23RD ANNUAL SCIENTIFIC MEETING

26TH ANNUAL GENERAL MEETING OF THE IADR MALAYSIAN SECTION

TRANSFORMING DENTISTRY THROUGH DIGITALIZATION AND RESEARCH-DRIVEN INNOVATION

PROGRAMME BOOK 2025

THE EVERLY HOTEL PUTRAJAYA
06 SEPTEMBER 2025

ORGANISED BY:

IADR INTERNATIONAL ASSOCIATION FOR DENTAL, ORAL, AND CRANIOFACIAL RESEARCH
MALAYSIAN SECTION

President's Foreword

Prof. Dr.
Noor Azlin Yahya
President (2024–2026)
IADR Malaysian Section

Dear Friends and Colleagues,

It gives me great joy to welcome you to the 23rd Annual Scientific Meeting of the IADR Malaysian Section and the 26th Annual General Meeting, held on 6th September 2025 at the Everly Hotel, Putrajaya.

Our theme this year, "Transforming Dentistry Through Digitalization and Research-Driven Innovation," reflects not only the rapid changes in our profession but also the opportunities we have to grow together as a community. Digital tools and research breakthroughs are reshaping the way we practice, teach, and advance oral health, and this meeting provides the perfect platform for us to exchange ideas, challenge ourselves, and inspire one another.

What makes this gathering truly special is the people. Each of you, whether you are presenting research, mentoring, learning, or simply supporting colleagues, adds to the energy and warmth that make the IADR Malaysian Section a strong and close-knit family.

I would like to sincerely thank the Organising and Scientific Committees for their dedication, our invited speakers and sponsors for their generous support, and every participant for making time to be here. It is your contributions that make this meeting meaningful and memorable.

As we spend this day together, I hope you will not only gain knowledge and insights but also leave with renewed friendships, fresh inspiration, and a shared pride in being part of a community that is shaping the future of dentistry.

"Alone we can do so little; together we can do so much." – Helen Keller

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Program Schedule (Page 1)

8:00 a.m. - 8:30 a.m.	**Registration**
8:30 a.m. - 8:45 a.m.	**Welcome remarks** Prof. Dr. Noor Azlin Yahya President, IADR Malaysian Section
8:45 a.m. - 9:30 a.m.	**Keynote Speaker Talk** *The Digital Dental Revolution: From CAD/CAM to AI-Driven Patient-Centred Care* Prof. Dato' Ir. Dr. Mohammed Rafiq Dato' Abdul Kadir *Faculty of Engineering, Universiti Malaya*
9:30 a.m. - 10:15 a.m.	**Plenary Speaker Talk** *Digital Dentistry and 3D Printing: Delivering Better Outcomes to Patients* Dr. Johari Yap Abdullah *School of Dental Sciences, Universiti Sains Malaysia*
10:15 p.m. - 10:45 a.m.	**Coffee Break and Poster & Booths Viewing**
10:45 a.m. - 11:15 a.m.	**Symposium 1 Speaker Talk** *Exploring the Biomechanics of Dental Materials Through Finite Element Analysis* Assoc. Prof. Dr Siti Mariam Abdul Ghani *Faculty of Dentistry, Universiti Teknologi MARA*

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Program Schedule (Page 2)

11:30 a.m. - 12:45 p.m.	**Competitions** • *Oral Presentation 1* • *Poster Presentation 1*
12:45 p.m. - 14:00 p.m.	**Lunch, IADR Malsec AGM & Poster viewing**
14:00 p.m. - 16:30 p.m.	**Competitions** • *Oral Presentation 2* • *Poster Presentation 2*
16:30 p.m. - 17:30 p.m.	**Symposium 2 Speaker Talk** *Time to Shift The Paradigm Towards New Antimicrobials: The Theory of Everything* Assoc. Prof. Dr Umer Daood *School of Dentistry, IMU University* *The Future of Dentures: Merging 3D Printing and Fundamental Innovation* *Assoc. Prof. Dr. Norlela Yacob* *Faculty of Dentistry, Universiti Sains Islam Malaysia*
17:30 p.m. - 18:00 p.m.	**Closing & Award Ceremony**

KEYNOTE SPEAKER

PROF. DATO' IR. DR. MOHAMMED RAFIQ DATO' ABDUL KADIR
UNIVERSITI MALAYA

The Digital Dental Revolution: From CAD/CAM to AI-Driven Patient-Centred Care

ABSTRACT:

The field of dentistry is undergoing a transformative shift, driven by advancements from the Fourth Industrial Revolution (4IR). This plenary lecture, "The Digital Dental Revolution: From CAD/CAM to AI-Driven Patient-Centered Care," explores how digital technologies are revolutionizing oral healthcare across diagnosis, treatment, and patient engagement. Beginning with the integration of CAD/CAM systems, dentistry moved from manual craftsmanship to precise, computer-guided restorations. Today, innovations such as artificial intelligence (AI), 3D printing, Internet of Things (IoT), and cloud-based systems are pushing dentistry into a new era of personalized care.

