

ASM 2022 EDITION EXPERT NETWORK

Leaders | Advocators | Discoverers | Practitioners | Collaborators | Communicators |
Innovators & Inventors of Science, Engineering & Technology

Think Science | Celebrate Technology | Inspire Innovation

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ABOUT ASM

A statutory body under the Ministry of Science, Technology and Innovation (MOSTI), the Academy of Sciences Malaysia (ASM) is mandated by the Academy of Sciences Malaysia Act 1994 to advise the government and stakeholders on matters related to Science, Technology, Innovation and Economy (STIE). With a core membership of the best scientific minds, the Academy is positioned to be the apex advisory body on STIE matters through commissioned studies, leading to recognition as an important strategic partner in the government decision making process. To date, ASM consists of 453 Fellows across eight disciplines ranging from Biological Sciences to Social Sciences and Humanities, and further supported by 51 Associates, 225 members of the Young Scientists Network (YSN-ASM), 119 Top Research Scientists Malaysia recipients and 11 Mahathir Science Awards Laureates in carrying out its mandate effectively. With a widespread expertise, ASM's voice in addressing STIE matters is more inclusive as ever.

ASM envisions to be an independent thought leader in STIE towards a progressive, harmonious, prosperous and sustainable society, nationally and internationally. As such, ASM carries out strategic and foresight studies and produces reports, position papers, blueprints, roadmaps and reviews which are independent, evidence-based, reliable and timely. The recommendations are designed to help policy makers and government officials comprehend the issues to enable them to design and develop practical and inclusive action plans. ASM studies are conducted by a team of analysts led by Fellows who are the subject matter experts in the relevant field. The knowledge, expertise and network of the Fellows are harnessed to enable ASM to effectively play its role as the thought leader in STIE.

In recent years, ASM has gone beyond its function as a Think Tank in providing recommendations on "what" to implement to become a Change Maker by demonstrating on the "how" to do through several pilot projects in proving the effectiveness of strategies that were recommended. Amongst others are the Malaysian Collaborative Network Innovation (i-Connect) and Malaysian Open Science Platform (MOSP).

Since its founding, ASM has been heavily involved in developing and nurturing talent in science, technology, engineering and mathematics (STEM) at various levels, ranging from school children to early-career scientists. ASM often collaborates and partners with corporations and ministries in reaching out to more young talents. The National Science Challenge, a premier science competition to create greater interest of STEM amongst the secondary school student has been organised by ASM since 1983. It has successfully inspired at least 33 teams of young science enthusiasts!

Globally, advancement in STIE has paved the way for a higher-income society which is why ASM endeavours to advance the agenda on STIE as the basis for a long-term economic development and societal well-being. Hence, ASM emphasises on building international partnerships, collaborations and networks that promote scientific understanding, improve scientific quality and address global challenges. Malaysia's participation in the global STI arena positions our scientists at various platforms and programmes abroad which enhances our scientists' experiences and expertise apart from widening their network. In this capacity, ASM actively collaborates in the international and regional programmes, committees and platforms such as the Lindau Nobel Laureate Meetings.

Understanding that science advocacy requires the greatest collective endeavours, ASM strives to promote better public awareness and perception in STIE issues like digitalisation, green energy and biodiversity by organising public engagement programmes such as FASciate and ArtScience™ that are presented in a simplistic and comprehensible manner to reach out to the general public.

Academician Datin Paduka Setia Dato' Dr Aini Ideris FASc

Individual Achievement

Datin Paduka Setia Dato' Dr Aini Ideris is a renowned scientist in avian medicine, graduated with Doctor of Veterinary Medicine (DVM) degree in 1979 from Universiti Pertanian Malaysia (UPM), Master of Veterinary Science from the University of Liverpool, UK (1981) and PhD in Avian Medicine (1989) from UPM. She later went on to do her sabbatical and postdoctoral training at the University of California-Davis in 1990-1992 and further postdoctoral training under the Asian Development Bank Fellowship at Cornell University in 1993.

Dato' Dr Aini's achievements in research are recognised globally. The highlight of her research is the development and subsequently commercialisation of a new heat stable Newcastle disease virus, V4-UPM that can be administered by conventional methods and incorporated into the feed, and Fowl Pox vaccine. These two vaccines have been successfully registered and sold in nearly 20 countries. As a recognition of her achievements in the successful commercialisation of poultry vaccines, she was awarded a special research grant by the Prime Minister's Department in 1996 to further improve the facilities of her research laboratory and to enhance the development of vaccine technology in Malaysia, through biotechnology. As a distinguished scientist, Dato Dr Aini was appointed as Fellow Academy of Sciences Malaysia (FASc) in 2009, and Top Research Scientist Malaysia in 2013. She is also a Founding Fellow of Malaysian College of Veterinary Specialists (FMCVS), Fellow of Malaysian Scientific Association (FMSA) and Fellow of Malaysia Institute of Marketing (IMM). In October 2011, she was elected as Fellow of the Islamic World Academy of Sciences (FIAS), one of the 8 female Fellows then, out of over 100 Fellows from more than 50 Islamic countries. In 2022, she was appointed as Senior Fellow Academy of Sciences Malaysia, who carries the title 'Academician'.

Besides doing research, Dato' Dr Aini also has a wealth of experience in administration as well as an educator. Throughout her career as an academic, she has served as the Deputy Dean of Faculty of Veterinary Medicine, Dean of School of Graduate Studies, Director of Corporate Strategy and Communications Office, Deputy Vice Chancellor (Academic and International) and Vice-Chancellor of Universiti Putra Malaysia (UPM). She also served as Chairman for various committees at the University and national

levels and sits in various Councils and EXCOs at national and international levels. Currently she is the Pro-Chancellor of International Medical University.

Despite her hectic schedule, Dato' Dr Aini is committed to voluntary services. Amongst others, she was one of the Founding Committee Members of the University Ladies Association (PERMATA) and an active member of PUSPANITA Negeri Sembilan. Currently, she is the Deputy President of the World Federation of World Peace Malaysia, the EXCO member for the National Cancer Council (MAKNA), member of the Board of Directors, MAKNA Research Centre and member of the Investigating Tribunal Panel for the Advocates and Solicitors Disciplinary Board of the Bar Council Malaysia since 2004.

Contributions in areas of Science, Engineering and Technology

Dato' Dr Aini has been actively involved in research on the control of poultry diseases and the development of poultry vaccines. She has been the programme leader for research in avian health and the programme leader for National Top-Down Animal Biotechnology projects. Her expertise is in avian respiratory and immunosuppressive diseases, such as Newcastle disease, fowl pox, avian influenza, chicken infectious anaemia, infectious bursal disease and infectious bronchitis, the economically important and feared diseases in the avian world. Her remarkable contribution to the avian health area is when she successfully cloned a new heat-resistant Newcastle disease virus, V4-UPM, which can be administered by conventional methods and incorporated into the feed. This novel method of administering vaccines in the feed has created a lot of interest worldwide.

The Newcastle disease and Fowl Pox vaccines were amongst the first research products successfully commercialised (1995 and 1996) and the example of technology transfer from the university to the industry in Malaysia. This instance has made history in Malaysia whereby the commercialisation of the two vaccines is instrumental in the establishment of the first and the only local animal vaccine company in Malaysia, started as a joint venture between MTDC and Arthur Webster, a renowned vaccine company in Australia. Now it is known as Malaysian Vaccines and Pharmaceutical Sdn Bhd.



MAOTJEF SENIOR FELLOW

Dato' Dr Aini and her team kept up their efforts and successfully commercialised two other important poultry vaccines, live and inactivated infectious bursal disease vaccines in 2005 and 2015 respectively, where she was the co-researcher. It is worth mentioning that the team also developed rapid diagnostic methods for avian influenza (bird flu). The avian influenza diagnostic kit was essential in detecting and monitoring avian influenza outbreaks in Malaysia in 2004 and 2005. Currently, the group is actively researching the COVID-19 vaccine.

Contributions to ASM

Dato' Dr Aini has been actively engaging with the Academy since her election as a Fellow in 2009. She has contributed as a Council Member for several terms between 2013 to 2021. In 2021, she was elected as the Honorary Treasurer and serving as the Chairperson of the Finance Committee concurrently. In addition, she is also contributing her expertise as the member of the Special Interest Group on Zoonosis and as the Advisor to the ASM Agriculture Committee. Being ASM EXCO, she sits in other committees as well.

Contributions at National & International level

Dato' Dr Aini is actively involved in many national and international committees as the Chairman or Executive Committee Member. She was a panel member of several committees under the Ministry of Science, Technology and Innovation (MOSTI) and Ministry of Higher Education (MOHE). Her role as the panel member includes evaluation of biotechnology research projects and National Science Fellowship awards. Previously, she served as the Chairperson for Animal Biotechnology Technical Panel, under the National Institute of Agrobiotechnology, and was responsible for project evaluation and monitoring. She was also the National Coordinator of Animal Biotechnology research and was responsible for planning Animal Biotechnology programmes in the country, as well as coordinating research under the Top-Down projects. Due to her technical expertise and vast academic experiences, Dato' Dr Aini was appointed as the Chairperson, Task Force and Committee Member in various projects, including the Advisory Committee to the Ministry of Higher Education (MOHE) on Biotechnology, Graduate Employability Project under the National Higher Education Strategic Plan for two years, drafting the National Biotechnology Policy (2001 to 2003), and advising on the establishment of National Biotechnology Institutes (Agrobiotechnology Institute and Nutraceutical and Pharmaceutical Biotechnology

Institute). She was also the Coordinator for National Centre of Excellence for Swiftlets, under the Ministry of Agriculture and Agro-based Industries (MOA).

At the international level, she was an alternate coordinator for the ASEAN Network for Biotechnology in Animal Production and Health, FAO, and the ASIAN Representative/Correspondent for the International Network of Family Poultry Development, under the umbrella of FAO.

Throughout her career, Dato' Dr Aini has held numerous leading roles in various sectors. She was the Deputy Chairman of the Veterinary Association Malaysia Education Trust Fund, the Honorary Treasurer for World's Poultry Science Association (Malaysian Chapter), and the Founding President of the World Veterinary Poultry Association (WVPA) Malaysia. Within four years, Dato' Dr Aini has expanded the membership to more than 200 members and became the biggest country branch of the Global WVPA. On 9 September 2015, she was appointed as the Vice-President of the Global WVPA from 2015 to 2019 at its General Meeting in Cape Town, South Africa. She was the first Asian to be appointed to this position in the 54 years of history of this World Association. She is currently an EXCO member of the Global WVPA.

Awards & Recognition

In recognition of her research achievements, teaching, professional services, community services and other involvements at the national and international levels, Dato' Dr Aini has been bestowed the Excellent Service Certificates from UPM every year since 1992 and twice Excellent Service Award (1995 and 2005). She was promoted to an Associate Professor in 1991 and a Professor in Avian Medicine in 1996. Dato' Dr Aini was the first graduate of UPM being appointed a Professor at UPM. She was then promoted to a Senior Professor (Special Grade B) in 2001 and Special Grade A in 2008. At the First Ladies' Dialogue in conjunction with the Organisation of Islamic Council (OIC) meeting in 2003, she was selected as one of the 11 successful Lady Professionals in Malaysia to be introduced by the then Prime Minister's wife.

Relating to her research field, Dato' Dr Aini received the prestigious National Academic Award (AAN) 2010, under the category Award for Innovation and Commercialisation of Products, for her successful innovation and commercialisation of the Newcastle disease vaccine (NDV4-UPM). In 2008, her team won the Quality Award in Research Innovation for Public and Private Sectors. She was also shortlisted as one

of the top 10 researchers for the National Innovation Award 2012. In 2013, Dato' Dr Aini was selected as one of the Top Research Scientists Malaysia (TRSM). In 2018, she was awarded the Lifetime Achievement Award- Academic & Veterinarian at the Malaysian Livestock Industry Award and Anugerah Mengenang Jasa (AMJ) Award by the Veterinary Association Malaysia (VAM).

Dato' Dr Aini is also recognised for her outstanding leadership. At the national level, she has been awarded 'Tokoh Pekerja (Wanita)' at the CUEPACS 2019 Labour Day Celebration, National Award on Occupational Safety & Health for the Best Chief Executive Officer in the Public Sector and Millennium Academic Achievement Award 2020 and Leadership Excellence Award 2020/2021, just to name a few.

At the international level, Dato' Dr Aini was inducted as an Inaugural member of the Hall of Honour WVPA in 2013 for her contributions to scientific research, poultry health education and training, and poultry health systems in developing countries as well as for outstanding leadership. This is one of the prestigious recognitions accorded by the Veterinary Fraternity worldwide. She was also conferred the Matsuda Award by the International Society for Southeast Asian Agricultural Sciences for her leading role in avian health, as well as CHT Pursuit of Excellence Education Award 2020- International Edition.



Academician Emeritus Professor Tan Sri Dato' Dzulkifli Abdul Razak FASc

Individual Achievement

Academician Emeritus Professor Tan Sri Dato' Dzulkifli Abdul Razak FASc is an educationist, a scientist and currently the Rector of the International Islamic University Malaysia (IIUM).

Tan Sri Dzul started his career as an academic at the Universiti Sains Malaysia (USM) and later became its Vice Chancellor from 2000 to 2011. During his tenure, he was instrumental in introducing many new innovative ideas and concepts that led to USM being acknowledged as one of the seven pioneering Regional Centres of Expertise on Education for Sustainable Development in 2005, in conjunction with the United Nations Decade on Education for Sustainable Development (2005-2014). In 2007, USM was recognised as the leading research-intensive university by the Ministry of Higher Education. Later in 2008, USM singularly gained the status as the first APEX (Accelerated Programme for Excellence) university in the country and is the only one since. Furthermore, during his term as the Rector of IIUM, IIUM was awarded the 2020 Sustainability Institution of the Year by the United Nations Environment Programme, first for an Asian institution.

Apart from his illustrious leadership, Tan Sri Dzul is an active columnist for the New Straits Times (since 1995) and later The Sun and The Edge. Since 2020, he has been invited to start a column in Utusan Malaysia. He writes mainly on issues about education, science, leadership, sustainable development and governance, and management in weekly Op-Ed columns. Over the years, he has authored more than 1000 articles in journals and other media, as well as delivered numerous invited keynote addresses nationally and internationally.

His book 'Nurturing a Balanced Human Person – The Leadership Challenge' Challenge won 2016 *Anugerah Buku Negara*. A new expanded edition of the same title was released in April 2017, and is listed as one of the 50 Most Malaysian Titles for International Rights 2017/2018 by the *Majlis Buku Kebangsaan Malaysia*. In 2019 the title *Pentafsiran Baharu Falsafah Pendidikan Kebangsaan dan Perlaksanaannya Pasca 2020* won the *Anugerah Buku Negara*, kategori Perdana.

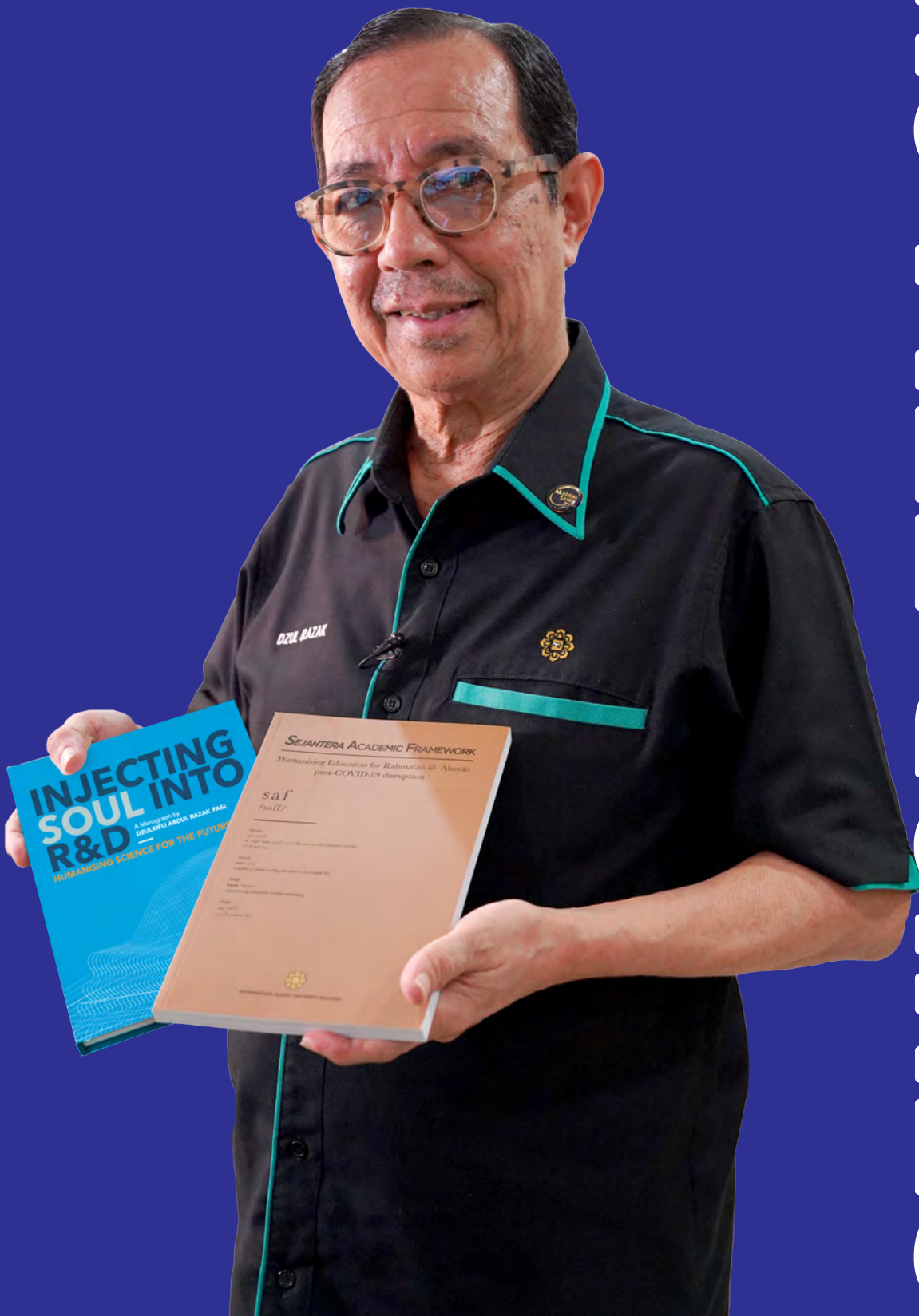
Contributions in areas of Science, Engineering and Technology

Tan Sri Dzul was a member of the National Economic Advisory Council, established in 2009, tasked to craft the New Economic Model for the country (until 2011), and co-chaired (government sector) the Malaysian Industry-Government Group for High-Technology (MIGHT) from 2006 to 2010. He was the Chair of the Independent Review Panel on Education for Malaysia (2011 to 2013), as well as the Higher Education Strategic Planning Committee on International Landscape. He was also made advisor to the National Higher Education Research Institute (IPPTN) and led the Chair of Higher Education at the Institute of Democracy and Economic Affairs (IDEAS), a prominent national think tank. He acted as co-editor for the People's Sustainability Treaty on Higher Education, launched in conjunction with the Rio+20 Conference in Rio de Janeiro in 2012.

