

2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021)

concurrent with **International Invention, Innovation
& Design Expo (INoDEX 2021)**



A world map is shown in the background, overlaid with a complex circuitry pattern. The map is rendered in a dark blue color, and the circuitry is a lighter blue, creating a high-tech, digital feel. The circuitry lines are dense and intricate, covering the entire map area.

PROGRAMME BOOK

“Innovation Towards A Sustainable Tomorrow”

8 & 9 November 2021 | Virtual Conference

Official Website | <http://icosemt.usm.my>



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FOREWORD FROM THE SECRETARY GENERAL OF MOSTI

Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

My heartiest congratulations to the 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021) and International Invention, Innovation & Design Expo (INoDEX 2021) committees, held concurrently, on the success of both events. These events are jointly organised by the Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM), Universiti Teknologi MARA Cawangan Pulau Pinang (UiTM CPP), Collaborative Research in Engineering, Science & Technology (CREST) and Industrial Centre of Innovation in Smart Manufacturing (ICI-SM), SIRIM Industrial Research (SIRIM IR), SIRIM Berhad.



The theme of ICoSeMT 2021, "Innovation Towards a Sustainable Tomorrow" has captured the interest of the Ministry of Science, Technology and Innovation (MOSTI). In today's ever-changing world, innovation is the key ingredient in developing a robust economy. Malaysia, aspiring to be a developed nation by 2050, is recalibrating its science and technology model so that we can become a global player in innovation and help the nation to be established as a 'lighthouse' in the region. Creativity and innovation are increasingly essential for an effective response to and recovery from the COVID-19 pandemic, which has impacted many aspects of lives and livelihoods.

At the heart of a good innovative ecosystem is research that is steeped in integrity and solutions. Our innovative contributors, be it from academia, searchers, engineers or the community, need to ensure that their innovations can be held to the light and free of any flaws.

I therefore strongly encourage more scientific research and innovation to be conducted and realised, to ensure effective outcomes and key strategies for Malaysia to become an STI-centric country. I sincerely hope that the collection of ideas, articles and innovations from this conference and expo can be amassed as valuable resources in the ongoing pursuits of discovery within the circle of academicians, researchers and students, and will be able to inspire further researches into the vibrant areas of science & technology in the future.

Thank you.

YBHG. DATUK ZAINAL ABIDIN BIN ABU HASSAN
Secretary General
Ministry of Science, Technology and Innovation (MOSTI)

FOREWORD FROM VICE CHANCELLOR OF UNIVERSITI SAINS MALAYSIA

Assalamualaikum Warahmatullahi Wabarakatuh and *Salam Sejahtera*.



On behalf of Universiti Sains Malaysia (USM), it is my great pleasure to welcome all participants to the concurrent virtual events, 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021) together with the sub-event, the International Invention, Innovation & Design Expo (INoDEX 2021).

ICoSeMT 2021 and INoDEX 2021 are jointly organised by the USM Institute of Nano Optoelectronic Research and Technology (INOR) USM, Universiti Teknologi MARA, Cawangan Pulau Pinang (UiTM CPP), Collaborative Research in Engineering, Science and Technology (CREST) and the Industrial Centre of Innovation in Smart Manufacturing (ICI-SM), SIRIM Industrial Research (SIRIM IR), SIRIM Berhad. I would like to express my sincere gratitude to the organising committee chaired by Dr. Mohd Syamsul Nasir Samsel Baharin for initiating the conference and the expo. Congratulations for all the hard work in ensuring the success of these events despite the challenges of COVID-19 pandemic. The COVID-19 pandemic has brought about great challenges to the global economy and daily lives of the world population, with far-reaching repercussions beyond the spread of the disease. COVID-19 has unknowingly accelerated the innovation engine at every level and in every corner of society. Crisis, as history has shown, is a powerful catalyst for creativity and innovation, which is in line with the theme of the conference, "Innovation Towards A Sustainable Tomorrow".

As one of the leading research universities in Malaysia, USM continues to enhance its research towards more cutting-edge practices and create new opportunities to help mankind, by establishing translational research centres working towards achieving scientific breakthroughs and creating new technology platforms to provide people-focused solutions. In conducting research, USM has taken a different route and puts emphasis on creating an impact to society by creating sustainable research products that are affordable and accessible to the poor and needy. Therefore, it is our hope that these events will succeed in generating many new research findings, innovations, and ideas that will change the lives of the bottom billion and enhance their socio-economic well-being, which is very much in tandem with the vision and mission of the University. I would also like to express my appreciation to our esteemed keynote, plenary, and invited speakers for making time to share with us their thoughtful insights, and not forgetting all the sponsors and supporters. Finally, my sincere thanks to all presenters and exhibitors for their generous support and outstanding contributions. I wish all participants an enjoyable and successful conference and expo.

Thank you.

PROFESSOR. DATO' DR. FAISAL RAFIQ MAHAMD ADIKAN, FASC.

Vice Chancellor,
Universiti Sains Malaysia (USM)

FOREWORD FROM THE RECTOR OF UNIVERSITI TEKNOLOGI MARA, CAWANGAN PULAU PINANG

Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

On behalf of Universiti Teknologi MARA Cawangan Pulau Pinang, I am delighted to welcome all the experts and academics from around the world to this virtual conference. Alhamdulillah, let us extend our sincere gratitude to Allah S.W.T for giving us the opportunity to hold the 2nd International Conference on Semiconductor Materials and Technology (2nd ICoSeMT 2021) and International Invention, Innovation & Design Expo (INoDEX 2021). These events are jointly organised by the Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM), Universiti Teknologi MARA Cawangan Pulau Pinang (UiTM CPP), Collaborative Research in Engineering, Science & Technology (CREST), and Industrial Centre of Innovation in Smart Manufacturing (ICI-SM), SIRIM Industrial Research (SIRIM IR), SIRIM Berhad.



The theme of ICoSeMT 2021 is “Innovation Towards a Sustainable Tomorrow”. This is aligned with the Fourth Industrial Revolution (IR4.0) and National Policy on Science, Technology and Innovation (DSTIN) 2021-2030, which aims to develop Malaysia as a high-tech nation by 2030. Scientific research and innovation can enhance the technology development and the quality of life for populations around the world.

I sincerely hope that this virtual event amidst the challenge of the COVID-19 pandemic will succeed in its objective of providing a platform for students, academicians, researchers, scientists, engineers, and practitioners globally to enrich their research studies in the very dynamic technological environment of today in order to augment their respective areas of specialisation.

Our effort might be humble but the message inherent in it is invaluable. May Allah accept our humble contribution. On this occasion, I would like to congratulate the organising committee for making this event possible and wish all delegates a fruitful and rewarding conference. May Allah S.W.T bless us all.

Thank you.

PROFESSOR TS. DR. SALMIAH KASOLANG

Rector

Universiti Teknologi MARA, Cawangan Pulau Pinang

FOREWORD FROM CHIEF EXECUTIVE OFFICER OF CREST



On behalf of our co-organizers, I welcome you to the 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT) and the International Invention, Innovation and Design Expo 2021 (INoDEX 2021).

The second installment of ICoSeMT speaks volume of the effectiveness of this conference as a platform for institutions and industry players to exchange ideas and experiences in the field of semiconductor materials and technology. To further encourage interactions and promote collaboration among participants, we introduced INoDEX 2021, a sub-event that brings the international and local semiconductor community together via an innovation showcase.

The outlook for Malaysia's E&E and semiconductor industries continues to be bullish. At present, the country stands as a crucial global hub in the semiconductor global supply chain, with approximately 7% of the total global semiconductor trade flowing through the nation. In 2020, the E&E exports recorded RM386 billion, accounting for 39.4% of Malaysia's total exports and this growth is expected to continue in 2021.

A report by IDC indicates that the global semiconductor market is expected to grow by 17% in 2021 versus 10.8% in 2020 with the company predicting that the industry will reach \$600 billion by 2025. These numbers alone underpin the market potential of this industry and all of us have a role to play to capitalize on the opportunities presented to further accelerate growth for this sector.

It is my sincere hope that you will leverage ICoSeMT 2021 and INoDEX 2021 as platforms to share insights, learn, network and collaborate with one another. Let's work together towards building a vibrant and sustainable semiconductor ecosystem.

JAFFRI IBRAHIM

Chief Executive Officer,
CREST

FOREWORD FROM SENIOR VICE PRESIDENT SIRIM INDUSTRIAL RESEARCH (SIRIM-IR) SIRIM BERHAD

Bismillahirrahmanirrahim,

Assalamualaikum wbt,

Alhamdulillah, on behalf of SIRIM Industrial Research, SIRIM Berhad, we would like to extend our sincere gratitude to Allah SWT, for granting us the opportunity to organise the 2nd International Conference on Semiconductor Materials and Technology (2nd ICoSeMT 2021) and International Invention, Innovation & Design Expo (INoDEX 2021).