The lecture will highlight how AI-assisted diagnostics, digital impressions, smart prosthodontics, and virtual treatment simulations enhance clinical accuracy, improve patient outcomes, and streamline workflows. It also addresses how data-driven decision-making, when combined with human-centered design, supports a more responsive and engaging dental experience. Ultimately, this talk aims to bridge the gap between technology and patient needs—showing how digital tools are not only modernizing dental practices but also making care more predictive, preventive, and personalized. Attendees will gain insights into current trends, real-world applications, and the future direction of research-driven innovation in digital dentistry.

BIOGRAPHY:

Dato' Rafiq is a visionary academic leader, renowned for his transformative leadership and innovative thinking. As the founding Dean of UTM's Faculty of Engineering—one of Asia's largest, with nearly 700 academics and 10,000 students—he led the faculty through the COVID-19 crisis with his bold "Business NOT as Usual" approach, launching high-impact initiatives that reshaped the academic landscape. Notably, he introduced the Distinguished Lecture Series, attracting 114 professors from 32 countries, and the Captain of Industry Programme, which engaged 31 global CEOs—both fostering strong international and industry ties while saving nearly RM4 million. These efforts established the newly formed faculty on solid financial and reputational ground.

In research, Dato' Rafiq is listed among the World's Top 2% Scientists by Stanford. He founded the Medical Devices & Technology Group (MEDITEG), which evolved into a Centre of Excellence, securing 94 research projects worth RM12 million, graduating 46 PhDs and 38 Master's students, and producing over 300 Web of Science publications with more than 7,000 citations (h-index 45). Recognized as Malaysia's #1 Inventor (2010–2016), he holds 35 granted patents, demonstrating his strength in innovation. Dato' Rafiq's enduring impact in academia, research, and leadership positions him as a sought-after figure in Malaysia and internationally—an inspiring force in advancing education, science, and innovation

PLENARY SPEAKER

DR. JOHARI YAP ABDULLAH
UNIVERSITI SAINS MALAYSIA

Digital Dentistry and 3D Printing: Delivering Better Outcomes to Patients

BIOGRAPHY:

Digital dentistry and 3D printing are transforming modern dental care by streamlining workflows, improving accuracy, and enabling personalized treatments. These technologies enable the creation of highly accurate dental prosthetics, implants, and orthodontic devices through computer-aided design and computer-aided manufacturing (CAD/CAM). By eliminating traditional manual processes, digital workflows reduce human error, shorten production times, and improve customization. Intraoral scanners, cone-beam computed tomography (CBCT), and 3D printers allow for seamless integration of diagnostics, treatment planning, and fabrication, ensuring better-fitting restorations and minimally invasive procedures. The adoption of 3D printing in dentistry supports same-day treatments, lowering patient wait times while maintaining high-quality standards. Applications include crowns, bridges, surgical guides, aligners, and even bio-printed tissues for regenerative dentistry and cranio-maxillofacial implants. Advances in biocompatible resins and metal printing further expand the possibilities of patient-specific treatments. Despite its advantages, challenges such as high initial costs and the need for specialized training remain barriers to widespread adoption. As technology continues to evolve, digital dentistry and 3D printing will play an important role in improving accessibility, affordability, and precision in dental care. Future developments in artificial intelligence and bio-fabrication are expected to further enhance these innovations, leading to a more personalized dental treatment.

BIOGRAPHY:

Dr Johari Yap is a senior lecturer teaching Oral and Maxillofacial Radiology at School of Dental Sciences, Universiti Sains Malaysia (USM). His expertise is in craniofacial imaging and visualisation, 3D reconstruction and analysis of craniofacial deformity, 3D image processing of oral and craniofacial structures, application of open-source software for 3D reconstruction, CAD/CAM, and rapid prototyping of maxillofacial prosthesis. He has great interest in applying artificial intelligence and machine learning in dental research. Johari obtained his Bachelor of Software & Information Technology (with Honours) from Lincoln University, New Zealand; Graduate Diploma in Information & Communication Technology (Distinction) from Christchurch Polytechnic Institute of Technology, New Zealand; Master of Science in Dentistry (Oral Biology) from Universiti Sains Malaysia; and a PhD in Craniofacial Prosthesis from Universiti Sains Malaysia. His research greatly impacted patients' management and has benefited patients with cranio-maxillofacial defects and improved their quality of life.