Contributions to ASM

In 2017, ASM appointed Tan Sri Dzul as Chairperson for the Establishment of Network for the Qur'an and Scientific Endeavours. He was also appointed as the Regional Coordinator of the Asia-Pacific Region in the International Research Project: *Reorienting Education and Training Systems to improve the Lives of Indigenous Youth*, championed by UNESCO Chair at York University, Toronto.

MAOTJEF SENIOR FELLOWS



Contributions at the National & International level

Tan Sri Dzul is active in various charity-based organisations such as National Cancer Council (MAKNA, since 2013), Mercy Malaysia (since 2012), Razak School of Government (since 2011), Malay College (MCKK) Foundation (since 2011-2019), Yayasan Hasanah (since 2015), and Yayasan Bumiputra Pulau Pinang (since 2010). He is also the Chairperson (2010-2020) of the first homegrown social enterprise on educational services organisation, LeapEd Services Sdn Bhd, that offers expertise in transforming schools and education in Malaysia. Apart from engaging with various social development projects, Tan Sri Dzul is also an advocate for STEM education for the nation. For instance, Tan Sri Dzul gave his keynote speech at the ASM Global R&D Leaders and CEO Forum (Aug 2015) entitled 'Injecting Soul into R&D – Humanising Science for the future' and spoke at the forum "From STEM to STREAM: Innovating Malaysian Education" (Mar 2019).

He was also invited to speak at the 2015 Nobel Week Dialogue in Sweden, with the theme 'The Future of Intelligence'. He was invited again for the 2023 Nobel Dialogue to be held in Korea.

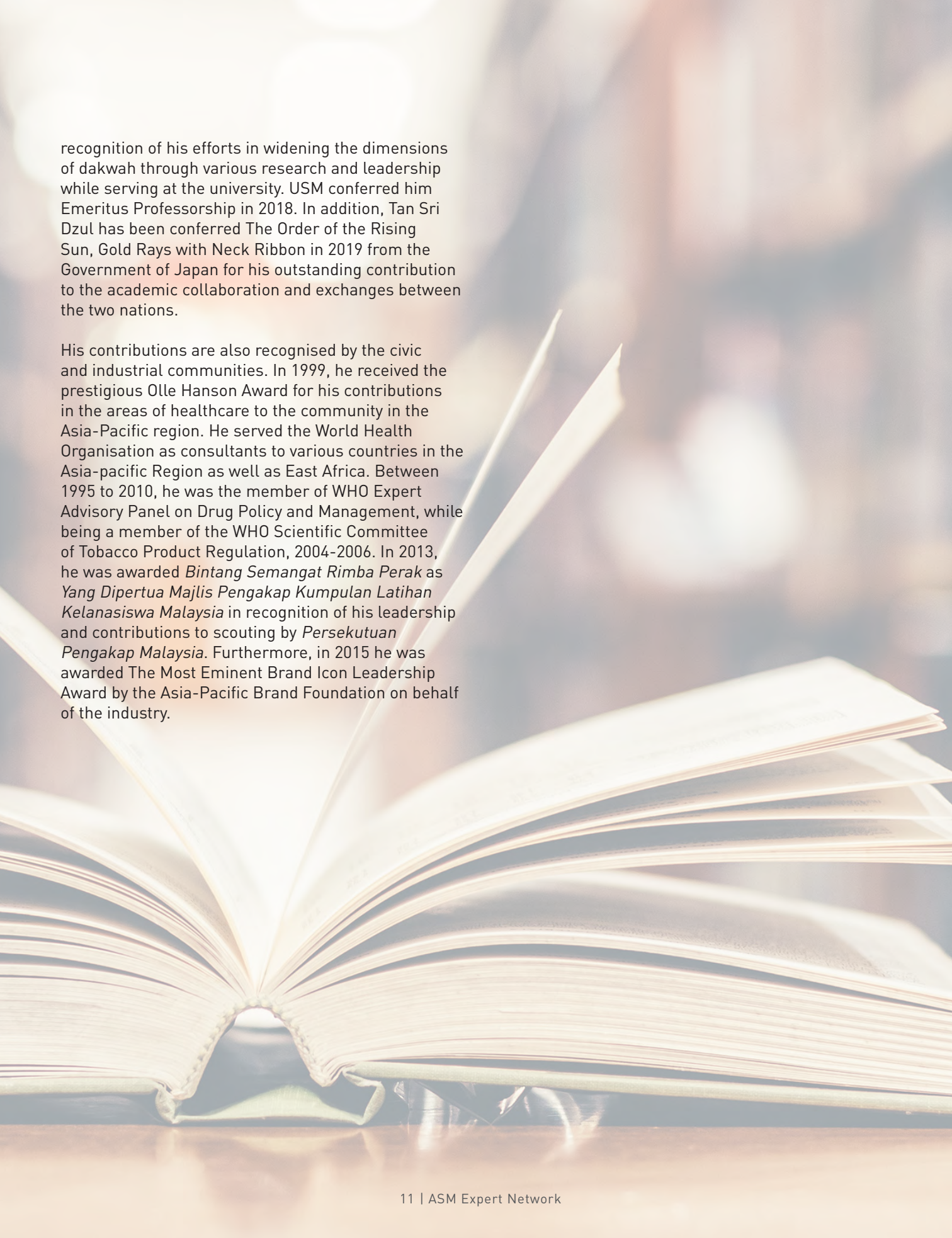
Tan Sri Dzul has been active in the international academic arena. He serves in the advisory board of several foreign higher learning bodies, including the Right Livelihood College Steering Committee-University of Bonn, the Global Leadership Initiative-University of Tokyo, Institute of Sustainable Development & Learning at University of Luneburg, Association of Commonwealth Universities, Qatar Foundation Higher Education Strategy Advisory Panel, and Hamburg Transnational University Leadership Council, a think-tank on the future of higher education. Tan Sri Dzul was elected as the 14th President of the International Association of Universities (IAU), a UNESCO-affiliated organisation based in Paris (2012-2016). He is the first Malaysian to be elected to the office since its establishment 60 years ago. Prior to this, he served as the President of the Association of Southeast Asia Institutions of Higher Learning (ASAIHL) from 2007-2008.

Additionally, Tan Sri Dzul is a member of the UN Academic Network for Development Dialogue (ANDD), World Islamic Economic Forum (WIEF) and National Digital Economy & Fourth Industrial Revolution Council. Tan Sri Dzul is also a fellow of the World Academy of Art and Science, World Academy of Islamic Management, Distinguished fellow of *Institut Masa Hadapan Malaysia*, and Lifetime fellow of the Asia Academy of Management. In February 2021, he was invited to serve as an Expert for the Futures of Higher Education Project at UNESCO's International Institute for Higher Education (IESALC) based in Caracas.

Awards & Recognition

Tan Sri Dzul's outstanding leadership in education is revealed through various awards conferred upon him including *Tokoh Akademik Negara* (2017) and 2017 Gilbert Medal by Universitas 21, in recognition of his long-term commitment to a sustainable approach to international higher education. Tan Sri Dzul is the seventh recipient globally, and the first from Asia to receive the highest honour that can be bestowed by Universitas 21 – the leading global network of 25 selected research-led comprehensive universities in 16 countries. In August 2017, he received the 2017 Asia HRD Contribution to Society Award from The Asia HRD Awards for his transformational work in the field of education.

He is also the recipient of several Honorary Doctorates from various international universities including University of Portsmouth (2008) and University of Nottingham (2013) for numerous leadership positions in global education and science bodies, as well as from Mykolas Romeris University (2013) in Lithuania for extraordinary achievements in developing independent and democratic higher education, fostering internationalisation and strengthening humanistic culture and freedom supported by mutual university cooperation. In 2015, he was conferred the Honorary Doctorate of Educational Science from Istanbul Commerce University in recognition of his exceptional efforts. Tan Sri Dzul also received an Honorary Doctorate of Dakwah & Islamic Management from Universiti Sains Islam Malaysia in 2019, in



recognition of his efforts in widening the dimensions of dakwah through various research and leadership while serving at the university. USM conferred him Emeritus Professorship in 2018. In addition, Tan Sri Dzul has been conferred The Order of the Rising Sun, Gold Rays with Neck Ribbon in 2019 from the Government of Japan for his outstanding contribution to the academic collaboration and exchanges between the two nations.

His contributions are also recognised by the civic and industrial communities. In 1999, he received the prestigious Olle Hanson Award for his contributions in the areas of healthcare to the community in the Asia-Pacific region. He served the World Health Organisation as consultants to various countries in the Asia-Pacific Region as well as East Africa. Between 1995 to 2010, he was the member of WHO Expert Advisory Panel on Drug Policy and Management, while being a member of the WHO Scientific Committee of Tobacco Product Regulation, 2004-2006. In 2013, he was awarded *Bintang Semangat Rimba Perak* as *Yang Dipertua Majlis Pengakap Kumpulan Latihan Kelanasiswa Malaysia* in recognition of his leadership and contributions to scouting by *Persekutuan Pengakap Malaysia*. Furthermore, in 2015 he was awarded The Most Eminent Brand Icon Leadership Award by the Asia-Pacific Brand Foundation on behalf of the industry.

ASM fellowship consists of distinguished scientists, engineers, technologists, and social scientists that have made exceptional contributions in their fields.

Individuals with merit, possessing high integrity, demonstrating utmost decorum at all times with essential characteristics of an ambassador of ASM at national and international level are nominated each year.

Fellowship is awarded based on stringent selection process in eight disciplines. A fellowship of the

Academy of Sciences Malaysia is the highest recognition to the best scientific minds from the Government of Malaysia.

Biological Agricultural and Environmental Sciences	92
Chemical Sciences	53
Engineering Sciences	89
Information Technology and Computer Sciences	25
Mathematics Physics and Earth Sciences	51
Medical and Health Sciences	76
Science & Technology Development and Industry	49
Social Sciences and Humanities	18



23%
105 FASc



77%
348 FASc

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FELLOWS



Professor Dr Clemente Michael Wong Vui Ling

**Biotechnology
Research Institute
Universiti Malaysia
Sabah**

Professor Dr Clemente Michael Wong Vui Ling is a trained biotechnologist and one of Malaysia's leading scientists on polar and tropical microbes. His research contributes to the community's understanding of how microbes compete for survival in nutrient-deficient soils and respond to environmental temperature rises at the molecular level.

He has received national grants totalling more than RM3.1 million from the MOHE, MOSTI, Yayasan Penyelidikan Antartika Sultan Mizan (YPASM), Sabah Biodiversity Centre (SaBC), and UMS, as well as international grants totalling RM1.5 million from the Japan International Cooperation Agency (JICA), Instituto Antartico Chileno, and a private company in the UK.

His publications, particularly on bacterial diversity and fundamental microbiological research has been well received. His Scopus H-index is 19, with a citation of 899. He is a biotechnology reviewer for many international journals published by reputable publishers like Elsevier,

Springer, Wiley, and Versita. His research contributes to a better understanding of bacterial diversity in the polar and tropical regions and bacterial diversity changes in response to temperature rise and climate change.

He is a member of the Sabah Diversity Council (SDC), which oversees the policymaking, monitoring, and conservation of Sabah's bioresources. He also served as Malaysia Research Assessment (MyRA) panel. He has been serving as grant assessor for the Fundamental Research Grant Scheme of MOHE, MOSTI, and YPASM. He has also contributed to the ASM as the Biological Sciences Coordinator in the ASM Taskforce on Antarctic Research (2008-2012).

Professor Dr Ida Idayu Muhamad is an expert in food and bioprocessing engineering, focusing on food handling and preservation, biopolymers and food security. As a Food Lead auditor, she trains food industries to implement and audit industrial food safety systems (GMP, GHP, cGMP and HACCP) and Halal Management.

She has received more than 70 research grants of a cumulative RM 10,728,525 (USD 2,653,781). She is a project leader of 28 grants with cumulative amounts of RM 6,046,147 (USD 484,081). She received a commercialisation grant for two spin-off companies under MTDC-UTM of RM4 million (USD 1,206,993), an international grant and consultancy work on chemical & bioprocess engineering education and research amounted to RM 342,928.78 (USD 731,441).

She has supervised and co-supervised more than 60 post-graduate students and post-doctorates. She served as a technical panel to assess grants applications such as e-Science fund and Technofund for MOSTI and reviewer for 21 peer-reviewed ISI journals.

She founded the Food and Biomaterial Engineering Research Group, also known as FoBERG. FoBERG is a research group that focuses on food and biomaterial engineering in the School of Chemical and Energy Engineering, UTM.

Professor Dr Ida has more than 140 publications in international peer-reviewed and Scopus-indexed journals, six books and 38 book chapters and edited books on Food, Advance Bioprocess Technology, Probiotics, and Nanomedicine. With more than 1,389 citations, her Scopus H-index is 20.



Professor Dr Ida Idayu Muhamad

Director, Research
Ethics Committee
Department
of Bioprocess
and Polymer
Engineering
Universiti Teknologi
Malaysia



Professor Dr Mohd Effendy Abd Wahid

Faculty of Fisheries
and Food Science
Universiti Malaysia
Terengganu

Professor Dr Mohd Effendy Abd Wahid is a pioneering expert in preventive veterinary medicine of mannheimiosis caused by *Mannheimia haemolytica* A2, which has led to a patent (MY152263) for an intranasal spray vaccine.

He was also involved in a community program where he conducted a conservation program for seahorses. The efforts have improved the juveniles' survivability to 42% compared to merely 10% in the wild. This project has also created new knowledge about seahorse cultivation and contribution to the community on knowledge transfer program to 100 fishermen families in Besut and Setiu, Terengganu on the cultivation of seahorses.

He has been collaborating with Soka University (Japan) in organising a biannual conference since 2017. This collaboration also led to the Science and Technology Cooperation on Global Issues - JICA (SATREPS-JICA) project entitled "Continuous Operation System for Microalgae Production Optimised for Sustainable Tropical Aquaculture". The project aims to search for indigenous microalgae as potential sources of

carotenoids and flavonoids for nutraceutical and pharmaceutical applications from Peninsular Malaysia. The project was awarded RM2 million for research and RM3 million for scientific equipment.

He has published six books, five chapters in books, 111 scientific papers in indexed and non-indexed journals and 148 papers in proceedings and seminars at national and international levels. His Scopus H-index is 14, with 614 veterinary microbiology and biotechnology citations.

He is currently contributing his expertise in ASM Taskforce for Tasik Chini, Pahang as a member.

Professor Datin Dr Siti Nor Akmar Abdullah was one of the pioneers in oil palm molecular biology research at MPOB. Her earlier contributions to the industry include the establishment of three research facilities - the Arabidopsis thaliana Laboratory at MPOB, a molecular biology laboratory at the Faculty of Agriculture (UPM) and UPM Transgenic Greenhouse, which is Biosafety Level 2 certified. Her research contributes towards sustainable development of the oil palm industry through improving palm oil quality, overcoming diseases and reducing chemical fertiliser inputs.

She has received about RM 6.20 million research grants for 16 projects in UPM, including two industry grants from ACGT of Genting Plantation Berhad and United Malacca Plantation. She also received LRGS to help develop coconut as Malaysia's fourth crop for wealth creation. She led a multi-institutional project involving UKM and MPOB and a project under Transdisciplinary Research Grant Scheme involving biological, agricultural and social science disciplines. She received worldwide recognition for frontier research using CRISPR technology, innovative research on oil palm bi-phasic defence response to *G. boninense* and research

excellence on transcriptional gene regulation.

She has more than 100 publications, and her Scopus H-index is 20. She published in top-ranking journals such as Plant Biotechnology Journal (PBJ), BMC Plant Biology, Planta, Journal of Plant Physiology, Plant Cell Reports, Plant Physiology & Biochemistry and International Journal of Molecular Sciences. She is the lead editor of the book entitled "Crop Improvement: Sustainability through Leading-edge Technology" and co-editor for another book, "Plant, Soil and Microbes: Implications in Crop Science", published by the international publisher-Springer. She has five granted patents, and her mesocarp-specific promoter and metabolite biomarker for detecting *G. boninense* infection research products have already been transferred to the industry for adoption.



Professor Datin Dr Siti Nor Akmar Abdullah

Department
of Agriculture
Technology
Universiti Putra
Malaysia



Dr Tan Chon Seng

**Chief Scientific
Officer
Ligno Biotech Sdn
Bhd**

Dr Tan Chon Seng is a trained Biochemist and has vast experience in Molecular Biology. He worked on the mushroom of Malaysian origin, especially the Tiger Milk mushroom, after being inspired by the wonders of nature. He has made a breakthrough that succeeded in developing the Tiger Milk mushroom into a new medicinal mushroom industry for Malaysia.

He is the founder of a Malaysian biotechnology company that conceived a proprietary cultivation technique to produce sustainable, efficacious Tiger Milk mushrooms for the healthcare industry. This technology is crucial because it eliminates the need to collect mushrooms from the wild, which will cause mushroom resources to dwindle rapidly due to increased demand. In addition, it avoids the risk of accumulating the wrong species and being contaminated by environmental pollutants without guaranteeing its effectiveness under different growing conditions in the wild. The nominee has published

94 publications since 2004, and his Scopus H-index is 20, with a citation of 595. His publications, particularly on medicinal mushrooms and cultivation and efficacy research of the Tiger Milk Mushroom, have been well received and significantly impacted. He is also a reviewer for international scientific journals and trains young scientists through his company. His dream is to work for science and teach others to appreciate and practice healthy science and intellect.

Professor Dr Vijay Kumar is trained as a molecular geneticist and has more than 20 years of experience in research and teaching in Biotechnology. His research experience includes plant and animal genetics, genetic engineering and biotechnology, population genetics, conservation biology and molecular biology. He has published and presented more than 250 scientific papers in refereed journals, conference abstracts and proceedings. He is engaged in many research projects involving plants, animals and humans and is currently heading the Molecular Genetics Research Group at Biotechnology Research Institute, UMS. His Scopus H-index is 11 with 400 citations.

