

MARCH 2026

ISSUE 07

Enginitium

THE OFFICIAL BULLETIN

OF THE RESEARCH OFFICE | FACULTY OF ENGINEERING | UM

EXCLUSIVE

TRANSLATING
BIOMECHANICAL
INNOVATIONS INTO
HEALTHCARE
SOLUTIONS

VENTURE

ACCELERATING INNOVATION, COMMERCIALISATION,
AND RETURN OF VALUE IN ENGINEERING RESEARCH

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Foreword

WELCOME TO ENGINITIUM

*Reflections on Innovation,
Commercialisation and Return of
Value in Engineering Research*



Professor Ir. Dr. Mohd Faizul Mohd Sabri
Deputy Dean of Research & Innovation
Faculty of Engineering, Universiti Malaya

This edition of *Enginitium* comes at a pivotal time for the Faculty of Engineering, as expectations on universities continue to evolve. Beyond producing publications and graduates, we are now increasingly required to show how our research delivers tangible value to industry, government, and society.

Our chosen theme of **innovation and commercialisation** reflects this shift. The articles in this issue highlight alumni and staff who have moved their work beyond the lab: establishing spin-offs, securing licensing agreements, deploying advanced manufacturing and clean energy solutions, and building impactful collaborations with industry and agencies. These stories demonstrate that engineering research can and does translate into real-world outcomes.

This direction is very much in line with current requirements from the Ministry of Higher Education, including under the Geran Eksploratori & Transformatif (GET), where Return of Value (ROV) has become a key consideration in assessing research proposals and outputs. Researchers are now encouraged to plan from the outset for pathways to impact, through intellectual property, partnerships, commercialisation, talent development, or societal benefits, rather than treating these as afterthoughts.

I would like to thank all contributors and research teams featured in this volume, and the Research Office for compiling and documenting these efforts. Your achievements strengthen the faculty's profile and support UM's mission to deliver high-impact research.

As this bulletin is circulated in the month of *Syawal*, allow me also to extend my warm wishes to all: Selamat Hari Raya Aidilfitri, Maaf Zahir dan Batin. May this festive season renew our resolve to pursue research that not only advances knowledge, but also brings meaningful value to the communities we serve.

Translating Biomechanical Innovations into Healthcare Solutions

BIOAPPS SDN BHD: FROM RESEARCH TO RETAIL

Hanie Nadia Shasmin
Centre for Applied Biomechanics (CAB)

The journey of BioApps Sdn Bhd demonstrates how academic research can be translated into practical healthcare solutions. Established in 2012, BioApps is a spin-off company of the Centre for Applied Biomechanics (CAB) at Universiti Malaya, created to commercialise innovations in prosthetics, orthotics, and rehabilitation technologies developed through academic research. Guided by its tagline “From Research to Retail,” BioApps aims to transform laboratory discoveries into accessible assistive devices that directly benefit patients.

The company was founded under the leadership of Prof. Dato’ Seri Ir. Dr. Noor Azuan Abu Osman, a prominent researcher in biomechanics, prosthetics, and orthotics. Through his work at Universiti Malaya and the Centre for Applied Biomechanics, Prof. Azuan and his research team developed several innovations aimed at improving mobility and rehabilitation outcomes. However, many of these innovations initially remained within the academic environment and did not reach patients who could benefit from them. To bridge this gap between research and real-world clinical application, BioApps was established as a commercialisation platform to bring biomechanical innovations from the laboratory into hospitals and rehabilitation centres.

During its early setup in 2012, the company began with an initial capital of RM1,500 and only two staff members. From this modest beginning, BioApps steadily expanded its operations and capabilities.



CAB and BioApps team

From a modest capital investment during its early establishment, the company has since grown to a paid-up capital of RM500,000, reflecting its steady development and operational maturity. The early commercialisation phase was supported by innovation funding aimed at translating university research into industry applications. In 2014, BioApps received commercialisation support from the Universiti Malaya Centre for Innovation and Commercialisation (UMCIC), which helped transform research prototypes into early-stage medical devices. The company later secured additional funding through the Commercialisation of R&D Fund (CCGF) administered by PlaTCOM Ventures Sdn Bhd, as well as the Commercialisation and Research Development Fund (CRDF) from Malaysian Technology Development Corporation. These programmes enabled BioApps to refine its research innovations into market-ready healthcare technologies.