SYMPOSIUM 1 SPEAKER

ASSOC. PROF. DR SITI MARIAM ABDUL GHANI
UNIVERSITI TEKNOLOGI MARA

Exploring the Biomechanics of Dental Materials Through Finite Element Analysis

ABSTRACT:

The biomechanics of dental materials play a critical role in ensuring the longevity and effectiveness of restorative and prosthetic dental treatments. This lecture explores the application of Finite Element Analysis (FEA) in evaluating the mechanical behavior of various dental materials under physiological loads. FEA, a computational technique that divides complex structures into smaller elements, provides precise insight into stress distribution, deformation, and failure mechanisms within dental restorations. By simulating different forces and varying material properties, study have shown that different restorative materials such as ceramics, composite resins, and metal alloys respond differently to these forces.

The results highlight the importance of material selection and design in optimizing biomechanical performance, particularly in load-bearing areas of the dentition. Furthermore, FEA analysis underscore the role of design geometry, bonding techniques, and material heterogeneity in influencing stress concentrations and failure risks. This lecture demonstrates that FEA is a valuable tool for improving clinical decision-making, guiding the development of novel biomaterials, optimizing a prosthesis design, and enhancing the predictability of dental treatments. Ultimately, integrating biomechanical analysis into dental material science can lead to more durable and patient-specific restorative solutions, thus supporting long-term oral health outcomes.

BIOGRAPHY:

Associate Professor Dr. Siti Mariam binti Ab Ghani currently serves as the Deputy Dean (Academic) at the Faculty of Dentistry, Universiti Teknologi MARA (UiTM), and is a Consultant Prosthodontist registered with the Malaysian National Specialist Register. She is actively involved in teaching fixed and removable prosthodontics at both undergraduate and postgraduate levels in UiTM and serves as a visiting lecturer at various dental institutions. Dr Siti Mariam is frequently invited as an external examiner for professional examinations and thesis evaluations both locally and internationally.

Her research interests focus on dental materials and prosthodontics, with her team securing numerous national and international grants. She has conducted research as a visiting scholar at the Minnesota Dental Research Center for Biomaterials and Biomechanics, USA (2016), and King Saud University, Riyadh (2019). Dr. Siti Mariam has presented extensively at international conferences and contributed to peer-reviewed journals and undergraduate restorative dentistry textbooks. She is the Past-President of the International Association for Dental Research (IADR) Malaysian Section and currently serves as Councilor for both the Asian Academy of Prosthodontics (AAP) and IADR South-East Asia Division.

SYMPOSIUM 2 SPEAKER

ASSOC. PROF. DR UMER DAOOD
IMU UNIVERSITY

Time to Shift The Paradigm Towards New Antimicrobials: The Theory of Everything

ABSTRACT:

The experimental versions of novel Quaternary Ammonium Silane (SiQAS) (K21 molecule) were synthesised by sol-gel reaction. The rationale for synthesizing a partially condensed version of the K21 is that the product may be dissolved in solvents such as ethanol, acetone, 1,3-butanediol or 2-hydroxyethyl methacrylate. The sol-gel synthesis provides a facile method for synthesizing organosilicates under mild conditions enabling a three-dimensional network to be formed once condensation is brought to completion. K21 has strong broad-spectrum antibacterial properties and does not enter the bacterial cell due to the interference of the ion transport and membrane lysis.

Wound healing is a complex biological process requiring precise regulation of inflammation extracellular matrix integrity, and microbial control. Dysregulation of these processes, often due to bacterial infections and excessive matrix metalloproteinase (MMP) activity, leads to delayed healing and chronic wounds. Here, we propose novel antimicrobial peptide K21 with broad-spectrum antibacterial properties and additional multifunctional bioactivities, including anti-inflammatory effects, MMP inhibition, and pro-regenerative potential modulating key cytokine pathways. In vitro and in vivo models demonstrate accelerated wound closure, enhanced fibroblast migration, and reduced inflammation. These findings position this molecule as a promising candidate for advanced wound care strategies, bridging the gap between infection control and tissue regeneration, hence putting together *The Theory of Everything*.

