



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*



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Published by:

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

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TABLE OF CONTENTS

CONTENT

PAGE

FOREWORD:

MINISTER OF SCIENCE, TECHNOLOGY, AND INNOVATION 3

VICE CHANCELLOR OF UNIVERSITI SAINS MALAYSIA 4

RECTOR OF UNIVERSITI TEKNOLOGI MARA, CAWANGAN 6

PULAU PINANG

CEO OF COLLABORATIVE RESEARCH IN ENGINEERING,
SCIENCE AND TECHNOLOGY (CREST) 7

CHAIRMAN OF ICoSeMT 2025 AND INoDEX 2025 8

ORGANIZING COMMITTEE OF ICoSeMT 2025 & INoDEX 2025 9

ABOUT ICoSeMT 2025 & INoDEX 2025 12

SPONSORS 16

EXHIBITORS 17

EXHIBITOR BOOTH LAYOUT 18

ICoSeMT 2025 & INoDEX 2025 SCHEDULE 19

ICoSeMT 2025

KEYNOTES, PLENARY & INVITED SPEAKERS 26

PRESENTATION SCHEDULES 43

ICoSeMT 2025 PARTICIPANTS DIRECTORY 50

INoDEX 2025

INoDEX 2025 PARTICIPANTS DIRECTORY 58

LIST OF INoDEX 2025 JURY 64

INoDEX 2025 AWARD PRIZES 67

ADVERTISEMENTS 70

ACKNOWLEDGEMENTS 85

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 (UiTM CPP), 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 (UiTM CPP), 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 (UiTM CPP), 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 (UiTM CPP), 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, Turkiye, 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 (UiTM CPP), 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 (UiTM CPP), 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

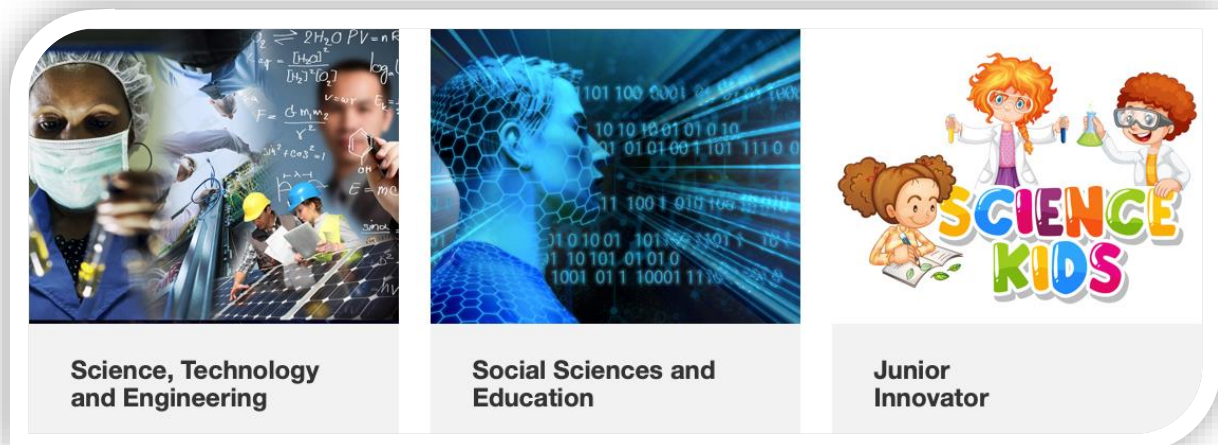


ABOUT INoDEX 2025



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



CONFERENCE VENUE

St. GILES
WEMBLEY Penang



St. Giles Wembley Penang

Address: 183, Jalan Magazine, 10300 George Town, Pulau Pinang, Malaysia

Phone: (60 4) 259 8000

E-mail: info.swpg@stgiles-hotels.com

Website: <https://www.stgileshotels.com/st-giles-wembley>

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. Strategically 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.



SPONSORS

Magna Value Sdn. Bhd.



