Bureau, whose steadfast support has made this gathering possible.

Malaysia is the world's sixth-largest semiconductor exporter, with a significant portion of global assembly, testing, and packaging (ATP) operations, where it holds a 13% market share. This ranking highlights Malaysia's established role in the Electrical and Electronics (E&E) industry, particularly in the back-end processes of the semiconductor value chain.

Building upon this foundation, Malaysia has launched the National Semiconductor Strategy (NSS) in May 2024 to elevate the nation's role from primarily back-end operations to higher value-added segments in the front-end, across the global semiconductor supply chain. The NSS outlines a comprehensive roadmap to enhance capabilities in chip design, wafer fabrication, advanced packaging, equipment manufacturing alongside training and up-skilling of 60,000 Malaysian engineers, while

accelerating innovation through close collaboration between academia, industry, and government. This strategic agenda will not only strengthen Malaysia's competitiveness but also ensure that the semiconductor ecosystem continues to generate sustainable growth and global impacts.

Guided by the theme "Innovation Towards a Sustainable Tomorrow," USM remains committed to cultivating highly skilled talents through industry-driven academic programmes, aligned with the university's Accelerated Programme for Excellence (APEX) agenda. Research and innovation at USM continue to drive technology development with a vision to create meaningful impact, not only for industries, but also for society at large, including the most underserved communities.

It is my hope that this conference will serve as a dynamic platform for researchers and innovators to share knowledge, foster collaboration, and strengthen the links between academia and industry. Together, we can accelerate advancements in semiconductor materials and technology and inspire new opportunities for innovation.

In keeping with USM's motto, "We Lead," we are proud to continue supporting impactful events such as ICoSeMT and INoDEx, which reflect our unwavering commitment to excellence in research, industry partnership, and global engagement.

To all participants, I wish you a fruitful and successful event. May your discussions and collaborations here spark new ideas, foster enduring partnerships, and pave the way for a brighter and more sustainable future.

Thank you.

PROFESSOR DATO' SERI IR. DR. ABDUL RAHMAN MOHAMED, FASc.
Vice-Chancellor
Universiti Sains Malaysia

FOREWORD FROM THE RECTOR OF UNIVERSITI TEKNOLOGI MARA

PULAU PINANG BRANCH

Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

It is my honour and privilege to warmly welcome all delegates, presenters, and distinguished guests attending the 4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025). This biennial conference, now in its fourth iteration, continues to serve as a distinguished platform for the dissemination and exchange of cutting-edge research and technological advancements in the field of semiconductor materials and technology.

This conference highlights the importance and strength of collaboration. Jointly organised by the Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM), Universiti Teknologi MARA Pulau Pinang Branch (UiTMCPP), the National Nanotechnology Centre (NNC), Ministry of Science, Technology and Innovation (MOSTI), MIMOS Berhad, and Collaborative Research in Engineering, Science & Technology (CREST), it brings together leading experts from academia, research institutions, industry, and government to share and exchange knowledge, ideas, and breakthroughs in this important field.

The theme of this year's conference, “Innovation Towards a Sustainable Tomorrow”, underscores the critical role that semiconductor technology plays in shaping a more sustainable and advanced future. As we address significant global challenges, the exchange of ideas and collaborative research in this area is more important than ever.

In conjunction with ICoSeMT 2025, we are also pleased to announce a concurrent sub-event, the 3rd International Invention, Innovation & Design Expo (INoDEx 2025). This exciting addition reflects our commitment to fostering a culture of creativity and innovation by providing a dynamic platform for researchers, inventors, and practitioners from diverse backgrounds to showcase ideas and inventions, and to inspire future collaborations.

I extend my deepest gratitude to the organising committee and all co-organising partners whose dedication has made this event possible. To all local and international participants, your presence and contributions add immense value to this conference. I wish you a productive, enriching, and successful experience.

Thank you.

YBhg PROFESSOR Dato’ Ir. DR. HAJI AHMAD RASHIDY RAZALI

Exercising the Functions of the Rector

Universiti Teknologi MARA Pulau Pinang Branch

FOREWORD FROM THE CHIEF EXECUTIVE OFFICER OF CREST

It is with great honour and enthusiasm that I welcome all delegates, speakers, exhibitors, and innovators to the 4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025) and the 3rd International Invention, Innovation & Design Expo (INoDEx 2025).

As a co-organiser of this landmark event, CREST is proud to stand alongside our esteemed partners; USM Institute of Nano Optoelectronics Research & Technology (INOR), Universiti Teknologi MARA Cawangan Pulau Pinang (UiTMCPP), National Nanotechnology Centre (NNC), MOSTI, and MIMOS Berhad in convening a global community of thought leaders, researchers, and industry pioneers. The convergence of more than 140 distinguished presenters and participants from across academia, industry, and government reflects the growing urgency and opportunity in advancing semiconductor technologies and innovation ecosystems.

Since our inception, CREST has championed Malaysia's transformation into a vibrant technology ecosystem by serving as the connective tissue between academia, industry, and government—a true embodiment of the triple helix model. Our mission is clear: to catalyze market-driven research, accelerate commercialization, and nurture talent pipelines that meet the evolving demands of the global semiconductor landscape.

Through strategic partnerships and collaborative R&D initiatives, CREST has enabled over 160 projects that reflect our unwavering commitment to contextual research—research that solves real-world industrial challenges and delivers tangible impact. Events like ICoSeMT and INoDEx are vital extensions of this mission, offering fertile ground for knowledge exchange, cross-sector dialogue, and the forging of new alliances.

We are especially grateful to our co-organizers and industry partners whose dedication and vision have made this event possible. Together, we are not only advancing technology but also cultivating a culture of innovation that will define the next generation of breakthroughs.

On behalf of CREST, I invite all participants to engage deeply, collaborate boldly, and leave inspired. Let us continue to bridge ideas, industries, and institutions—for our shared tomorrow.

Thank you.

JAFFRI IBRAHIM
CEO, CREST

FOREWORD FROM THE CHAIRMAN OF ICoSeMT 2025 AND INoDEx 2025

Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

It is my great honour to warmly welcome all distinguished speakers, exhibitors, participants, and guests to the 4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025) and the 3rd International Invention, Innovation & Design Expo (INoDEx 2025).

This year, ICoSeMT has brought together over 140 leading experts, researchers, and industry leaders from across the globe, including notable representations from Japan, Germany, Turkey, France, China, Taiwan, United Kingdom and the United Arab Emirates, alongside 75 participants of INoDEx 2025. This remarkable global participation highlights the growing international stature and critical importance of this event as a premier platform for semiconductor innovation and technology exchange.

I would like to express my sincere gratitude to Institute of Nano Optoelectronics Research and Technology (INOR) of USM, Universiti Teknologi MARA Cawangan Pulau Pinang (UiTMCPP), National Nanotechnology Centre (NNC), Ministry of Science, Technology and Innovation of Malaysia (MOSTI), MIMOS Berhad, and Collaborative Research in Engineering, Science & Technology (CREST) for their invaluable collaboration in organizing this conference. Heartfelt thanks also go to our industry partners and sponsors including Infineon Technologies, AT&S Malaysia, ams Osram Malaysia, SilTerra Malaysia, Inno Lab Engineering, Crest Analytics, Nanorian Technologies, Quasi-S, Atomic Solutions, Magna Value, and the Penang Convention & Exhibition Bureau for their steadfast support.

Aligned with this year's inspiring theme, "Innovation Towards a Sustainable Tomorrow," we reaffirm our commitment to fostering industry-driven academic excellence and nurturing talented innovators. We hope that this gathering will catalyze meaningful knowledge sharing, strengthen collaborative networks between academia and industry, and accelerate breakthroughs that will shape the future of semiconductor materials and technology.

I extend special thanks to all keynote, plenary, and invited speakers whose expertise enriches this event, and to the organizing and technical committees for their dedication. May the ideas and innovations presented here inspire us all and contribute significantly to a sustainable and prosperous tomorrow.

Thank you.

ASSOC. PROF. TS. DR. MOHD ZAMIR PAKHURUDDIN
CHAIRMAN OF ICoSeMT 2025 and INoDEx 2025

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ABOUT ICoSeMT 2025

4th International Conference on Semiconductor Materials and Technology (ICoSeMT 2025) is a biennial event that is jointly organized by Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM), Universiti Teknologi MARA Cawangan Pulau Pinang (UiTMCPP), National Nanotechnology Centre (NNC), Ministry of Science, Technology and Innovation of Malaysia (MOSTI), MIMOS Berhad and Collaborative Research in Engineering, Science & Technology (CREST) with the Theme "Innovation Towards A Sustainable Tomorrow". The primary focus of the conference is to create an effective medium for institutions and industries to share ideas, knowledge, and expertise in the fields related to Semiconductor Materials and Technology. The primary focus of the conference is to create an effective medium for institutions and industries to share ideas, knowledge, and expertise in the fields related to Semiconductor Materials and Technology.