I would like to take this opportunity to wish congratulations and thank you to the main organizer, Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM), who invite SIRIM Berhad to be one of the collaborators for this virtual conference, together with other co-organizers that is Universiti Teknologi MARA, Cawangan Pulau Pinang (UiTM CPP) and Collaborative Research in Engineering, Science & Technology (CREST).



Together with the other conferences' organisers, we are very pleased to welcome all participants to these two days virtual conference. Parallel with the global trend in digitalisation and aligned with Fourth Industrial Revolution (IR4.0), this virtual conference expectantly will be a platform that gathers experts from academia, scientist, and researchers, locally and internationally, to contribute towards the growth of scientific and technological knowledge in each participant specialisation and expertise. Optimistically, we wish that all new knowledge that is discovered, invented, or innovated will drive towards our future sustainability.

Thank you.

MOHD AZANUDDIN BIN SALLEH

Senior Vice President

SIRIM Industrial Research (SIRIM-IR)

SIRIM Berhad.

WELCOME MESSAGE FROM THE CHAIRMAN OF ICoSeMT 2021 AND INoDEX 2021



Assalamualaikum Warahmatullahi Wabarakatuh and Salam Sejahtera.

Sincere greetings from the organising committee of the 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021) in concurrent with International Invention, Innovation & Design Expo (INoDEX 2021). We are honoured and glad to welcome all participants to this biennial event that is jointly organized by the Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia (USM), Universiti Teknologi MARA Cawangan Pulau Pinang (UiTM CPP), Collaborative Research in Engineering, Science & Technology (CREST), and Industrial Centre of Innovation in Smart Manufacturing (ICI-SM), SIRIM Industrial Research (SIRIM IR), SIRIM Berhad.

This is the second time that we have organized this biennial event and this is our first time executing this event virtually. For 2021, with the continual theme of “Innovation Towards A Sustainable Tomorrow”, the conference has created an effective medium for institutions and industries sharing ideas, knowledge, and expertise in the fields related to semiconductor materials and technology. This year, with the aim to promote positive innovation culture and encourage innovation activities and from different walks of life, a sub-event entitled International Invention, Innovation & Design Expo (INoDEX 2021) is going to be held concurrently. This sub-event 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.

For the topics of Optical and Electronic Materials, Organic and Polymeric Materials, Devices, as well as Packaging Technology, we are delighted to have with us the three distinguished keynote speakers namely, Prof. Dr. Boon S. Ooi (King Abdullah University of Science & Technology (KAUST), Saudi Arabia), Prof. Dr. Tao Wang (The University of Sheffield, United Kingdom) and Prof. Dr. Peter Hadley (Graz University of Technology (TU Graz), Austria). In addition, ICoSeMT 2021 also features two plenary talks from two renowned speakers, namely Dr. Mohd Shahrul Azmi Bin Mohd Yusof (SIRIM Industrial Research (SIRIM IR), Malaysia), Assoc. Prof. Dr. Ruslinda A. Rahim, (National Nanotechnology Center (NNC), Ministry of Science, Technology and Innovation (MOSTI), Malaysia) and Dato’ Dr. Mohd Sofi Osman (Institute of Nano Optoelectronics Research and Technology (INOR), USM, Malaysia) as well as invited talks by prominent researchers from Malaysia. We are proud to announce the attendance of 200 participants from various companies, research and academic institutions including from 5 countries for this event. As a final note, let me express my sincere gratitude to the entire committee members for their efforts, which have been critical to the event's success. In addition, I'd like to thank our outstanding keynote, plenary, and invited speakers for their generosity in sharing their knowledge with us, as well as the event's sponsors and supporters. Please accept my sincere gratitude to all speakers, exhibitors, and sponsors for their generous support and noteworthy contributions.

Thank you.

DR. MOHD SYAMSUL NASYRIQ SAMSOL BAHARIN,
Chairman,
ICoSeMT 2021 & INoDEX 2021

ORGANIZING COMMITTEE OF ICoSeMT 2021 & INODEX 2021

Patron:	Prof. Dato' Dr. Faisal Rafiq Mahamd Adikan, FASc
Advisor:	<ol style="list-style-type: none">1) Prof. Dato' Ir. Dr. Abdul Rahman Mohamed, FASc2) Prof. Ts. Dr. Salmiah Kasolang3) Prof. Dr. Zainuriah Hassan, FASc4) Dato' Dr. Mohd Sofi Osman5) Mr. Jaffri Ibrahim6) Dr. Mohd Shahrul Azmi Mohd Yusof
International Advisory Committee:	<ol style="list-style-type: none">1) Prof. Dr. Boon S. Ooi2) Prof. Dr. Sandeep Vyas3) Prof. Dr. Junya Suehiro4) Prof. Dr. Sidi Hamady5) Prof. Dr. Sabah M. Thahab6) Prof. Dr. Giacinta Parish7) Prof. Dr. Hoe Tan8) Prof. Emeritus Dr. Chua Soo Jin9) Prof. Dr. Steven P. DenBaars10) Prof. Dr. Hiroshi Kawarada
Chairman:	Dr. Mohd Syamsul Nasyriq Samsol Baharin
Deputy Chairman:	<ol style="list-style-type: none">1) Dr. Lim Way Foong2) Ts. Dr. Mohd Zaki Mohd Yusoff
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Publication:	<ol style="list-style-type: none">1) Dr. Quah Hock Jin (Chief)2) Dr. Muhd Azi Che Seliman3) Ts. Dr. Mohd Zamir Pakhuruddin4) Assoc. Prof. ChM. Dr. Nor Aziyah Bakhari5) Ts. Dr. Haslinda Abdul Hamid6) Dr. Mohd Muzafa Jumidali7) Dr. Azrinawati Mohd Zin
Registration& Protocol:	<ol style="list-style-type: none">1) Dr. Mundzir Abdullah (Chief)2) ChM. Nor Aimi Abdul Wahab3) Ms. Nur Atiqah Hamzah

- 4) Mrs. Rahil Izzati Mohd Asri
- 5) Mrs. Nurul Izza Husin
- 6) Mrs. Suhaiza Hasan

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- 2) Assoc. Prof. Dr. Norzaini Zainal
- 3) Dr. Sabah M. Mohammad
- 4) Dr. Zurita Zulkifli
- 5) Mrs. Aini Hafizah Mohd Saod
- 6) Mrs. Azlina Mohd Mydin
- 7) Mrs. Wan Anisha Wan Mohammad
- 8) Mr. Haslan Fadli Ahmad Marzuki
- 9) Mr. Engku Ahmadhilmi Engku Ubaidillah
- 10) Mr. Lim Hoo Kooi
- 11) Ms. Jaime Khor Yoke Ling

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- 2) Mrs. Siti Zubaidah Saad
- 3) Mrs. Nur Athiqah Haron
- 4) Mr. Mohd Anas Ahmad

Innovation:

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- 2) Dr. Nor Azlan Othman
- 3) Dr. Mohammad Nizam Ibrahim
- 4) Mr. Saiful Nizam Abu Bakar
- 5) Mr. Saiful Nizam Waris
- 6) Mr. Sharaf Ahmad
- 7) Mrs. Nur Maizatul Azra Mukhtar
- 8) Mrs. Siti Hajar Khalid
- 9) Mrs. Noorezal Atfyinna Mohd Napiah
- 10) Mrs. Asmalia Zanal
- 11) Mrs. Norsabrina Sihab

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- 2) Mr. Syed Mohamad Syed Sahil
- 3) Mr. Mohd Syafiq Abdul Rahman
- 4) Mr. Mohd Ikmal Fitri Marzuki

**Event Management
& Logistics:**

- 1) Mr. Wan Rosdan Rozali (Chief)
- 2) Mr. Mohd Nazri Bakar
- 3) Mr. Mohd Firdaus Abdullah

ABOUT ICoSeMT 2021



2nd International Conference on Semiconductor Materials and Technology (2nd ICoSeMT 2021) 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 (UiTMCP), Collaborative Research in Engineering, Science & Technology (CREST), and Industrial Centre of Innovation in Smart Manufacturing (ICI-SM), SIRIM Industrial Research (SIRIM IR), SIRIM Berhad 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.