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94, Lorong Gamelan 3/1, Taman Ria Jaya, 08000 Sungai Petani, Kedah
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Penang Convention & Exhibition Bureau (PECB)



PENANG CONVENTION & EXHIBITION BUREAU

(Owned by PICEB Sdn Bhd)

No. 14A & 16A (First Floor) The Whiteaways Arcade,
Lebuh Pantai, George Town, 10300 Penang, MALAYSIA

T/ +604 261 6161 F/ +604 261 6171 E/ info@pceb.my

EXHIBITORS

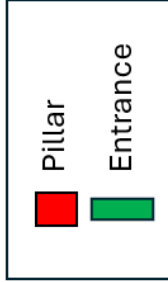
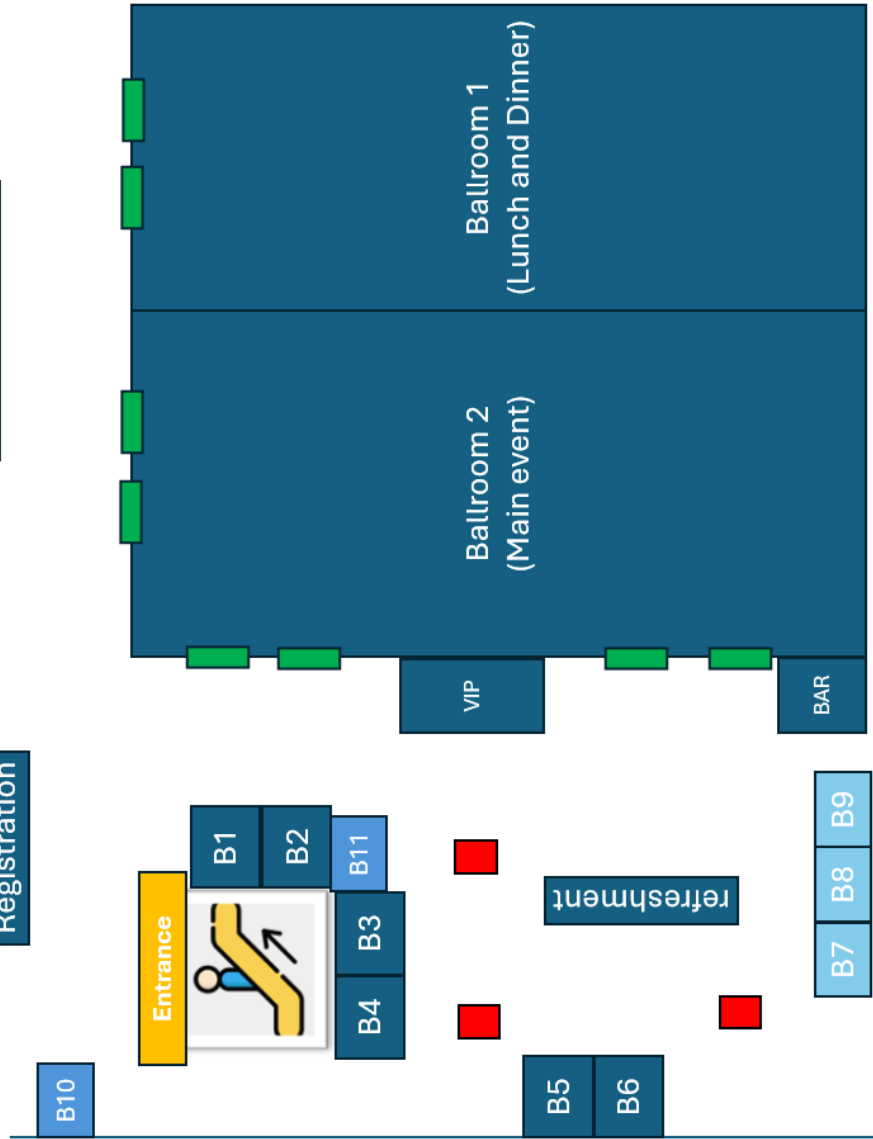