He has led the Pineapple Genome Research Project, which had produced many breakthroughs in understanding the fundamental processes of ripening in non-climacteric fruits. He was the first to completely decipher and sequence the MD2 Pineapple genome, seminal to understanding the mechanism of non-climacteric fruit ripening. His work on the pineapple genome, Expressed Sequence Tags (ESTs), molecular markers, and microRNAs have been published in leading journals. He is also involved in the molecular conservation of

many of Sabah's threatened and endangered species, such as slipper and elephant-ear orchids, horseshoe crabs, snakehead fish, and staghorn corals. In his research, Professor Vijay uses molecular markers to characterise the gene flow, levels of inbreeding and genetic diversity present in these species. His research aims to present a comprehensive conservation strategy based on his findings to empower the state authorities, as custodians of natural resources in Sabah, to make informed decisions.

He leads the Sabah chapter of the International Human Genome Organisation (HUGO) Pan-Asian Population Genome Initiative consortium. The project aims to investigate human genomic variation in multi-ethnic populations, leading to an understanding of Asian anthropology, healthcare, and preventive medicine. Therefore, he can contribute to the ASM Sabah Chapter in developing future genetic and biotechnology research in Sabah.



Professor Dr Vijay Kumar

**Biotechnology
Research Institute
Universiti Malaysia
Sabah**



Professor Dr Charles Santhanaraju Vairappan

**Institute for
Tropical Biology
and Conservation
Universiti Malaysia
Sabah**

Professor Dr Charles Santhanaraju Vairappan is a marine natural products chemist in Malaysia who has significantly contributed to marine-derived bioactive secondary metabolites with pharmaceutical importance. He has contributed significantly to natural products chemistry, chemical ecology, and tropical biodiversity conservation in the last 21 years of his service.

He has a strong network with Japanese Higher institutions, and four Japanese students have completed their post-graduate studies at his laboratory in UMS. In addition, the Government of Japan conferred upon him the Japan Foreign Minister's Commendation Award 2021 for his contribution to bilateral exchange in research and education. He also played a vital role in the success of two international projects, SATREPS and Third Country Training Program (TCTP), that JICA coordinated. He has strong research collaborations network in Japan. He serves as Hokkaido University Network Ambassador, Kagoshima University Network Ambassador, The University of Tokyo Visiting Professor, and Rakuno Gakuen University Visiting Professor.

His publications, particularly on the importance of ecological chemicals in ecosystem, services in marine and terrestrial ecosystem and their utilisation as lead

pharmaceuticals for human well-being. His Scopus H-index is 25, with a citation of 1,982. He has published numerous papers, 150 in peer-referred journals, chapters in books, and e-books. He also holds two patents, two trademarks granted for innovative products from natural resources and four technology transfer projects to the local and international community.

In addition, his research quest involves discovering natural ecological chemicals that play an essential role in ecosystem functions. The discovery of these chemicals leads to the isolation and elucidation of at least 2,000 secondary metabolites from marine seaweed and soft corals. He also deduced the microbial and epiphyte disease infection mechanism in the red algae genus *Laurencia* and *Kappaphycus*. This research outcome enables him to assist seaweed farmers in Malaysia (Semporna), The Philippines, Indonesia, Tanzania and Solomon Island in mitigating infection outbreaks in seaweed farms. He also developed two technologies, 1) Post-Harvest Processing of *Kappaphycus* (red algae), and 2) Probiotic Fortified Seaweed Silage that has been transferred to an aquaculture company (Aqua Vision Sdn Bhd) via TechnoFund (Ministry of Agriculture, 2010-2012). These innovations won international awards in Geneva 2004 and Pittsburgh 2008.

Professor Dr Wong Tin Wui specialises in targeted nano drug delivery system design for cancer, diabetes and infection treatment through an interplay of material sciences, processing and device technology. He is the leading global pioneer in nano delivery of small molecule and macromolecular drugs (insulin) of unique designs, utilising the complex interplay of nanotechnology (passive technology) and precision microwave (active technology) to modify the mucosa microstructure and facilitate nanocarrier deposition and permeation into the target sites.

He collaborated with the Medical College of Yangzhou University, Sino-Malaysia Molecular Oncology and Traditional Chinese Medicine Delivery Joint Research Centre to map nanotechnology and targeted drug delivery with molecular biological aspects of cancer and novel herbal compounds. He has developed the prototype of nano production technology that allows the formation of complex nanocarriers via specific chemical reactions of nanomaterials with functional excipients and drugs in situ, translating into high harvestability and yield.

He has published 120 peer-reviewed journal articles, primarily Q1, 27 chapters and a book with 68% corresponding authorship. His Scopus H-index is 30. He is also the Editor of the Asian Journal of Pharmaceutical

Sciences; Associate Editor of Drug Design; Development and Therapy; Drug Development and Industrial Pharmacy; Technology in Cancer Research and Treatment; and Regional Editor of Current Drug Delivery.

He has supervised 26 MSc and 13 PhD candidates who have graduated by research under him, and currently, there are nine PhD and four MSc candidates pursuing their postgraduate studies with him. He has supervised and trained international students from Italy, Germany, Pakistan, Yemen, Syria, Singapore, France, Thailand and China. His students have won YSPSAH Excellent Scientific Paper Award Taiwan 2021, Consorzio TEFARCO Innova Italy Best Poster Award 2020, Tefarco Innova-PharmaTech Scientist Award 2016, Pharma Future Award 2016 and gold medals from innovation events.

He has been involved in the start-up of the Malaysia Nanotechnology Association, National Nanotechnology Initiatives, National Nanotechnology Directorate and other mainstream societies and associations in Malaysia. He has contributed to the ASM as Expert Review Panel in the National Brain Gain Program (2006-2010) and as a member of the ASM Task Force on Enhancing Research and Development in Health Sciences (2011-2013).



Professor Dr Wong Tin Wui

**Principal Fellow
Non-Destructive
Biomedical and
Pharmaceutical
Research Centre
Universiti Teknologi
MARARA**



Professor Dr Zainudin Arifin

**Retiree, formerly
a Professor at
University of
Malaya**

Professor Dr Zainudin Arifin is a retired Professor of the Chemistry Department, UM. His research focused on tin chemistry, especially the tin(2+) oxidation state, which is less stable than tin(4+). He was a pioneer in using Mossbauer spectroscopy which he was able to effectively show the level of contamination in tin(II) compounds vis-a-vis tin(IV). In addition, he was also one of the first experts who determined crystal structures by X-ray, which was excruciatingly difficult in the early 1980s. Dr Zainudin engaged in trapping rare earth metals using aza-crown ethers. Later in his career, he expanded his research to include enzyme-model kinetics and renewable fuels, fuel cells and the development of catalysts for the hydrogen era.

Dr Zainudin was the representative for Malaysia to the ASEA UNINET (2012-2015), a consortium of universities from the ASEAN and European countries. Aimed to establish student and lecturer exchanges, promote collaborative projects and encourage studies up to PhD levels among the participating universities. He headed the consultation work tasked by SIRIM on the Feasibility Study on Establishment of the National Product Safety Testing Laboratory, which was successfully concluded in 2013. The findings revealed gaps in the testing of Halal Products and the

recommendation on the establishment of precious and semi-precious stones.

He has published 54 articles in several reputable indexed journals, and his Scopus H-index is 17 with 687 citations. He was able to bring together the quadruple helix of stakeholders and made outstanding research contributions to academia, research, government, industry and civil society. Apart from holding a US patent (US2011/0281317 A1), he was an editorial board member of two respected international journals, i.e., Journal of Chemical Technology and Biotechnology (2010-2012) and Waste and Resource Management (2012-2015).

He has also coached on computing and IT skills. In a UNESCO project, he and his team set up an automatic computer-aided translator to translate the ICSC (International Chemical Safety Cards) from English to Malay.

At present, he contributes to the community by providing tuition to underprivileged students and giving free training in swimming and life-saving skills to over 100 children of the B40 group. He is also a teacher cum academic advisor of a TVET college (SEPTRONIC College).

Datuk Ir Dr Azuhan Mohamed P Geol is trained in water management at the University of Birmingham. He has professional qualifications across engineering and earth sciences encompassing both surface water and groundwater resources.

From 2001-2006, he was seconded to EPU. He was instrumental in restructuring water supply services in Peninsular Malaysia and Labuan in 2006 and the formation of Suruhanjaya Perkhidmatan Air Negara (SPAN) and Pengurusan Aset Berhad (PAAB). He was involved in introducing two new Acts: Water Services Industry Act, 2006 (Act 655) and the National Water Services Commission Act, 2006 (Act 654).

He also served the private sector from 2008 to 2013 with Sime Darby Energy & Utilities, and later at Erinco Sdn. Bhd, an Engineering Consultancy firm, focusing on groundwater development and water management and culminating. In 2016, he was appointed as the Director-General of National Hydraulic Research Institute Malaysia (NAHRIM), Ministry of Natural Resources and Environment (NRE). After he retired from public service in June 2018, he served as a freelance consultant before being appointed as General Manager, Air Kelantan Sdn. Bhd. (AKSB) (Kelantan Water Co.) in June 2019, a position he holds until today. As its General Manager, he has

turned the company into an efficient and profitable water supply company.

On the international stage, he was involved with various UN Agencies, including Food and Agriculture Organisation (FAO), UN Economic and Social Commission for Asia and the Pacific (ESCAP), International Atomic Energy Agency (IAEA), International Programme for Technology and Research in Irrigation and Drainage (IPTRID) and Global Water Partnership (GWP). He has provided knowledge sharing and capacity building in water management by engaging in 89 presentations and papers, 59 technical reports and one book and four-panel discussions.



Datuk Ir Dr Azuhan Mohamed P Geol

**General Manager
Air Kelantan Sdn.
Bhd.
Kota Bharu,
Kelantan**



Professor Ir Dr Fatimah Ibrahim

**Centre for Innovation
in Medical Engineering
Department
of Biomedical
Engineering
Faculty of Engineering
University of Malaya**

Professor Ir Dr Fatimah Ibrahim is a Biomedical Engineer. Her areas of expertise are BioMEMS, Carbon-MEMS, Compact Disc (CD) fluidics, Medical Devices and Bioinstrumentation, Biosensor, Physiological measurement and modelling, artificial intelligence and Internet of Things (IoT) integration in medicine and detection and monitoring of infectious diseases and foodborne pathogens.

She was the pioneering co-founder of UM's Biomedical Engineering (BME) program. She formulated the BME syllabus, which has brought the programme to its current success and adoption by other universities' BME programmes in Malaysia. She was the head of the BME department in 2005 and initiated to obtain the inaugural Engineering Accreditation Council (EAC) accreditation for the BME program.

She has attained various national and international grants and published more than 100 research articles in high impact journals, namely Biosensor & Bioelectronics (Impact Factor: 10.257), Lab on a Chip (Impact Factor: 6.774), and Sensors & Actuators (Impact Factor: 7.100). She has 16 Intellectual Properties (Patents, Trade Secrets and Copyright). Two of her patent (Multiple Frequency Bio-impedance Analyzer Diagnostic Tool, modular exit bed alarm and smart

wearable device for low back pain rehabilitation) have been licensed by industries. Her Scopus H-index is 31, with over 2,900 citations.

She received the research grant, Special Prime Minister Project on Salat, amounting to RM2 million. The Salat research has produced many significant findings, namely the encyclopaedia (eight books) of Science Salat books and 27 graduates (20 undergraduate, five masters and two PhDs). In addition, she received more than 55 invitations as a seminar keynote speaker/speaker and produced 30 journals and proceedings resulted from this grant. One of her publications entitled "*Siri Penyelidikan Sains Salat: Membongkar Fakta-fakta Saintifik Disebalik Salat*" is one of the best seller books in Malaysia. The "*Kesan Postur dan Pergerakan Salat*" won the UM best book publication in 2006.

She served as a member of the ASM Working Group on Neurotechnology under the Emerging Science, Engineering and Technology (ESET). She also participated in the ASM's Stakeholder Engagement Workshop of Local & Transboundary Pollution Act Feasibility Study, the Open Science platform, and is a section editor of the ASM Science Journal for 2021-2022.

Professor Ir Dr Haslenda Hashim specialises in energy planning, optimisation and climate resilience. She is internationally and nationally recognised as a certified energy trainer, assessor, technical expert and policy advisor to the industries and government, i.e. SEDA Malaysia, KASA, KeTSA, GreenTech Malaysia Iskandar Region Development Authority (IRDA) and international body, i.e. UN ESCAP, UNDP in energy and climate change-related area. Her research work in climate-resilient and sustainability aspects is commendable. She specialises in developing and using modelling to plan and design climate-resilient energy systems and low-carbon society.

She has contributed to knowledge transfer and public engagement on policy issues, especially in low-carbon society. She has also worked on policy papers, i.e. Low Carbon Blueprint for Iskandar Regional Development Authority (IRDA) (2015), Low Carbon Society Blueprint 2030 (2017) for IRDA, DBKL and Pengerang, as well as the National Climate Change Report (2020) for JAIF-ASEAN State of Climate Change Project.

She has more than 200 publications in Scopus with an H-index of 33 and over 3,000 citations. She has received recognition as World Top 2% Scientists according to the 2019 ranking. Her expertise in

the energy field is evidenced through her involvement as an Associate Editor of Energy Report (Elsevier; IF: 3.83) and Guest Editors for several reputable journals.

She has led four international projects sponsored by the International Institute of Applied Systems Analysis (IIASA), Japan International Cooperation Agency (JICA) and Science and Technology Commission of Shanghai Municipality. She received a grant from UNDP for climate change forecasting and mitigation for the AFOLU sector. She has won many awards, internationally and locally, for her outstanding accomplishment, research discoveries and inventions, i.e. US-Asean Science & Technology Fellowship (2018), 1Belt-1Road Young Scientist from Shanghai Municipality (2018), Korean Women Inventors Special Award (2013) and Renewable Energy Research Program Award from the National Science Council of Taiwan (2014).

She has been appointed as co-chair of the ASM Transboundary Haze Study that led to the formulation of the Local and Transboundary Pollution Act feasibility study and provided strategic input for setting the STI Agenda for Hydrogen Economy.



Professor Ir Dr Haslenda Hashim

**Chair of Resource Sustainability Research Alliance
Faculty of Engineering
Universiti Teknologi Malaysia**



Professor Dr Lim Eng Hock

**Faculty of Engineering
and Science
Universiti Tunku Abdul
Rahman**

Professor Dr Lim Eng Hock is known for his expertise in antenna design. He is a pioneer in the multi-functional dielectric resonator antennas (DRA) research field. The DRA is a low-loss antenna broadly used by the 5G millimetre-wave (24-100GHz) wireless transmitters and receivers. His most important contribution is that he was the first to propose using the DRA as a multi-functional device. His innovation has enabled the use of a single resonator for designing multiple microwave components such as an amplifier, filter and oscillator simultaneously. This innovation has been considered one of the important achievements in developing the DRA.

He has been an active member of the departmental curriculum development committee since 2014. He developed the syllabi for a couple of antenna design and radiofrequency engineering subjects. He has also developed several online teaching and learning materials for complex subjects, such as electromagnetism for students' self-learning. In terms of contribution to society, he has volunteered as the moderator of the UEC Vocational Examination for subjects such as circuit theory and electronic engineering in 2018 and 2019.

Currently, he is leading a research group consisting of two assistant professors, one postdoctoral fellow, five PhD (research), and four MSc (research) students at UTAR.

He has published one research book (Wiley), two book chapters (Wiley and Springer), and 72 (38 in Q1) international refereed journal papers. His current Scopus H-index is 18 with citations of 936, and his Google H-index is 21 with citations of 1,400. Many of his papers were published in the IEEE Transactions on Antennas and Propagation (IEEE TAP, impact factor: 4.435), the most prestigious journal internationally. He is also the co-inventor of 18 patents (14 United States, 2 China, 1 Malaysia, and 1 Hong Kong). He serves as the Associate Editor of the IEEE Journal of RFID from 2021 to 2023 and was awarded IEEE Excellence Award (IEEE Malaysia AP/MTT/EMC Chapter) in 2018. He was selected as the UTAR Research Excellence Award winner in 2015.

He has contributed as a Section Editor (Electronics and Telecommunication) of the ASM Science Journal (Sept 2021 – Sept 2022).

Professor Dr Lim Yun Seng has demonstrated an outstanding contribution to the nation through innovative engineering technologies to solve power quality, resource efficiency and affordability with preventive pollution measures. His research contribution in power system engineering, particularly in integrating renewable energy (RE) sources with the power system networks, has brought measurably significant economic and social impacts to the advancement of engineering science.

He has successfully developed the first utility-scale, the self-intelligent energy storage system (ESS) of 400kVA and 677kWh on the power grid in Malaysia using patented controllers to reduce maximum power demands for customers and utilities. The novel system enables utilities like TNB to avoid adding new power plants and upgrading power networks, thus, reducing greenhouse emissions and bringing down the electricity price. The system also reduces commercial end-user electricity bills by reducing maximum demand charges.

He is the founder and director of a spin-off company, IoT Energy S/B, which designs ESS projects and sets up energy systems for utilities such as TNB R&D. He also promotes innovations that bring transformative impact, transferring and building new knowledge in REs, specifically

smart grid solutions in UK and Malaysia. He contributes towards knowledge building through assessment, training and curriculum development for professional engineers and academia, mentoring early career researchers and research students to secure competitive grants and industry linkages.

He has published 62 journal papers (15 journals are ranked in the top 5% in Clarivate Analysis) with 1,409 citations and an H-index of 20 in Google Scholar. His Scopus H-index is 17 with 1,155 citations. He holds three granted patents (Malaysia and China) and five pending patents (3 in Malaysia and 2 in Indonesia).

He has contributed actively in the National Science Challenge, and KL STEM Exhibitions and Roadmaps for National STEM Education organised by ASM as the ASM Associate.



**Professor
Dr Lim Yun
Seng**

**Faculty of
Engineering and
Science
Universiti Tunku
Abdul Rahman**



Professor Dr M Iqbal Saripan

**Deputy Vice-
Chancellor (Academic
and International)
Faculty of Engineering
Universiti Putra
Malaysia**

Professor Dr M Iqbal Saripan specializes in biomedical engineering for biomedical imaging and processing. He was appointed as Professor at the Department of Computer and Communication Systems Engineering, Faculty of Engineering, UPM, in 2014.