4th ICoSeMT 2025 solicits contributions of abstracts, encompassing:

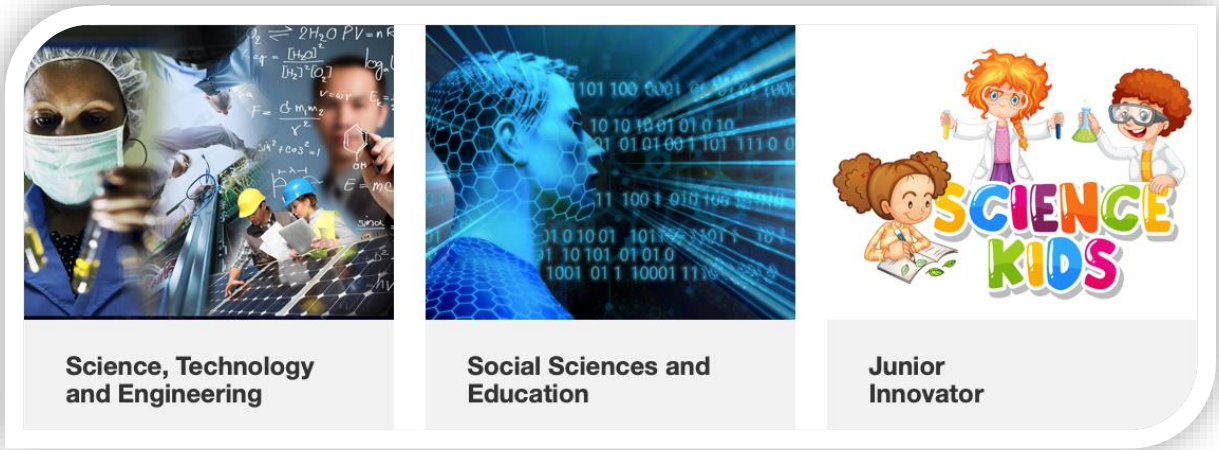
Optical and Electronic Materials	
• Narrow and Wide Band Gap Semiconductors • Diamond, Graphene, and Carbon Nanotubes • Piezoelectric and Ferroelectric Materials • Electroluminescent Materials • Colour-Changing Materials	• Energy Storage Materials • Dielectric Materials • Porous Structures • Nanostructures • Superconductors
Devices	
• Optoelectronics • Sensors and Actuators • Power Devices • Novel Devices • Photovoltaics • MEMS/NEMS • Co-packaged optics	• Contacts and Interconnects • Fabrication Processes • Integrated System Design • Modelling and Simulation • IC Design • Silicon photonics

Organic and Polymeric Materials	
• Organic Semiconductors • Conductive Polymers • Polymer Electronics and Coatings • Polymer Catalysts and Characterization	• Composite Polymers and Biopolymers • Functional Polymers and Polymer Hybrid Materials
Packaging Technology	
• Phosphor Technology • Co-Package Optic • Lens and Optics • Thermal Management	• Front End Assembly Processes • Back End Processes and Applications • Failure Analysis and Reliability

ABOUT INoDEx 2025

This 3rd INoDEx 2025 is organized to promote positive innovation culture and encourage innovation activities from different walks of life. Additionally, INoDEx 2025 will be a great platform in creating opportunities for local and international participants to present their innovations and inventions. Eventually, both events will lead to interaction and future collaboration among the local and international participants.

INoDEx 2025 Category



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The St Giles Wembley-Premier Hotel, Penang, Malaysia is just a half-hour's drive to the famed Batu Feringghi beach and is a mere 5 minutes away from the Ferry Terminal. Being even closer to fun and entertainment outlets with transport services readily available from the hotel, you can explore the many wonders and historical attractions of Penang Island to the fullest.Stretigically located in the city of Georgetown, Penang, near to restaurants, hawkers centre, culture, sightseeing area of Penang city, The St Giles Wembley – Premier Hotel, a 4 – Star hotel is only 18.2 kilometers away from Bayan Lepas International Airport.

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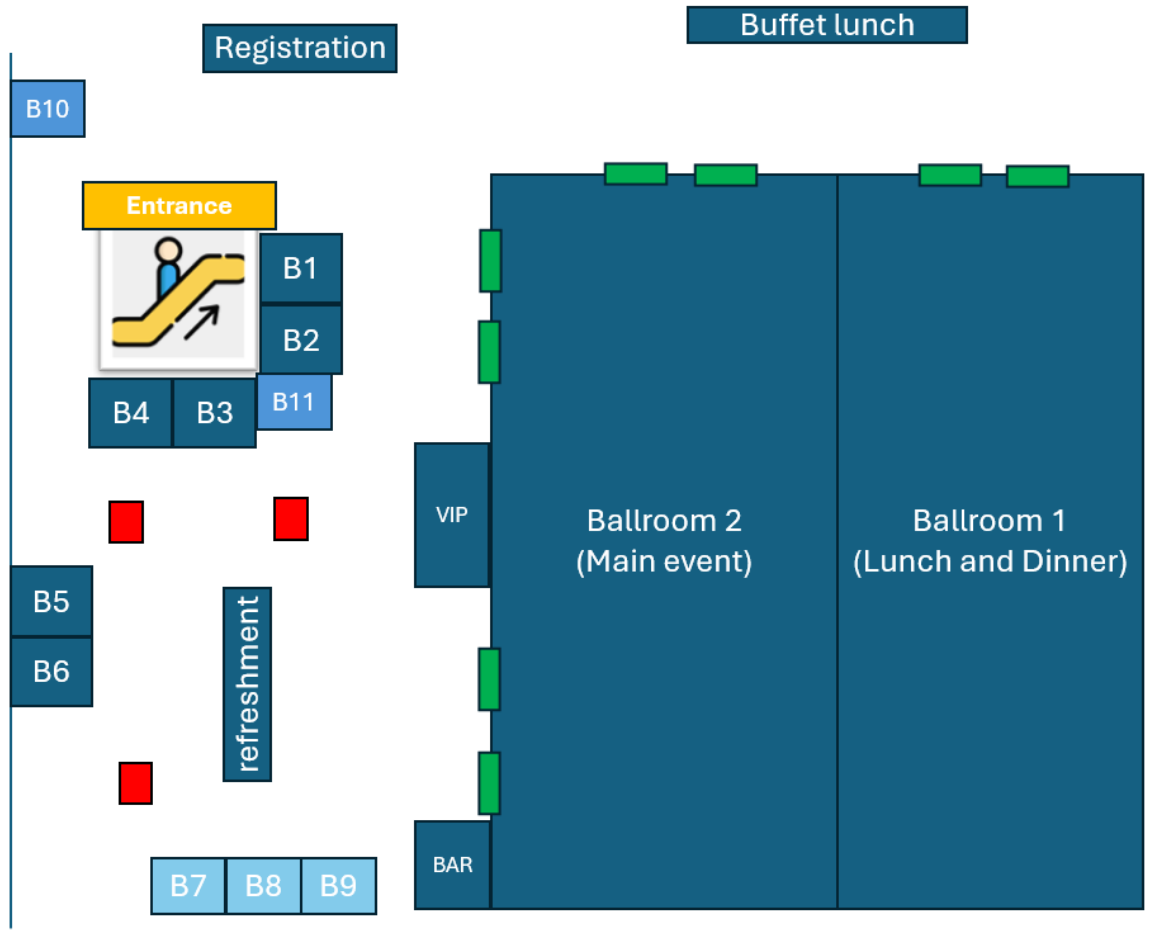

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B9	CREST
B10	UITM PENANG
B11	INOR USM & KIRANA SEMIKONDUKTOR SDN BHD

Day 1: 29 September 2025

Time	Programme	
	OPENING CEREMONY	
0800 – 0900	**Registration of Guest and Participant** Venue: Level 10	
0900 – 0930	Arrival of VVIPs	
	Doa Recital	
	National Anthem, Menara Ilmu	
	Welcoming speech by Assoc. Prof. Ts. Dr. Mohd Zamir Pakhuruddin Program Chairman, ICoSeMT 2025 and INoDEx 2025	
0930 – 1000	**Group Photo Session & Coffee Break**	
Event	**ICoSeMT 2025**	**INoDEx 2025**
1000 – 1030	**KEYNOTE TALK 1 (30 min)** **Professor Dr Hideki Hirayama,** *Pioneering Research Institute (PRI), RIKEN Institute, Japan* **Title:** Recent Progress of 230 nm AlGaN far-UVC LED for Human Harmless Disinfection Applications	
1030 – 1100	**KEYNOTE TALK 2 (30 min)** **Mr. ET Tan** *Tech Innovator & Industry Leader / Board of Director, MIMOS Bhd* **Title:** Shifting Trends in The Global Semiconductor Landscape	
1100 – 1120	**PLENARY TALK 1 (20 min)** **Mrs. Azimah Abdul Kadir** *Head of Market Research & Technology Transfer Division, MIMOS Bhd* **Title:** Strategic Stratification of Semiconductor Innovations: Bridging Advanced Materials to Economic Impact	
1120 – 1140	**Kirana Semikonduktor Sdn Bhd (20 min)** **Assoc. Prof. Dr. Norzaini Zainal** *Senior Lecturer of INOR and Founder of Kirana Semikonduktor Sdn Bhd* **Title:** Kirana Semikonduktor Sdn Bhd as a Spin-off of INOR	
1150 – 1300	**PARALLEL SESSION (1A)** **Chairperson: Dr. Rosfariza Radzali** • **Invited Talk 1 (20 min)**	**PARALLEL SESSION (1B)** **Chairperson: Dr. Mohd Muzafa Jumidali** • **Invited Talk 3 (20 min)**

	Dr. Yilmaz Dikme (Element 3-5) • **Invited Talk 2 (20 min)** Mr. Allen Cheah (AT&S) • *2 Oral Presentation (15mins x 2)*	Assoc. Prof. Dr. Adnan Younis (United Arab Emirates University) • **Invited Talk 4 (20 min)** Assoc. Prof. Ir. Ts. Dr. Mohd Hanapiah Abdulah (UiTM) • *2 Oral Presentation (15mins x 2)*
1300 – 1400	**Lunch Break** • Networking / Collaboration Session	
1400 – 1420	**Ministry of Science, Technology and Innovation (MOSTI) (20 min)** **Mr. Ismarul Nizam Ismail** *Principle Assistant Director, National Nanotechnology Center (NNC)* **Title:** Strengthening Nanotechnology Strategies in the MOSTI's Perspectives	
1420 – 1440	**PLENARY TALK 2 (20 min)** **Dr. David Lacey** *Director of Advanced Development & Services, ams-OSRAM Sdn Bhd* **Title:** Advances in Compound Semiconductor Device Technologies: Paving the Way for Sustainable and Smart Applications	
1440 –1500	**PLENARY TALK 3 (20 min)** **Prof. Dr. Julien Brault** *Research Director, French National Centre for Scientific Research (CNRS)* **Title:** Fabrication of AlGaN Heterostructures by quasi van der Waals Epitaxy on 2D materials for Quantum Dots based UV LEDs	
1500 - 1530	**Tea Break** Networking / Collaboration Session	
1530 – 1630	**PARALLEL SESSION (2A)** **Chairperson: Dr. Mohd Muzafa Jumidali** • *4 Oral Presentations (15mins x 4)*	**PARALLEL SESSION (2B)** **Chairperson: Dr. Sabah M. Mohammad** • *4 Oral Presentations (15mins x 4)*
1630 – 1945	**Break**	
1945 – 2245	**Banquet Dinner**	
END OF DAY 1		