A major milestone occurred in 2015, when BioApps successfully competed in a tender process and won the bidding among several prosthetics and orthotics (P&O) providers to operate services at the Universiti Malaya Medical Centre. Securing this tender demonstrated the company's technical capability and service credibility, and it allowed BioApps to operate within a clinical environment where device development could be continuously improved through direct interaction with clinicians and patients. From its humble beginnings, BioApps has grown steadily over the past decade. Today, the company employs 19 staff members and is supported by four consultants: Assoc. Prof. Ir. Dr. Nasrul Anuar Abd Razak, Dr. Nooranida Arifin, Mdm Hanie Nadia Shasmin, and Dr. Tham Lai Kuan. In addition, BioApps hosts four full-time postgraduate attachments focusing on 3D printing technologies, reflecting its continued connection with academic research and innovation.



Today, BioApps provides prosthetic and orthotic services to more than 20 government and private hospitals across Malaysia. The company is also a panel provider for several national healthcare assistance programmes, including SOCSO Malaysia (PERKESO), PEKA B40, Lembaga Zakat Selangor, and Majlis Agama Islam Wilayah Persekutuan (Zakat Kuala Lumpur). Through these collaborations, BioApps treats approximately 700 to 900 patients annually, providing prosthetic and orthotic care for individuals requiring limb replacement, musculoskeletal support, and rehabilitation following injury or surgery.

A distinctive feature of BioApps is its patient-centred service model. In addition to hospital-based services, BioApps specialists also conduct home visits, ensuring that prosthetic and orthotic devices are fitted and optimized within the patient's living environment.

Innovation remains at the core of BioApps' activities. Among its key innovations are the prosthetic limb suspension system, designed to improve comfort and stability for amputees, and the 3D-printed scoliosis brace, which enables faster fabrication and improved customization compared with conventional orthotic braces. Currently, BioApps is developing a next-generation prosthetic technology known as the RoMicPTM robotic ankle prosthesis, integrating robotics and biomechanical engineering to enhance gait efficiency for lower-limb amputees.

BioApps has also gained national recognition through several unique projects. The company developed a customized facial protective guard for Malaysian professional football player Muhammad Faisal Abdul Halim, assisting him to safely return to professional football after a serious facial injury. Another notable project involved developing a prosthetic limb for an elephant cub named Ellie, demonstrating how biomechanical engineering principles can extend beyond human rehabilitation. These projects received national media attention and helped significantly boost the recognition of BioApps across Malaysia.



3D printed prosthetic limb for Ellie the elephant cub

BioApps is registered with the Medical Device Authority Malaysia as both a medical device manufacturer and supplier, with more than ten groups of medical products registered, including prosthetic limbs, body braces, and orthotic devices. To ensure compliance with international quality standards, BioApps obtained Good Distribution Practice for Medical Devices (GDPMD) certification and achieved ISO 13485 and ISO 9001 certifications since 2018.

More than a decade after its establishment, BioApps continues to demonstrate the potential of university spin-off companies to bridge academic innovation and healthcare practice. Guided by its philosophy of “From Research to Retail,” BioApps remains committed to advancing research-driven rehabilitation technologies that improve mobility and quality of life. Looking ahead, the company’s long-term aspiration is clear: to become the best prosthetics and orthotics (P&O) service provider in Malaysia.