EXHIBITOR BOOTH LAYOUT

Level 10, St. Giles Wembley Penang

Buffet lunch

Registration



BOOTH NO.	EXHIBITOR
B1	MIMOS Berhad
B2	MIMOS Berhad
B3	Nanorian Technologies Sdn Bhd
B4	National Nanotechnology Centre (NNC)
B5	Quasi-s Sdn Bhd
B6	Inno Lab Engineering Sdn Bhd
B7	Crest Analytic Sdn Bhd
B8	Atomic Solutions Sdn Bhd
B9	CREST
B10	UITM PENANG
B11	INOR USM & KIRANA SEMIKONDUKTOR SDN BHD

ICoSeMT 2025 & INoDEx 2025 SCHEDULE

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 AlGaIn 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 Intelligence, Investment and Portfolio Division at MIMOS Holdings Sdn 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 Associate Professor 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) • <i>2 Oral Presentation (15mins x 2)</i>	Assoc. Prof. Dr. Adnan Younis (United Arab Emirates University) • Invited Talk 4 (20 min) Assoc. Prof. Ir. Ts. Dr. Mohd Hanapiah Abdulah (UiTM) • <i>2 Oral Presentation (15mins x 2)</i>	
1300 – 1400	Lunch Break • Networking / Collaboration Session		
1400 – 1420	Ministry of Science, Technology and Innovation (MOSTI) (20 min) Mr. Ismarul Nizam Ismail <i>Principle Assistant Director, National Nanotechnology Center (NNC)</i> Title: Strengthening Nanotechnology Strategies in the MOSTI's Perspectives		
1420 – 1440	PLENARY TALK 2 (20 min) Dr. David Lacey <i>Director of Advanced Development & Services, ams-OSRAM Sdn Bhd</i> 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 <i>Research Director, French National Centre for Scientific Research (CNRS)</i> 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 • <i>4 Oral Presentations (15mins x 4)</i>	PARALLEL SESSION (2B) Chairperson: Dr. Sabah M. Mohammad • <i>4 Oral Presentations (15mins x 4)</i>	
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 <i>Senior Research Scientist, Pioneering Research Institute (PRI), RIKEN Institute, Japan</i> Title: Status and Challenges of Efficient AlGa _N 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 <i>Vice-President of Emerging Technologies, SilTerra Malaysia Sdn Bhd</i> Title: Shaping Tomorrow: Where Optics, Electronics and Mechanics Converge	
0940 – 1000	Coffee Break	
1000 – 1030	KEYNOTE TALK 3 (30 min) Prof. Dr. Markus Weyers <i>Ferdinand-Braun Institute (FBH)</i> Title: Material Aspects of Vertical GaN Transistors	
1030 – 1100	KEYNOTE TALK 4 (30 min) Mr. Sim Kang Wei <i>Senior Director, Head of Wide-Band-Gap Semiconductor R&D, Infineon (Kulim) Sdn. Bhd</i> Title: Advancing the Future of Power Electronics: Infineon's Breakthroughs in GaN Technology	
1100 – 1120	PLENARY TALK 6 (20 min) Prof. Dr. Tao Tao <i>School of Electronic Science and Engineering, Nanjing University, China</i> Title: 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) <i>4 Oral Presentations (15mins x 4)</i>	PARALLEL SESSION (3B) Chairperson: Dr. Rosfariza Radzali Invited Talk 6 (20 min) Assoc. Prof. Dr. Mundzir Abdullah (INOR) <i>4 Oral Presentations (15mins x 4)</i>	
1250 –1400	Lunch Break Networking / Collaboration Session Advertisement Video		
1400 –1420	PLENARY TALK 7 (20 min) Dr. Sideq Salleh <i>Program Director Research, Market, and Industry Development, CREST</i> Title: 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 <i>4 Oral Presentations (15mins x 4)</i>	PARALLEL SESSION (4B & 5B) Chairperson: Assoc. Prof. Dr. Lim Way Foong <i>4 Oral Presentations (15mins x 4)</i>	
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			