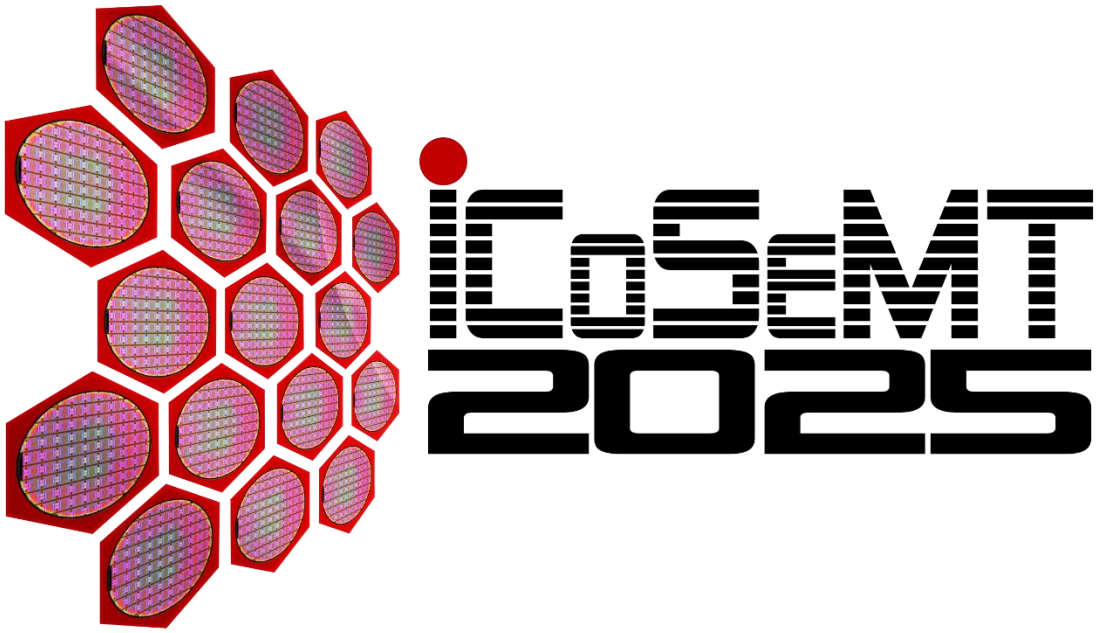
Day 2: 30th September 2025

Time	ICoSeMT 2025	INoDEx 2025
0830 – 0900	**Registration of Guest and Participant & Advertisement Video**	**Video presentation**
0900 – 0920	**PLENARY TALK 4 (20 min)** **Dr. M. Ajmal Khan** *Senior Research Scientist, Pioneering Research Institute (PRI), RIKEN Institute, Japan* **Title:** Status and Challenges of Efficient AlGaN far-UVC and UVB LED on c-plan Sapphire for Medical and Agricultural Applications	
0920 –0940	**PLENARY TALK 5 (20 min)** **Mr. Thung Beng Joo** *Vice-President of Emerging Technologies, SilTerra Malaysia Sdn Bhd* **Title:** Shaping Tomorrow: Where Optics, Electronics and Mechanics Converge	
0940 – 1000	**Coffee Break**	
1000 – 1030	**KEYNOTE TALK 3 (30 min)** **Prof. Dr. Markus Weyers** *Ferdinand-Braun Institute (FBH)* **Title:** Material Aspects of Vertical GaN Transistors	
1030 –1100	**KEYNOTE TALK 4 (30 min)** **Mr. Sim Kang Wei** *Senior Director, Head of Wide-Band-Gap Semiconductor R&D, Infineon (Kulim) Sdn. Bhd* **Title:** Advancing the Future of Power Electronics: Infineon's Breakthroughs in GaN Technology	
1100 –1120	**PLENARY TALK 6 (20 min)** **Prof. Dr. Tao Tao** *School of Electronic Science and Engineering, Nanjing University, China* **Tittle:** GaN-Based Micro-LEDs For Advanced Display Application	

1130 – 1250	**PARALLEL SESSION (3A)** **Chairperson: Assoc. Prof. Dr. Quah Hock Jin** • **Invited Talk 5 (20 min)** Assoc. Prof. Dr. Ilkay Demir (Sivas Cumhuriyet University, Turkey) • *4 Oral Presentations (15mins x 4)*	**PARALLEL SESSION (3B)** **Chairperson: Dr. Rosfariza Radzali** • **Invited Talk 6 (20 min)** Assoc. Prof. Dr. Mundzir Abdullah (INOR) • *4 Oral Presentations (15mins x 4)*
1250 –1400	**Lunch Break** Networking / Collaboration Session Advertisement Video	
1400 –1420	**PLENARY TALK 7 (20 min)** **Dr. Sideq Salleh** *Program Director Research, Market, and Industry Development, CREST* **Tittle:** Bridging the Innovation Gap: Advancing the National Semiconductor Strategy (NSS) through Effective Industry-Academia-Government Collaboration in Semiconductor R&D	
1420 –1500	**Vendor Talk** **1. CREST Analytic (20 min)** **2. Inno Lab (20 min)**	
1500 - 1530	**Tea Break** Networking / Collaboration Session	
1530 –1630	**PARALLEL SESSION (4A & 5A)** **Chairperson: Dr. Azrinawati Mohd Zin** • ***4 Oral Presentations (15mins x 4)***	**PARALLEL SESSION (4B & 5B)** **Chairperson: Assoc. Prof. Dr. Lim Way Foong** • ***4 Oral Presentations (15mins x 4)***
CLOSING CEREMONY		
1630 – 1800	**Closing Speech *by* Deputy Chairman of ICoSeMT 2025 & INoDEx 2025**	
	Best ICoSeMT 2025 Oral Presenter Award	
	Booth Games Winner Announcement	
	Award Announcement INoDEx 2025	
END OF EVENT		

Date : 29 September 2025 (Monday)
Venue : Grand Ballroom, St. Giles Wembley Penang
Time : 8.00 p.m – 11.00 p.m
Attire : Traditional

Time	Programme
7.45 PM	Arrival of Guests
8.10 PM	Arrival of YBhg. Professor Dato' Seri Ir. Dr. Abdul Rahman Mohamed, FASc., Vice-Chancellor, Universiti Sains Malaysia
8.15 PM	Arrival of YBrs. Mr. Ismarul Nizam bin Ismail, Senior Assistant Director, National Nanotechnology Centre (NNC), MOSTI
8.20 PM	Singing of *Negaraku* Singing of *Menara Ilmu*
8.30 PM	Welcoming Speech by YBhg. Professor Dato' Seri Ir. Dr. Abdul Rahman Mohamed, FASc., Vice-Chancellor, Universiti Sains Malaysia Opening Address by YBrs. Mr. Ismarul Nizam bin Ismail, Senior Assistant Director, NNC, MOSTI Opening Gimmick of ICoSeMT & INoDEx 2025 Presentation of Souvenirs of Appreciation to the Guests of Honour
9.00 PM	Performance by Adikarma Cultural Troupe, USM Dinner Commences
9.30 PM	Presentation of Tokens of Appreciation to Keynote Speakers
9.40 PM	Performance by Adikarma Cultural Troupe, USM
10.00 PM	Announcement of "Best Dressed" Winner
10.15 PM	Performance by Adikarma Cultural Troupe, USM
10.45 PM	End of Ceremony



4th ICoSeMT 2025
Date: 29 & 30 September 2025
Venue: St. Giles Wembley Penang

GENERAL INFORMATION FOR ICoSeMT 2025 PARTICIPANTS

Registration of guests and participants will take place on 29 September 2025, from 7:30 AM to 9:00 AM, at Level 10. To gain access to all sessions, as well as lunch, coffee breaks, and tea breaks, it is mandatory to possess a badge. Please ensure that your badge is always kept with you, except during the dinner event. For those who have chosen to attend the dinner, a coupon will be provided during the registration process. Please note that individuals are not permitted to collect badges on behalf of other participants. Conference Cancellation Policy: No refunds will be granted.

INFORMATION FOR PRESENTERS:

For those delivering oral presentations, your allocated presentation time is limited to 15 minutes, comprising a 10-minute presentation followed by a 5-minute question and answer session. All oral session rooms will be equipped with a projector, a laptop computer, and a laser pointer. Presenters are allowed to use their own computers during their presentations. We kindly request presenters to upload their presentations to the laptop in their respective rooms before the commencement of their sessions.

AWARD:

The award for Best Presenter will be determined by the evaluation committee and announced during the Closing Ceremony on 30th September 2025.

KEYNOTES, PLENARY & INVITED SPEAKERS

Advancing the Future of Power Electronics: Infineon's Breakthroughs in GaN Technology

Mr. Sim Kang Wei

Senior Director, Head of Wide-Band-Gap Semiconductor R&D, Infineon (Kulim) Sdn. Bhd.

Biography

Sim Kang Wei is a seasoned semiconductor professional with over 25 years of experience in Front-End Wafer Fabrication technology, focusing on project leadership, technology development, and innovation.