BioApps Family Iftar 2026

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BioApps Sdn Bhd

(<https://bioapps.com.my/>)



Innovating Hydrogen Storage with Solid-State Technology

TRANSFORMING A RESEARCH CHALLENGE INTO A SAFER, PRACTICAL HYDROGEN SOLUTION

Professor Ir. Dr. Mahidzal Dahari
Department of Electrical Engineering

Innovation in engineering rarely starts with ready-made solutions. In the case of solid-state hydrogen technology at Universiti Malaya, the journey began with very practical questions about how to make hydrogen safer, easier to handle, and truly usable beyond the lab. The work grew out of real engineering problems and steadily evolved into a technology pathway that now extends into a spin-off company and a licensing agreement with industry.



Prof. Mahidzal with a solid-state hydrogen storage unit

The early phase of the research focused on a hydrogen refuelling and dispensing control system for compressed hydrogen. This provided invaluable hands-on experience with actual hydrogen systems, including the realities of safety, control precision, and reliability under operating conditions. At the same time, it exposed a deeper limitation: while compressed hydrogen systems can be effective, they are complex to handle and not always user-friendly or scalable for wider deployment. Rather than continuing to refine high-pressure systems, this realisation prompted a change in perspective. The key question became whether hydrogen could be stored and used in a fundamentally different way in which safety, simplicity, and practicality are placed at the centre of the design. This shift in thinking led to the exploration of solid-state hydrogen storage as an alternative pathway.



Solid-state hydrogen storage system developed at Universiti Malaya

The potential of this technology became even clearer when the solid-state storage system was integrated with a fuel cell. This combination converted the concept into a complete energy solution, by storing hydrogen safely and then generating electricity directly from it.

Seeing electric power produced from a compact solid-state tank was more than a lab demonstration. It was a clear signal that the technology could function as part of a real energy system and move closer to deployment.



Electricity generation using a solid-state hydrogen storage system integrated with a fuel cell

As the technology matured, the need to move beyond research became increasingly clear. To enable this transition, MDZTECH Sdn Bhd was established as a spin-off company. It serves as a bridge between innovation and application, providing a pathway for research outcomes to reach industry and society.

A significant milestone in this journey was the licensing agreement between Universiti Malaya and Energise Sdn Bhd. This agreement represents more than a formal collaboration. It marks the transition of technology from academic development into a stage where it can be further advanced and applied in real-world contexts.



The partnership with Energise Sdn Bhd highlights the importance of collaboration in driving innovation forward. It reflects a shared commitment to ensuring that research does not remain within institutional boundaries but instead contributes to broader technological and societal progress.

Today, the focus remains on advancing solid-state hydrogen storage as a practical and accessible energy solution. With its emphasis on safety, compact design, and ease of use, it holds strong potential for supporting future energy systems, particularly in applications where conventional approaches may not be suitable.

Ultimately, this journey reflects a broader message. Innovation is not only about developing new technologies but also about rethinking possibilities. By shifting perspectives and embracing real-world challenges, research can move beyond the laboratory and contribute meaningfully to society. Prof. Mahidzal believes that value lies not merely in invention itself but in its ability to create real impact. In this spirit, the path forward is not just about discovery but about ensuring that each innovation serves a purpose beyond the lab and into everyday life.

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[MDZTECH Sdn Bhd](#)

Licensing agreement exchange between Universiti Malaya and Energise Sdn Bhd, marking a key milestone in the commercialization of MDZTECH Sdn Bhd

From Plastic Pollution to High-Value Fuel with LiquePro Innovation

CONVERTING MIXED PLASTIC WASTE INTO MARKET-READY FUELS

Dr. Muhamad Fazly Abdul Patah
Department of Chemical Engineering, UM

Every year, vast quantities of plastic waste end up in landfills, rivers, and oceans, creating long-term environmental and economic burdens. In Malaysia, mixed and contaminated plastics are particularly difficult to recycle because they require costly sorting and cleaning, and often end up as low-value products even after processing. Motivated by this challenge, a team from the Department of Chemical Engineering at Universiti Malaya has developed LiquePro Technology, an innovation that turns mixed plastic waste into high-value liquid fuels in less than an hour.