ICoSeMT & INoDEX 2025: BANQUET DINNER

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 YBr. Mr. Ismarul Nizam bin Ismail, Senior Assistant Director, National Nanotechnology Centre (NNC), MOSTI
8.20 PM	Singing of <i>Negaraku</i> Singing of <i>Menara Ilmu</i>
8.30 PM	Welcoming Speech by YBhg. Professor Dato' Seri Ir. Dr. Abdul Rahman Mohamed, FASc., Vice-Chancellor, Universiti Sains Malaysia Opening Address by YBr. 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

KEYNOTE SPEAKER 1

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

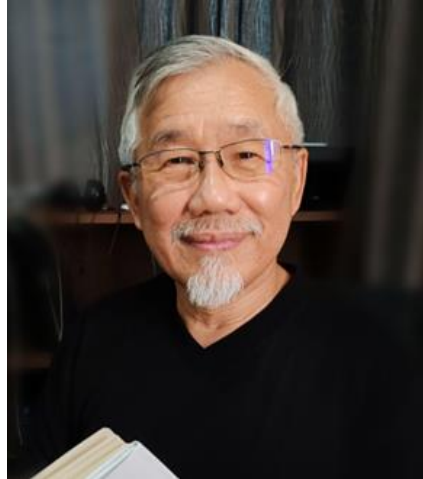
Sim Kang Wei is a seasoned semiconductor professional with over 25 years of experience in Front-End Wafer Fabrication technology, focusing on project leadership, technology development, and innovation.

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.

KEYNOTE SPEAKER 2

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

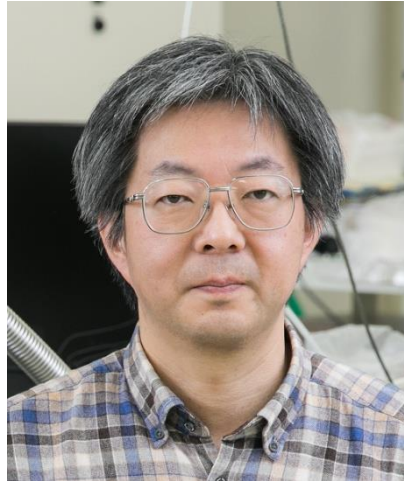
Markus Weyers received his Diploma in Physics 1986 and his Dr. rer. nat. degree in '90 from RWTH Aachen, Germany. From 9/90 to 3/92 he was with NTT Basic Research Labs in Musashino, Japan.

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 AlGaIn 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 AlGaIn/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 AlGa_N-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.

PLENARY SPEAKER 3

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 AlGa_N 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 (AlGa_N), 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 Gordon 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.

PLENARY SPEAKER 6

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.

PLENARY SPEAKER 7

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. İlkyay 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 <i>(Technical Director and Co-Founder, Element 3-5 GmbH, Germany)</i> “Next Level Epitaxy for Semiconductor Thin Films”	Assoc. Prof. Dr. Adnan Younis <i>(Department of Physics, College of Science, United Arab Emirates University)</i> “Solution-Processed Functional Nanostructures for High-Performance Next-Generation Electronics”
12:10 pm	Mr. Allen Cheah <i>(AT&S Malaysia)</i> “Advanced Packaging Substrates for AI Chips”	Assoc. Prof. Ir. Ts. Dr. Mohd Hanapiah Abdullah <i>(Faculty of Electrical Engineering, Universiti Teknologi MARA, UiTM)</i> “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 <i>(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)</i> “Modelling and Simulation of AlGaIn/GaN HEMT with Hybrid Gate-Recessed and AlN/Al ₂ O ₃ Stacked Structure” (Paper ID: IC0046)	Dr. Wan Tatt Wai <i>(Infineon (Kulim) Technologies Sdn. Bhd.)</i> “Application of Cu Material & Process in Semiconductor Manufacturing” (Paper ID: IC0048)