2nd ICoSeMT 2021 solicits contributions of abstracts, papers, and posters, featuring the theme and four main topics of the conference, encompassing:

Optical and Electronic Materials	
<ul style="list-style-type: none"> Narrow and Wide Band Gap Semiconductors Diamond, Graphene, and Carbon Nanotubes Piezoelectric and Ferroelectric Materials Electroluminescent Materials Superconductors 	<ul style="list-style-type: none"> Colour-Changing Materials Energy Storage Materials Dielectric Materials Porous Structures Nanostructures
Devices	
<ul style="list-style-type: none"> Optoelectronics Sensors and Actuators Power Devices Novel Devices Photovoltaics 	<ul style="list-style-type: none"> MEMS/NEMS Contacts and Interconnects Fabrication Processes Integrated System Design Modelling and Simulation
Organic and Polymeric Materials	
<ul style="list-style-type: none"> Organic Semiconductors Conductive Polymers Polymer Electronics and Coatings Polymer Catalysts and Characterization 	<ul style="list-style-type: none"> Composite Polymers and Biopolymers Functional Polymers and Polymer Hybrid Materials
Packaging Technology	
<ul style="list-style-type: none"> Phosphor Technology Lens and Optics Thermal Management 	<ul style="list-style-type: none"> Back End Processes and Applications Failure Analysis and Reliability Front End Assembly Processes

ABOUT INoDEX 2021



This year, with the aim to promote positive innovation culture and encourage innovation activities from different walks of life, a sub-event entitled International Invention, Innovation & Design Expo (INoDEX 2021) is going to be held concurrently. This sub-event 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 2021 Category



Science, Technology and Engineering

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Social Sciences and Education

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Junior Innovator

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LIST OF EXHIBITORS

PACKAGE A



**BUSINESS EVENTS
SARAWAK**

BUSINESS EVENTS SARAWAK (BESARAWAK)

c / o Sarawak Convention Bureau

Level 3, Plaza Aurora, Lot 20,
Section 30, Jalan McDougall,
93000, Kuching, Sarawak,
Malaysia

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Care and Large Enough to Make a Difference

PACKAGE B



Inno Lab Engineering Sdn Bhd

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Website: www.nexus-analytics.com.my

SPONSOR

PACKAGE S3 (RM1000)



**BUSINESS EVENTS
SARAWAK**

BUSINESS EVENTS SARAWAK (BESARAWAK)

c / o Sarawak Convention Bureau

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Malaysia

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ICoSeMT 2021 & INoDEX 2021 SIMPLIFIED SCHEDULE

Day 1: 8 November 2021 (Monday)

Time	Programme	
OPENING CEREMONY		
0830 – 0900	Registration of Guest and Participant (Webex)/ Advertisement Video	
0900 – 0935	Doa Recital	
	Welcoming Speech by YBhg. Professor Dato’ Dr. Faisal Rafiq Mahamd Adikan, FASc Vice-Chancellor, Universiti Sains Malaysia	
	Welcoming speech by YBrs. Prof. Ts. Dr. Salmiah Kasolang Rector, Universiti Teknologi MARA, Cawangan Pulau Pinang (UiTM CPP)	
	Welcoming speech by YBrs. En. Jaffri Ibrahim Chief Executive Officer, Collaborative Research in Engineering, Science & Technology (CREST)	
	Welcoming speech by YBrs. En. Mohd Azanuddin Salleh Senior Vice President, SIRIM Industrial Research	
	Opening Speech by: YBhg. Datuk Zainal Abidin Bin Abu Hassan Secretary General Ministry of Science, Technology and Innovation (MOSTI)	
Event	ICoSeMT 2021	INoDEx 2021
0935 – 1005	KEYNOTE TALK 1 Prof. Dr. Peter Hadley	Video presentation
1005 – 1030	PLENARY TALK 1 Dato’ Dr. Mohd Sofi Osman	
1030 – 1045	Online Group Photo Session/ Break/ Advertisement Video	
1045 – 1300	PARALLEL ORAL SESSION 1	
1300 – 1315	Poster Session	
1315 – 1400	Break / Advertisement Video	
1400 – 1545	PARALLEL ORAL SESSION 2	
1415 – 1430	BESarawak Virtual Exhibition	
1545 – 1550	Poster Session	
1550 – 1605	Online Photo Session/ Break/ Advertisement Video	
1605 – 1635	KEYNOTE TALK 2 Prof. Dr. Tao Wang	
1635 – 1850	PARALLEL ORAL SESSION 3	
END OF DAY 1		

Day 2: 9 November 2021 (Tuesday)

Time	ICoSeMT 2021	INoDEX 2021
0830 – 0900	Registration of Guest and Participant (Webex)/ Advertisement Video	Video presentation
0900 – 0925	PLENARY TALK 2 Assoc. Prof. Dr. Ruslinda A. Rahim	
0925 – 1055	PARALLEL ORAL SESSION 4	
1055 – 1115	Poster Session	
1115 – 1125	Online Photo Session/ Break / Advertisement	
1125 – 1310	PARALLEL ORAL SESSION 5	
1310 – 1315	Poster Session	
1315 – 1400	Break / Advertisement	
1400 – 1430	KEYNOTE TALK 3 Prof. Dr. Boon S. Ooi	
1430 – 1455	PLENARY TALK 3 Dr. Mohd Shahrul Azmi Bin Mohd Yusof	
1455 – 1610	PARALLEL ORAL SESSION 6	
1610 – 1615	Poster Session	
1615 – 1625	Break / Advertisement	
1625 – 1840	PARALLEL ORAL SESSION 7	
CLOSING CEREMONY		
1840 – 1900	Closing Speech by Dr. Mohd Syamsul Nasyriq Bin Samsol Baharin Chairman of ICoSeMT 2021 & INoDEX 2021	
	Award Announcement INoDEX 2021	
	End of Ceremony	
END OF EVENT		



2nd iCoSeMT 2021

Date: 8 & 9 November 2021

Venue: Webex by CISCO

KEYNOTES, PLENARY & INVITED SPEAKERS

Keynote Speaker 1

Issues in Microelectronics Packaging



Prof. Dr. Peter Hadley

Graz University of Technology (TU Graz), Austria

Biography

Peter Hadley is a device physicist who has investigated superconducting circuits, single-electron circuits, carbon nanotube and single-molecule devices, organic semiconducting devices and inorganic semiconducting devices made from Si, and SiC. The current focus of his research is on understanding defects in semiconductors. He is the director of the Institute of Solid-State Physics at the Graz University of Technology.

Keynote Speaker 2

A Direct Epitaxial Approach to Monolithically Integrating InGaN MicroLEDs and HEMTs for Microdisplay and VLC



Prof. Dr. Tao Wang

*The University of Sheffield
United Kingdom*

Biography

Tao Wang is a professor (with Top Professor Grade) as Chair in Advanced Opto-Electronics in the Department of Electronic and Electrical Engineering, the University of Sheffield, the UK. He is Director of the Sheffield Centre for GaN Materials and Devices. He received his Ph.D. from Universität Würzburg in Germany in 1997. He started III-nitrides research at the University of Tokushima in Japan in 1997 and then worked at Nitride Semiconductor Ltd. in Tokushima as the R & D director from 2000 to 2002. He joined the University of Sheffield in August 2002 to carry on III-nitrides research. He was awarded the highly prestigious “EPSRC Advanced Research Fellow” in the UK in 2005. The innovation of his research led to two spinouts (Seren Photonics Ltd., the recipient of the 2015 Royal Society Emerging Technology Award; EpiPix Ltd. aiming to manufacture micro-LEDs). He is regularly involved in organizing international conferences including being Chair of the 16th International Symposium on the Science and Technology of Lighting in 2018 and the Chair of the 2012 Summer School on III-nitrides. He initiated and chaired the 1st China-UK workshop on GaN Materials and Devices. He has > 500 publications including 5 book chapters, > 250 journal papers, >250 conference papers and presentations. He holds 22 patents on III-nitrides.

Keynote Speaker 3

Gbps Laser-based Visible Light Communications (VLC)



Prof. Dr. Boon S. Ooi

*King Abdullah University of Science & Technology (KAUST), Saudi Arabia/
Institute of Nano Optoelectronics Research and Technology (INOR), USM, Malaysia*

Biography

Boon S. Ooi is a Professor of Electrical and Computer Engineering at KAUST (Saudi Arabia), and an Adjunct Professor of the University of Science, Malaysia. He received the Ph.D. degree in electronics and electrical engineering from the University of Glasgow (Scotland, UK). He has served as a faculty member at Nanyang Technological University (Singapore) and Lehigh University (Pennsylvania, USA). His research interest includes the study of III-V and III-Nitride based materials and devices, and their applications in optical sensors and optical communications. He is a Senior Editor of IEEE Photonics Journal and Associate Editor of OSA Optics Express. Ooi is an elected fellow of the U.S. National Academy of Inventors (NAI). He is a Fellow of OSA, SPIE and IoP (UK).