He currently holds the position of Senior Director and Head of Wide-Band-Gap Semiconductor R&D at Infineon Technologies (Kulim) Malaysia, where he is leading the research and development efforts in the wide-band-gap semiconductor field, driving innovative solutions and technological advancements.

His technical knowledge spans a variety of technology platforms, including DRAM/Flash Memory, Power Discrete, MEMS/Sensors, and Wide-Band-Gap technologies. With an M.Sc. in Material Science & Engineering from the National University of Singapore. Sim is passionate about mentoring emerging leaders in the field and fostering collaboration, drawing from his extensive international experience.

Shifting Trends in The Global Semiconductor Landscape

Mr. ET Tan

Tech Innovator & Industry Leader
Board of Director, MIMOS Bhd

Biography

Mr Tan graduated with a BSc(Hons) in EE from Imperial College, before he joined HP in the UK, moved to Silicon Valley in the US, and then headhunted to Seagate. His achievements include industry-defining innovations such as:

- Co-creating IrDA (an infrared wireless standard which resulted in 2B+ devices and inspired PayPal & Bluetooth)
- Pioneering the DAT/DDS storage system with Sony (and created a new $600M market)
- Developing the world's first data-encrypted HDD at Seagate

He mentored start-ups at Stanford University, Beijing and NUS Singapore before returning to Malaysia under Talentcorp, where he was instrumental in:

- Advancing Silicon Photonics, DNA chips & MEMS as SilTerra VP
- Bridging industry-workforce gaps as CEO of Penang Skills Development Centre
- Driving national semiconductor strategy as MIMOS Board Membe

As one of Malaysia's most followed tech thought leaders on LinkedIn, his writings on STEAM, semiconductors, and policy are quoted by Bloomberg and Business Insider.

Material Aspects of Vertical GaN Transistors

Prof. Dr. Markus Weyers

Ferdinand Braun Institute, Germany

Biography

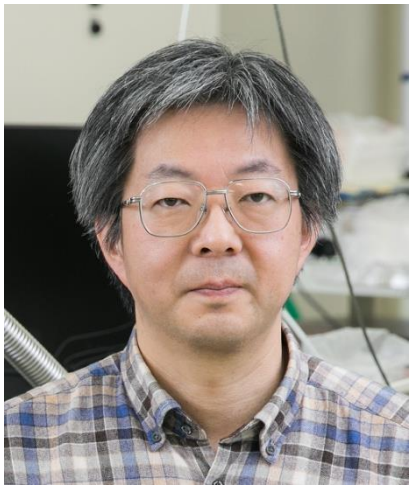
Markus Weyers received his Diploma in Physics 1986 and his Dr. rer. nat. degree in '90 from RWTH Aachen, Germany. From 9/90 to 3/92 he was with NTT Basic Research Labs in Musashino, Japan.

Since 4/92 he is Head of the Materials Technology Department at Ferdinand-Braun-Institut gGmbH, Leibniz-Institut fuer Hoechstfrequenztechnik (FBH) in Berlin,Germany. Since 6/2014 he is adjunct Professor at TU Berlin where he teaches Applied Physics.

His research interests include MOVPE growth of GaAs-based laser structures as edge emitters and VCSELs, GaN-based lasers, as well as AlGaN LEDs and transistor structures. He has authored and co-authored around 530 scientific papers and 6 book chapters on growth studies as well as device growth in MOVPE, MOMBE and HVPE. He has served as Associate Editor for J. Crystal Growth and IEEE Photonics Letters and as reviewer for numerous journals and research funding agencies.

1999 he founded the epiwafer foundry Three-Five Epitaxial Services AG (TESAG) which he headed until the end of 2008. In 1999 he also co-founded LayTec GmbH (now LayTec AG), a producer of in-situ metrology tools for MOVPE. He was Head of the Supervisory Board of LayTec AG 2011 - 2017.

Recent Progress of 230 nm AlGaN far-UVC LED for Human Harmless Disinfection Applications



Prof. Dr. Hideki Hirayama

Pioneering Research Institute (PRI), RIKEN Institute, Japan

Biography

Hideki Hirayama received his PhD of Eng. from Tokyo Institute of Technology in 1994. In the same year, he became a research scientist at RIKEN. He became a Team Leader to manage the Terahertz Quantum Device Team in 2005. In 2012, he was appointed as a Chief Scientist of Quantum Optodevice Laboratory. He has also concurrent positions as visiting professor of Saitama University, Tokyo University of Science and Tokushima University.

He won a Japan IBM Science Prize in Electronics in 2010, an Ichimura Science Prize in 2011, a Science and Technology Award from the Minister of Education, Culture, Science and Technology in 2014, a Compound Semiconductor Electronics Achievement Award (Prof. Isamu Akasaki Award) of The Japan Society of Applied Physics in 2019, etc. His research focuses on crystal growth of AlGaN/AlN nitride-semiconductors and development of deep-UV LEDs. He is also developing terahertz quantum cascade lasers (THz-QCLs).

Status and Challenges of Efficient AlGaN far-UVC and UVB LED on c-plan Sapphire for Medical and Agricultural Applications

Dr. M. Ajmal Khan

Senior Research Scientist
Pioneering Research Institute (PRI), RIKEN Institute, Japan

Biography

Dr. M. Ajmal Khan (Wazir) was born in Doag, Wana (South Waziristan), Pakistan. He received his M.Sc and M.Phil degrees in Applied Physics from Quaid-i-Azam University, Islamabad, Pakistan, in 1998 and 2001, respectively. Later, he received his PhD degree in applied physics from Graduate School of Pure and Applied Sciences, University of Tsukuba, Japan in 2013. In 2012, during his PhD work, he has discovered the thin film of boron (B) doped p-type BaSi2 layer "p+" along with his PhD supervisor Prof. Takashi Suemasu (Appl. Phys. Lett. 104, 252104 (2014)). After his discovery, the efficiency of the solar cell was enhanced from 1.4% to 10%.

Later he joined the team of FUTURE Photovoltaic (PV)-Innovation, Japan Science and Technology Agency, Fukushima Renewable Energy AIST (FREA), Koriyama in 2014. In 2017, he moved to Riken (RAP) as a SPDR and later in 2020 he moved to RIKEN Pioneering Research Institute (PRI) as a research scientist (Prof. H. Hirayama Lab). Since then, he has been doing research on the epitaxial growth, characterization, and device applications of group III-nitride semiconductor-based UV LEDs and UV Laser Diodes. He has developed a world first AlGaN UVB LED with a world record efficiency of 9.6% with a light power of 40 mW on the wafer (Sci Rep 12, 2591 (2022)).

Presently, he is working as a senior research scientist at Riken and working on the project of far-UVC LEDs for SARS-CoV-2 (Corona Virus) inactivation. He reported the world

shortest 228nm far-UVC LED grown on a low-cost c-Sapphire with EQE of 0.32% (Phys. Status Solidi (A) 221, 2400064 (2024)). He bears various roles and responsibilities, such as a renowned member of the Japan Society of Applied Physics (JSAP), and guest editor of several journals. He received several national and international awards for his invention of Boron-doped BaSi2 Solar cells and AlGaN-based UVB LEDs. He delivered more than 150 talks including keynote and invited talks both in the local as well as in the international conferences. He is the author and co-author of more than 110 pre-reviewed research publications.

Advances in Compound Semiconductor Device Technologies: Paving the Way for Sustainable and Smart Applications

Dr. David Lacey

Director of Advanced Development & Services, ams-OSRAM SDN BHD

Biography

Dr Lacey obtained his DPhil in Chemistry/Materials Science from the University of Sussex, UK and has held R&D, Engineering and Business responsibilities in semiconductor manufacturing companies across Europe, USA and Asia. He has more than 30 years experience in semiconductor & display technology development & manufacturing, in both start-up and multi-national environments.

He has been based in Malaysia since 2001 and is currently President of SFAM - the Semiconductor Fabrication Association of Malaysia. He was one of the exco committee members involved in the earlier phase of conceptualisation and inception of CREST since March 2012. Dr. Lacey was bestowed with an honorary Doctor of Science by Universiti Sains Malaysia at the Arau Palace in 2021, an accolade reflecting his profound impact on advancing LED technologies and expanding opportunities in Malaysia.

Bridging the Innovation Gap: Advancing the National Semiconductor Strategy (NSS) through Effective Industry-Academia-Government Collaboration in Semiconductor R&D

Dr. Sideq Salleh

Program Director Research, Market, and Industry Development, Collaborative Research in Engineering, Science & Technology (CREST)

Biography

Dr. Sideq Salleh is a seasoned R&D leader with over two decades of multinational experience spanning Western Digital, AMS-OSRAM, Seagate, and Fuji Electric, and currently serves as Program Director R&D and Industry Development at CREST. He drives national semiconductor and advanced manufacturing initiatives, leading multi-million-ringgit R&D programs and industry–academia–government collaborations. Specialising in high-volume process & material development, IR4.0 automation, and advanced manufacturing, he holds multiple U.S. patents and trade secrets—including a glass substrate patent applicable for data storage and advanced packaging.

Dr. Sideq's expertise in innovation, intellectual property, and strategic partnerships continues to shape Malaysia's semiconductor and advanced manufacturing ecosystem.

Fabrication of AlGaN Heterostructures by Quasi Van der Waals Epitaxy on 2D Materials for Quantum Dots based UV LEDs

Mr. Julien BRAULT

Research Director
French National Centre for Scientific Research (CNRS)

Biography

Julien Brault is a research director at the French National Centre for Scientific Research (CNRS). He specializes in the fabrication of semiconductor materials by epitaxial growth. At the beginning of his career, he worked on: indium arsenides and phosphides (InAs-InP system) for 1.55-µm telecom applications; gallium nitride and aluminum nitride lasers (GaN-AlN system) for applications in spectroscopy and UV microfabrication; and silicon nanocrystal-based transistors (MOSFET) for non-volatile memories. These research activities were carried out in the laboratories of: Lyon Institute of Nanotechnology (INL - Ecole Centrale de Lyon), Interdisciplinary Research Institute of Grenoble (IRIG - CEA Grenoble) and the University of Tokyo in Japan (International Research Laboratory on MEMS and NEMS (Micro- and Nano-Electro-Mechanical Systems), LIMMS- IRL 2820, Hiramoto Laboratory).