He has vast experience at the international and national levels. At the international level, he is the current Vice-Chair (Asia Pacific) of the International Radiation Physics Society (IRPS). At the national level, he was the former Vice-Chair of IEEE Signal Processing Malaysia, Vice-Chair of IEEE Consumer Electronics Malaysia and committee member at IEEE Malaysia.

He worked closely with the Ministry of Higher Education and served as the Head of Project in developing policy concerning ratings of private colleges (MyQUEST) and polytechnics (PolyRate). It has been used as a tool for the Ministry to gauge the performance of private colleges, including their eligibility to enrol international students.

He has published more than 100 journals in flagship journals such as IEEE Transaction of Nuclear Science, Radiation Physics and Chemistry and Nuclear Instruments and Methods. His Scopus H-Index is 22, with more than 2,000 citations. He has more than 170 articles in Scopus. He works primarily

in medical apparatus such as radiation machines (Gamma Camera, Computed Tomography, Single Photon Emission Computer Tomography machine and Positron Emission Tomography machine), MRI and ultrasound. He has three patents, two copyrights and one trademark.

He has supervised and successfully graduated 34 PhD students and 29 Master's students. Currently, he is supervising nine PhD students and two Master's students. He has also been mentoring young lecturers, and several of them have been appointed as Associate Professors. He was the recipient of many awards, most notably the Young Scientists Award 2013 (MOSTI), The Outstanding Young Malaysian Award (TOYM) and the Innovation Award (Nuclear Malaysian Agency) medals from exhibitions such as Geneva and MTE.

As a YSN-ASM member, he served as a treasurer and was involved in deriving the new strategic plan for YSN. He was also involved as a panel evaluation for the MAKNA grant under ASM and reviewer of ASM Science Journal. He has also represented ASM in the ASEAN Science Leadership Programme 2015 in Thailand and then became the chair for the ASEAN Science Leadership Programme 2017 in Malaysia.

Professor Dr Mohd Razman Salim's expertise is developing innovative water-and-wastewater treatment processes using membrane and bio granulation technologies. He was also involved in researching waste management, using waste by-products such as fly ash, bottom ash and palm oil biomass as green construction materials. The focus of the study was to reduce carbon emissions for a low carbon society. His research work influences policy through new ideas and provides the required knowledge, enabling policymakers to be better informed in making their decisions. The output could be translated into wealth creation by generating income for the organisation. The research on waste management was pertinent in sustaining the environment by eliminating unwanted pollution (waste minimisation), contributing towards environmental sustainability, protection, and impact reduction.

Together with his research team, he was awarded the Long-Term Research Grant (LRGS) to conduct research in developing a safe drinking water treatment system using membrane and adsorption processes. He was also involved in the group that JICA granted to establish a blueprint for a low carbon society in Iskandar Regions.

He was involved in more than 60 research and consultancy projects, publishing more than 180 articles in journals and proceedings. His Scopus H-index is 28, with 3,635 citations. He received the University Excellence Award (2002, 2011); Research Award (Group) in 2004; Consolation Award (Article in National Journal) in 2006; and Publication Award (Article and Index-Journal Category) in 2010. As co-researcher, he has received various recognition, both national and international - INATEX (2008, 2010), PEREKA (2010), MTE (2011) and SIIF (2011). He has also joined the Malaysian Water Association (MWA) Task Force to publish a new manual entitled "MWA Planning & Design Guidelines for Water Supply Systems" Best Practices Handbook. Apart from this, he has been a member of the ASM task force on water and wastewater management in Malaysia.



Professor Dr Mohd Razman Salim

Department of Civil
Engineering
Faculty of
Engineering,
Technology and
Built Environment
UCSI University



Professor Ts Dr Safian Sharif

**Chair of Frontier
Materials Research
Alliance
Universiti Teknologi
Malaysia**

Professor Ts Dr Safian Sharif is an expert in the manufacturing and materials field. He is a member of the Turkey Additive Manufacturing Association (TAMA), an establishment to share the latest advancement and research opportunities in additive manufacturing by various experts across the globe.

He served as a panel of Assessors for various research grant schemes under the cluster of manufacturing and material related projects, including post-COVID19 for MOSTI and MOHE. MOHE had appointed him as the Co-Head of Cluster Frontier Technologies & Advanced Manufacturing to assist in the evaluation process of the research grants. He was appointed by MOHE as MyRA Chairman of Internal Auditors, besides being an active Panel of Technical Assessors for Public-Private Research Network (PPRN) Grant.

He was assigned as the principal researcher for the European Commission Project or Advanced Product Support Technologies (APOST), with a grant of RM 1,627,895.00. The main project objective was to promote the application of advanced manufacturing technologies of CAD/CAM, Rapid Prototyping and Virtual Manufacturing to the Malaysian Industries with European partners from the UK, Germany and Greece.

Additionally, he was the Sub-Project Leader for MOSTI Prioritised Research Project, “Development of Endmills, Drills and Turning Tools from Ultra Fine-Grained Carbides and Oxides for Aerospace and Mould and Die”. An amount of RM1.5 million was granted to assist the local manufacturing industries in improving their tooling performance for the above applications.

He has published more than 350 articles in journals, proceedings and book chapters. His Scopus h-index is 30 with 3,571 citations. He has been appointed as an Editorial Board member since 2010 for Machining Science Technology, an International Journal, (IF 2.071, Quartile Q2) WOS indexed, published by Taylor and Francis. He also served as an Editorial Board member for Journal Technology, a Scopus indexed journal. He has good networking with international partners in manufacturing and additive manufacturing from Korea, Indonesia, Türkiye and Iran. Few articles had been jointly published in WOS and Scopus indexed journals.

Professor Ir Dr Shaliza Ibrahim has more than 30 years of experience in multi-phase mixing in stirred tank reactors, particularly on solid-liquid suspensions, which has critical applications in food, pharmaceutical and oil & gas industries, observation of wall-slip phenomenon, and fine sediments in flood mitigation, and initiated particle image velocimetry (PIV) to add new perspectives to the study.

She is the academic collaborator for SATAKE Chemical Equipment MFG. LTD. (Japan). Apart from this, she was the Malaysian advisor along with Professor Kohei Ogawa, Former Vice-President of Tokyo Institute of Technology, for the Malaysia Japan Process Engineering Forum and Business Matching Event 2018, which convened more than 100 participants in process engineering for technology sharing and business matching discussions.

She received national and international research grants amounting to over RM1 million. Her team effort has generated outcomes beyond academia with significant reach to local communities, namely batik producers, aquaculture farmers, and palm oil industry stakeholders. She is recognised internationally and contributes to scientific committees for the International Symposium on

Mixing in Industrial Processes (ISMIP) and Asian Conference on Mixing (ACOM).

Her contribution to science encompasses teaching and learning, research, consultancy, research translation and administration. She has taught hundreds of undergraduate and postgraduate students on Chemical Engineering Thermodynamics, Reactor Design and Unit Operations for Biological Systems, Mass and Energy Balance (Chemical Process Principles), Chemistry for Environmental Engineering, Wastewater Treatment, Anaerobic Technologies, and Greening Malaysian Industries. She has supervised final year projects and postgraduate theses in Mixing and Hydrodynamics, Environmental Engineering and Biotechnology. She has published 150 papers in WoS-indexed journals with more than 2,000 citations with an H-index of 25.

She has been actively involved with ASM as a member of the Malaysian Open Science Platform (MOSP) Alliance, contributing to the Capacity Building Working Group. She was also a Working Group Member for Societal Impact Pillar for Science Outlook 2020.



Professor Ir Dr Shaliza Ibrahim

**Deputy Vice-Chancellor (Research and Innovation)
Institute of Research Management and Services
University of Malaya**



Professor Ir Dr Siti Kartom Kamaruddin

**Director of Fuel Cell
Institute
Fuel Cell Institute
Universiti Kebangsaan
Malaysia**

Professor Ir Dr Siti Kartom Kamarudin is the Professor of Chemical Engineering at the Department of Chemical and Process Engineering, Faculty of Engineering and Built Environment, UKM. She is the Director of the Fuel Cell Institute of Universiti Kebangsaan Malaysia. She is actively researching on low carbon energy conversion technologies related to liquids and hydrogen fuel.

She is a world-renowned expert in low carbon energy related to Fuel Cell and Hydrogen Technology. She was awarded more than 10 million in research funding from international and local grants. She was granted the pre-commercialisation funding on Fuel Cell Educational Kits and announced as the potential Business Opportunity in 2017. Her research has received numerous acknowledgements from local and international authorities, such as WIPO Award for the Best Women Invention from World Intellectual Property Organization (WIPO) and Best Innovation Award from Taiwan Invention Products Promotion Association (TIPPA).

Professor Ir Dr Siti Kartom has published more than 500 articles, including 250 in high impact journals. She has been cited in international journals about 9,000 times with an H-index of 47. From 2016 to 2020, she was recognised as one of the top 1% of researchers for the most cited documents in Engineering by Clarivate's 'Highly Cited Researcher'. In 2016, she was awarded 'The World Most Influential minds' listed as the top 100 world scientists in engineering for having the highest number of cited papers. In 2017, she was awarded the 'Malaysia Research Star Award' for outstanding National Research: Renewable Energy, Sustainable and Environment by Thompson Reuters and MOE. She was also announced the International Journal Hydrogen Energy (IJHE) Valery A. Legosov Award for being cited extensively in the field of Fuel Cells in 2019. For two years in a row, in 2015 and 2016, she was awarded the 'Malaysia Rising Star'.

She has contributed to the ASM's Task Force in developing the Blueprint of Fuel Cell and Hydrogen Industries.

Professor Ir Dr Aduwati Sali is an expert in mobile and satellite communications, specifically in IoT, 5G & Beyond (B5G) and advanced intelligent system.

Her research findings have been taken up in various capacities. For instance, they are used to set up Guidelines and Technical Codes on telecommunications issues under the coordination of the Malaysia Communication and Multimedia Commission (MCMC) and the Malaysia Technical Standards Forum Berhad (MTSFB). She has been involved in WG 1 Internet of Things (IoT), Smart Cities, and WG 2 IMT and Future Networks. She has helped develop the 5G National Taskforce Report Technical Codes for Prediction and Measurements of EMF Exposure from Base Station, Technical Specifications for IMT 2020 (5th Generation) System, Guidelines for International Mobile Telecommunications Advanced (IMT Advanced) System and Specifications and Technical Standards for IMT Advanced, and Implementation of Wireless Sensor Network in Malaysia Guidelines Operating in the Frequency Band 433MHz, 869MHz and 2 4GHz.

She has published more than 190 papers in journals and conference proceedings. She has a Scopus H-index of 17 with 1,193 citations. She has also received multiple

regional and international awards (ASEAN US Prize for Women, UK Alumni Awards Professional Achievement Award, MTE Silver Award, International Award of Merit) from her team's work on IoT for peatland monitoring.

Apart from research, she has also contributed to policy-related work. She was one of the experts who contributed to the drafting of Dasar Sains, Teknologi dan Inovasi Negara (DSTIN) which was carried out by ASM for MOSTI. She also contributed in drafting the Malaysia Education Blueprint 2015-2025 (Higher Education) for TVET education guidelines in Malaysia.

In 2014, Professor Aduwati consulted the authority on estimating the potential of the missing MH370 route. Using her broad knowledge in satellite communications, frequency offsets and signal strength, she validated the official observations from the authority.



Professor Ir Dr Aduwati Sali

Department of
Computer and
Communication
Systems Engineering
Faculty of
Engineering
University Putra
Malaysia



Dr Mahamod Ismail

**Retiree, formerly a
Professor at Universiti
Kebangsaan Malaysia**

Dr Mahamod Ismail is a retired Professor from the Department of Electrical, Electronics and System Engineering, Faculty of Engineering and Built Environment, UKM. He was with the engineering team building the first Malaysian microsatellite TiungSat in Surrey Satellite Technology Ltd., UK.

His extensive experience focuses on all disciplines of communication engineering and networking at undergraduate and postgraduate levels and updating the telecommunication industry players with new technology, applications, and innovations. He actively participated in the next-generation wireless communication network study such as IMT-2000 and 5G Working Group regulated by the Malaysian Communications and Multimedia Commission (MCMC) and Malaysian Technical Standard Forum Berhad (MTSFB). He initiated a mobile and wireless research group in UKM.

He was the project leader for ten research grants from the MOHE and MOSTI and the researcher of another 26 research grants, including two from abroad, funded by EU-Asia Link and National Institute of Information and Communications Technology (NITC) Japan. He also received Gold Medal on Creation, Innovation, Technology

& Research Exposition (CITREX), UMP, 2018 and Gold Medal on Intelligent Mobile Locater “iMobiloc”, Malaysia Technology Expo 2010, Kuala Lumpur.

He has published more than 500 journals and proceedings. He has a Scopus H-Index of 25, with 4,113 citations. Moreover, he is also involved in consultation work, mainly auditing the existing telecommunication infrastructure and network services under UKM Pakarunding. Whereas the consultation for MCMC includes Quality of Service check on GSM network coverage, Super WiFi deployment in Miri, Sarawak and Universal Service Provision (USP) network auditing across the underserved rural area within Malaysia. Dr Mahamod often shares his vision for telecommunication related fields while giving keynote speeches at conferences.

Professor Datin Dr Sameem Abdul Kareem is an accomplished researcher in applying AI in medicine. She is an expert in general computer sciences and artificial intelligence (AI).

She had taught the subject of databases which led her to the field of data mining, machine learning and, subsequently, data analytics. She had combined her passions for data analytics and medicine to pursue PhD research in application of artificial intelligence in medicine. Thus, she can be considered as one of the first few local experts in AI and medical informatics.

Various international universities, such as the University of New South Wales, recognised her expertise, where she has served as an external examiner. She also acted as a member of the expert panel for the prestigious European Union's Erasmus Education, Audiovisual and Culture Executive Agency (EACEA) and a grant evaluator for Breast Cancer Now, UK.

Professor Sameem exploits the suitability of employing AI in healthcare, education and the oil industry. She works closely with various agencies and industries (e.g. MOH, MOHE, MDEC, National Medical Analytics Team, MIMOS, MDC). She is actively involved in academic research and has garnered more than RM2,000,000 research grants.

Amongst them are Flagship Application in Intelligent Forensic System and a Novel Low-Cost AI Integrated Cardiorespiratory Sounds Amplification Adapter for Resuscitation & Education in Paediatrics.

She has published extensively in international indexed journals (more than 100 articles) and is often invited as keynote speaker in conferences, seminars and webinars. With 885 citations, her Scopus H-index is 16. She serves as an external examiner for many local and international universities. She has been an Erasmus CBHE Grant Evaluator for the EU since 2019 and has also been actively involved as an evaluator for the British group "Breast Cancer Now".

She has contributed to the ASM's Focus Group meeting on AI applications related to healthcare. She is also Head of the Application of AI and BDA for Infectious Disease Researches, a subgroup on Application of AI and Big Data Analytics (BDA) under the SIG on COVID-19 responsible for preparing a Position Paper on the Application of AI and BDA for Infectious Diseases Research. This project is part of an initiative to provide the necessary recommendations to assist the government in order to address the current issues and future preparedness on infectious diseases.



Professor Datin Dr Sameem Abdul Kareem

Department of
Artificial Intelligence
Faculty of
Computer Science
and Information
Technology
University of Malaya



Professor Dr Kasturi Devi Kanniah

**Faculty of Built
Environment and
Surveying
Universiti Teknologi
Malaysia**

Professor Dr Kasturi Devi Kanniah is an expert in remote sensing in Malaysia. Her primary research expertise links the data field to Remote Sensing and Geospatial Technology. Linking field data with remote sensing technology to study large scale (on land and in urban areas) vegetation processes and functioning, including their role in achieving low carbon cities and managing atmospheric pollution.

Her research projects and consultancy has produced policy documents to guide the local authorities, i.e. the Kuala Lumpur City Hall and Iskandar Malaysia Development Authority (IRDA), towards CO₂ reduction and sustainable practices. The research is applied in nature, and her expertise in remote sensing, climate, and ecosystems assisted in providing quantitative estimates of the carbon sequestration of various ecosystems and finding suitable locations to plant trees to augment the green cover and water bodies. She also contributed to society via knowledge and experience gained through this research theme. She collaborated with non-governmental organisations to organise tree planting events in schools. The “GeoTreeS”, a web-based system developed by her research team (UTM.J.14.01/27.13/1 JLD94(20) is used to serve the community in tagging and monitoring newly planted trees in various locations in Malaysia.

She has been involved in 32 national and international research and consultancy projects related to her expertise. She has also maintained an excellent international collaboration with researchers from NASA, the USA, Tsinghua University, Dundee University and the National Observatory of Athens through research, publication and student supervision activities.

She has published more than 140 publications consisting of six refereed journal articles, five books, six book chapters, six policy documents, two magazine articles, 35 ISI/ Scopus-indexed conference papers and 11 refereed conference proceedings. From 62 indexed journal publications, 39 as corresponding author and 15 as first UTM author. Her publications are well-cited, with a Scopus H-index of 23. She is the Associate Editor of the International Journal of Remote Sensing (Q2 journal) and an Editorial Board Member of the International Journal of Geoinformatics (cited in Scopus). She is also the chief editor of UTM’s Advanced Geospatial Science and Technology journal.

Dr Saim Suratman is the Malaysian resource person on hydrogeology to UNESCO and International Groundwater Resources Assessment Centre (IGRAC). He has served in various fields covering engineering and environmental geology, and hydrogeology. He worked on several significant hydrogeological projects and promoted the sustainable utilisation of groundwater in Malaysia e.g. Sg Muda Basin. He was instrumental in the certification process of the bottled natural mineral water industry.

He prepared numerous Policy and Cabinet Papers on the management of groundwater resources which are essential in providing direction to the government on the sustainable development of groundwater resources. He also cooperated in several international collaborations involving JICA, Japan Geological Survey, ASEAN Foundation, CSIRO, University of Okayama and UNESCO on issues on sustainable groundwater management, a database for CCOP countries, capacity building for Cambodia, Laos, Myanmar and Vietnam, Managed Aquifer Recharge (MAR) Project in ASEAN Countries, and groundwater contamination studies and transboundary aquifers in Asian countries.

He is one of the pioneers in modern hydrogeology in the country, employing state

of the art technologies and bringing back innovative ideas due to his exposure overseas. He brought in an important innovative approach to Malaysia when he collaborated with CSIRO (Australia) in the technique known as Managed Aquifer Recharge (MAR). He was responsible for bringing new technology such as software and modern equipment for groundwater resources management and was amongst the earliest hydrogeologists to adopt groundwater modelling for sustainable groundwater management in Malaysia.