The Management Tools in Manufacturing for Competitive Advantage



Dato' Dr. Mohd Sofi Osman

Institute of Nano Optoelectronics Research and Technology (INOR), USM, Malaysia

Biography

Dato' Dr Mohd Sofi Osman was born in Penang. Received his primary and secondary educations in Penang before pursuing his engineering degree at the University of Strathclyde, Glasgow. He is married with three children. Dato' Dr Mohd Sofi Osman joined Intel in 2015 with the acquisition of Altera Corporation, where he was the Vice President and Managing Director and led Worldwide Operations and Engineering for the Asia Pacific region since 2012. Before joining Altera, he had a 25-year career at Advanced Micro Devices (AMD), culminating in his role as Corporate Vice President and Managing Director of AMD Penang. He holds a patent in the field of the semiconductor manufacturing process and has published papers on continuous improvement projects in backend semiconductor manufacturing. He retired from Intel in July 2016 after spending almost 30 years in the Semiconductor Industry. In 2018, he came out from retirement to work for Lumileds as Vice President and Managing Director of Lumileds Malaysia until June 2020. Dato' Dr Mohd Sofi Osman was on the Board of Directors at University Malaysia Perlis (UniMAP) since the organization was still known as KUKUM. He was the past Chairman of the board for University Malaysia Perlis and University Tun Hussein Onn Malaysia. He was also the Adjunct Professor at University Technology Mara (UiTM) Shah Alam and University Science Malaysia (USM). He was the past Chairman of Penang Skills Development Centre (PSDC). He was also the past President of the Free Industrial Zone Penang Company Association (Frepenco). He is currently the Advisor to Collaborative Research in Engineering, Science & Technology (CREST) Board, member of the CEO Faculty Program. He is currently an Adjunct Professor at the Institute of Nano Optoelectronics Research and Technology (INOR), University Sains Malaysia with the mission of accelerating the research collaboration between INOR and industry players as well as assisting the advancement of research capabilities at INOR that are in line with industry's needs.

Plenary Speaker 2

Nanotechnology: A Driving Force in Semiconductor Industry



Assoc. Prof. Dr. Ruslinda A. Rahim

*National Nanotechnology Center (NNC)
Ministry of Science, Technology and Innovation (MOSTI), Malaysia*

Biography

Ruslinda binti A. Rahim received the Doctor of Philosophy (Ph.D) majoring in Nanoscience and Nanoengineering from Waseda University, Japan in September 2012. She also received M. Eng and B. Eng degree in Electrical and Electronic Engineering from Muroran Institute of Technology, Japan in 2007 and 2002, respectively. Currently, she is a Director of National Nanotechnology Centre under Ministry of Science, Technology and Innovation (MOSTI). She also a Research Fellow in Institute of Nano Electronic Engineering (INEE), Universiti Malaysia Perlis (UniMAP) and Associate Research Fellow in Institute of Microengineering and Nanoelectronics (IMEN), The National University of Malaysia (UKM). Her research interests include Nanoelectronics, Nanostructure device, Biosensors, Bioelectronics, DNA and protein detection, Aptamer and surface chemistry on carbon-based materials. She also active in several societies such as a Board of Engineers Malaysia, Professional Technologist Malaysia (MBOT) (Nanotechnology), Committee member of Malaysia Nanotechnology Association, Board of Member Malaysia Sensor Society and Editor of the International Journal of Nanoelectronics and Materials.

Plenary Speaker 3

Aligning The Aspiration for Greater Good of Industry and Community



Dr. Mohd Shahrul Azmi Bin Mohd Yusof

SIRIM Industrial Research (SIRIM IR), Malaysia

Biography

M Shahrul Azmi M Yusoff is currently the Director of Innovation in Smart Manufacturing at Standard and Research Institution of Malaysia (SIRIM). His PhD was in the study of acoustic detection and signal processing for predictive maintenance. With over 18 years of experience in the industry, his publications include journals and technology articles. He is currently pursuing advanced research in predictive maintenance using artificial intelligence technology as part of the implementation strategy within the I4.0 Centre of Excellence.

INVITED SPEAKERS



TS. DR. FAIZ ARITH

**Universiti Teknikal Malaysia Melaka (UTeM),
Malaysia**

High Electron Mobility of 4H-SiC MOSFET
Utilizing Ultrathin Layer of SiO₂



**DR. MOHAMED SHUAIB BIN MOHAMED
SAHEED**

**Universiti Teknologi PETRONAS (UTP),
Malaysia**

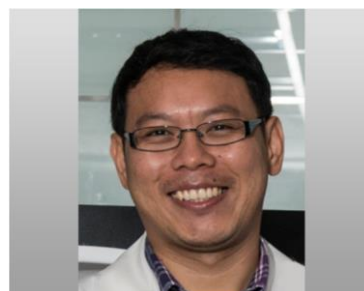
Aptasensor for Mycotoxins Detection: An
Approach using Nanostructured Materials



DR. SUHAILA SEPEAI

**Universiti Kebangsaan Malaysia (UKM),
Malaysia**

Morphological, Optical and Electrical Analysis
of Ag Polymer-Nickel Low Temperature Top
Electrode in Silicon Solar Cell for Tandem
Application



**ASSOCIATE PROFESSOR DR. TAN SWEE
TIAM**

**Xiamen University Malaysia (XMU),
Malaysia**

High-Performance Light-Emitting Diodes for
Lighting and Displays



TS. DR. WAN MARYAM WAN AHMAD KAMIL

Universiti Sains Malaysia (USM), Malaysia

Random Lasing from Semiconductor Nanostructures

PRESENTATION SCHEDULE

ICoSeMT 2021 CONFERENCE SCHEDULE

Day 1: 8 November 2021 (Monday)

Time	Programme
0830 – 0900	Registration of Guest and Participant (Webex)/ Advertisement Video
0900 – 0935	Doa Recital
	Welcoming Speech by YBhg. Professor Dato' Dr. Faisal Rafiq Mahamd Adikan, FASc Vice-Chancellor, Universiti Sains Malaysia (USM)
	Welcoming Speech by YBrs. Prof. Ts. Dr. Salmiah Kasolang Rector, Universiti Teknologi MARA, Cawangan Pulau Pinang (UiTM CPP)
	Welcoming Speech by YBrs. En. Jaffri Ibrahim Chief Executive Officer, Collaborative Research in Engineering, Science & Technology (CREST)
	Welcoming Speech by YBrs. En. Mohd Azanuddin Salleh Senior Vice President, SIRIM Industrial Research
	Opening Speech by YBhg. Datuk Zainal Abidin Abu Hassan Secretary General Ministry of Science, Technology and Innovation (MOSTI)
KEYNOTE TALK 1 (SESSION CHAIR: Ts. Dr. Haslinda Abdul Hamid)	
0935 – 1005	<i>"Issues in Microelectronics Packaging"</i> Prof. Dr. Peter Hadley Graz University of Technology (TU Graz), AUSTRIA
PLENARY TALK 1 (SESSION CHAIR: Ts. Dr. Haslinda Abdul Hamid)	
1005 – 1030	<i>"The Management Tools in Manufacturing for Competitive Advantage"</i> Dato' Dr. Mohd Sofi Osman Universiti Sains Malaysia, MALAYSIA
1030 – 1045	Online Group Photo Session/ Break/ Advertisement Video
ORAL SESSION 1 TOPIC A: OPTICAL AND ELECTRONIC MATERIALS (SESSION CHAIR: Dr. Muhd Azi Che Seliman)	
1045 – 1100	INVITED TALK 1: <i>"Aptasensor for Mycotoxins Detection: An Approach Using Nanostructured Materials"</i> Dr. Mohamed Shuaib Mohamed Saheed Universiti Teknologi Petronas (UTP), MALAYSIA
1100 – 1115	<i>"Wafer-Scale Patterning Of Silicon Nanowire Using Uv Enhanced Substrate Conformal Imprint Lithography (Uv-Scil)"</i>