Within the Research Center on Hetero-Epitaxy & Applications (CRHEA), since 2004, he has been working on semiconductor materials with very large band gaps, in particular gallium and aluminum nitride alloys (AlGaN), for the production of optoelectronic components (light-emitting diodes (LEDs), lasers, optical waveguides, etc.). His work has led him to participate in numerous French National Research Agency (ANR) projects, as well as European projects. In particular, he has been coordinating ANR projects on white LEDs and UV LEDs, and within the Labex GaNEX, - national network on GaN-based

materials -, on materials for UV emission. He is currently responsible for a project in partnership with the RIBER SA Company, a leader in the field of molecular beam epitaxy components. He is the author/co-author of over 140 publications and five patents.

He is responsible for the Advanced Photonics Group in CRHEA. He is also a member of the Environmental and Health Sciences (SENS) team, where he is developing the UV LED theme, and of the 2D+ team, where he is developing the van der Waals epitaxy growth of AlGaN materials on 2D materials (h-BN and graphene). He is a member of the Board of Directors since 2018 and of the Laboratory Council since 2016. He is involved in the Côte d'Azur University as a lecturer in electronics at the "Networks and Telecommunications" Institute of Technology, and as a member of the scientific council of "Complex Systems" Academy of Excellence. He is (has been) involved as a member of numerous program and expert committees in major international conferences on nitrides (ICNS, IWN, ISGN), ultra-wide bandgap materials (IWUMD) and semiconductor components and materials (SSDM - Japan). He is a visiting Professor at the Far Infra-Red (FIR) Center of the University of Fukui, Japan, since 2019.

Shaping Tomorrow: Where Optics, Electronics and Mechanics Converge

Mr. Thung Beng Joo

Vice President of Emerging Technologies
SilTerra Malaysia Sdn. Bhd

Biography

Thung, Beng Joo, a Malaysian, aged 55 was appointed as Vice President of SilTerra Malaysia Sdn Bhd in February 2023. Prior to the appointment, he was holding as Vice President position for Manufacturing management and responsibilities on fab operation. He joined SilTerra in 2000 as the Electrical Failure Analysis and Reliability engineer. He was one of the key engineers that setup the Electrical failure analysis capability during the SilTerra FAB start up in year 2000. In 2002, he was assigned to Technology Development team full responsibilities for CMOS22um new technology development. In 2004, he was assigned to Yield Engineering team fully responsibilities on yield improvement and technology optimization. He manages to bring the CMOS22um and CMOS18um technologies with word class defect density (D0) performance within very short prior of time. On 2017, he as senior director of Fabrication Integration and responsibilities on Fab integration process optimization, Yield Enhancement, More Than Moores Technology Development in Silicon Photonics and CMOS Image Sensor (CIS). In 2021, he was assigned to Manufacturing management, full responsibilities on manufacturing, Industrial Engineering and Manufacturing System.

He graduated with Bachelor of Science in Electrical and Electronic from The Robert Gorden University, Aberdeen, United Kingdom and obtained a full scholarship from ODASS to further his Master of Science (MSc) in Microelectronics and Information System from Liverpool John Moores University, United Kingdom. He has more than 30 years of semiconductor experience. Prior to join SilTerra, he was attached with multi-national companies such as Komag Corporation, INTEL Corporation, Akashi Kuboto Corporation (pioneer start-up team) and Showa Aluminium Corporation (pioneer start-up team).

He also has passion and interest in research for continues improvement in optimizing the wafer fabrication process. He has filed in multi publications within the companies, journal, national and international conferences. In recognition of his experienced, he has given the opportunity as the project leader for the technologies outsourcing, transfer and wafer fabrication consultant. He managed transfer multi new technologies from beginning to mass production within 9 months' time prior.

Printed Electronics in the Semiconductor Era: Enabling Sustainable and Scalable Manufacturing

Mrs. Azimah Abdul Kadir

Head of Market Intelligence, Investment and Portfolio Division
MIMOS Holdings Sdn Bhd

Biography

Azimah Binti Abdul Kadir is a leading expert in strategic intellectual property (IP) and technology commercialization, with over 30 years of experience driving innovation-led economic growth in Malaysia and beyond. As a Registered Technology Transfer Professional (RTTP) certified by the Alliance of Technology Transfer Professionals (ATTP), she currently heads the Market Intelligence, Investment and Portfolio Division at MIMOS Holdings Sdn Bhd, the commercialization arm of MIMOS Berhad.

Her work focuses on translating scientific innovation into national economic value, particularly within the semiconductor sector. Azimah has led strategic initiatives that position Malaysia competitively in the global semiconductor value chain, including:

- Developing investment strategies for the MIMOS Semiconductor Technology Center, enabling Malaysia's emergence as a MEMS supply chain player.

- Advising on semiconductor ecosystem development in Uzbekistan, fostering regional collaboration.

- Launching My-AI, Malaysia's national AI data-sharing platform to support high-performance computing and research commercialization.

Azimah's expertise spans IP valuation, patent analytics, licensing, and market intelligence—tools she uses to assess technology readiness and economic viability. Her strategic models have guided commercialization of indigenous technologies across sectors such as healthcare, education, and finance.

She is a co-inventor of eight patents and the architect of e-IPMS, an IP management system that elevated MIMOS's global patent rankings. Her contributions earned recognition including the National Best Trademark Award and top rankings in the PCT Yearly Review.

Academically, Azimah holds a Master's in Intellectual Property Law and a professional degree from the Institute of Chartered Secretaries and Administrators (ICSA). She is professionally trained by the Japan Patent Office, JIII/AOTS, and MyIPO in strategic IP and valuation.

As a HRDF-certified corporate trainer, she speaks regularly at international forums including WIPO, USPTO, and IPBC Asia, and collaborates with global partners such as Clarivate UK. She also serves as an Adjunct Professor at the Malaysian-Japan International Institute of Technology (UTM).

In her plenary session at ICoSeMT 2025, Azimah will present a strategic framework to stratify semiconductor innovations—such as III-nitride materials and wide bandgap semiconductors—based on their economic impact, market readiness, and cross-sectoral potential, offering actionable insights for regional stakeholders to align research excellence with national development goals.

GaN-Based Micro-LEDs For Advanced Display Application

Prof. Dr. Tao Tao

School of Electronic Science and Engineering, Nanjing University, Nanjing, China

Prof. Dr. Tao Tao is from School of Electronic Science and Engineering, Nanjing University, Nanjing, China, focusing on GaN-based Micro-LEDs.

Prof. Tao has published more than 70 papers, including Nature Nanotechnology, Advanced Functional Materials, IEEE Electron Device Letters etc. He was elected as Young Scholar of Changjiang River from Ministry of Education, China.

INVITED SPEAKERS

Assoc. Prof Dr. Mundzir Abdullah

Institute of Nano Optoelectronics Research and Technology (INOR)

Universiti Sains Malaysia (USM)

AlGaN Microring Resonators with Composition-Driven Tunability for High-Q Photonics

Dr. Yilmaz Dikme

Technical Director and Co-Founder

ELEMENT 3-5 GmbH, Germany

Next Level Epitaxy for semiconductor thin films

Assoc. Prof. Ir. Ts. Dr. Mohd Hanapiah Abdullah

Faculty of Electrical Engineering

Universiti Teknologi MARA

Revolutionizing Organic dye Molecules in DSSCs: Unlocking Higher Efficiency Solar Harvesting through Low-Cost Metal Salt Additive

Mr. Allen Cheah

Fellow & Director,Engineering / R&D Integration / Application / Advance Technology Concepts for Malaysia

Advanced Packaging Substrates for AI Chips

Assoc. Prof. Dr. Adnan Younis

Department of Physics, College of Science, United Arab Emirates University

Solution-Processed Functional Nanostructures for High-Performance Next-Generation Electronics

Prof. Dr. İlkay Demir

Director of the Nanophotonic Research and Application Center (CÜNAM) at Sivas Cumhuriyet University, Turkey

Doping-Enhanced High-Quality AlN Epitaxy on Sapphire: Growth and Defect Management

PRESENTATION SCHEDULE

ORAL PRESENTATION

DAY 1: 29th SEPTEMBER 2025 (MONDAY)

	Parallel Session 1A: (Devices)	**Parallel Session 1B:** (Devices)
	Venue: Ballroom 2 Chairperson: Dr. Rosfariza Radzali	**Venue: Wembley 7** Chairperson: Dr. Mohd Muzafa Jumidali
11:50 am	***Dr. Yilmaz Dikme*** *(Technical Director and Co-Founder, Element 3-5 GmbH, Germany)* "Next Level Epitaxy for Semiconductor Thin Films"	***Assoc. Prof. Dr. Adnan Younis*** *(Department of Physics, College of Science, United Arab Emirates University)* "Solution-Processed Functional Nanostructures for High-Performance Next-Generation Electronics"
12:10 pm	***Mr. Allen Cheah*** *(AT&S Malaysia)* "Advanced Packaging Substrates for AI Chips"	***Assoc. Prof. Ir. Ts. Dr. Mohd Hanapiah Abdullah*** *(Faculty of Electrical Engineering, Universiti Teknologi MARA, UiTM)* "Revolutionizing Organic Dye Molecules in DSSCs: Unlocking Higher Efficiency Solar Harvesting through Low-Cost Metal Salt Additive"
12:30 pm	***Mr. Muhammad Farizuan Nor Effendy*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Modelling and Simulation of AlGaN/GaN HEMT with Hybrid Gate-Recessed and AlN/Al_2O_3 Stacked Structure" (Paper ID: ICO046)	***Dr. Wan Tatt Wai*** *(Infineon (Kulim) Technologies Sdn. Bhd.)* "Application of Cu Material & Process in Semiconductor Manufacturing" (Paper ID: ICO048)