He has successfully introduced the utilisation of several software packages for managing groundwater resources to the Minerals and Geoscience Department (JMG) and the National Hydraulic Research Institute of Malaysia (NAHRIM). One notable software introduced is the 3-dimensional groundwater modelling code, commonly used by hydrogeologists globally for sustainable groundwater management. He is an expert modeller who utilises his skill in using the code to help predict the impact of pollution on groundwater systems.



Dr Saim Suratman

**Consultant of
Hydrogeology,
formerly Deputy
Director General of
NAHRIM**



Professor Dr Cheah Fook Choe

**Head of Department
Department of
Paediatrics
Faculty of Medicine
Universiti Kebangsaan
Malaysia**

Professor Dr Cheah Fook Choe is a pioneer in Neonatology in Malaysia and is one of few exceptional clinician-scientists in Malaysia. His notable achievements include Fellowship of the Royal Australasian College of Physicians (FRACP), Royal College of Paediatrics and Child Health, UK (FRCPC) and Academy of Medicine of Malaysia (FAMM). In addition, he was a Neonatal Research Fellow in New Zealand and a visiting research scientist at the Cincinnati Children's Hospital Medical Center, Ohio, USA.

He has a diverse and outstanding research portfolio. His seminal research on preterm infant lung diseases, specifically on lung inflammation and oxidative injury in hyaline membrane disease and elucidation on the role of NF-kappa B activation in pulmonary leukocytes resulted in five Tier 1 journal publications, inspired two book publications and numerous citations. His international collaborative translational research with his USA, Australian and German partners resulted in ground-breaking findings on lung maturation and protective ventilation studies of the preterm sheep lung. Four impactful papers were published on this work. Additionally, his international collaborative research on neonatal resuscitation, the TORPIDO Trial yielded two

impactful papers. He has an H-index of 16 and 50 indexed papers.

He actively researches on local neonatology topics such as neonatal jaundice and G6PD deficiency, studying placenta inflammation, intrauterine infection and perinatal outcomes using the RU-UKM-DLP grants. Prof Lee is the patent holder of the Veterinary Management System for *Gardnerella vaginalis* and the in-house closed system arterial blood sampling set.

In terms of capacity building, he has been the supervisor for over 50 postgraduate students. He also developed an e-learning platform for early life nutrition and nutritional interventions to study growth and neonatal outcomes.

He was elected to various leadership roles, including the Vice-President of the College of Paediatrics Academy of Medicine of Malaysia, Adjunct Professor of Neonatology Universitas Airlangga (Surabaya, Indonesia), Head of UKM Placenta and Perinatal Research Group, Head of Conjoined Board in Paediatrics Specialty Training as well as the Director of International Neonatology Fellowship Training UKM. He was also appointed to various advisory boards, consultancy, journal editorial boards and paper reviewers.

Professor Dr Chua Kek Heng is a senior professor of molecular biology at the Department of Biomedical Science, Faculty of Medicine, UM. His research includes various disease polymorphism studies, mutation investigation studies, characterisation of bacterial virulence factors and diagnostic kit development.

His achievements in different kinds of infections and multidrug resistance to the treatment of pathogens and genotyping for many types of diseases as predisposing biomarkers are prominent. Some of them are patented for clinical applications. These innovative discoveries are unique, with significant contributions to the nation. His works using advanced technologies have a tremendous impact on the diagnostics and strategies in treating some local critical infectious diseases. His works were also well-cited and won many awards in the international community.

His publication has more than 150 original publications with an ISI H-index of 25 and a total citation of 2,280. The fundamental research mainly investigates genetic markers and further discloses the risk factors or mutations in various microbial and human diseases. Further research has also been carried out from the selected marker information to develop appropriate and rapid diagnostic kits to

benefit society. His efforts have been recognised at the national and international levels as he currently holds more than 1,500 intellectual properties, including national and international patents, trademarks, and copyrights. Professor Chua developed PlasmoNex, a diagnostic kit for malaria, which has been successfully commercialised in 2011.

He has been awarded 100 prestigious national and international awards, not limited to Biotechnology Asia Award 2005, Best Inventions in Biotechnology Award 2006, USA INPEX Grand Prix Award 2008, Excellent Scientist Recognition in 2005 by MOHE, National Intellectual Property Award 2013, and the World Halal Excellent Innovation Award 2013.



**Professor
Dr Chua
Kek Heng**

**Department of
Biomedical Science
Faculty of Medicine
University of
Malaya**



Professor Dr Lee Yeong Yeh

**Senior Consultant
of Gastroenterology,
Hepatology and Internal
Medicine Department
of Medicine School of
Medical Sciences
Universiti Sains
Malaysia**

Professor Dr Lee Yeong Yeh is a key opinion leader and world-class expert in gastroenterology and hepatology. His research interests include neuro-gastroenterology, gut microbiota, obesity and gastrointestinal cancers. His work is impactful, with publication in high-impact journals in the field, including Gut and Gastroenterology (more than 280 papers with an H-index of 31; 3,573 citations—Google Scholar). His Scopus H-index is 22, with 1,809 citations.

Prof Lee is experienced in conducting international clinical trials (e.g., Takeda, GlaxoSmithKline, Allergan etc.). He is the principal- and co-investigator of several local and international grants, including NIH (USA), MRUN LRGS, TRGS, FRGS, RUIs, short-terms and other smaller commercial and non-commercial grants. He and his team have been awarded more than RM5 million research grant.

He has served as the national assessor of research grants for the MOHE and MOSTI. He is also a consultant and advisory board member for pharmaceutical companies (e.g., Danone, Servier etc.). His international networks include the University of Glasgow, Georgia Regents University, University of North Carolina and University of New South Wales (where he served as the Visiting

Professorial Fellow). He has trained and supervised three postdoctoral fellows, eight PhDs, 20 masters and nine clinical gastroenterology fellows.

He received awards and fellowships from prestigious medical bodies, including the American Gastroenterology Association and Royal Colleges of Physicians. He also won the Outstanding Young Malaysian Award (JCI Malaysia) in 2015 and sits on numerous editorial boards of international journals, regularly serves as a reviewer of articles and assessor of national and international grants and promotion.

He is often invited to speak regularly at keynotes and international conferences (e.g., ANMA 2015, IDDF 2015, BGS Annual Meeting 2015-8, IDDW 2016, APDW 2016-7) and local meetings. He has served as the President of the Malaysian Society of Gastroenterology and Hepatology, Scientific Chair of Asia-Pacific Digestive Week (APDW) 2021 and committee members of numerous international societies, including the World Gastroenterology Organization (WGO), World Endoscopy Organization (WEO), OESO etc.

Professor Dr Zaleha Abdullah Mahdy advanced her academic career into innovative cross-disciplinary research with experts from various fields of medicine, science and technology, and the relevant industries, facilitating technology transfer. She has established novel scientific research in her primary area of interest, preeclampsia, and led a clinical trial on the role of palm oil TRF in the prevention of preeclampsia. Together with a cell therapy team, she initiated a series of studies on the effects of maternal diseases on umbilical cord stem cells when banking of these cells became trendy.

She collaborated with various organisations at national level, namely IIUM, UM, Mesiniaga Berhad, Aerodyne Group, and IESB, as well as internationally with CUHK, Medical Device Innovation Centre (MDIC) of National Cheng Kung University (NCKU) of Taiwan, Perinatal Institute, and Global CoLab Pregnancy Network. She is an adjunct representative of Global CoLab Pregnancy Network, an international preeclampsia research data sharing network centred at the Magee Women's Research Institute, University of Pittsburgh Medical Centre.

Her appointment as Academic Fellow by USM is a mark of respect for her capability to inspire colleagues to move together in expanding scientific research. She is also a respected key opinion leader in her medical speciality, as evidenced by her previous appointment as an advisory

board member of Nestle Institute and currently as a Regional Advisory Board Member of Procter & Gamble. Her work in MyMOMS and GROW-My has had a far-reaching impact and benefits half a million pregnancies each year nationwide. The big data gathered through MyMOMS provide an opportunity for on-demand surveillance of the maternal healthcare system. MyMOMS is currently at Technology Readiness Level 8-9 and undergoing beta-testing.

She has supervised 33 Masters and four PhD students. She served as the Director of the UKM teaching hospital for almost two years (2016-2017) and Dean of the UKM Faculty of Medicine for three years (2016-2019). She was instrumental in assisting Maldives National University in setting up the first medical school in the Maldives in 2018 using the UKM curriculum. Her appointment as Associate Editor of three high-ranking high-impact international medical journals (BMC Pregnancy and Childbirth [Q2], Frontiers in Medicine [Q1] and Frontiers in Surgery [Q2]) is an indication of acknowledgement of her academic prowess. Her Scopus H-index is 18, with over 760 citations. Establishing the Health Technology Innovation Laboratory in UKM has been among the pinnacles of her achievement and serves to enhance collaborative scientific research across faculties and industry.



Professor Dr Zaleha Abdullah Mahdy

Senior Consultant
Obstetrician and
Gynaecologist
UKM Medical
Centre



Dato' Dr Hj Ahmad Sabirin Arshad

**President and Group
Chief Executive
SIRIM Berhad**

Dato' Dr Hj Ahmad Sabirin Arshad is an eminent expert in mechanical engineering, specialising in the space system. He was selected to be part of the engineering team that pioneered in the development of the MEASAT-1 satellite at Hughes Aircraft Company (now Boeing) and Malaysia's first microsatellite.

Under his leadership, he successfully implemented the first microsatellite programme, TiungSAT-1, launched into orbit on 26 September 2000 from Baikonur Cosmodrome, Kazakhstan. In 2009, he led the team of engineers to build and launch Malaysia's first microsatellite, RazakSAT. RazakSAT satellite is the world's first remote sensing satellite launched into Near Equatorial Orbit on 14 July 2009 from Kwajalein Island, Republic of Marshall Island. Besides that, he and his team also developed small satellites carrying innovative micro thruster systems, namely the InnoSAT and CubeSAT. Apart from microsatellites, they also developed and launched the 3U nanosatellite (InnoSAT-2) onboard PSLV-C43/HySIS Mission on 29 November 2018 from Sriharikota Range, India.

He was instrumental in founding the Astronautic Technology (M) Sdn. Bhd (ATSB), the company that developed space technology for Malaysia. He later became its first Managing Director and CEO. ATSB

was the leading company in ASEAN and the fifth in the Asia Pacific for space technology developments. As the only space technology development company in Malaysia, the company implemented various high technology commercial programmes. Besides designing, developing, testing, manufacturing and launching the satellites, some examples of ATSB's other projects are the Tsunami Early Warning System, the Wind and Radar Visual Range, and the Processing System of Direct Broadcast Data for Jabatan Meteorologi Malaysia. Prior to ATSB, he was appointed as Chairman of postgraduate studies and Deputy Dean at USM, as well as a part of the founding team to establish the School of Aerospace Engineering, USM. He was also selected as a Research Fellow at Kyoto University, Japan, by the Japan Society for the Promotion of Science. Dato' Sabirin's experience in the technology acquisition and development at ATSB and corporate experience at MAPRI Sdn Bhd and Aerospace ventures, UZMA Berhad, has led him to his current appointment as the CEO of SIRIM (since April 2021).

Dato' Sabirin has remained at the forefront of Malaysia's space science and technology development. He was awarded the Cal Maritime Alumni Association Distinguished Alumni Award in 2015.

Dr Chantara Theyy Ratnam is an expert in R&D related to peaceful applications of nuclear technology in the radiation processing of polymers focusing on elastomers, polymer blends and composites, radiation compatible polymers, and recycling of plastics polymers. She was a former Senior Director of Management Programme for Malaysian Nuclear Agency (Nuklear Malaysia).

Amongst her achievement in R&D includes formulating radiation compatible polymers for medical applications, pioneering research on the surface coating of rubber gloves with hydrogel by using radiation technique, developing radiation cross-linkable polymer blend formulations to use in the automobile industry and developing polymer compounds from used rubbers (recycle rubber). One of her recent projects on reutilising and recycling polymeric waste was approved as a regional project involving 15 countries across Europe and the Asia Pacific. Upon her retirement, she still actively contributes to the industry as a Subject Matter Expert of IAEA Technical Cooperation providing lectures and facilitating discussions on radiation technology to recycle polymer waste.

She collaborated with international research bodies and industries such as Takasaki Advanced Radiation Research Institute (Japan); Babha Atomic Research

Centre (India), Korea Atomic Energy Research Institute, Australian Institute for Nanotechnology, Mahatma Gandhi University (India), Fraunhofer IGV (Germany), Hacettepe University (Türkiye), Kyungpook National University (Korea) and APAR Industries (Mumbai).

At national level, Dr Chantara has been involved in developing and promoting the applications of radiation technology using electron beam accelerators in the wire and cable industry (PROTON), recycling of tire (Revocomm Technologies Sdn Bhd), biodegradable polymers (SIRIM-USM), recycling of aero-industry waste (CTRM-UTEM-USM), thermoplastic-elastomers for healthcare industry (Zeito Plastics Sdn Bhd) and solar panel (HDtec Energy Sdn Bhd).

She has won more than 55 awards nationally and internationally for her outstanding research. Amongst them were Gold Medal, Grand Prix of the 34th International Exhibition of Inventions New Techniques and Products, Geneva, Quality Award 2001 for excellence in R&D, 1st Prize Winner of innovation from MOSTI, 1st Prize Winner-for Highest Contribution to publication and presentation from Malaysian Nuclear Agency (2007), Woman Inventor of the year 2011, The Best Award MTE 2017 and Outstanding Inventor Award MTE2017.



Dr Chantara Theyy Ratnam

**Retiree, formerly
a Senior Director
of Management
Programme for
Malaysian Nuclear
Agency**



Dr Faridah Hanim Ab Hanan

**Deputy Director General
(Policy and Operations)
Malaysian Rubber Board**

Dr Faridah Hanim Ab Hanan is an expert in testing and reverse-engineering works on rubber and rubber products. She is a chemist by profession who began her career as an Assistant Chemist at Esso Refinery in Port Dickson, Negeri Sembilan, before joining the Rubber Research Institute of Malaysia (RRIM) as a research officer in 1989. In RRIM, she was involved in chemical analysis and test methods development for quality control testing on raw rubber and rubber products. Then, she was appointed as the Quality Assurance Officer, where she developed and published more than 30 in-house test methods that were recognised and accredited by Standards Malaysia to serve local and international clients.

Dr Faridah is an active member of the National Standard Committees under Standards Malaysia, responsible for developing Malaysian Standards for Rubber and Rubber Products. She has transformed several RRIM In-House Test Methods to become Malaysian Standards (MS) that are highly sought after for quality control purposes by rubber and latex product manufacturers. The transformation allows the testing of local rubber products to be aligned to world standards. The laboratories now have 245 accredited test method standards that are accepted globally.

Dr Faridah was entrusted to lead the project to develop ISO test method standards under the working group of SC2 WG5 at ISO TC 45. She revised at least 10 International Standards on rubber and rubber products, and some of the procedures were applied to Malaysian laboratories. At the international level, Dr Faridah currently chairs the ISO/TC45 SC4WG5, in charge of standardising terms and definitions, test methods and specifications, including those needed to perform risk assessments related to substances or particles generated by rubber such as gloves and other latex products. She is also the Chairman of ISO/TC 157, handling the standardisation of non-systemic contraceptives and sexually transmitted infections (STI) barrier prophylactics.

She was appointed as Chairperson of the Technical Committee on Raw Materials and Chemical Testing under Standards Malaysia from 2007 until now. The committee is responsible for developing the Malaysian Standards for rubber and rubber products. Her leadership was evident when she was appointed as Chairman of ASEAN ACCSQ-RBPWG from 2014 until 2019. She harmonised 69 standards placed under the ASEAN Trade Repository in Jakarta. She also negotiated for the establishment of the ASEAN Rubber Testing Laboratories Committee (ARLTC) in 2019 to operate the ASEAN Rubber Laboratory Networks (ARLN).

Professor Datin Paduka Dr Fatimah Mohamed Arshad is an expert in agricultural economics. Her research area is focused on structural problems in the agricultural sector, food security, pricing issues, cooperatives, and evaluation of selected policies and strategies. In 2011, she was an agricultural marketing and policy professor at the Faculty of Economics and Management, UPM. She later became the Director of the Institute of Agricultural and Food Policy Studies, UPM (2006-2015) and was appointed as Executive Officer at Deputy Vice-Chancellor Office (Research & Innovation) (2015-2016). Currently, she holds a post as the Research Fellow at the Institute of Agricultural and Food Policy Studies since 2017.

She is actively being invited to provide policy inputs to numerous national government agencies, including the Economic Planning Unit (Department of the Prime Minister), MoA, Fisheries Development Authority, Federal Agricultural Marketing Authority (FAMA), Ministry of Plantation Industry and Commodity (MPIC), National Paddy and Rice Authority (NPRA), Bank Rakyat, Ministry of Science, Technology and Information (MOSTI), Malaysian Palm Oil Board (MPOB) amongst others.

Professor Dr Fatimah also

collaborates and consults many international agencies on agricultural policy and economy, namely the International Atomic Energy Agency (IAEA), International Center for Living Aquatic Resources Management (ICLARM), Australian Centre for International Agricultural Research (ACIAR), Food and Agriculture Organization of the United Nations (FAO), Australian Financial Markets Association (AFMA), International Tropical Fruits Network (TFNet) and International Development Research Centre (IDRC). Through her research collaboration, she managed to obtain research grants from various sources, including FAO, ICLARM, and ACIAR, as well as numerous grants from local public agencies.

She strongly advocates that small farmers and farms best handle the future of agriculture as they provide significant ecological benefits and create a dynamic, equitable and sustainable farming community. She firmly believes that the role of the small farmers can be enhanced through empowerment with knowledge, technology, entrepreneurship, and collective impact, particularly cooperatives for growth, equity, and sustainability. She often writes in newspapers, magazines, and newsletters to voice her opinion and ideas to the public.