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: IC0045)	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: IC0044)
	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 AlGaIn:Si for Enhanced UVB LED Performance” (Paper ID: IC0036)	Dr. Nee Chen Hon (Faculty of Engineering at Multimedia University) “The Effects of PDINN as Electron Extraction Layer in Organic Solar Cell” (Paper ID: IC0024)
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: IC0031)	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: IC0029)

16:00 pm	Mr. Mohd Nazri Kasuan (Universiti Malaya) “Growth of GaN on Sapphire for High Voltage Vertical Devices” (Paper ID: IC0023)	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: IC0032)
16:15 pm	Dr. Muhammad Syazwan Mustaffa (MIMOS Bhd.) “Machine Learning for Data-Driven Optimization of 2D HBN Growth By CVD” (Paper ID: IC00028)	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: IC0034)

ORAL PRESENTATION

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: IC0041)	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: IC0030)
12:05 am	Ms. Lee Mai Woon (MIMOS Bhd.) “Optical Classification of Amorphous Carbon Films Deposited by Plasma-Enhanced Chemical Vapor Deposition” (Paper ID: IC0027)	Mrs. Nurin Jazlina Zaidi (Universiti Malaya) “Effects of MOCVD Growth Parameters on m-Plane GaN Epitaxy on Sapphire Substrate” (Paper ID: IC0017)

12:20 pm	Mr. Muhammad Iznul Hisyam Mohd Norizan <i>(Universiti Malaya)</i> "Growth of Crack-Free GaN on Si(111) Employing Pulse Atomic Layer Epitaxy AlN Buffer Layer" (Paper ID: IC0026)	Ms. Nur Lili Suraya <i>(Nanomalaysia Bhd.)</i> "Revolutionizing Precision Agriculture: Next-Gen Nanosensors for Intelligent Crop Monitoring and Smart Prediction" (Paper ID: IC0013)
12:35 pm	Ms. Nidhi Patel <i>(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)</i> "Growth of Aluminum Nitride (AlN) at 1175°C" (Paper ID: IC0040)	Mr. Aijaz Ali Soomro <i>(Institute of Nano Optoelectronics Research and Technology, Universiti Sains Malaysia)</i> "Performance Enhancement of β -Ga ₂ O ₃ NRs/p-GaN MSM UV Photodetector Via Thermal Annealing" (Paper ID: IC0021)
	Parallel Session 4A: (Optical and Electronic Material)	Parallel Session 4B: (Devices)
	Venue: Ballroom 2 Chairperson: Assoc. Prof. Dr. Quah Hock Jin	Venue: Wembley 7 Chairperson: Assoc. Prof. Dr. Lim Way Foong
15:30 pm	Mr. Nabil Najmi Norpiah <i>(Universiti Malaya)</i> "Enhancement of Gallium Nitride on Silicon (111) Using Pulse Atomic-Layer Epitaxy (PALE) AlN with Composition-Graded AlGaN Buffer" (Paper ID: IC0018)	Ms. Anam Irshad <i>(School of Physics, Universiti Sains Malaysia)</i> "Colorimetric Variability Analysis of Post-Harvest Harum Manis Mangoes using Tristimulus Measurement" (Paper ID: IC0039)