LiquePro Technology is built around a novel liquefaction process that converts unsorted plastic polymers directly into high-quality fuels such as gasoline, diesel, and aviation fuel. Unlike conventional recycling, which depends on separating different polymer types, this system can handle a wide range of plastics, including PET, HDPE, LDPE, PP, and PS as commonly found in consumer products, without extensive pre-treatment or segregation. This significantly reduces processing complexity and cost, making it a practical and scalable solution for waste management operators, municipalities, and industry.

Laboratory studies show that LiquePro can achieve complete conversion of plastics into usable products within about 60 minutes under optimised conditions. The resulting fuels are suitable for burners and internal combustion engines and have demonstrated performance that can match or even surpass conventional diesel and gasoline in engine tests. In addition to higher engine efficiency and lower fuel consumption per kilometre, emissions testing indicates meaningful reductions in pollutants, supporting cleaner operation and lower environmental impact.



Unsorted plastic polymers as the feedstock material

Beyond serving as an alternative fuel source, the products from LiquePro can also act as chemical feedstock for the specialty chemicals sector, opening further opportunities for value creation. By combining waste reduction with energy and chemical production, the technology contributes directly to circular economy goals, closing the loop between plastic waste generation and resource recovery. This aligns with national sustainability agendas and provides industries with a pathway to reduce disposal costs, generate new revenue streams, and strengthen their environmental credentials.



Recovered Fuel obtained using LiquePro Technology

The impact of LiquePro is not limited to technical performance. It also illustrates how university research can move along the innovation and commercialisation pipeline. Developed under the leadership of Prof. Ir. Dr. Wan Mohd Ashri Wan Daud, Dr. Muhamad Fazly Abdul Patah and their team, the technology has progressed from laboratory concept to market-ready solution through Sustainaviro Technology Sdn Bhd, a Universiti Malaya spin-off company. This commercial vehicle enables the technology to be deployed at scale, working with partners in waste management, heavy industry, and transportation, including potential users in the aviation sector.



As LiquePro Technology moves further into the marketplace, it demonstrates how engineering research from the Faculty of Engineering can generate tangible solutions to global challenges. By transforming problematic plastic waste into cleaner fuels and valuable feedstock, this innovation shows that with the right combination of science, engineering, and entrepreneurship, environmental problems can become engines of new industrial opportunity.



Recovered Fuel samples from laboratory testing

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Department of Chemical Engineering,
Faculty of Engineering, Universiti Malaya

Sustainaviro Technology Sdn Bhd

Industrializing, Communitizing and Internationalizing Prosthetic Innovations

HOW CPOE CONNECTS RESEARCH, INDUSTRY, COMMUNITIES AND GLOBAL PARTNERS IN PROSTHETICS AND ORTHOTICS

Associate Professor Ir. Dr. Nasrul Anuar Abd Razak
Department of Biomedical Engineering, UM

Since its establishment in 2016, the Centre for Prosthetic and Orthotic Engineering (CPOE) at the Faculty of Engineering, Universiti Malaya, has grown into a vibrant hub for rehabilitation-focused engineering research and training. With two dedicated floors at Block C and more than 30 postgraduate students from Malaysia and abroad, CPOE brings together expertise from engineering, medicine, rehabilitation, and materials science to improve the quality of life for people with limb loss and mobility challenges. The centre's activities can be seen through three complementary pillars: industrializing, communitizing, and internationalizing.

On the industrializing front, CPOE works closely with industry through initiatives such as the Industry Matching Programme (IMAP) and PRGS-funded projects to co-develop standards and technologies for next-generation prosthetics. One key effort focuses on developing a standard for 3D-printed prosthetic sockets, addressing safety, fit, comfort, and ethical considerations in a field where designs are proliferating faster than evidence. This is complemented by work on new material technologies, including kenaf fibre-reinforced composites and recycled PET/ZnO-based plastics, aimed at producing stronger, lighter, and more sustainable materials for prosthetic fabrication.



Equally important is communitizing, returning the benefits of research to society. Through programmes such as UMCares and UMSDC-supported projects, the team engages directly with communities, patients, and families. The “Be Able” self-rehabilitation initiative, for example, creates a structured support system for persons with disabilities by combining rehabilitation expertise, engineering, and virtual therapy. It offers practical education on prosthetic procedures, safe gait biomechanics, and the use of assistive technologies, empowering users to take an active role in their own rehabilitation.