BIOGRAPHY:

Associate Professor Dr Umer Daood graduated from Baqai Dental College (BDS) Karachi, Pakistan in 1999 subsequently embarking on a lineup of advanced post graduate qualifications. Dr. Umer Daood holds a Master of Science (MSc) in Oral Sciences and Biomaterials from the National University of Singapore as well as an MSc in Dental Materials from Queen Mary University of London. He completed his MSc in Molecular Medicine from IMU University. He also obtained his PhD from Prince Philip Dental Hospital, Faculty of Dentistry at the University of Hong Kong. He is a Member of the Faculty of Dental Surgery of the Royal College Surgeons (MFDS, RCS Glasgow) and a Certificate in Periodontology from Queen Elizabeth Hospital, Woolich, London. Dr Daood has special interests in dental biomaterials, disinfection in Endodontics, Tissue Engineering of dentin structure and developing new adhesive and esthetic restorations.

- Currently working as an Associate Professor, Head of Restorative Division, School of Dentistry, IMU University, Kuala Lumpur.
- Adjunct Faculty Asst. Professor Prince Philip Dent Hospital, HKU at The University of Hong Kong.

He has many international high impact publications, book chapters and patents to his name.
Dr Daood has his interests going in Science, Biology, History and has a deep interest in Cosmology. Through his experiences and research, he has learnt that research in dentistry allows one to address real life clinical problems using information that has evolved for so many years.

SYMPOSIUM 2 SPEAKER

ASSOC. PROF. DR. NORLELA YACOB
UNIVERSITI SAINS ISLAM MALAYSIA

The Future of Dentures: Merging 3D Printing and Fundamental Innovation

ABSTRACT:

The transition from conventional to digital denture manufacturing marks a significant advancement in the field of dentistry. The integration of advanced technologies, such as 3D printing, introduces both challenges and opportunities for improving denture production. This lecture provides an overview of the shift from traditional to digital denture fabrication, highlighting key parameters that influence the final product. It explores the impact of various factors, including scanning technologies, 3D printing techniques, post-curing processes, denture finishing and staining procedures. Each of these elements affects mechanical properties of the denture, accuracy, biocompatibility, biofilm adherence, aesthetics, and overall clinical performance. Additionally, potential issues in digital denture fabrication and recent innovations will be discussed to ensure the dentures meet clinical requirements for it to function, and patient satisfaction. This evolving field presents significant opportunities for future research and technological exploration

BIOGRAPHY:

Associate Prof Dr Norlela Yacob is a prosthodontist and lecturer at Universiti Sains Islam Malaysia. She graduated from Universiti Malaya and pursued her specialist training at University of Dundee. She completed her PhD at the Universiti Malaya and explores research on microbial adherence and denture microbiome of 3D printed denture base resin. She was the 2021 Winner, The Arthur Frechette Award, Prosthodontic group- in IADR Conference, Chengdu, China. Her research topics are copy denture technique, digital denture, microbiome, 3D printing resin and dental fiqh. She has experience using CAD/CAM technology from scanning, CAD designing, 3D printing and milling. She has a deep interest in material advancement and digital technology for fixed and removable prosthesis. She led workshops on digital denture and has inspired clinicians to transform their practice toward digitalization.

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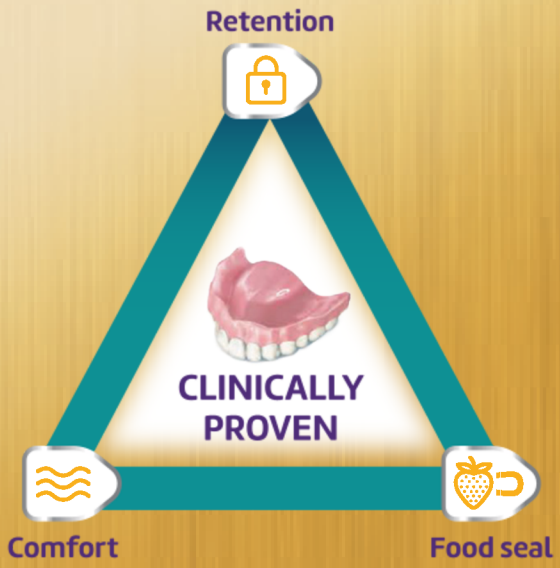

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Reference: 1. GSK Data on File 2011.
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