15:45 pm	Mr. Irfan Abd Rahman <i>(Infineon (Kulim) Technologies Sdn. Bhd.)</i> “Influence of PECVD Process Parameters on the Surface Morphology and Wettability of Silicon Nitride Films” (Paper ID: IC0022)	Mrs. Zuraihana Bachok <i>(Universiti Sains Malaysia)</i> “Optimisation of Laser Soldering Parameters in PTH Assemblies: Effects of Lead Angle, Pad Design, and SAC Alloy Type” (Paper ID: IC0016)
16:00 pm	Ms. Hanadi Ahmed Yaslam Baqandwan <i>(Universiti Sains Malaysia)</i> “Investigation on 2D Lead-Free $\text{Cs}_3\text{Sb}_2\text{C}_x\text{I}_{9-x}$ Perovskite Thin Films on Planar and Black Silicon” (Paper ID: IC0015)	Ms. Kirran Nisha Krishnan <i>(School of Physics, Universiti Sains Malaysia)</i> “pH Measurement in Harum Manis Mango using An 18-Channel Multispectral Reflectance Sensor” (Paper ID: IC0038)
	Parallel Session 5A: (Organic and Polymeric Material)	Parallel Session 5B: (Packaging Technology)
16:15 pm	Ms. Nur Ummul Waliyyatullah <i>(UiTM Pasir Gudang)</i> “Preliminary Study of Dissolution Recycled Textile using Dimethyl Sulfoxide: Effect of Temperature” (Paper ID: IC0025)	Dr. Norfarariyanti Parimon <i>(Engineering Faculty, Universiti Malaysia Sabah)</i> “Enhanced Thermal Management: Copper- and Silver-Coated Heat Spreaders on Aluminium Nitride/Silicon Wafers” (Paper ID: IC0014)



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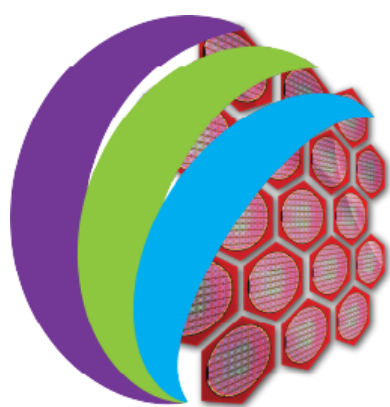
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INoDEX 2025

INoDEX 2025
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10	NADIAH SAARI	UNIVERSITI TEKNOLOGI MARA	MODULOCK: A GAME CHANGING CONNECTOR FOR MODULAR STEEL BUILDINGS	nadia903@uitm.ed u.my
11	HAMIZAH BINTI MOKHTAR	UNIVERSITI TEKNOLOGI MARA CAWANGAN PAHANG	WO3/g-C3N4 NANOCOMPOSITES FOR THE PHOTOCATALYTIC REMOVAL OF ORGANIC UV FILTERS FROM WATER: TOWARDS A GREEN REMEDIATION STRATEGY	hamizah1161@uit m.edu.my
12	NOORSHASHILLAW ATI AZURA BINTI MOHAMMAD	UITM	WASTE TO WEALTH: RECYCLED WOOD PLASTIC COMPOSITE (r-WPC) FOR A GREENER FUTURE	noorshashillawati @uitm.edu.my
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Certificate of Participation



Medal:

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*The additional medal will cost **RM 50.00 per medal** (same cost for gold, silver, or bronze).

*Medals can only be purchased by winners.

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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)
Technology Park Malaysia, 57000 Kuala Lumpur, Malaysia
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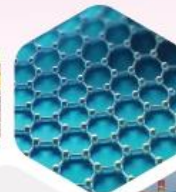
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MINISTRY OF SCIENCE, TECHNOLOGY & INNOVATION

INTRODUCTION

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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

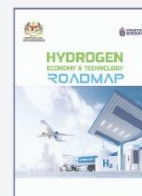
National Nanotechnology Policy and Strategy (DSNN) 2021-2030