	Mohd Azraie Mohd Azmi, Owen J. Guy, Azman Aziz, Fatihatul Makmon, Suhaili Sabdin, Sharinee Sallah
1115 – 1130	<i>"Influence of the Rods as Collector on Morphology and Uniformity of Nanofibers via Electrospinning"</i> Nabeel Z. Al-Hazeem, Z. Hassan, Sabah M. Mohammad
1130 – 1145	<i>"Impedance and Dielectric Characterisation of Epoxy Composites Containing Carbon Black and Carbon Nanotubes"</i> Raja Nor Raja Othman, Afham Za'im Ghani, Noor Amieza Mohamad
1145 – 1200	<i>"Nearly Zero Ultra-Flattened Dispersion in Octagonal Photonic Crystal Fiber"</i> Naeemul Islam, Anik Baul, Mohamed Fauzi Packeer Mohamed, Abu Bakkar Sakib, Md. Fokhrul Hasan
1200 – 1215	<i>"Impacts of Wafer Doping Type on Structural and Optical Properties of Black Silicon Fabricated by Metal-Assisted Chemical Etching"</i> Muhiddin Ahmad Sheriff, Auwal Abdulkadir, Md. Roslan Hashim, Mohd Zamir Pakhuruddin
1215 – 1230	<i>"X-Ray Diffraction Study of InGaN/GaN Heterostructures Grown by MOCVD Technique at Different Temperatures"</i> A.K. Tan, N.A. Hamzah, S.S Ng
1230 – 1245	<i>"Indium Doped Spin Coated ZnO Using Thin Film for TCO Application"</i> Shafinaz Sobihana Shariffudin, Ahamd Hasif Mohd Zaid, Najwa Ezira Ahmed Azahar, Puteri Sarah Mohamad Saad, Hashimah Hashim, Mohamad Hafiz Mamat
1245 – 1300	<i>"Characterization of Nanocrystalline SnO₂-Y₂O₃ Thin Films Prepared Using Chemical Bath Deposition"</i> Imad H. Kadhim, Huda Nagem Abd
1300 – 1315	Poster Session
1315 – 1400	Break / Advertisement Video
ORAL SESSION 2 TOPIC B: DEVICES (SESSION CHAIR: Ts. Dr. Mohd Zamir Pakhuruddin)	
1400 – 1415	INVITED TALK 2: <i>"High Electron Mobility of 4H-SiC MOSFET Utilizing Ultrathin Layer of SiO₂"</i> Ts. Dr. Faiz Arith Universiti Teknikal Malaysia Melaka (UTeM), MALAYSIA
1415 – 1430	BESarawak Virtual Exhibition
1430 – 1445	<i>"Investigation on Absorption and Photocurrent in Silicon Absorber with Varied Pyramid Texture Angles by Ray Tracer"</i> Mohamad Aliff Asraff Rosle, Mohd Zamir Pakhuruddin
1445 – 1500	<i>"Optimization of 1 μm Gate Length InGaAs-InAlAs pHEMT"</i> Naeemul Islam, Mohamed Fauzi Packeer Mohamed, Mohd Syamsul Nasyriq Samsol Baharin, Muhammad Firdaus Akbar Jalaludin Khan, Nor Azlin Ghazali, Mohd Hendra Hairi
1500 – 1515	<i>"Temperature Dependence of Electrical Characteristics of ZnO Field Effect Transistors with AZO and Aluminium Source/Drain Contact"</i> Nor Azlin Ghazali, Mohamed Fauzi Packeer Mohmaed, Muhammad Firdaus Akbar Jalaludin Khan, Harold Chong
1515 – 1530	<i>"Humidity Sensor Performance Based Composite ZnO/SnO₂ Nanorod Structure Using Different ZnO Seed Layer"</i> Nor Diyana Md Sin, Shatini Md Said, Ahmad Syakirin Ismail, Mohamad Hafiz Mamat, Fazlinashatul Suhaidah Zahid, Mohamad Zhafran Hussin, Noor Asnida Asli, Mohamad Rusop
1530 – 1545	<i>"Potential of Water-Based Phosphoric Acid as Emitter Junction on n-Si Wafer"</i>

	Ahmad Rujhan Mohd Rais, Nurul Aqidah Mohd Sinin, Suhaila Sepeai, Mohd Adib Ibrahim, Saleem H. Zaidi, Kamaruzzaman Sopian
1545 – 1550	Poster Session
1550 – 1605	Online Photo Session/ Break/ Advertisement
KEYNOTE TALK 2 (SESSION CHAIR: Assoc. Prof. Dr. Ng Sha Shiong)	
1605-1635	<i>"A Direct Epitaxial Approach to Monolithically Integrating InGaN MicroLEDs and HEMTs for Microdisplay and VLC"</i> Prof. Dr. Tao Wang <i>The University of Sheffield, UNITED KINGDOM</i>
ORAL SESSION 3 TOPIC C: ORGANIC AND POLYMERIC MATERIALS/ TOPIC D: PACKAGING TECHNOLOGY (SESSION CHAIR: Assoc. Prof. Dr. Ng Sha Shiong)	
1635 – 1650	INVITED TALK 3: <i>"Morphological, Optical and Electrical Analysis of Ag Polymer-Nickel Low Temperature Top Electrode in Silicon Solar Cell for Tandem Application"</i> Dr. Suhaila Sepeai <i>Universiti Kebangsaan Malaysia (UKM), MALAYSIA</i>
1650 – 1705	<i>"Thermomechanical and Dielectric Properties Relationship of Hybrid Carbon Black and Nano Silica Epoxy Composites"</i> Raja Nor Raja Othman, Fatim Atira, Noor Amieza Mohamad
1705 – 1720	<i>"Utilization of Sawdust as an Absorbing Material in Anti-Microwave Brick Walls Manufacturing"</i> Nur Hashira Narudin, Hasnain Abdullah, Mohd Nasir Taib, Basharudin Abdul Hadi, Azizah Ahmad, Nazirah Mohamat Kasim, Noor Azila Ismail
1720 – 1735	<i>"PVA Nanofibers Embedded with Different Concentration of ZnO Prepared by Electrospinning Method"</i> Muhammad AlHadi Zulkefle, Rohanieza Abdul Rahman, Wan Fazlida Hanim Abdullah, Zurita Zulkifli, Sukreen Hana Herman
1735 – 1750	<i>"Removal of Congo Red Dye Using Green Kyllinga Weed Extract and Mediated-Silver Nanoparticles as Catalysts"</i> Siti Hajar Khalid, Aishah Nur Addia Azizan, Nor Aimi Abdul Wahab, Mohamed Syazwan Osman, Norain Isa, Vicinisvarri Inderan
1750 – 1805	<i>"Dielectric Properties of Epoxy Composites Containing Silver Nanoparticle and Carbon Nanotube Over the X-Band Frequency"</i> Noor Amieza Mohamad, Raja Nor Raja Othman, Nurfazlin Abdul Jamil
1805 – 1820	<i>"Interfacial Delamination Validation on Fan-Out Wafer-Level Package Using Finite Element Method"</i> Ariel Conversion, Aristotle Ubando, Jeremias Gonzaga
1820 – 1835	<i>"Modelling and Thermal Simulation for 1mm² VSCEL Chip"</i> Khairul Mohd Arshad, Muhamad Mat Noor, Shaili Falina, Asrulnizam Abd Manaf, Hiroshi Kwarada, Mohd Syamsul
1835 – 1850	<i>"Fabrication of Nanocomposite PDMS/Graphene as Flexible Substrate at Different Graphene Concentration"</i> Irzati Zaili binit Ghazali, Zurita binti Zulkifli
END OF DAY 1	

Day 2: 9 November 2021 (Tuesday)