Professor Datin Paduka Dr Fatimah Mohamed Arshad

Research Fellow
Institute of
Agricultural and
Food Policy Studies
Universiti Putra
Malaysia



Dr Hjh Hafsah Mohd Ghazaly

**Director
Malaysian Rubber
Development
Corporation (MARDEC)**

Dr Hjh Hafsah Mohd Ghazaly is an expert in the latex and rubber industry. She served at the Rubber Research Institute of Malaysia from 1988 to 2002. She was actively involved in the R&D of latex-based products such as gloves, catheters, latex thread and balloons. Dr Hafsah has patented five products involving gloves. She was responsible to complete product development from design to laboratory development and manufacturing and launching the products for approved new and improved products. She contributed as the Module Director for Occupational Products Technologies at Ansell from 2002 to 2010.

She was a representative of the Malaysian Rubber Export Promotion Council (MREPC) in London, UK and was successful in establishing highly effective links and relationships between the various Rubber and Rubber-related Organisations (e.g., Timber and Palm Oil Bodies) in Malaysia with the European based manufacturers, distributors, suppliers, policymakers and research organisations, government and private sectors. She was also the International Director-at-Large on the Lehigh University Alumni Association Board of Directors.

She continued her commitment to the rubber industry when Malaysia was experiencing a lapse in latex

research and losing market share in the lucrative glove industry to synthetic latex. Her recent appointment as the Director of MARDEC is to initiate the change so that the country can benefit by increasing latex production. Dr Hafsah highlighted efforts to address the latex allergy issues in Europe and was involved in promotional programs. She made various initiatives and strategies to strengthen further and expand the market for Malaysian rubber products in Europe. She also monitored European policies, regulations and publications on relevant products for the entire European Union Region and corresponding regions.

In 2000, she was awarded the Federal Government of Malaysia Scholar from September 1995 to January 2000 and the Excellence in Service Award from the Malaysian Rubber Board. She has published over 70 publications in refereed journals at national and international levels with an H-index of 46. She has five registered patents.

Professor Datuk Ir Ts Dr Siti Hamisah Tapsir is currently the USCI Group Chief Executive Officer and Vice-Chancellor of USCI University. Prior to her current position, she had an illustrious career span of over 36 years working as an engineer, lecturer and administrator. In 2017, she was appointed as the Director-General of the Department of Higher Education, Ministry of Higher Education (MOHE). She was heavily involved in developing the Malaysia Education Development Plan 2015 - 2025 (Higher Education) and implementing initiatives outlined for the public and private higher institutions.

From 2019 to 2021, Datuk Dr Siti Hamisah served MOSTI as the Secretary-General, providing leadership, strategic direction, and implementation of national policies in science, technology, innovation and economics. As MOSTI's Secretary-General, she was responsible for overseeing 30 government departments and agencies, including ASM, Malaysian Department of Environment (DOE), Malaysian Energy Commission and the Malaysian Sustainable Energy Development (SEDA).

During her tenure in MOSTI, she spearheaded the implementation of the National Science, Technology and Innovation Policy (NPSTI 2021-2030), the National Sandbox (NTIS) initiative, the Malaysian Grand Challenge and MyHackathon to

accelerate the development and commercialisation of local technologies. In November 2020, MOSTI was mandated as one of the Ministries to implement the National COVID-19 Immunisation Program (PICK). Instead of retiring in March 2021, her tenure as the Secretary-General of MOSTI was extended, and she played an essential role in overseeing the implementation of the national vaccination program. This task was carried out through a Special Committee co-chaired by the MOH and MOSTI to ensure access to the supply of COVID-19 vaccine (JKJAV) in Malaysia. Apart from this, she also managed the policies and regulations of the Atomic Energy Licensing Board (AELB), including LYNAS, the Malaysian Nuclear Agency, the Malaysian Space Agency, and the Malaysian Department of Chemistry.

In recognition of her outstanding leadership and excellent service, Datuk Dr Siti Hamisah has been bestowed several awards, namely the Best Woman Award in 2005 by the Selangor Government, the Female Engineer Award (First Recipient) by the Institute of Engineers Malaysia, Honorary Doctorate Award (Doctor of Science) from the University of Southampton and Contribution to Society Award from The Asia HRD Awards 2017.



Professor Datuk Ir Ts Dr Siti Hamisah Tapsir

**Group CEO and
Vice-Chancellor
USCI University**



Dato' Dr Zairossani Mohd Nor

**Director-General
Malaysian Rubber Board**

Dato' Dr Zairossani Mohd Nor is an expert in rubber and polymer technology. His research interests include raw rubber processing, bioprocessing of natural rubber serum, environmental biotechnology, effluent treatment, rubber technology, environmental management, and the sustainability of the rubber industry.

He was appointed as the Director-General of Malaysia Rubber Board (MRB) since 2017, leading several key national-level research, development of programmes and consultancy activities in the rubber industry sector covering rubber processing, rubber technology and product manufacturing, rubber engineering, technical and testing services, rubber product certification and standards development. He is responsible for executing core functions of MRB, to enhance the competitiveness and viability of the Malaysian rubber industry in the global environment.

He actively contributes at national and international committees by serving as liaison officer of the rubber industry downstream sector for the International Rubber Research Development Board (IRRDB) since 2012, Member of the Expert Committee on Climate Change of IRRDB and the Association of Natural Rubber Producing Countries (ANRPC) and the Malaysian delegate to ISO/TC 207 and ISO/TC 265 Environmental

Management since 2007. Dato' Dr Zairossani's leadership is demonstrated in his involvement in various roles as chairman and project leader of rubber committees. He was entrusted to lead the National Joint Technical Committee of MRB-Industry for Latex-Based and Dry Rubber Product Sectors since 2011, National Task Force for Standard Malaysian Rubber (SMR) Revision and Improvement since 2007, and National Key Economic Area (NKEA) for Rubber under the Malaysia Economic Transformation Program (ETP) for Commercialisation of Specialty Green Rubber since 2011. Besides that, he served as the Coordinator for developing the Global Testing and Consultancy for Rubber (GTACR) as a one-stop centre for testing services by MRB.

In recognition of his outstanding leadership achievements, he won the Tan Sri BC Sekhar Gold Medal 2014 for Contribution and Leadership in Rubber Industry. He was bestowed the World Intellectual Property Organization (WIPO) Gold Medal Award for the Overall Best Invention at the International Invention, Innovation, Industrial Design and Technology Exhibition (ITEX 2005). He is also the recipient of *Anugerah Standards Kebangsaan* 2020, awarded by the Department of Standards Malaysia and MOSTI.

Emeritus Professor Dr Ahmat Adam is a historian who specialises in the history of the Indonesian Press and the Emergence of Nationalism. He is known internationally for pioneering the early vernacular press and the emergence of Indonesian national consciousness. He continued studying the Malay press from the 19th century until after World War II.

Upon returning from his postgraduate studies in London, he served as a lecturer in UKM (1975 - 1995), Head of Department (1983-1985), Deputy Dean (1987-1989) and Dean (1980-1991). In 1995, he moved to Universiti Malaysia Sabah (UMS) to establish a centre offering liberal studies. He was awarded the Honorary Degree of Professor Emeritus at the 12th Convocation Ceremony of the UMS in 2010 in recognition of his contribution in establishing the Science and Language Disclosure Centre at UMS.

Emeritus Professor Dr Ahmat has held several leadership roles such as President of the UKM Academic Staff Association, a member of the Malaysian Government Committee of Accreditation, Vice-President at the Malaysian Association of Social Sciences, a member of the Malaysian Branch Council of the Royal Asiatic Society (MBRAS), International Association of Historians of Asia (S.E. Asia) and President of International Association of

Historians of Asia (2000).

As a reputable expert in modern Indonesian history, he was appointed as a senior researcher Fellow at Oxford Center for Islamic Studies. He was also involved in UNESCO's Maritime Silk Route project. He has produced more than 15 books published nationally and internationally throughout his involvement in academic research. Amongst his important books are the history and bibliographies of the 19th century Malay magazine in Malaysia, Indonesia, Singapore and Sri Lanka (UKM, 1994), The Vernacular Press and the Emergence of Modern Indonesian Consciousness 1856 - 1913 (Southeast Asia Program, Cornell University, Ithaca, New York, 1995), Letters of Sincerity: The Raffles Collection of Malay Letters (1780 - 1824) (MRAS, 2009), Malay, Radical and National Nationalism (UM, 2013).

Emeritus Professor Dr Ahmat is the second scholar to have exhaustively studied the hitherto unknown 18th-century version of the Sulalat u's-Salatin (Malay Annals) kept at the Oriental Archives in St. Petersburg, Russia. The only extant study of these 1,798 manuscripts is in Russian, hence not accessible to an international readership.



Emeritus Professor Dr Ahmat Adam

Independent Scholar, formerly Professor at UKM and UMS



Professor Datuk Dr Jayum Anak Jawan

**Tan Sri Empiang Jabu
Research Chair
Department of
Government and
Civilisation Studies
Faculty of Human Ecology
Universiti Putra Malaysia**

Professor Datuk Dr Jayum Anak Jawan is an eminent political scientist whose research is mainly on the ethnic dimension of development or lack of it, ethnic relations and the electoral process as well as governance. His publication has more than 600 citations with an H-index of 13. He has been involved in promoting Malaysian studies, an essential course subject in public and private institutions of higher learning, through working with the Lembaga Akreditasi Negara (LAN) and Malaysian Qualification Agency (MQA). He was appointed as Chair of the expert panel on Malaysian Studies to develop the curriculum and provide “training of trainers” on the subject.

Professor Datuk Dr Jayum facilitated the collaboration between Sarakup Indu Dayak Sarawak (SIDS) and UPM to establish the Tan Sri Empiang Jabu Research Chair in 2018, funded by the Government of Sarawak. On the joint suggestion of SIDS and the Faculty of Human Ecology, he was appointed as inaugural chairholder in 2019. UPM also entrusted him as the founding Dean of the newly set up Faculty of Humanities, Management and Science at UPM’s branch campus, Bintulu, Sarawak, in the following year.

He has served as advisory panels to various government departments and agencies at the national level, such as the

Department of National Unity and Integration, since the mid-1980s. He is responsible for providing input and observation on issues relating to national integration, unity and ethnic relations. Presently, he serves in two national committees, namely Majlis Penasihat Perpaduan Negara (MPPN) and Majlis Konsultatif Keselamatan dan Ketenteraman Awam (MAKKKA). Professor Datuk Dr Jayum often appears on international and local media as an expert representing ASEAN and Malaysian current affairs. When he occupied the Tun Abdul Razak Chair at the Ohio University (2015-2017), he became the ‘academic ambassador’ for Malaysia and a much sought-after speaker by various universities and student organisations to address various aspects of Malaysia as a prosperous developing country.

He actively contributes to several professional bodies taking on leadership or advisory roles, such as Deputy Head, Politics, Security and International Affairs Cluster of the National Council of Professors. He sat in the National Science and Research Council and sub-committee of the National Service Training Program of the Ministry of Defense, Malaysia (1997). He has also held visiting positions at the University of Hull (2004 & 2005), the Northern University of Bangladesh (2010) and was offered the same to the University of Leeds in 2011.

Professor Datuk Dr Mad Nasir Shamsuddin is an expert in agricultural and resource economics, and his research interest is in International Agricultural Trade Policy, Commodity Market Analysis, and Agro-environmental Economics. He has authored and co-authored more than 160 journal articles with a Scopus H-index of 18 and more than 800 citations. He has published more than 30 book chapters, conference proceedings and books. His expertise is also widely recognised through more than 137 presentations, including many plenaries and invited presentations at national and international conferences.

His expertise is highly sought after at the national level. He was appointed as a researcher and consultant to the Economic Planning Unit (EPU), under Asian Development Bank technical assistance in 1994. He successfully developed a Malaysian agricultural commodity forecasting model used in the 7th Malaysia Plan through his appointment as the consultant. The EPU reappointed him in 2012 to restructure and update the agricultural policy analysis model.

He has also been involved in various consultancies at the national and international levels. On the international front, he has consulted Asian Development Bank (ADB), the Centre on Integrated Rural Development for Asia and

Pacific (CIRDAP), and Asia-Pacific Economic Cooperation (APEC). He is a Pacific Food System Outlook Forecasting Panel member under the Pacific Economic Cooperation Council (PECC).

At the national level, he was appointed as a member of the Board of Directors of the Malaysian Cocoa Board and was involved in the Technical Advisory Committee of the Malaysian Cocoa Board. Apart from that, he served as a member and advisor in various agriculture-related bodies and committees, including Agricultural Productivity of the Malaysian Productivity Corporation, National Committee for Pacific Economic Cooperation (MANCPEC), Majlis Penasihat Latihan Pertanian Kebangsaan (MPLPK), Board of Directors of Putra Business School, and the Agri-Flagship Project of the Ministry of Agriculture and Agro-based Industry. Presently, he is a Permanent Member of the National Agricultural Advisory Council, Ministry of Agriculture and Food Industry. He is also the head of the Food Security and Safety Cluster for TRGS and LRGS under MOHE. Professor Datuk Dr Mad Nasir has also been an active columnist in the New Straits Times in writing research-based articles. He now serves as a member of the ASM Agriculture Committee (since 2021).



Professor Datuk Dr Mad Nasir Shamsudin

Department of
Agribusiness
and Bioresource
Economics
Faculty of
Agriculture
Universiti Putra
Malaysia



Emeritus Professor Datuk Dr Osman Bakar

**Al-Ghazali Chair of
Epistemology, Civilisational
Studies and Renewal
International Institute
of Islamic Thought and
Civilisation (ISTAC)
International Islamic
University Malaysia**

Emeritus Professor Datuk Dr Osman Bakar is a renowned scholar and researcher in the history and philosophy of science. He has held professorial positions at four different academic institutions in three countries, including Universiti Brunei Darussalam (Brunei), Prince Al-Waleed Center for Muslim-Christian Understanding at Georgetown University (Washington DC), International Institute of Islamic Thought and Civilisation (ISTAC) at International Islamic University Malaysia and University of Malaya, making him one of the most influential scholars that Malaysia has produced.

In 1995, Datuk Dr Osman was the founder of the Center for Civilizational Dialogue at the University of Malaya. He has served as an advisor and consultant to various international academic and professional organisations and institutions, including UNESCO and The Qatar Foundation. In addition, he was a member of C-100 (Council of 100 Leaders), of The West-Islamic World Initiative for Dialogue established by the World Economic Forum based in Switzerland.

Datuk Dr Osman is best-known for his work in Tawhid and Science (A History and Philosophy of Islamic Science), Classification of Knowledge in Islam, and Islam and Civilisational Dialogue, translated into

various languages such as Persian, Turkish, Indonesian, and Albanian. Several of his other writings have also been translated into Spanish, Chinese, Urdu, Arabic, and Bosnian. He has published more than 100 journal articles with over 2,000 citations with an H-index of 22 and is the author of more than 40 books and a dozen titles in the encyclopaedia on Islamic thought and civilisation, particularly Islamic philosophy and science, Islam in Southeast Asia, and inter-cultural dialogues. He was also a recipient of Fulbright Visiting Scholar at Harvard University in 1992.

In 2009, Datuk Dr Osman was included in Malaysia's twenty leading intellectuals and the 500 most influential Muslims globally.

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Ir Mohmad Asari Daud
Mr Rushdi bin Abdul Rahim

Malaysia's transformational agenda rightly emphasises on the importance of digitalisation, technology adoption and innovation in ensuring sustainable economic growth. One of the challenges identified through the 12th Malaysia Plan is insufficient research, development commercialisation and innovation (R&D&C&I) capability. To supply the talents and skills that are required in driving the adoption and application of digital and advanced technology, the country needs to identify, recognise and harness its top scientific minds, as well as sustain a pool of talented people. This challenge needs to be addressed for Malaysia to achieve the status of a developed country by 2025 by aligning the R&D towards commercialisation, wealth generation and economic growth.

Top Research Scientists Malaysia (TRSM) is ASM's initiative aims to address this challenge. Through the TRSM initiative, which was launched in 2012, the Academy aspired to identify Malaysian outstanding Research Scientists who possess pioneer mindsets in order to move the country forward to an innovation-led economy. An innovation-led economy will aspire Malaysia towards its next phase of development to attain high income status and enable the *rakyat* to enhance their quality of life.

In addition to giving the country's illustrated researchers a nationwide recognition, TRSM also establish and showcase the Top Research Scientists Malaysia profile that would act as a central point of reference on the leading Malaysian research scientists and their research backgrounds. It is hoped that the online database would create a hub for knowledge generation and dissemination that can spur Science, Technology, Innovation and Economy (STIE) growth in Malaysia. The TRSM database could also be a repository of potential research scientists for STIE linkages at the national and international levels.

The TRSM initiative has two major phases:

- 1) Identify the leading Malaysian scientists across all areas such as fundamental sciences, applied sciences, social sciences and industry applications based on standardised selection criteria and scoring mechanism.
- 2) Disseminate and showcase the profile of the TRSM Recipients through its database, which serves as a centralised point of reference for stakeholders to identify experts in National R&D priority areas as well as talent that can lead STIE's initiative in priority areas. The database serves as resource to facilitate networking of academia, industries, international scientific community & international STIE organisations toward linking top notch STIE expertise in Malaysia nationally and internationally for knowledge exchange and research collaboration.

TRSM Recipients serve as role models of excellence, mentors to next generation of scientists and leaders to implement the National STIE agenda that contribute significantly to the economic growth of the nation via generation and dissemination of knowledge, wealth creation and the productive pursuit of scientific excellence for the benefit of humanity.

After 12 years of its establishment, currently there are a total of 148 TRSM Recipients who are still actively involved in R&D of STIE. Out of the said total, TRSM Recipients have been categorised into eight (8) ASM Discipline Groups to increase their visibility and encourage their involvement in ASM studies, initiatives and programmes. Furthermore, it will also empower the network and motivate the exchange of knowledge as well as ideas amongst the Top Research Scientist Malaysia and ASM Fellows.

TRSM Recipients by ASM Discipline Groups

- 21** Biological, Agricultural and Environmental Sciences Groups
- 9** Chemical Sciences
- 72** Engineering Sciences
- 12** Information Technology and Computer Sciences
- 9** Mathematics, Physics and Earth Sciences
- 14** Medical and Health Sciences
- 4** Science & Technology Development and Industry
- 7** Social Sciences and Humanities

148

**TRSM RECIPIENTS
2012-2022**

29

**TRSM RECIPIENTS
RECOGNISED
IN 2022**

A large, stylized, light blue 'S' graphic that spans the height of the page, serving as a background element for the title.