12:45 pm	***Mr. Amirul Firdaus*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Water Gated HEMT: A Next Gen Sensor for Glyphosate" (Paper ID: ICO045)	***Mr. Syed Muhammad Hafiz Syed Mohd Jaafar*** *(Faculty of Science, Universiti Malaya)* "Additive Manufacturing of Printed Electronics Technology for Hybrid Electronic Sensor System" (Paper ID: ICO044)
	Parallel Session 2A: (Optical and Electronic Material)	**Parallel Session 2B:** (Devices)
	Venue: Ballroom 2 Chairperson: Dr. Azrinawati Mohd Zin	**Venue: Wembley 7** Chairperson: Dr. Sabah Mohammad
15:30 pm	***Ms. Nor Syafiqah Azmi*** *(Institute of Nano Optoelectronics Research and Technology, USM)* "Impact of AlN Buffer Layer Thickness on High Temperature Annealed AlGaN:Si for Enhanced UVB LED Performance" (Paper ID: ICO036)	***Dr. Nee Chen Hon*** *(Faculty of Engineering at Multimedia Unversity)* "The Effects of PDINN as Electron Extraction Layer in Organic Solar Cell" (Paper ID: ICO024)
15:45 pm	***Ms. Yuganesini Naidu A/P Siva Kumar*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Numerical Modeling of Homogeneous and Inhomogeneous Porosity Effects in Nanoporous GaN DBRs" (Paper ID: ICO031)	***Ms. Siti Ameenah Suhel*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Effect of Nitrous Oxide Flow Rate on Structural, Surface Morphological and Optical Properties of Copper Oxide Thin Films" (Paper ID: ICO029)

16:00 pm	***Mr. Mohd Nazri Kasuan*** *(Universiti Malaya)* "Growth of GaN on Sapphire for High Voltage Vertical Devices" (Paper ID: ICO023)	***Ms. Nor Athirah Mohd Sukri*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Effects of Thermal Annealing in Nitrous Oxide Ambient on Structural, Optical, and Electrical Properties of P-Type InGaN Films" (Paper ID: ICO032)
16:15 pm	***Dr. Muhammad Syazwan Mustaffa*** *(MIMOS Bhd.)* "Machine Learning for Data-Driven Optimization of 2D HBN Growth By CVD" (Paper ID: ICO0028)	***Ms. Elahe Bayat*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Multi-Objective Optimization of InGan-Si Tandem Solar Cells: Integrating LION And SCAPS-1D for Enhanced Power Conversion Efficiency" (Paper ID: ICO034)

DAY 2: 30th SEPTEMBER 2025 (TUESDAY)

	Parallel Session 3A: (Optical and Electronic Material)	**Parallel Session 3B:** (Devices)
	Venue: Ballroom 2 Chairperson: Assoc. Prof. Dr. Quah Hock Jin	**Venue: Wembley 7** Chairperson: Dr. Rosfariza Radzali
11:30 am	***Assoc. Prof. Dr. Ilkay Demir*** *(Director of the Nanophotonic Research and Application Center (CÜNAM), Sivas Cumhuriyet University, Turkey)* "Doping-Enhanced High-Quality AlN Epitaxy on Sapphire: Growth and Defect Management"	***Assoc. Prof. Dr. Mundzir Abdullah*** *(Institute of Nano Optoelectronics Research and Technology, INOR, Universiti Sains Malaysia)* **"**AlGaN Microring Resonators with Composition-Driven Tunability for High-Q Photonics"
11:50 am	***Dr. Noratiqah Yusop*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Effect of indium surfactant concentration in p-layers growth for InGaN/GaN LEDs" (Paper ID: ICO041)	***Mr. Muhammad Ramzan*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Numerical Investigation of Gan Waveguide Grating Coupler with Depth Gradients using COMSOL for Mode Controlled Light Coupling" (Paper ID: ICO030)
12:05 am	***Ms. Lee Mai Woon*** *(MIMOS Bhd.)* "Optical Classification of Amorphous Carbon Films Deposited by Plasma-Enhanced Chemical Vapor Deposition" (Paper ID: ICO027)	***Mrs. Nurin Jazlina Zaidi*** *(Universiti Malaya)* "Effect of Low V/III Ratios on M-Plane GaN Grown on M-Plane Sapphire Substrate using a Three-Step Process via MOCVD" (Paper ID: ICO017)

12:20 pm	***Mr. Muhammad Iznul Hisyam Mohd Norizan*** *(Universiti Malaya)* "Growth of Crack-Free GaN on Si(111) Employing Pulse Atomic Layer Epitaxy AlN Buffer Layer" (Paper ID: ICO026)	***Ms. Nur Lili Suraya*** *(Nanomalaysia Bhd.)* "Revolutionizing Precision Agriculture: Next-Gen Nanosensors for Intelligent Crop Monitoring and Smart Prediction" (Paper ID: ICO013)
12:35 pm	***Ms. Nidhi Patel*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Growth of Aluminum Nitride (AlN) at 1175°C" (Paper ID: ICO040)	***Mr. Aijaz Ali Soomro*** *(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)* "Performance Enhancement of β-Ga_2O_3 NRs/p-GaN MSM UV Photodetector Via Thermal Annealing" (Paper ID: ICO021)
	Parallel Session 4A: (Optical and Electronic Material)	**Parallel Session 4B:** (Devices)
	Venue: Ballroom 2 Chairperson: Dr. Muhammad Aminu	**Venue: Wembley 7** Chairperson: Assoc. Prof. Dr. Lim Way Foong
15:30 pm	***Mr. Nabil Najmi Norpiah*** *(Universiti Malaya)* "Enhancement of Gallium Nitride on Silicon (111) Using Pulse Atomic-Layer Epitaxy (PALE) AlN with Composition-Graded AlGaN Buffer" (Paper ID: ICO018)	***Ms. Anam Irshad*** *(School of Physics, Universiti Sains Malaysia)* "Colorimetric Variability Analysis of Post-Harvest Harum Manis Mangoes using Tristimulus Measurement" (Paper ID: ICO039)

15:45 pm	***Mr. Irfan Abd Rahman*** *(Infineon (Kulim) Technologies Sdn. Bhd.)* "Influence of PECVD Process Parameters on the Surface Morphology and Wettability of Silicon Nitride Films" (Paper ID: ICO022)	***Mrs. Zuraihana Bachok*** *(Universiti Sains Malaysia)* "Optimisation of Laser Soldering Parameters in PTH Assemblies: Effects of Lead Angle, Pad Design, and SAC Alloy Type" (Paper ID: ICO016)
16:00 pm	***Ms. Hanadi Ahmed Yaslam Baqandwan*** *(Universiti Sains Malaysia)* "Investigation on 2D Lead-Free $Cs_3Sb_2C_xI_{9-x}$ Perovskite Thin Films on Planar and Black Silicon" (Paper ID: ICO015)	***Ms. Kirran Nisha Krishnan*** *(School of Physics, Universiti Sains Malaysia)* "pH Measurement in Harum Manis Mango using An 18-Channel Multispectral Reflectance Sensor" (Paper ID: ICO038)
	Parallel Session 5A: (Organic and Polymeric Material)	**Parallel Session 5B:** (Packaging Technology)
16:15 pm	***Ms. Nur Ummul Waliyyatullah*** *(UiTM Pasir Gudang)* "Preliminary Study of Dissolution Recycled Textile using Dimethyl Sulfoxide: Effect of Temperature" (Paper ID: ICO025)	***Dr. Norfarariyanti Parimon*** *(Engineering Faculty, Universiti Malaysia Sabah)* "Enhanced Thermal Management: Copper- and Silver-Coated Heat Spreaders on Aluminium Nitride/Silicon Wafers" (Paper ID: ICO014)

ICoSeMT 2025 PARTICIPANTS DIRECTORY

KEYNOTE SPEAKERS

No	Title	Name	Email	Affliation
1	Mr.	Sim Kang Wei	kangwei.sim@infineon.com	Infineon (Kulim) Sdn. Bhd.
2	Mr.	ET Tan	engttan@gmail.com	Board of Director, MIMOS Bhd
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INoDEx 2025
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Diamond Award – Plaque + Certificate of Award + Cash (RM300)

(Best INoDEx 2025 Project)

Gold, Silver & Bronze - Medal + Lanyard + Certificate of Award

Medal	Lanyard	Certificate of Award
Gold Medal: Front   **Silver Medal:**  **Bronze Medal:** 		**Gold Award**  **Silver Award**  **Bronze Award** 

Certificate of Participation

Medal:

Only one (1) medal will be awarded to each Group / Project of winners.

*The additional medal will cost **RM 50.00 per medal** (same cost for gold, silver, or bronze).
*Medals can only be purchased by winners.

Certificate:

All participants (5 members) will be given the certificate of participation. An additional certificate will be charged **RM10.00 each upon request***.

*Each Group / Project of winners will be awarded only one (1) certificate. The additional certificate will cost RM 10.00 each upon request.

ADVERTISEMENTS

Mi-GraphPrInk

Graphene Conductive Ink

Development of a robust and versatile graphene-based conductive ink as a substitute for metal-based conductive ink products for printed electronics, wearable technology and flexible electronics applications.