Other community-facing activities include projects that recycle prosthetic plastic waste into new fabrication materials and a flagship stunting analysis project with UMCares, which uses anthropometric assessment to better understand growth issues among children in locations such as Sepanggar and Ranau, with expansion planned to Melaka.

The third pillar is internationalizing. CPOE's multidisciplinary work has attracted collaborators from a wide range of countries, including Hong Kong, Thailand, Indonesia, Jordan, Japan, Cambodia, Sri Lanka, France, the United Kingdom, India, and others.



Be Able Programme @ CPOE UM

The research group also works with national partners such as the Ministry of Health, Maybank, and SIRIM on projects that strengthen industrial capabilities in prosthetics and orthotics. With postgraduate students from Saudi Arabia, China, Iran, Jordan, Nigeria, Morocco, Pakistan, Bangladesh, India, Palestine, and Malaysia, the centre functions as a truly international training and research environment. This internationalizing dimension ensures that innovations developed at CPOE are benchmarked globally, shared across borders, and informed by diverse clinical and cultural contexts.



Hooding Ceremony for CPOE PhD Graduates

By integrating industrializing, comunitizing, and internationalizing in a coherent research and development strategy, CPOE shows how an engineering centre can move beyond traditional laboratory work. Its projects, ranging from 3D-printed prosthetic standards and new materials, to virtual rehabilitation and community health initiatives, illustrate the full arc from research to industry, community, and international collaboration. In doing so, CPOE embodies the broader direction of the Faculty of Engineering: to produce research that not only advances knowledge, but also delivers concrete benefits across sectors and borders.



Return Back to Society with UMCares & UMSDC Projects

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Centre for Prosthetic & Orthotic Engineering,
University of Malaysia I...

Centre for Prosthetic & Orthotic Engineering, University of
Malaya, Kuala Lumpur. 424 likes · 13 talking about this · ...

[facebookapp](#)

Building Malaysia's Additive Manufacturing Ecosystem: A UM Alumni Success Story

From UM's lecture halls to leading ASTM certification, innovation and commercialisation in advanced manufacturing

SHahrul Irwan Bin Musa
(Mechanical Engineering - Class of 2004)

The Faculty of Engineering, Universiti Malaya alumnus, Mr. Shahrul Irwan bin Musa has built a distinguished career at the intersection of engineering innovation, industrial technology commercialisation, and advanced manufacturing. A graduate in Mechanical Engineering and holder of a Master's degree in Business Studies/Management from Universiti Malaya, he has accumulated over 20 years of experience with organisations such as Samsung Electronics Malaysia, SIRIM Berhad, Yokogawa Industrial Safety Systems, and 3D Gens Sdn Bhd, before assuming his current role as Director of ORS Technologies Sdn Bhd.

At ORS Technologies Sdn Bhd, Shahrul leads strategic initiatives in additive manufacturing, digital metrology, engineering simulation, reverse engineering, and Industry 4.0 technologies for key sectors including defence, aerospace, oil and gas, automotive, medical, universities, and government agencies.



3D scanning for reverse engineering of automotive tooling conducted by ORS



A key milestone in Sharul's professional journey is his recognition as the first Malaysian certified as a Professional Additive Manufacturing Engineer by ASTM International. Beyond his own certification, he has been instrumental in bringing internationally recognised certification frameworks in additive manufacturing, CAE, and digital metrology into Malaysia to strengthen both industrial capability and academic excellence.

Under his leadership, ORS has also played an important role in advancing Malaysia's additive manufacturing ecosystem through its involvement with ASTM-related certification and professional upskilling programmes, positioning Malaysian engineers for globally benchmarked competence.

Among his many collaborations, Shahrul's involvement with Universiti Kebangsaan Malaysia in developing Malaysia's first 3D bioprinter stands out as a milestone in biomedical engineering innovation and a model of effective technology transfer.