TOP RESEARCH SCIENTISTS MALAYSIA



Professor Ts Dr Hidayah Ariffin

Universiti Putra Malaysia

Area of Expertise:
Bioprocess Engineering

Being a Professor at the Universiti Putra Malaysia, Professor Ts Dr Hidayah's research expertise is in the Bioprocess Engineering focusing on the utilization of biomass for the production and application of biopolymer and nanocellulose. To date, she has published more than 100 high impact journal articles, 1 edited book, 8 chapters in book and more than 30 conference papers. She has also invented multiple research products with 8 intellectual property (IP) protection. She collaborates closely with her Japanese counterpart from Kyushu Institute of Technology Japan and managed to lead one of the sub-projects under SATREPS program sponsored by MOHE (Malaysia) and JST/JICA (Japan). A semi-pilot scale production of nanocellulose from oil palm biomass was successfully developed from the project. The nanocellulose technology is now licensed by two local companies: ZoepNano Sdn. Bhd. and Nextgreen Pulp and Paper Sdn. Bhd. Prof Hidayah is recognised as the nanocellulose subject matter expert by both the government and private agencies locally and internationally, as evidenced through the consultation and engagement activities. She is currently the Editorial Board Member of ASM Science Journal and the Asian Federation of Biotechnology (AFOB) Newsletters.



Dr Lee Soon Leong

Forest Research Institute Malaysia (FRIM)

Area of Expertise:
Forest Genetics

As a Senior Research Officer at the Forest Research Institute Malaysia (FRIM), Dr Lee's research passion and work on ecological genetic studies of important tropical tree species according to the life history traits have allowed the prediction of optimum population sizes and produced various conservation and management guidelines to strike a balance between conservation and utilisation of forest resources. The pioneering work on DNA profiling and barcoding databases development of various tropical plant species for timber tracking and species identification has led to forensic applications, to verify the legality of a suspected timber in the context of illegal logging, besides supporting the wood, herbal, food and insurance industries through authentication of plant species. The first reported complete genome sequence of *Shorea leprosula* serves as a reference genome for genomic and molecular breeding studies of other dipterocarps, the most important timber family in the tropics. He freely devotes much of his time to the scientific development of young researchers in hopes that together they can contribute to the efforts on conservation, management and sustainable utilisation of forest genetic resources.



Professor Dr Lim Hong Ngee

Universiti Putra Malaysia

Area of Expertise:
Graphene-based
Nanomaterials

Professor Dr Lim Hong Ngee's research focuses on the synthesis of nanomaterial which happens to be a large part of her research specialization. The synthesis of graphene, a two-dimensional carbon material, piques her interest owing to its superlative properties, so much so that a large portion of her research is spent on understanding and discovering its intriguing characteristics. For over a decade of working on graphene, Professor Dr Lim Hong Ngee have published multiple papers and have established her specialization on graphene. Her understanding on graphene has led to spin off a start-up company called GO Advanced Solutions Sdn. Bhd. which sells graphene materials at an affordable price to researchers and assist researchers who are interested to incorporate graphene into research works like absorption matrix and impact-resistant layer. The company's most recent product is GrafinTok®, which is an engine oil booster for automobiles and its next product will be an engine oil booster for motorcycles. Professor Dr Lim Hong Ngee is currently working on enhancing the mechanical properties of rubber with graphene and actively working on producing graphene batteries for electric vehicles. Her knowledge in nanomaterials and nanotechnology, though novel and categorized as high-end research, is translated to benefit not only the research and industrial communities, but also people from all walks of lives.



Associate Professor ChM Dr See Hong Heng

Universiti Teknologi Malaysia

Area of Expertise:
Analytical Chemistry

Associate Professor ChM Dr See Hong Heng is currently the Deputy Director of the Centre for Sustainable Nanomaterials of Universiti Teknologi Malaysia. His research expertise is in the areas of analytical chemistry, separation sciences, electrodriven extraction technology, and lab-on-a-chip. His research contributions to the field of chemical sciences have been widely recognised and he has received multiple awards and recognitions including the Swiss National Science Foundation Advanced Mobility Fellowship, Early-Stage Career Excellent Researcher Award within Commonwealth Countries by Royal Society, UK and the "World Top 40 under 40 Power list" by The Analytical Scientist Magazine, UK. Currently he is also the Director and Founder of the UTM spinoff company, Bashob Analytical PLT, a company specialized in providing training and consultancy to chemical and pharmaceutical industries.



Associate Professor Ir Ts Dr Ahmad Safuan A Rashid

Universiti Teknologi Malaysia

Area of Expertise:
Geotechnical Engineering

Associate Professor Ir Ts Dr Ahmad Safuan has a geotechnical engineering background and currently serves as an Associate Professor at the School of Civil Engineering, Universiti Teknologi Malaysia. His recent research, which contributes directly to society, is on the slope monitoring system development. It is a comprehensive system that could provide real-time soil movement monitoring. The entire development of the system consists of producing a landslide hazard map to identify the landslide-prone area, slope stability analysis on specific slope structures using numerical software, and installation of the real-time monitoring system in the landslide-prone area. A special webpage has been developed to monitor the soil and surrounding environment from the field data. The entire system could be considered implementing the Fourth Industrial Revolution (IR 4.0) in slope engineering. Besides that, Associate Professor Ir Ts Dr Ahmad Safuan is also involved in groundwater exploration, which can potentially be used as drinking water for the poultry industry. The groundwater is collected at the confined aquifer layer, considered the highest quality water source. Involvement with this poultry industry and groundwater exploration directly has contributed to solving food and water security issues. On the international level, Associate Professor Ir Ts Dr Ahmad Safuan is the chairman of the professional certificate course to provide and educate several Palestinian ministries staff on building assessment and disaster management starting from August 2022 until January 2023.



Professor Dr Alyani Ismail

Universiti Putra Malaysia

Area of Expertise:
Information, Computer and Communication Technology

Professor Dr Alyani Ismail received her BEng (Hons) in Electronic and Information Systems Engineering from the University of Huddersfield, UK. She obtained her MSc in Computer, Communication and Human-Centred Systems and PhD in Electronics Engineering from the University of Birmingham, UK. She was the Deputy Dean (Academic) at the Faculty of Engineering, Universiti Putra Malaysia (2019 – 2021) and currently a professor at the Department of Computer and Communication Systems Engineering. Her field of expertise is not only in engineering (microwave devices, wireless communications, material, sensors and systems) it also extends to digital education. She is now working on 5G and 6G communications. In recognition of her contributions in research, Alyani has received various awards; amongst them were the Young Excellent Researcher Award for 2010 by UPM, Excellent Innovation Award, Science, Technology and Innovation Festival of Selangor at state level, as well as Top 30 of the Outstanding Young Malaysian Award at national level. Alyani has been part of IMT and Future Networks working group under MCMC's 5G Taskforce and also a member of EMT sub-working group. She has also appeared live on TV interviews such as Astro Awani, RTM, TV3 and NTV7 regarding satellite communications in the search for the missing plane, MH370.



Associate Professor Ir Dr Cheah Chee Ban

Universiti Sains Malaysia

Area of Expertise:
Construction Materials and
Technology

Associate Professor Ir Dr Cheah Chee Ban is a distinguished researcher in the field of construction materials with specialization in cementitious and non-cementitious inorganic composites. He strived to create novel reduced carbon footprint cement, alternative sand and stone for the construction industry to overcome the severe environmental degradation associated with natural resources mining. He invented three national and one international patent granted and four national patents filed on green concrete, which received several national and international invention awards. Furthermore, integrating the inventions with the industrialized building system (IBS), he designed and built the first full-scale green concrete detached house in Malaysia for technology demonstration, research, development and education. Currently, he leads national research supported by MOSTI to develop new processes and innovative material design for large volume reuse of coal combustion by-products to manufacture concrete. Moreover, he initiated a collaboration with one of the country's top five concrete producers to create tangible value for businesses and society based on his inventions. Through the industry linkage, Dr Cheah has led the technology transfer to produce sustainable concrete used nationwide in structure and infrastructure construction to reduce the material and environmental costs of the construction industry. He is currently an Associate Professor of Building Engineering Technology at USM.



Professor Dr Chow Wen Shyang

Universiti Sains Malaysia

Area of Expertise:
Polymer Nanocomposites

Professor Dr Chow Wen Shyang is an established researcher who is passionate about the development of sustainable and environmentally friendly polymer nanocomposites. From 2005 to 2022, he has published a total of 110 international journals, 9 national journals, and 11 book chapters. As a professor, his expertise is in the processing and characterization of biodegradable polymers, biopolymers, and polymer nanocomposites. Most of his research focuses on the sustainability, environmentally friendly and recyclability of polymers, which is in line with the Circular Economy. Well-structured human resources development is essential to catalyse the socio-economic growth of Malaysia. Bionanocomposites can help to improve sustainability for the environment and create potential industrialisation opportunities. The latest contribution of his research is working with the industry to develop a sustainable recirculating aquaculture filtration system (containing nanocomposite foam) to solve the water quality problems of fish farms. Overall, the scientific findings from his research work can have a great impact on the advancement of knowledge in the polymer industry.



Professor Ir Dr Khairul Salleh Mohamed Sahari

Universiti Tenaga Nasional
& Malaysian Qualifications
Agency

Area of Expertise:
Robotics and Artificial
Intelligence

Professor Ir Dr Khairul Salleh Mohamed Sahari's research passion is in Robotics and Artificial Intelligence (AI) and he has been working on various projects related to service robotics, especially Home Service Robots (HSR), where his proposed methods on tracing algorithms and real time modelling for clothes manipulation has opened new potential in deformable object manipulation by robot, one of the most complex operations for any HSR. He has also worked on design and development of practical inspection robots, including boiler and boiler header inspection robots for TNB. His latest work on radiation detection robot has enabled accurate mapping of an unknown area contaminated with radiation source. As of advocacy and contribution to the society, his research group has continuously worked with schools and universities to impart knowledge on robotics for the future generations using low-cost self-developed robotic kits. His expertise is also leveraged in a project involving working with relevant stakeholders including authorities and communities residing near TNB dams, to educate them about the importance of evacuation planning through awareness programs, drills and simulations, assisted by design and installations of early warning systems. His vast experience in robotics has allowed him to lead a taskforce of experts formed by ASM to help MOSTI in developing the National Robotics Roadmap 2021-2030. Currently, he is a Professor at Universiti Tenaga Nasional and Deputy Chief Executive Officer (Quality Assurance) at the Malaysian Qualifications Agency.



Associate Professor Ir Dr Leo Choe Peng

Universiti Sains Malaysia

Area of Expertise:
Membrane Technology

Associate Professor Ir Dr Leo Choe Peng's expertise is in the Membrane Science and Technology which generates knowledge to bridge the gap between science and industry. Her research focuses on the engineering aspects of membrane innovations for carbon capture and water reuse. She has published more than 120 indexed journal papers. A total citation of 3330 and h-index of 28 have been recorded in SCOPUS. Her scientific works were funded by the Royal Society (UK), Royal Academy of Engineering (UK), NICT (Japan), American Chemical Society (US), Sime Darby, Malaysia Rubber Council and more in the past. She was the finalist for the AGFD Young Scientist Award (American Chemical Society), the recipient of the Women in Science Award (Ton Duc Thang University), *Bintang Cemerlang Negeri* (Yang di-Pertua Negeri Pulau Pinang), Pioneers of Change Award (Penang Women's Development Corporation), and Leader in Innovation Fellowship (Royal Academy of Engineering). Her engineering innovations also granted her the Grand Winner Award of Tech Plan Demo in Malaysia, the Mitsui Chemicals Award, and gold medals in several exhibitions (MTE, ITEX, PENCIPTA, and IENA). She served as the honorary secretary of the Institution of Engineers Malaysia (Penang Branch) and the committee for the American Chemical Society- Malaysia Chapter and Institute of Materials Malaysia.



Associate Professor Dr Norasikin Ahmad Ludin

Universiti Kebangsaan
Malaysia

Area of Expertise:
Solar Photovoltaic
Technology

Associate Professor Dr Norasikin Ahmad Ludin was appointed as Deputy Director Solar Energy Research Institute (SERI), Universiti Kebangsaan Malaysia. She is passionate in renewable energy specifically on solar photovoltaic technology, especially natural dye from Malaysia's species and energy materials for solar cells. She was appointed as a Visiting Professor at Tokyo University of Science, Japan and Claremont McKenna College University, United States to collaborate on the Look East policy grant and share the findings of her research. Additionally, more than 100 high-impact articles and several patents have been successfully published. She was awarded by the Asia-Pacific Economic Cooperation (APEC) to study the environmental and economic impact of solar photovoltaics in the ASEAN region. Her contribution is also acknowledged by the Economic Research Institute for ASEAN and East Asia (ERIA) to further investigate sustainable energy, energy transition, and circular economy policies in ASEAN by adopting the findings of her research. The overall impact of her research includes the dissemination of new fundamental knowledge about energy materials for solar cells as well as contributions to the government and the ASEAN region on related energy policy and circular economy issues.



Associate Professor Dr Low Siew Chun

Universiti Sains Malaysia

Area of Expertise:
Separation Process

Associate Professor Dr Low Siew Chun is an Associate Professor at the School of Chemical Engineering, Universiti Sains Malaysia. Her invention transforms air pollution control and wastewater treatment from a liability technology to a desirable activity for industries by focusing on air purification and water recovery using separation technologies. Generally, aquaculture is expected to emerge as one of the major agricultural contributors to the national economy and currently, she and her research team focus on extracting and recycling valuable materials from aquaculture effluent to overcome the huge volume of wastes. In this regard, her findings focuses on exploiting membrane technology to extracting and recycling nutrient from wastewater by developing smart materials. She and her research team aim to achieve zero-waste discharge and at the same time concentrating the wastewater feed as liquid fertilizer. Nutrient-rich liquid organic fertilizer is produced and will be used for plant growth to enhance its nutrients for soil microbes and improve the soil structure. To conclude, her research contributions are not only beneficial for the environment, but also have a favourable influence on the countries' social-economic well-being.



Professor Ir Dr Mohd Fadzil Ain

Universiti Sains Malaysia

Area of Expertise:
Microwave Engineering

Professor Ir Dr Mohd Fadzil Ain is a Professor from School of Electrical and Electronic Engineering, Universiti Sains Malaysia. As a scholar in Radio Frequency (RF) and microwave engineering, he has published more than 100 ISI journals, successfully supervised 17 PhD students as a main supervisor and 11 PhD students as a co-supervisor. On top of that, he also successfully supervised 24 MSc by research students and 7 MSc Mixed-mode students. Recognising his expertise in IoT, electronic and telecommunication engineering hands-on, he was appointed as a technical consultant in troubleshooting and servicing of high-end electronic equipment, RADAR and microwave radio by Hitronik Sdn Bhd since 2016 until present. Most of the work carried out are for Royal Malaysian Navy and TELEKOM Malaysia Bhd. He also has an experience in handling in total RM3.3 million research grant and patented 6 patents along the way of his research journey.



Professor Ir Dr Mohd Shukry Abdul Majid

Universiti Malaysia Perlis

Area of Expertise:
Composite Materials

Professor Ir Dr Mohd Shukry Abdul Majid is currently a Professor and Dean at the Faculty of Mechanical Engineering Technology, Universiti Malaysia Perlis. As an advocate of interdisciplinary research, his research interests lie in the strength of material's area with an emphasis on the composite piping, performance of composite structures, natural fibre or green, and biodegradable composites. His work on green composites focuses on educating the community about the value of using safe, natural products instead of polluting polymers. One of his recent works is on developing a lower limb prosthetic socket (LLPS) made from natural fibre-reinforced composites in collaboration with Newcastle University, UK, and a local hospital that could offer low-cost and sustainable options for Malaysians. The work has recently been featured in Asia Research News, highlighting its importance in meeting the objectives of UN SDG 12 for responsible consumption and production besides raising ambitions to establish an ecosystem that embraces the local processing and supply of the natural fibres, fabrication of the prosthesis, and finally, the recycling industry. In 2017, he was awarded Malaysia's Research Star Award (MRSA2017) as one of Malaysia's most promising and influential researchers by the Ministry of High Education Malaysia (MOHE).



Associate Professor Ts Dr Nik Noriman Zulkepli

Universiti Malaysia Perlis

Area of Expertise:
Polymer Engineering

Associate Professor Ts Nik Noriman Bin Zulkepli is an Associate Professor at Faculty of Mechanical Engineering Technology, Universiti Malaysia Perlis. He received his PhD in Polymer Engineering at Universiti Sains Malaysia. His expertise has led him to a diverse research areas of polymer science and advanced materials. He has contributed more than 350 ISI and Scopus journals articles, conference proceedings, including books and chapter in books. One of his most impactful research project is 'Properties and Classifications Analysis of Limestone and Digital Mapping for Geospatial Data' along with his research team that started on April 2019 and completed in October 2020. This research outcome successfully identified properties of limestone quarry, estimation of quarry volumetric and lifetime and increase company's profit. He also obtained several IPs patent applications including patents from the US and Europe. Additionally, he won awards and exhibited numerous international research exhibitions such as International Materials Technology Conference and Exhibition (IMTCE), International Innovation and Invention Expo, Macau, International Exhibitions of Invention (IEI), Kushnan China and International Trade and Exhibition on Creativity and Inspiration (ITECI), Nonthaburi, Thailand.



Professor Dr Zulkurnain Abdul Malek

Universiti Teknologi Malaysia

Area of Expertise:
Lightning and
Nanodielectrics

Professor Dr Zulkurnain Abdul Malek is a Director of Research Management Centre, Universiti Teknologi Malaysia. His research background mostly centred on High Voltage Technology. His research aims for a reliable and secure electrical power supply with better power transmission equipment in terms of insulation health and protection. He contributed a total of 111 journal articles and 139 indexed proceedings with new findings such as improved soil model for better overvoltage protection and improved condition monitoring by utilising computer modelling, artificial intelligence, automation and smart devices, as well as nanotechnology materials. In these areas of expertise, he has won 7 gold medals, 5 silver, 4 bronze, 2 patents granted, 4 patents pending, and 39 copyrights. Additionally, his research has benefitted the industries and society in terms of expert consultation and knowledge sharing, such as appointment as Chairman for 13th Asian Conference on Electrical Discharged (ACED 2012), 13th International Conference on Properties and Application of Dielectric Materials (ICPADM2021), National Working Group on High Voltage and High Current Testing, MyHVNet (2014-15) and several others. He also has contributed to the publication of more than 60 Malaysian Standards, successfully graduated 81 postgraduate talents, signed more than 450 calibration certificates as well as 200 test and consultancy reports with a cumulative income of more than RM2.3 million.