Conductive Ink Printer

Mi-GraphPrInk

Overview

Mi-GraphPrInk is a proprietary graphene-based conductive ink technology developed based on the need of the industry as a substitute for metal-based conductive ink predominantly used in the Electrical & Electronics (E&E) industry at present. The developed graphene-based conductive ink will also enable the development of next-generation printed electronics, wearable technology and flexible electronics applications.

Features

Mi-GraphPrInk comprises the following features:

- **High Conductivity**
  A graphene-based conductive liquid with conductivity comparable to metal-based conductive liquid.
- **Inkjet Printable**
  Proven jettability on inkjet printing process (based on Dimatix DMP series of cartridge) with viscosity of below 15cP.
- **Monolayer**
  Monolayer thickness of graphene-based elements for ease of jetting and reduction in print head clogging.
- **Customisable**
  Can be modified, tuned and tailored to required needs and specifications.

Technology Benefits

The main impacts of Mi-GraphPrInk are:

- **Low Cost**
  A reduction in 80% of metal-based elements without compromising the conductivity of the developed ink products. High jettability of the ink ensures that less volume is required to develop conductive film with similar sheet resistance. Quality of the hybridised-graphene used is controlled at a consistent and uniform manner across the solvent.
- **Environmental Sustainability**
  Graphene is a carbon-based nanomaterial which ensures environmental sustainability for bulk usage particularly in the electrical and electronics industry..
- **Enabling Technology**
  Functionalisation of base graphene conductive ink to form new types of conductive ink products can be achieved through process add-ons and the use of proprietary chemical synthesis processes leading to the development of nanosensing materials, conductive interconnects, coatings, flexible electronic platforms and others.

Applications

E&E Industry, SMEs, Government

Development of graphene conductive ink in MIMOS lab

MIMOS Berhad (336183-H)
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MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

NATIONAL NANOTECHNOLOGY CENTRE

MINISTRY OF SCIENCE, TECHNOLOGY & INNOVATION

INTRODUCTION

National Nanotechnology Centre (NNC) was established in August 2011 under the auspices of the Ministry of Science, Technology and Innovation. NNC acts as the National Focal Point to for the coordination of research, technology/ product development activities, standards and regulatory related to Nanotechnology in Malaysia. This role is carried out by planning, coordinating, ensuring the adoption, adaptation and application of innovations in nanotechnology towards commercialization, as well as the dissemination of nanoscience through a network of national and international collaboration.

VISION

"Nanotechnology for Science, Technology, Industry and National Economy Development"

MISSION

"Driving the National Nanotechnology Policy and Strategy through Continuous Strengthening of R&D Management, National and International Collaboration, and Public Awareness Programs."

POLICY AND ROADMAP

National Nanotechnology Policy and Strategy (DSNN) 2021–2030

National Nanotechnology Product Roadmap 2021–2025

Hydrogen Econoy and Technology Roadmap

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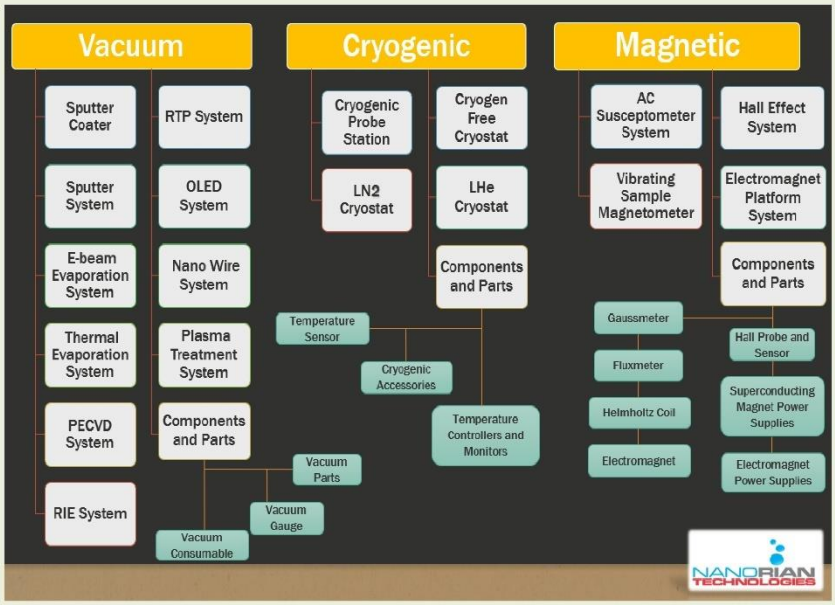

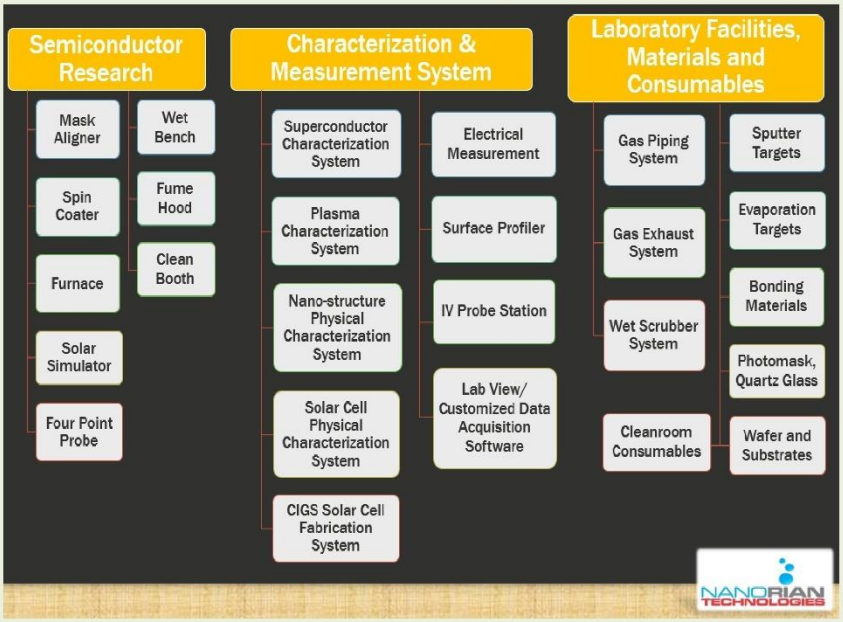

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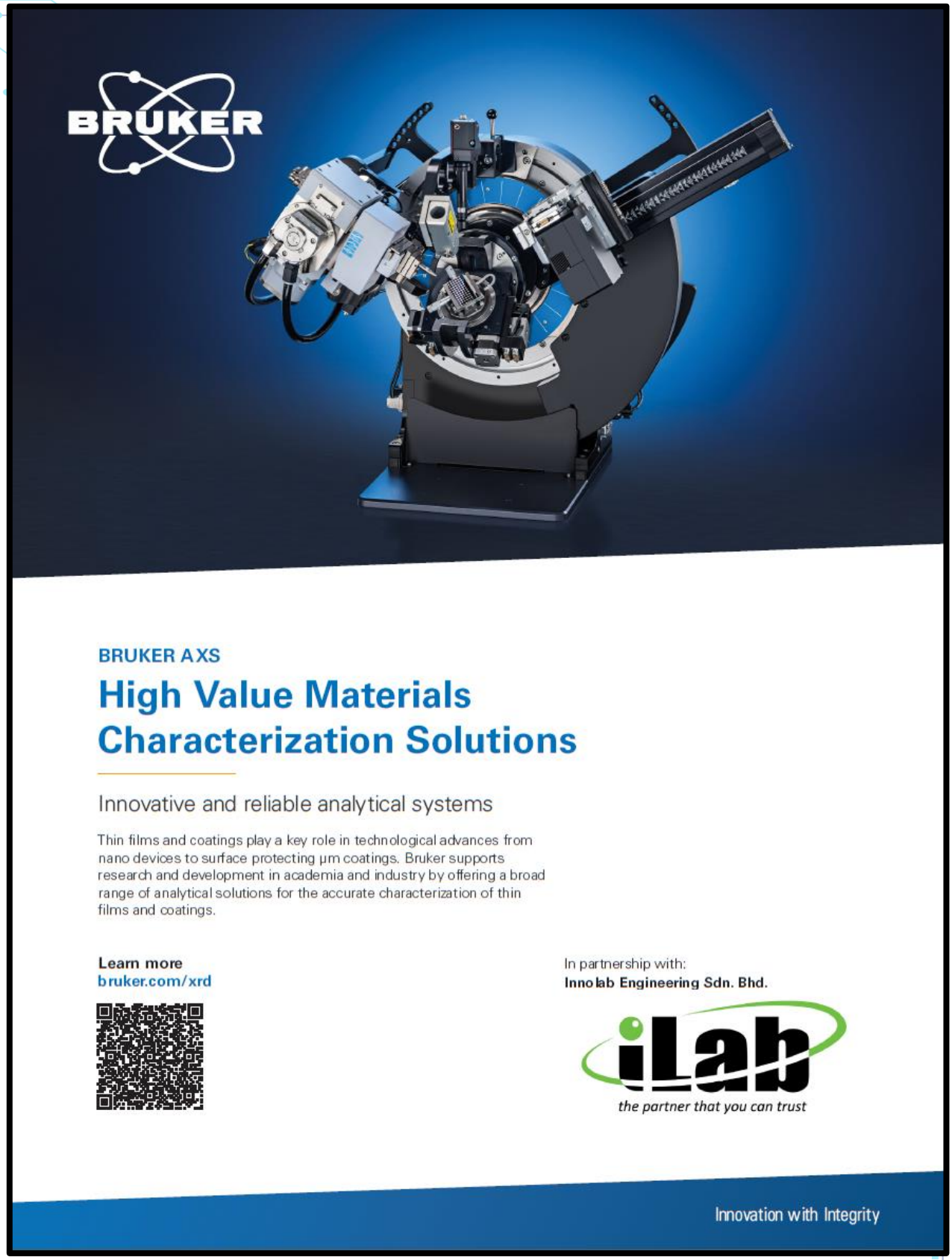
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Quasi-S is an ISO9001, ISO17025, BizSAFE accredited organization and the leading analytical laboratory equipment distributor of globally well-known manufacturers founded since 2002 . Presently we have expanded to having 3 active branches situated in Singapore (HQ), Bangi and Penang Malaysia.