National Nanotechnology Product Roadmap 2021-2025



Hydrogen Economy and Technology Roadmap



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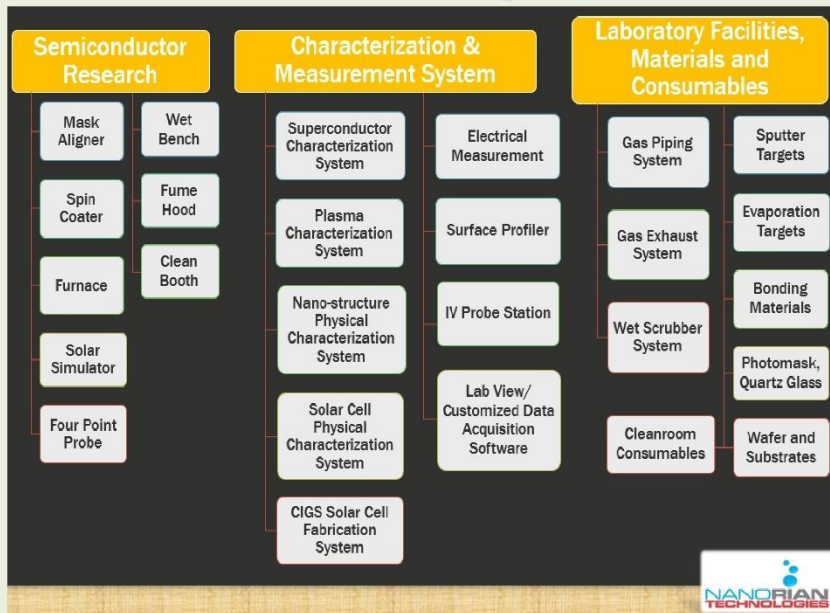
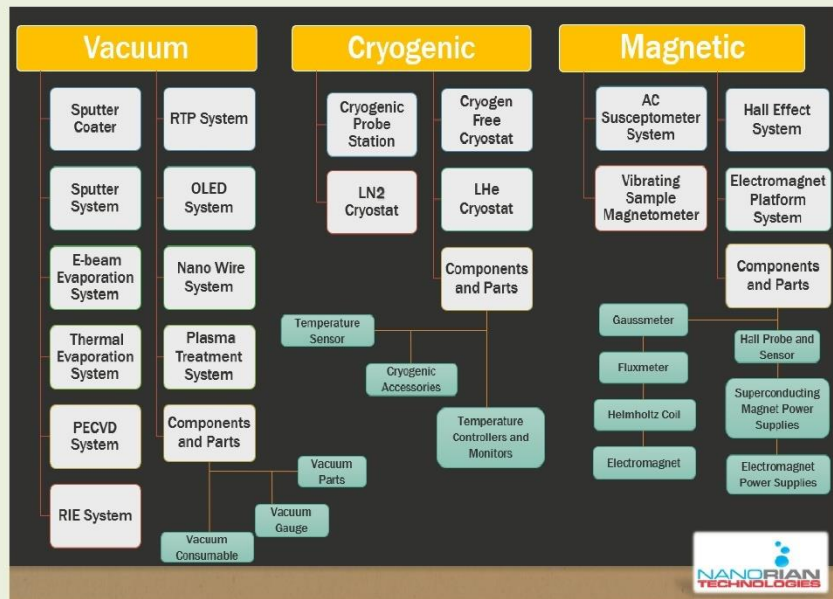
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CREST



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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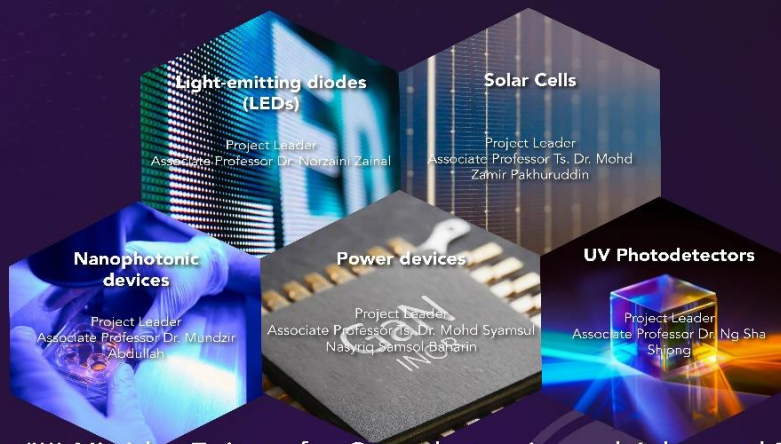
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National Project