A collaboration project with UKM to develop a 3D bioprinter

Shahrul is also a committed champion of industry-academia collaboration. He serves as an Industry Advisory Panel member for institutions such as Universiti Teknologi Malaysia, Universiti Teknikal Malaysia Melaka, Universiti Malaysia Perlis, Polytechnic Sultan Azlan Shah, Polytechnic Shah Alam, and Polytechnic Merlimau, and contributes to national competency initiatives under the Jabatan Pembangunan Kemahiran and NOSS framework.



Industrial Talk as an Industry Advisory Panel at UNIMAP



International project with Malvern Panalytical (Netherlands) to fabricate a lightweight x-ray machine by using 3D Printer



ASTM-Additive Manufacturing Awareness Programme coordinated by ORS Technologies

Shahrul Irwan's journey is a strong example of how UM alumni continue to shape innovation and commercialisation beyond the university

Looking ahead, ORS Technologies and Shahrul Irwan warmly welcome opportunities for collaboration with both industry and academia to further advance Malaysia's additive manufacturing and innovation ecosystem

Contact: Mr. Shahrul Irwan bin Musa,
Director, ORS Technologies Sdn Bhd,
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Meet Our Researcher

ASSOC. PROF. DR. JUDHA PURBOLAKSONO

Pioneering Computational Frameworks for Structural Reliability and Failure Analysis

The pursuit of structural safety in high-pressure industrial environments requires a precise blend of theoretical physics and practical engineering foresight. Associate Professor Dr. Judha Purbolaksono, a prominent figure in the Department of Mechanical Engineering at Universiti Malaya, has dedicated his career to mastering this balance. His expertise in computational mechanics and failure analysis serves as a critical bridge between the digital simulation of stress and the physical reality of material fatigue. By integrating advanced numerical modeling with real-world forensic engineering, Dr. Judha provides the energy and aerospace sectors with the tools necessary to prevent catastrophic structural failures.

Dr. Judha's academic foundation was established at Universitas Gadjah Mada and the Institut Teknologi Bandung in Indonesia, before he transitioned to the United Kingdom to specialize in computational mechanics. He earned his PhD from Queen Mary College, University of London, in 2003, a period that solidified his focus on the mathematical modeling of fracture mechanics. Before his deep dive into academia, he honed his practical skills as a Fatigue and Fracture Mechanics Engineer at Indonesian Aircraft Industries (PT. IPTN). This early exposure to the high-stakes world of aerospace engineering instilled a rigorous approach to structural integrity that continues to define his research methodology today.



His tenure at Universiti Malaya in 2010 has been marked by significant contributions to the university's research output and international standing. Dr. Judha has established himself as a prolific researcher, securing over RM 1.4 million in research grants and publishing extensively in high-impact international journals. After a productive five-year period between 2019 and 2024 at Universitas Pertamina in Indonesia, where he focused on the structural challenges facing the energy industry, Dr. Judha returned to Universiti Malaya in early 2025. His return reinforces the faculty's strength in mechanical engineering and ensures the continued mentorship of the next generation of computational engineers.

Currently, Dr. Judha's research focuses on the simulation of ultra-supercritical fossil power plant components, specifically targeting the degradation of superheater and water wall tubes. This work is essential for extending the operational lifespan of power-generating infrastructure and reducing the economic and environmental costs of unplanned shutdowns.

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Research Grants and Awards

The Faculty of Engineering warmly congratulates our academic staff who have successfully secured research grants during this period. Their success in attracting competitive funding reflects the strength of our research ecosystem and the commitment of our researchers to advancing knowledge, innovation, and commercialisation. We extend our appreciation to all principal investigators and team members for their dedication, and we look forward to the impactful outcomes that these funded projects will bring to the university, industry, and society.