We also provide engineering services and support to our customers as we strive to strengthen and broaden our capability and technology advances.

Why Choose Quasi-S?

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About CREST

Collaborative Research in Engineering, Science and Technology (CREST) is the catalyst and change agent that drives the growth of Malaysia's Electrical & Electronics (E&E) industry through market-driven research and talent development. CREST has been an agency under MITI since July 2023. While CREST is industry-led, its member representation is the triple helix of Government, Industry and Academia. CREST focuses on creating a vibrant Research, Development and Commercialisation (R&D&C) ecosystem by promoting collaboration between the Industry and Academia, with support from various Government organisations. To encourage the development of entrepreneurs and small and medium-sized companies, especially those within the E&E space, CREST manages an incubator called "CREST Place", which enables the community to ideate, incubate, and innovate collaboratively. For more information, please visit www.crest.my.

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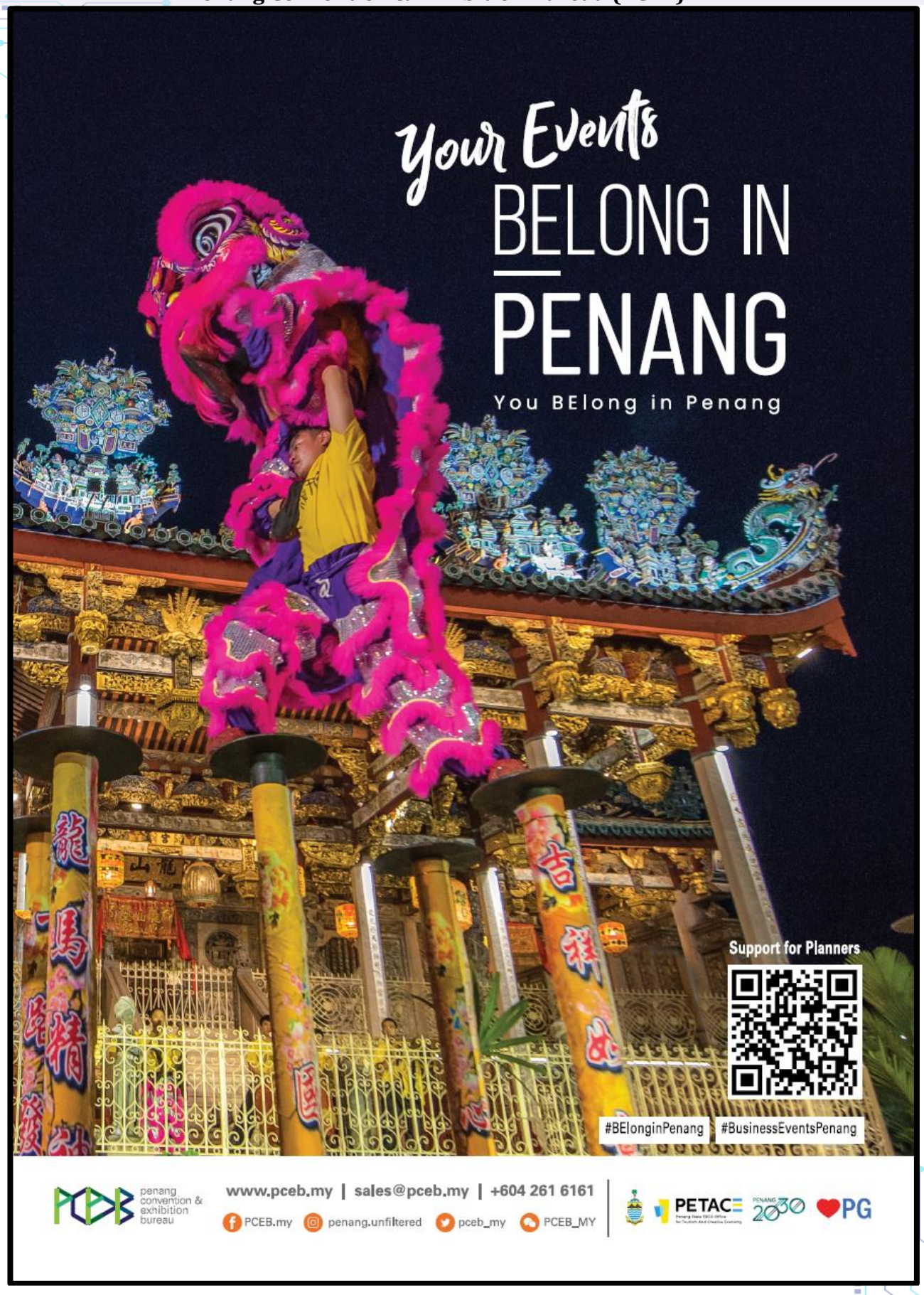

ABOUT US

UiTM Penang Branch, established in June 1996 as the 10th campus of Universiti Teknologi MARA, is committed to academic excellence and nurturing ethical, globally competitive graduates aligned with its vision to be a world-renowned university in Science, Technology, Humanities & Entrepreneurship.

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- MSc & PhD programmes

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- MSc & PhD Porogrammes

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- PhD in Business Management

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- Diploma in Environment Health
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- MSc & PhD by Programmes

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- Diploma in Tourism Management
- Diploma in Food Service Management
- Diploma in Culinary Arts
- Diploma in Pastry
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- BSc (Hons) in Culinary Arts Management
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ABOUT US

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Kirana Semikonduktor Sdn Bhd, a spin-off from the Institute of Nano Optoelectronic Research and Technology (INOR), Universiti Sains Malaysia, pioneers front-end semiconductor technology with a focus on advanced epitaxy and fabrication. We bring together solid theoretical foundations, proven expertise, and cutting-edge engineering to advance semiconductor technology through tailored solutions and comprehensive R&D support.

PRODUCT

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- 2" AlN/sapphire templates - *soon for 4" AlN/sapphire templates*
- Wafers with customized epi-growth process

CONSULTATION

- Developing epi-process for layers and device heterostructures
- Designing piping system for epi-reactor operation, e.g. MOVPE
- Gas handling, safety and maintenance for epi-reactor operation
- Providing training and course on semiconductor technology *(Online mode is also possible)*
- Gas supply design for high vacuum system

The first Malaysian company in front-end semiconductor technology

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Niche: "III-Nitrides Epitaxy for Optoelectronics and Advanced Devices"
GaN-on -GaN LIGHT EMITTING DIODES (LEDs)
National Project
WORLD STANDARD
BREAKTHROUGH
Prof. Dr. Shuji Nakamura
Fabricated white LEDs with peak luminous efficacy > 200 lumens/Watt on patterned sapphire substrates (PSS) based on INOR epitaxy process (March 2023). This performance exceeds many industry standards.
Establishment of world-class laboratory at INOR, USM, capable of epitaxy process, fabrication, and characterizations of optoelectronic materials and devices to benefit the undergraduate and postgraduate students in their research.
Generates > 50 optoelectronic professionals who drive the local talent economy.
7 patents filed
Peak luminous efficacy of 207 lm/W
exceeding target of 200 lm/W for GaN on GaN VAP program
exceeding industrial standards
Luminous Efficiency (lm/W)
200
150
100
50
207 lm/W @ peak
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ASSOC. PROF. DR. NG SHA SHIONG
III-V Nitrides, Wide bandgap Semiconductors, Optoelectronic Materials and Devices, GaN-based Solar Blind UV Detectors and GaN-based Solar Cells

ASSOC. PROF. DR. NORZAINI ZAINAL
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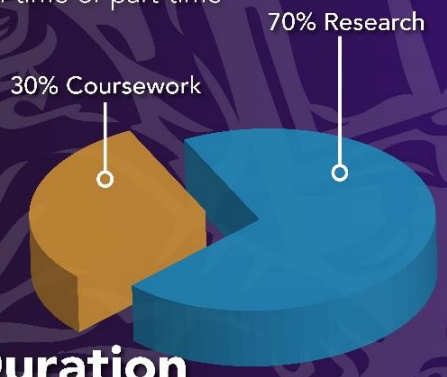

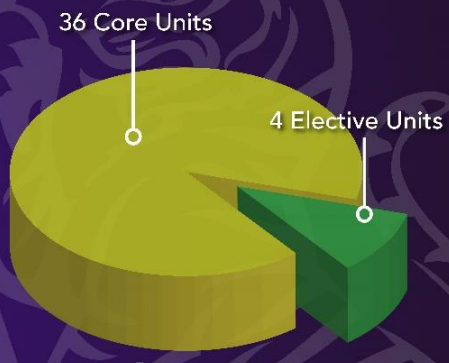

Core

INT 501 [4 units]	Physics and Technology of Nanomaterials	INT 505 [8 units]	Dissertation I
INT 502 [4 units]	Growth and Fabrication of Optoelectronic Devices	INT 506 [20 units]	Dissertation II

Elective

INE 503 [4 units]	Advanced Growth Technology	INE 504 [4 units]	Advanced Optoelectronics

Duration

Full Time [min. 1 year, max. 2 years]
Part time [min. 2 years, max. 3 years]

ACKNOWLEDGEMENTS

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- Ministry of Science, Technology & Innovation (MOSTI)
- Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM)
- Universiti Teknologi MARA (UiTM)
- MIMOS Berhad
- Collaborative Research in Engineering, Science & Technology (CREST)
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The organizing committee also wishes to extend its gratitude to individuals who had given support and assistance towards the success of ICoSeMT 2025 & INoDEx 2025.

Chief Editor: Assoc. Prof. Dr. Mundzir Abdullah

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