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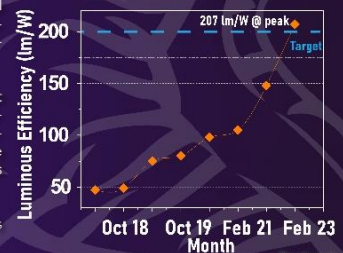
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ASSOC. PROF. DR. NORZAINI ZAINAL

Nitride materials, Nitride devices



ASSOC. PROF. DR. LIM WAY FOONG

Nanostructure materials, Optoelectronic materials, Semiconductor materials and devices



DR. SABAH M. MOHAMMAD

Condensed matter physics, Electrical and electronic engineering, Nanotechnology



ASSOC. PROF. TS. DR. MOHD SYAMSUL NASYRIQ SAMSOL BAHARIN

High electron mobility transistors (HEMT), Diamond devices, Power devices, Biosensors and related sensors



ASSOC. PROF. DR. MUNDZIR ABDULLAH

Electro-Optics and Light Modulation, Fibre Optics and Waveguides, Optics, Non-Linear Optics and Quantum Optics Nano Optics



ASSOC. PROF. DR. QUAH HOCK JIN

Advanced materials, Nanostructure materials, Optoelectronic materials, Semiconductor Materials and devices



TS. DR. MOHD NAZRI ABD RAHMAN

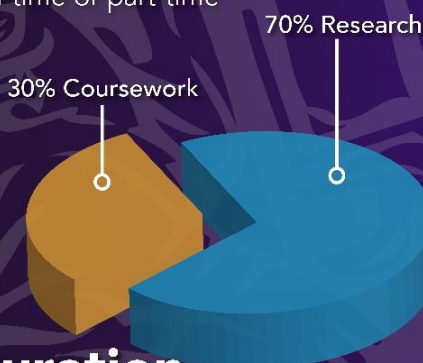
Optoelectronics, Advanced Power Devices, Narrow and Wide bandgap semiconductor devices and materials

MASTER MIXED-MODE PROGRAM

Tailored for Industries

Master of Science (Nano-Optoelectronics)

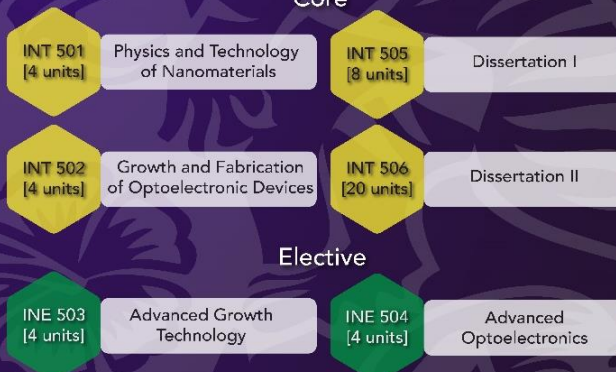
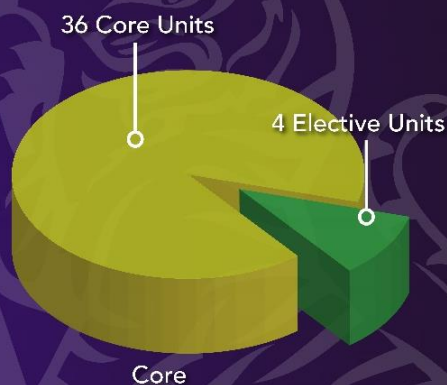
Full-time or part-time



Duration

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

Part time [min. 2 years, max. 3 years]



ACKNOWLEDGEMENTS

The organizing committee is very grateful for the support and generosity of the following contributions towards the success of the ICoSeMT 2025 & INoDEX 2025

- 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)
- Magna Value Sdn. Bhd.
- Penang Convention & Exhibition Bureau (PCEB) | Business Events Penang
- Nanorian Technologies Sdn Bhd
- Quasi-S Technology Sdn Bhd
- Crest Analytic Sdn Bhd
- Inno Lab Engineering Sdn Bhd
- Bruker Malaysia Sdn. Bhd.
- Atomic Solutions Sdn Bhd

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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