Time	Programme
0830 – 0900	Registration of Guest and Participant (Webex)/ Advertisement Video
PLENARY TALK 2 (SESSION CHAIR: Dr. Alhan Farhanah Abd Rahim)	
0900 – 0925	<i>"Nanotechnology: A Driving Force in Semiconductor Industry"</i> Assoc. Prof. Dr. Ruslinda A. Rahim National Nanotechnology Center (NNC), Ministry of Science, Technology and Innovation (MOSTI), MALAYSIA
ORAL SESSION 4 TOPIC A: OPTICAL AND ELECTRONIC MATERIALS (SESSION CHAIR: Dr. Alhan Farhanah Abd Rahim)	
0925 – 0940	<i>"Structural, Morphological, and Optical Properties of Low-Cost Fluorine, Silver Co-Doped ZnO Nanostructures"</i> Aminu Muhammad, Zainuriah Hassan, Sabah M. Mohammad, Suvindraj Rajamanickam, Shireen Mohammed Abed
0940 – 0955	<i>"Impact of Precursor Concentration on the Structural, Optical and Electrical Properties of Spin Coated Low Temperature Processed ZnO Quantum Dots Based Flexible Thin Film"</i> Sani Muhammad, Marzaini Rashid
0955 – 1010	<i>"The Performance of Hollow Pyramidal Microwave Absorber by Using Different Slot Size Array"</i> Mas Izzati Fazin, Hasnain Abdullah@Idris, Mohamad Faisal Asmadi, Ahmad Rashidy Razali, Norhayati Mohamad Noor, Linda Mohd Kasim, Mohd Nasir Taib
1010 – 1025	<i>"Electrical Properties of GaN Cap Layer for AlGaIn/GaN HEMT"</i> M. Hasnan, R.I.M Asri, M. Nuzaihan, M. Inaba, M. Nakano, J. Suehiro, Z. Hassan, S. Falina, H. Kwarada, M. Syamsul
1025 – 1040	<i>"Atomic Structure for AlN Grown on Different Sapphire Orientation via Numerical Study"</i> Mazwan Mansor, Norzaini Zainal, Mohd Nazri Abd Rahman, Ahmad Kamil Azizan, Yusnizam Yusuf
1040 – 1055	<i>"Optical Microfiber Liquid Refractometer: The Effect of Taper Waist"</i> Mohamad Aizat Abu Bakar, Alex The Boon Li, M. Safwan Aziz, Ganesan Krishnan, Sabah M. Mohammad, Mundzir Abdullah.
1055 – 1115	Poster Session
1115 – 1125	Online Photo Session/ Break/ Advertisement
ORAL SESSION 5 TOPIC B: DEVICES (SESSION CHAIR: Dr. Rosfariza Radzali)	
1125 – 1140	<i>"Analysis of Transmission Performance for Fine Pitch Interconnects"</i> Hungyang Leong, Boon Kar Yap, Lit Pern Chin, Eryana Binti Hussin
1140 – 1155	<i>"Fabrication UV ZnO NRs Photodetector Based on Seeded Silicone (Si) Substrate via the Drop-Casting Technique"</i> Shireen Mohammed Abed, Sabah M. Mohammad, Z. Hassan, A. Muhammad, Suvindraj Rajamanickam
1155 – 1210	<i>"Effects of Notch Structures on the Transfer and DC Performances of AlGaIn/GaN HEMT Devices"</i> Muhaimin Haziq Mihat, Fauzi Packeer, Norshamsuri Ali, Shaili Falina, Hiroshi Kwarada, Mohd Syamsul

1210 – 1225	<p><i>“Comparison of the Electrical Performance of AlN and HfO₂ Passivation Layer in AlGaIn/GaN HEMT”</i></p> <p>Zikri Zulkifli, Fauzi Packeer, Norshamsuri Ali, Shaili Falina, Hiroshi Kawarada, Mohd Syamsul</p>
1225 – 1240	<p><i>“Characterization of Breath Sensor at Different Frequencies in Outdoor Condition”</i></p> <p>Norfatiha Suhimi, Noriah Yusoff, Nor Hayati Saad</p>
1240 – 1255	<p><i>“Opto-Electronic Characterisation of GaAsBi/GaAs Multiple Quantum Wells for Photovoltaic Applications”</i></p> <p>Faezah Harun, Julie Roslita Rusli, Robert D Richards, John P R David</p>
1255 – 1310	<p><i>“Effect of Indium in p-Layer of InGaIn Green Leds”</i></p> <p>M. Ikram Md Taib, E.A. Alias, Y. Yusuf, N. Zainal</p>
1310 – 1315	Poster Session
1315 – 1400	Break/ Advertisement
<p align="center">KEYNOTE TALK 3 (SESSION CHAIR: Dr. Yusnita Mohd Ali)</p>	
1400 – 1430	<p><i>“Gbps Laser-Based Visible Light Communications (VLC)”</i></p> <p>Prof. Dr. Boon S. Ooi King Abdullah University of Science & Technology (KAUST), SAUDI ARABIA Universiti Sains Malaysia (USM), MALAYSIA</p>
<p align="center">PLENARY TALK 3 (SESSION CHAIR: Dr. Yusnita Mohd Ali)</p>	
1430 – 1455	<p><i>“Aligning the Aspiration for Greater Good of Industry and Community”</i></p> <p>Dr. Mohd Shahrul Azmi Bin Mohd Yusof SIRIM Industrial Research (SIRIM IR), MALAYSIA</p>
<p align="center">ORAL SESSION 6 TOPIC A: OPTICAL AND ELECTRONIC MATERIALS/ TOPIC C: ORGANIC AND POLYMERIC MATERIALS (SESSION CHAIR: Ts. Dr. Mohd Zaki Mohd Yusoff)</p>	
1455 – 1510	<p>INVITED TALK 4: <i>“Random Lasing from Semiconductor Nanostructures”</i></p> <p>Ts. Dr. Wan Maryam Wan Ahmad Kamil Universiti Sains Malaysia (USM), MALAYSIA</p>
1510 – 1525	<p><i>“Effect Crystallinity of TiO₂/Ag/SrSnO₃ for Conductivity Photoanode DSSC”</i></p> <p>I.Najihah, N. Nafarizal, M.A.M. Sultan, M. Megat, N.K.A. Hamed, A. Khairul, M. Kamarulzaki, Z. Ayib, M. Hafiz</p>
1525 – 1540	<p><i>“Ray Tracing of Perovskite Thin Films for Solar Windows”</i></p> <p>Zulfa Zahri, Mohd Marzaini Mohd Rashid, Mohd Zamir Pakhuruddin</p>
1540 – 1555	<p><i>“Synergistic Effect of Alum Doped TiO₂ for Photoelectrode Modification in Dye Sensitized Solar Cell (DSSC)”</i></p> <p>A.M. Shahrul, M.H. Mamat, A.A.A Samat, Irni Hamiza. H, A.N.A. Rashid, S. Setumin, Syarifah Adilah MY, M.H. Abdullah</p>
1555 – 1610	<p><i>“Characterization of Natural Dye Extracted from Medicinal Leaf of Mitragyna Speciosa for Dye-Sensitized Solar Cells”</i></p> <p>Azlina AK, M.H. Mamat, Che Soh, Z.H, M.F.A. Rahman, N.A. Othman, Marina M, Syarifah Adilah MY, M.H. Abdullah</p>
1610 – 1615	Poster Session
1615 – 1625	Break/ Advertisement

ORAL SESSION 7 TOPIC A: OPTICAL AND ELECTRONIC MATERIALS (SESSION CHAIR: Dr. Lim Way Foong)	
1625 – 1640	INVITED TALK 5: <i>"High-Performance Light-Emitting Diodes for Lighting and Displays"</i> Dr. Tan Swee Tiam Xiamen University Malaysia, MALAYSIA
1640 – 1655	<i>"Effect of Silver Nitrate Concentration on the Morphological, Structural and Optical Properties of ZnO Nanorods"</i> Suvindraj Rajamanickam, Sabah M. Mohammad, Z. Hassan, Aminu Muhammad, Shireen Mohmmmed Abed
1655 – 1710	<i>"Effect of Mn Incorporated into LiNbO₃ Crystal Structure on the Structural, Electronic and Optical Properties Using First-Principles Study"</i> L.W. Zainuddin, M.F.M. Taib, O.H. Hassan, M.H. Samat
1710 – 1725	<i>"Enhancing the Properties of Nano-Porous Si Using Electrochemical Etching Technique"</i> Fatimah Zulkifli, Rosfariza Radzali, Alhan Farhanah Abd Rahim, Ainorkhilah Mahmood, Nurul Syuhadah Mohd Razali
1725 – 1740	<i>"Electronic Structure and Optical Properties of Strained Type-II InAs_xSb_{1-x}/InAs Quantum Dots for Mid-Infrared Applications"</i> Gik Hong Yeap, Sergey I. Rybchenko, Igor E. Itskevich, Stephanie K. Haywood, Peter Carrington, Anthony Krier
1740 – 1755	<i>"Effects of Nitrogen Flow Rates on Properties of AlGaIn Thin Films Prepared by Co-Sputtering Technique"</i> O. Afiqah, N. Nafarizal, M. Kamarulzaki, A. Zulkifli, M. Megat, A. Bakri, J. Noryasmin, A. Shuhaimi, M. Hafiz, M. Zamri, A. Yazid
1755 – 1810	<i>"Textured Polyimide Substrate for Enhanced Light Absorption in Flexible Black Silicon"</i> Halo Dalshad Omar, Auwal Abdulkadir, Md. Roslan Hashim, Mohd Zamir Pakhuruddin
1810 – 1825	<i>"A DFT+U Study on the Structural, Electronic and Optical Properties of Ti-, Ag- and Cu-Doped ZnO"</i> N. Hamzah, M.F.M. Taib, N.A. Johari, A.F.A. Faizal, M.H. Samat, O.H. Hassan, A.M.M. Ali, R. Zakaria, N.H. Hussin
1825 – 1840	<i>"Fabrication Of Ps/Al Nanocomposites As Foils And Evaluation Of Their Optical Properties"</i> Hameed Naser, Z. Hassan, Haider Mohammed Shanshool, Sabah M. Mohammad
CLOSING CEREMONY	
1840 – 1900	Closing Speech by <i>Dr. Mohd Syamsul Nasyiq Bin Samsol Baharin</i> Chairman of ICoSeMT 2021 & INoDEX 2021
	Award Announcement INoDEX 2021
	End of Ceremony
END OF EVENT	