Professor Dr Chan Chee Seng

University of Malaya

Area of Expertise:
Computer Vision

Dr Chan Chee Seng is a Professor at the Faculty of Computer Science and Information Technology, University of Malaya. He is leading a research team that specializes in computer vision and machine learning where his team has published more than 100 papers in top peer-review conferences (CVPR, NeurIPS, IJCAI etc) and journals (TPAMI, TIP, TMM etc). He serves as an Associate Editor of Pattern Recognition (Elsevier) and co-organized several workshops/tutorials and challenges at major computer vision/machine learning conferences. He is the Founding Chair for the IEEE Computational Intelligence Society Malaysia Chapter, the Organising Chair for the Asian Conference on Pattern Recognition (2015), the General Chair for the IEEE Workshop on Multimedia Signal Processing (2019), and IEEE Visual Communications and Image Processing (2013). He is also a senior member of IEEE as well as a Chartered Engineer registered under the Engineering Council, U.K. He was a recipient of the Young Scientist Network-Academy of Sciences Malaysia (YSN-ASM) in 2015, Hitachi Research Fellowship in 2013 and the British Top 100's Early Stage Research Engineer in 2006.



Professor Dr Chan Yean Yean

Universiti Sains Malaysia

Area of Expertise:
Medical Molecular
Microbiology

Professor Dr Chan Yean Yean has contributed to the progress in Life Sciences and resultant innovations have improved the quality of human life by tackling the bottleneck in current diagnostic testing platforms. As a lecturer and researcher, working in the field of diagnostics, her research has contributed to improving management strategies for diagnostics and surveillance of various infectious and genetic diseases, enabling rapid, accurate, sensitive, inexpensive, and point-of-care diagnosis. The multi-disciplinary efforts in the development of assays provide user portable multi-sensor detection technologies that can give quick preventive action and early diagnosis to ensure the quality of life now and in the future. She has filed various proprietary technologies, specializing in providing affordable point-of-care tests, ambient temperature-stable end-point PCR, multiplex real-time PCR and biosensor tests. Besides working in the university environment, she is also involved in licensing and provide consultancy to industrial partners to help generate income for the university and the country through the commercialization of research products.



Associate Professor Ts Dr Lee Learn Han

Monash University Malaysia

Area of Expertise:
Medical Microbiology

Associate Professor Ts Dr Lee Learn Han is the Head of the Microbiome and Bioresource Research Strength in Monash University Malaysia. He is also the Director of the prestigious Asia Pacific Microbiome and Biomedical Research Network (AMBeR). Dr Lee was ranked amongst the World Top 2% Scientist in 2020 by Elsevier Scopus, clearly demonstrating his research impact on the global stage. His leadership and achievements in foodborne multidrug-resistant pathogens have led to top international recognition, evidenced by the invitation from the US-FDA as the sole Malaysian Principal Investigator to collaborate on the genetic study of Malaysia's foodborne pathogens since 2017. He is recognised as Malaysia's best Medical Science researcher in 2018, as the sole recipient of Malaysia's Research Star Award (MRSA) Winner 2018 – High Impact Paper Medical Science category. Also, he received the prestigious award of the Fellow of Malaysian Scientific Association in 2022. He was recognised with the Professional Registers as Chartered Biologist from the Royal Society of Biology, UK, in 2017. In 2020, Dr Lee was awarded the Excellent Contribution Award 2019 (Feb 2020) from the University of Phayao, Thailand for his significant research contribution.



Associate Professor Dr Sasidharan Sreenivasan

Universiti Sains Malaysia

Area of Expertise:
Pharmacognosy

Dr Sasidharan's contribution to medicinal plant-based research for health is well-recognized nationally and internationally. Currently, he is an Associate Professor at the Institute for Research in Molecular Medicine, Universiti Sains Malaysia and was also the Deputy Director at the same institute from 2019-2021. He plays an active role in promoting medicinal plants as affordable future green therapy. His modern-methods-based research on medicinal plants substantially contributed to the creation of scientific data, which led to the incorporation of this information into modern medicine. In fact, he has published more than 200 papers in reputable ISI and Scopus journals. Over the course of his career, he has successfully led numerous high-impact research on the use of the medicinal plant as an anticancer drug. To date, his accomplishments by far include two intellectual properties and more than 12 research grants as the project leader. He has received many international awards and recognitions in recognizing his contribution to medicinal plant research. In 2021 and 2020, he was figured amongst the top 2% of scientists in a global list compiled by the prestigious Stanford University in the United States of America. In 2019, he was placed in the top 1% of reviewers in Pharmacology and Toxicology, Clinical Medicine, and Cross-Field on Publons global reviewer database, United States of America.



Associate Professor Dr Tee Kok Keng

University of Malaya

Area of Expertise:
Virology

Associate Professor Dr Kok-Keng Tee obtained his PhD in molecular virology and evolutionary biology in 2009 under the mentorship of Professor Adeeba Kamarulzaman. He is presently an Associate Professor in the Department of Medical Microbiology, Faculty of Medicine, Universiti Malaya. His research aspiration focuses on genomic and evolutionary characterization of blood-borne and respiratory viruses that cause illnesses in humans, such as the human immunodeficiency virus, hepatitis viruses, influenza viruses and coronaviruses. With years of experience in this field of expertise, he and his research team has discovered more than a dozen novel virus strains emerging in the region. He also developed computational tools for phylodynamic and transmission networks that allow regular monitoring of the spread of infectious diseases, generating new knowledge and evidence-based strategies for effective disease management, control and prevention. Recently, his research works demonstrated tangible translations impact through consultations healthcare industry, largely improving well-being of society during the COVID-19 pandemic. Through impactful research with integrity and empathy, he and his team will continue to lead as a creator in the forefront of infectious disease education and research.



Professor Dr Teh Lay Kek

Universiti Teknologi Mara

Area of Expertise:
Precision Health

Being one of the first PhD graduate in pharmacogenetics in early 2000, Professor Dr Teh Lay Kek had conducted research to understand the impact of pharmacogenetics and developed PCR based methods for detection of genetic variants. Currently, she is the Deputy Director of Integrative Pharmacogenomics Institute (iPROMISE) and has been active in pharmacogenetics research in realising precision health. Her development shortens the time required for trial and error, lowers the expense of hospitalisation, and enhances quality of life. In 2013, she and her research team successfully sequenced and reported on the whole genome sequences of individual Malay and subsequently developed whole genome sequencing pipeline and genotype-phenotype database, which are currently used for precision health. She managed to establish a start-up company registered as Zakesy Biotech S/B to offer Personal Genome and pharmacogenotyping tests to the public. Currently, she is working with other healthcare industries to transfer technology and realise the benefit of genomics medicine. Furthermore, she is also engaging with industry partners to deliver the promises of Precision Health in building a healthier nation and venturing to understand the pathogenesis, design and develop drugs specific for the patients with complex rare diseases.



Dr Abdul Rahim Harun

Malaysian Nuclear Agency

Area of Expertise:
Mutation Breeding

Dr Abdul Rahim Harun has been working with Malaysian Nuclear Agency more than 30 years. He started with radiation induce mutation breeding project on several crops. Amongst new varieties produced through his involvement since 1991 were Novaria, a cavandish banana which was commercialised by United Plantation Sdn. Bhd., new pasture namely, Kluang Comel, derived from Signal grass (*Bracharia decumben*) which was grown in Department of Veterinary, Kluang, Johor and two variety of groundnut namely KARISMA Sweet and KARISMA Serene. The latest and very significant impact for Wealth Creation and Social Wellbeing is new rice variety namely NMR152 or its commercial name IS21 which was launched by the Prime Minister in Nov 2021. The NMR152 was registered with Plant Variety Protection (PVP) under Department of Agriculture as PVP 056. This variety has been listed as one of national certified seed by MAFI. In 2022, this variety won the MCY Award for Research Entrepreneurship category and The Best of all with monetary remuneration RM230,000.00. The variety has been commercialized by Haji Md. Nor bin Haji Abd Rahman (M) Sdn. Bhd. The potential yield of NMR152 is 10 to 12 metric tons per hectare. Since 2021, more than 70,000 hectares has been planted with NMR152 which has been sold by company which gross profit value is RM23,200,000.00. Currently, Dr Abdul Rahim hold the position of Director General of Malaysia Nuclear Agency.



Professor Ts Dr Norinsan Kamil Othman

Universiti Kebangsaan Malaysia

Area of Expertise:
Corrosion Science

Dr Norinsan Kamil Othman is currently a Professor in the Department of Applied Physics, Faculty of Science and Technology, Universiti Kebangsaan Malaysia. His study mainly focuses on corrosion mitigation and control at the molecular level including oil and gas, high-temperature materials, microelectronics, and coating technology. He had successfully contributed the discoveries in multiple areas of corrosion control for numerous stakeholders including the oil and gas industries. His appointment as Head of the DNV-GL@UKM collaboration laboratory is one of his significant achievements and the trust given by the industry in his field of expertise. Therefore, the contributions can be quantified by the high indexed articles that he has published, the awards, and the recognition from various agencies. To date, he has published over 120 articles in high-impact journals and more than 10 books and book chapters, received numerous best paper awards worldwide, and been invited as a consultant and principal investigator to specific renowned industries. He also managed to innovate various products filed for patent and intellectual property.



Professor Ir Ts Dr Shreeshivadasan Chelliapan

Universiti Teknologi Malaysia

Area of Expertise:
Environmental Engineering

Professor Ir Ts Dr Shreeshivadasan Chelliapan's passion on research are primarily concerned with environmental engineering and controlling pollutants, particularly with the bioremediation of wastewater. Presently, he is a Professor at Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia. One of the significant contributions to the body of knowledge in this field is the novel multistage anaerobic bioreactors and bio adsorbents for heavy metal removals. His invention provided industries with effective removal of pollutants from their wastewater (e.g., up to 99% COD removal) and an environmentally friendly solution. Seaweed as a bio adsorbent for heavy metal removal from industrial effluent is also one of his remarkable innovations. The two projects have a tremendous impact on knowledge creation through sustainable development and innovation. The projects contributed to value creation and impact on society through new knowledge, skills, human capital development, and exploitation of new technologies, with patents granted for both projects.

SOCIAL SCIENCES AND HUMANITIES



Professor Dr Choong Chee Keong

Universiti Tunku Abdul Rahman

Area of Expertise:
Applied Economics

Professor Dr Choong Chee Keong is the Vice President of the Student Development and Alumni Relations at Universiti Tunku Abdul Rahman. He obtained his Bachelor of Economics (Hons), Master of Economics, and Ph.D. in Economics from Universiti Putra Malaysia in 2000, 2002 and 2007, respectively. He is involved in research, covering the areas of applied economics, financial development, tourism development, and energy economics. He has more than 230 papers accepted/published in indexed journals, book chapters, conference proceedings and magazines. He has secured several grants from the Ministry of Higher Education, Ministry of Science, Technology and Innovation, Sumitomo Foundation, Toshiba International Foundation, and the Consulate General of the People's Republic of China in Penang. He was appointed as the Professorial Chair for the Tan Sri Dato' Sri Dr. Teh Hong Piow Chair in Banking and Finance sponsored by Public Bank Berhad (2012-2017). He is a certified trainer endorsed by the Human Resource Development Fund (Ministry of Human Resources) who has been conducting a series of seminars to public listed companies (YTL Corporation, RHB Bank, AmBank, Maybank Berhad, Deutsche Bank Malaysia). He is also appointed as the Deputy Chairman of the Socio-Economic Research Committee, The Associated Chinese Chambers of Commerce and Industry of Malaysia (ACCCIM) (2021-2024).



Associate Professor Sr Dr Choong Weng Wai

Universiti Teknologi Malaysia

Area of Expertise:
Behavioural Economics

Associate Professor Sr Dr Choong Weng Wai from Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia, focuses on behavioural and environmental research, he is using action research to bring impactful changes for the community and country. He is also actively introducing and contributing series of emerging environmental behaviour measurement and changing tools for policy, action plan and blueprint purpose in projects such as Malaysia and Vietnam Environmental Performance Index (EPI), Kuala Lumpur Low Carbon Blueprint, Rakan Alam Sekitar (RAS) program, Nudge Guidance Document for environmental officers, GCRF water security and sustainable development hub, and many others, all appointed by renowned national and international agencies. At community and grassroot level, he serves as mentor and engage with local leaders to conduct environmental programs. His involvement in promoting and creating sustainable lifestyle amongst Malaysian communities is well recognised, he also serves the BOVAEP Professional Board and is the recipient of Excellence Award for Contribution towards Sustainability from Royal Institution of Surveyor Malaysia (RISM).



Professor Dr Khairiyah Mohd Yusof

Universiti Teknologi Malaysia

Area of Expertise:
Engineering Education

Professor Dr Khairiyah Mohd Yusof is a Founding Director of UTM Centre for Engineering Education, promoting meaningful research and scholarly practices in engineering education practices. As a practitioner, trainer, and researcher in scholarly engineering education, her research is at the intersection of engineering and education, focusing on teaching and learning in engineering and faculty development. Innovations from research, such as the Cooperative Problem-based Learning model for implementing PBL in a typical classroom, allow the translation and adoption of strongly rooted education principles into impactful engineering learning and training for students and academics. Her passion to guide academics in developing a scholarly approach led her to create systematic training modules, especially for STEM areas. These research-based modules have been widely used to develop academics from institutions in Malaysia and worldwide. Currently, she is a Professor of School of Chemical and Energy Engineering and Fellow of the Centre for Engineering Education, UTM.



Associate Professor Dr Marlia Puteh

Universiti Teknologi Malaysia

Area of Expertise:
Cross Cultural
Communication

Associate Professor Dr Marlia Puteh is an Associate Professor at the Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia. She contributed to the Malaysia Education Blueprint 2015-2025 (Higher Education) for Shift 3 (Nation of Lifelong Learners). Her research is also pertinent to the technological advancement in the Fourth Industrial Revolution, which has significantly impacted how teaching and learning are conducted. She was one of the authors of the Ministry of Higher Education 2019 document on Higher Education 4.0 which highlights the impact and challenges of technology on the Higher Education sector in Malaysia. In 2017, she was awarded a Newton grant for her project, "Cross-cultural Computer-supported Collaborative Learning for Student Capacity Building in Multifaceted Competencies through Astronomy Online Labs." This international grant honours her experience in the field of cross-cultural English communication via an online astronomy laboratory and she managed to train and introduced four co-researchers to worldwide research norms and expectations. Her achievement in the STEM-related research has improved the domain knowledge and transferrable skills of astronomy students as well as spurred STEM scholars to look outside their own disciplinary boundaries for social science concepts, methodologies, and tools.

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Professor Dr Lean Hooi Hooi
Associate Professor Dr Marlia binti Puteh
Professor Ts Dr Zaidatun Tasir

Contemporary scientific challenges often benefit from investigators with diverse backgrounds and expertise. Thus, bringing together talented young scientists creates new opportunities for better solutions to both national and international challenges. Furthermore, the exchange of best practices amongst young scientists across disciplines could further expand the opportunities for career development of young scientists in any country. To achieve this, there is a need for a strong platform where top young scientists can interact, coordinate, and organize to meet these challenges.

The Task Force on the ASM Lindau Programme Alumni proposed the establishment of a network of young scientists, Young Scientist Network-Academy of Sciences Malaysia (YSN-ASM).

The goals of YSN-ASM include:

- To be a strategic partner in STIE in Malaysia and globally.
- To engage the public through effective STIE communication.
- To advocate and make STIE a basis for economic development and societal well-being, locally and globally.
- To drive future-proof STIE talent development in Malaysia.
- To promote a culture of inclusivity for STIE excellence and sustainability.
- To safeguard the integrity of the STIE ecosystem.

At a global level, YSN-ASM has linked up with the Global Young Academy of Sciences as well as other young academies to provide opportunities for Malaysian young scientists to interact internationally with other young scientists.

YSN-ASM was taken from the concept of crystallisation by a dedicated team of young scientists working with ASM and was officiated at the YSN-ASM Inaugural Colloquium in December 2012. YSN-ASM intends to function as a National Young Academy (NYA) that will link to Global Young Academy (GYA). Hence, there is still a lot of work to be done to ensure that the foundation that YSN-ASM has been built on remains solid and relevant. To date, YSN-ASM consisted of 104 members and 121 affiliates from various disciplines and institutions.

YSN-ASM aims to create a network of young Malaysian scientists who are not only excellent in their field of study but also demonstrate a passion to contribute to society and collaborate with colleagues from diverse fields and background. YSN-ASM aims to inspire the future generation of scientists as well as early career scientists to work together as affiliate members towards ensuring the success of YSN-ASM programmes. While we aim to inspire scientific excellence, we aim to organise our activities to be as inclusive as possible.

A large, stylized, light blue 'S' graphic that spans the height of the page. It is composed of two parallel lines that curve and loop, creating a continuous 'S' shape. The text 'YOUNG SCIENTISTS NETWORK-ASM' is overlaid on the right side of this graphic.

YOUNG SCIENTISTS NETWORK- ASM

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Professor Dr Cheong Sok Ching FASc
Professor Dr Cheah Yoke Kqueen FASc
Professor Ts Dr M Iqbal Saripan FASc
Professor Ir Dr Aduwati Sali FASc
Professor Dr Lee Yeong Yeh FASc
Professor Dr Haslenda Hashim FASc
Professor Dr Abhimanyu Veerakumarasivam
Professor Dr Huda Abdullah
Professor Dr Lee Keat Teong
Professor Dr Leong Chee Onn
Professor Dr Zainovia Lockman
Professor Dr Liong Min Tze
Associate Professor Dr Syahrilnizam Abdullah
Associate Professor Dr Mimi Haryani Hassim
Associate Professor Dr Normi Mohd Yahaya
Associate Professor Dr Ong Boon Hoong
Associate Professor Dr Lee Hooi Ling
Dr Mohamed Ibrahim Mohamed Tahir
Ir Dr Nordin Ramli

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Professor Dr Sharifah Rafidah Wan Alwi
Professor Ir Dr Denny Ng Kok Sum
Associate Professor Dr Mohd Hafiz Dzarfan Othman
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The Academy of Sciences Malaysia (ASM) came into force on February 1995 and was established under the Academy of Sciences Act 1994. ASM performs an unparalleled service by bringing together experts in all areas of scientific and technological endeavor to address critical national issues relating to Science, Engineering, Technology and Innovation as well as to provide strategic STI Input to the government.

Level 20, West Wing, MATRADE Tower, Jalan Sultan Haji Ahmad Shah, off Jalan Tuanku Abdul Halim,
50480 Kuala Lumpur

T: +6 (03) 6203 0633 / F: +6 (03) 6203 0634

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