POSTER SESSION SCHEDULE

Day 1: 8 November 2021 (Monday)

Time	Title/Presenter
1300 – 1303	Comparison on the Performance of MOS Capacitor Simulated Using SILVACO TCAD Tools <i>Lyly Nyl Ismail, Mohammad Faiz Ismail, Norsabrina Sihab, Nur Sa'adah Mohamad Sauki</i>
1303 – 1306	Study of Strained-SiGe Channel P-MOSFET Using SILVACO TCAD: Impact of Channel Thickness and Ge-Composition <i>Siti NorFarah Nadia Mohd Salleh, Alhan Farhanah Abd Rahim, Rosfariza Radzali, Ainokhilah Mahmood, Irni Hamiza Hamzah</i>
1306 – 1309	Enhanced Catalytic Embedded Porous Silicon for Improved Hydrogen Gas Sensing <i>Alhan Farhanah Abd Rahim, Rosfariza Radzali, Ainokhilah Mahmood, Irni Hamiza Hamzah</i>
1309 – 1312	Surface Morphological and Optical Characteristics of Etched ZnO/Glass at Various H ₂ O ₂ Concentrations <i>Siti Maisarah Alias, Mohd Zaki Mohd Yusoff</i>
1312 – 1315	Effects of Thermal and Microwave Heat Treatments on Structural Properties of GaN-Based Blue Led <i>R.K. Faridur, A.K. Tan, N.A. Hamzah, S.S. Ng</i>
1545 – 1548	ZnO Nanorods as a Nanosensor Prepared by Hydrothermal Method for Methanol Detection in Aqueous Solution <i>Haslinda Abdul Hamid, Norain Isa</i>

Day 2: 9 November 2021 (Tuesday)

Time	Title/Presenter
1055 – 1058	Nanomanipulation of Functionalized Gold Nanoparticles on GaN <i>M.A. Che Seliman, N.A. Ali Yusup, M. Hasnan, R.I.M Asri, M. Inaba, M. Nakano, J. Suehiro, H. Kawarada, Z. Hassan, S. Falina, M. Syamsul</i>
1058 – 1101	Effects of Indium Composition on the Surface Morphological and Optical Properties of InGaN/GaN Heterostructures <i>N.A. Hamzah, M.A.A.Z. Md Sahar, A.K. Tan, M.F.I. Abd Malik, C.C. Loo, W.S. Chang, S.S. Ng</i>
1101 – 1104	Growth of AlN Layer Below 1180°C via Metal Organics Chemical Vapor Deposition <i>Yusnizam Yusuf, Muhammad Esmed Alif Samsudin, Norzaini Zainal</i>
1104 – 1107	Enhancing Photocatalytic Activity of Cr Doped SrTiO ₃ in Terms of Electronic Structure and Optical Properties : A DFT + U Investigations <i>A.F.A. Faizal, M.F.M. Taib, N. Hamzah, N.A. Johari, M.H. Samat, N.K. Jaafar, S.Z.Z. Abidin, O.H. Hassan</i>
1107 – 1110	Study Of Porous III-V Surface Structure Via Etching Process : Effect Of Pore Depth <i>Rosfariza Radzali, Nur Nur Era Shafiqah Ensnat, Alhan Farhanah Abd Rahim, Ainorkhilah Mahmood, Aslina Abu Bakar</i>
1110 – 1113	Rapid Thermal Annealing Process Toward Enhancement of ITO Thin Films <i>R.I.M. Asri, N.A. Hamzah, M.A. Ahmad, M.A.A.Z. Md Sahar, M. A. Che Seliman, M. Abdullah, Z. Hassan</i>
1113 – 1116	Effect of Capping Agent on the Shape and Catalytic Activity of PtPd Bimetallic Alloy Nanostructures <i>Mahayatun Dayana Johan Ooi, Nurshahzleen Mohd Yusaini, Ainorkhilah Mahmood, Noorezal Atfyinna Mohd Napiah, Yushamdan Yusof</i>
1310 – 1313	Porosification Analysis in ACPEC Porous Undoped GaN Nanostructure Using the Image Processing Method <i>Ainorkhilah Mahmood, Naser Mahmoud Ahmed, Mahayatun Dayana Johan Ooi, Alhan Farhanah Abd Rahim, Rosfariza Radzali, Haslinda Abdul Hamid</i>
1313 – 1316	Speech-Based Gender Recognition Using Linear Prediction Coefficients and Mel-Frequency Cepstral Coefficients <i>Yusnita Mohd Ali, Emilia Noorsal, Nor Fadzilah Mokhtar, Siti Zubaidah Md Saad, Mohd Hanapiah Abdullah</i>

1610 – 1613	<p>The Effect of V-Pits on Electronic and Optical Properties and Internal Quantum Efficiency of GaN-Based Green Light-Emitting Diodes</p> <p><i>M.A. Ahmad, N.A. Hamzah, M.I.M. Taib, R.I.M. Asri, N. Zainal, Z. Hassan</i></p>
1613 – 1616	<p>Hollow Pyramidal Trianglar Slotted Geopolymer Microwave Absorber Performance</p> <p><i>Mohamad Faisal Asmadi, Hasnain Abdullah@Idris, Mohd Nasir Taib, Mas Izzaty Binti Fazin, Norhayati Mohamad Noor, Linda Mohd Kasim, Mohd Muzafa Jumidali</i></p>

ICoSeMT 2021 PARTICIPANTS DIRECTORY

INVITED SPEAKERS

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91	Muhammad Amir Effendy	University Kuala Lumpur Malaysian Spanish Institute	CONCEPTUAL AND DESIGN OF IOT BASED SMART CLOTH DRYING RACK	muhammadamireffendy99@gmail.com
92	Ching Yee Yong	University College of Technology Sarawak	SUSTAINABLE GREEN TECHNOLOGY – A SMART DISTRIBUTION BOARD	ching.yee@ucts.edu.my
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97	Kavthami K Tamil Maran	Universiti Kebangsaan Malaysia, Bangi	THE USE OF DUMBOMY IN ENHANCING VOCABULARY THROUGH SENTENCE WRITING AMONG YEAR 3 PUPILS	kavimaran30@gmail.com
98	Paviithira	Universiti Kebangsaan Malaysia, Bangi	THE USE OF NEGOR OR LET GO GAME IN CONSTRUCTING SIMPLE SENTENCES.	paviithira3004@gmail.com
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108	Dewi Tajuddin	UiTM Sabah	TALENT: THE IMPRESSION OF RECOGNIZING YOUR OWN TALENTS 'TALENTED: KNOW, UNDERSTAND AND LOVE YOUR TALENT' WITH THE QUESTIONNAIRE MODEL: 4QT-KUL	dewi400@uitm.edu.my
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114	Mohd Muzafa Jumidali	Universiti Teknologi MARA Cawangan Pulau Pinang	MONITORING CHLOROPHYLL-A (CHLL-A) CONCENTRATION IN SPATIOTEMPORAL DOMAIN OVER TELUK LIPAT UTILIZING LANDSAT 8 (OLI)	mohdmuza433@uitm.edu.my
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118	Norfarariyanti Binti Parimon	Universiti Malaysia Sabah	ULTRA-HIGHLY SENSITIVE HUMIDITY SENSOR BASED ON NOVEL NANOPOROUS NICKEL OXIDE/ZINC OXIDE NANOCOMPOSITE HETEROSTRUCTURE FILM	fara2012@ums.edu.my
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126	Nur Syazwani Abdul Malek	Universiti Teknologi MARA (UiTM)	THE ROLE OF CINNAMON/ZNO POLYLACTIC ACID: NEW DEVELOPMENT OF ANTIMICROBIAL AND UV-SHIELDING ACTIVE FRUIT PACKAGING	2019873218@student.uitm.edu.my
127	Najwa Ezira Ahmed Azhar	Universiti Teknologi MARA (UiTM)	HIGHLY SENSITIVE NIOBIUM DOPED HIGHLY ORDERED VERTICALLY ALIGNED TITANIA NANOTUBES HUMIDITY SENSOR VIA ELECTRODEPOSITION APPROACH	najwaezira@yahoo.com






128	Mohd Firdaus Malek	Centre for Functional Materials and Nanotechnology (FMN)	AUGMENTATION OF POWER CONVERSION EFFICIENCY OF HYBRID SOLAR CELLS BY UTILISING VERTICALLY ALIGNED ZAO NANOWIRES AS PHOTOANODE VIA NOVEL MICROWAVE-ASSISTED SONICATION APPROACH	mfmalek07@uitm.edu.my
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130	Muhammad Alif Redzuan Abdullah	Faculty Of Modern Languages & Communication, Universiti Putra Malaysia	ANIMATION KARAOKE-DUAL CODING METHODS IN ACQUIRING VOCABULARY	muhammadalif@upm.edu.my

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Our Key Roles are:



Market and promote Sarawak for Business Events (Corporate Meetings, Corporate Incentives, Conventions and Exhibitions)



Bid, support, and develop local, national, and international business events and provide financial and non-financial support



Support capacity building by developing educational activities and programmes for the industry



Connect and collaborate with Governments (Sarawak, National, and International), Associations, Academia, Corporate Organisations, and Industry Partners





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- ✓ For business events held in Sarawak until December 2022
- ✓ **Supports hybrid events**
- ✓ Suitable for new and current applicants
- ✓ For business events with **149 or less** national and international delegates
- ✓ Extra claimable items included
- ✓ Value booster included
- ✓ Application may be submitted 4 months prior to event date

Tribe Elevation

- ✓ For business events held in Sarawak until December 2022
- ✓ **Supports hybrid events**
- ✓ Suitable for new and current applicants
- ✓ For business events with **150 or more** national and international delegates
- ✓ Extra claimable items included
- ✓ Value booster included
- ✓ Application may be submitted 4 months prior to event date

Tribe Generation

- ✓ **Seed fund for inaugural business events** (first edition) held in Sarawak until December 2022
- ✓ Seed fund is applicable for any event, **inclusive of hybrid events**, under *Tribe Acceleration* or *Tribe Elevation* under the condition that the event is inaugural
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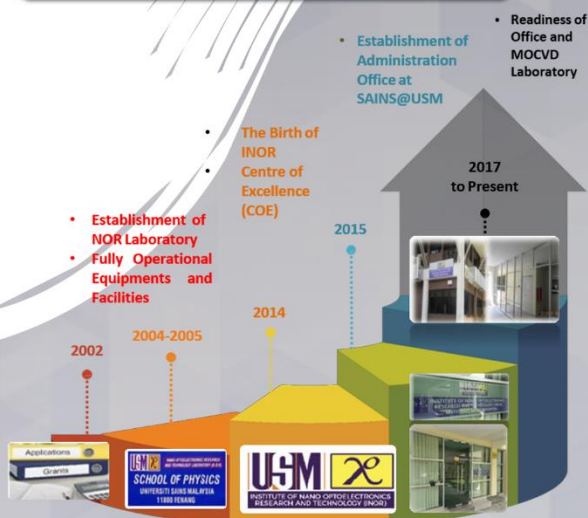


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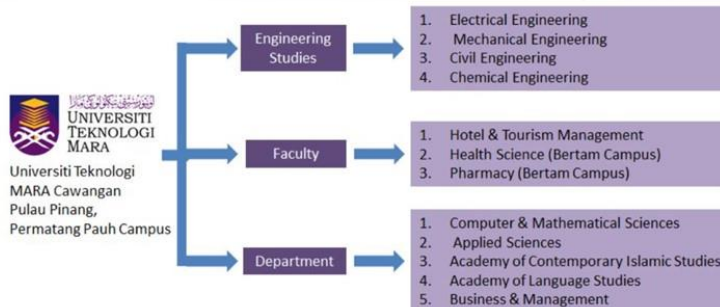




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MSc in Electrical and Electronics Engineering with Management (Coursework)
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Bachelor of Engineering (Hons) Civil (Infrastructure)
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MSc in Construction with Business Management
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Meeting & event space available



Free parking



SIRIM INDUSTRIAL RESEARCH

SIRIM INDUSTRIAL RESEARCH IN BRIEF

"SIRIM Industrial Research is at the front line of technological innovations for various industries. SIRIM believes that through technological advancement, industries will see an increase in sustainability and in turn boost the nation's economy. Under SIRIM Industrial Research, there are Industrial Centres of Innovation (IC-Innovation) and Technology Centres"

Our IC-Innovation and Technology Centres support the national industrial innovation ecosystem through research, development and new technological innovations that develop and sustain businesses and industries in the areas of energy and environment, medical technology and machine technology. We nurture Small and Medium Enterprise (SME) growth with solutions for technology penetration and upgrading, making us an ideal technology partner for SMEs.

SIRIM Industrial Research has strengthened its role in enhancing SME productivity by positioning its technology and innovation services in multidimensional tiers; these include the optimisation of material, energy and labour usage, as well as the introduction of new technology, such as mechanisation and automation, to improve manufacturing processes. The SIRIM-Fraunhofer programme was set up to oversee the implementation and introduction of this new technology programmes to maximise productivity, efficiency and delivery of SMEs.

The SIRIM Industrial Innovation Model, which features the enhancement of innovation services and networking with strategic partners has been adopted to catalyse the growth of SMEs. This model focuses on applied research and is implemented throughout the value chain of services for SMEs. It allows SIRIM to recommend and provide solutions through technology adoption and uptake activities for the enhancement of SME productivity. SIRIM Industrial Research actively assists the industries in moving towards Industry 4.0 ready through Industry4WRD Readiness Assessment with strong collaboration and partnership with technology and solution providers.

As a research and technology innovation arm, SIRIM Industrial Research will continue to create high value and provide new technologies to the industry to achieve world class status and penetrate the global market.

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SIRIM INDUSTRIAL RESEARCH



SIRIM Industrial Research

Enabling Businesses through Research and Innovative Solutions

SIRIM IR provides timely and focused research and innovative technologies that brings about improvements, impacts and competitive advantages to the Malaysian industry.

Our industrial R&D activities span across a full range of technologies and solutions with commercial potential in energy and environmental technologies, plant and machinery expertise and medical technology

Our experts integrate different engineering fields to develop innovative solutions for our customers.

Key Activities

- Technical Training & Consultancy
- Technical Services
- Industrial Research
- Commercialisation

SIRIM IR Location

- Shah Alam
- Rasa
- Bukit Jalil
- Kulim



Industrial Research Management Centre (IRMC)

Industrial Research Management Centre (IRMC) is the driving force within SIRIM Industrial Research (SIRIM IR) that propels both commercial and R&D activities.

Through numerous promotional channels, the IRMC team has managed to connect business partners, collaborators and clients to leverage on SIRIM IR's technologies and innovations.

The IRMC team coordinates and facilitates a broad spectrum of research and development activities, promotion and networking through close collaboration with the government agencies, industries and other universities in the fields of Smart Manufacturing, Machinery Technology, Sensor, Nanotechnology, Medical Devices, Industrial Biotechnology, Energy Management, Bio Natural Gas and Environment.

IRMC team also assists industries partners in exploring various grants from the ministries such as MITI HVA PDP/MDP, Vendor Development Programme, MOSTI R&D grant and international funding for their projects in enhancing their productivity and efficiency.



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- Collaborative Research in Engineering, Science & Technology (CREST)
- Industrial Centre of Innovation in Smart Manufacturing (ICI-SM), SIRIM Industrial Research (SIRIM IR), SIRIM Berhad
- Ministry of Science, Technology & Innovation (MOSTI)
- BUSINESS EVENTS SARAWAK (BESARAWAK)
- Inno Lab Engineering Sdn Bhd
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Official Website | <http://icosemt.usm.my>

Jointly Organized by:



Institute of Nano Optoelectronics Research
and Technology (INOR),
Universiti Sains Malaysia (USM)



Faculty of Electrical Engineering and
Department of Applied Sciences
Universiti Teknologi MARA Pulau Pinang Branch



Collaborative Research in Engineering,
Science and Technology (CREST)



Industrial Centre of Innovation
in Smart Manufacturing (ICI-SM),
SIRIM Industrial Research (SIRIM IR), SIRIM Berhad