PROFESOR IR. DR. HAZLEE AZIL BIN ILLIAS
(Jabatan Kejuruteraan Elektrik)

atas kejayaan memperoleh
SKIM GERAN PENYELIDIKAN PROTOTAIP (PRGS) 2025
disyaja
UNIVERSITI MALAYA

tajuk
MULTI-SOURCE PARTIAL DISCHARGE FAULT DIAGNOSIS FOR POWER TRANSFORMERS VIA HYBRID DEEP LEARNING MODELS
jumlah dana geran
RM143,750.00



PROFESOR IR. DR. ADELINE CHUA SEAK MAY
(Jabatan Kejuruteraan Kimia)

atas kejayaan memperoleh
MSE x NEXUS "Green Technology" Research Collaboration Grant 2025
 tajuk
Green Conversion of Palm Oil Wastes into Bio-Compressed Natural Gas (Bio-CNG) for Renewable Energy Diversification in Malaysia

penyelidik bersama
Profesor Ir. Dr. Ngho Gek Cheng, Dr. Chuah Chong Yang dan Ir. Dr. Santheraleka Ramanathan

jumlah dana geran
RM 1,000,000



PROFESOR IR. DR. MOHD FAIZUL BIN MOHD SABRI
(Jabatan Kejuruteraan Mekanik)

atas kejayaan memperoleh
MSE x NEXUS "Green Technology" Research Collaboration Grant 2025
 tajuk
Green Sensing Technologies and Sustainable Biogas Recovery for Palm Oil Mill Effluent Treatment

rujukan kolaborasi antarabangsa
Profesor ONO Takahito, Tohoku University

jumlah dana geran
RM 1,000,000



PROFESOR IR. DR. HAZLEE BIN ILLIAS
(Jabatan Kejuruteraan Elektrik)

atas kejayaan memperoleh
SKIM GERAN PENYELIDIKAN FUNDAMENTAL (FRGS) 2025
disyaja
UNIVERSITI MALAYA

tajuk
PARTIAL DISCHARGE MECHANISMS IN A DELAMINATION DEFECT WITHIN ELECTRICAL INSULATION SYSTEM UNDER HIGH AC AND SUPERIMPOSED SWITCHING IMPULSE VOLTAGES
jumlah dana geran
RM124,625.00



PROFESOR IR. DR. FATIMAH IBRAHIM
(Department of Biomedical Engineering)

for being awarded the
UK-Malaysia-ASEAN+3 Going Global Partnerships Grant 2025/2026

project title
AI-Enabled Technology for Musculoskeletal Health and Healthy Ageing

grant worth
£ 24,870

INTEL ELECTRONICS (MALAYSIA) SDN. BHD.



ASSOCIATE PROF. DR. SHARIFAH FATMADIANA BT WAN MUHAMMAD HATTA
Department of Electrical Engineering

PACKAGE-LEVEL CO-DESIGN FRAMEWORK FOR SYNAPTIC TRANSISTORS IN HETEROGENEOUS NEUROMORPHIC CHIPLETS

Research Grant Amount : RM247,250.00

UNITED KINGDOM RESEARCH & INNOVATION GRANT (UKRI)



DR. HANEE FARZANA BINTI HIZADDIN
Department of Chemical Engineering

INNOVATIVE RECYCLING OF E-WASTE FOR CRITICAL METALS AND SUSTAINABLE ECONOMY IN MALAYSIA (IRECYCLEMALAYSIA)

Research Grant Amount : RM 1,595,335.49

Strengthening IP and Commercialisation Culture

**Report by:
Fatinurshaira Mohd
Yunus**

Assistant Registrar,
Faculty of Engineering



Dr Nurul Fauzani (UMCIE) presenting the IP and commercialisation support by the university

21 January 2026 - Deputy Dean of Research Office, in collaboration with the UM Centre of Innovation and Enterprise (UMCIE), hosted a Faculty Roadshow focusing on intellectual property (IP) protection and innovation commercialisation. The session provided a dedicated platform for faculty members and postgraduate students to engage directly with UMCIE, Universiti Malaya's Technology Transfer Office.

UMCIE highlighted its role in supporting researchers throughout the IP and commercialisation lifecycle, from disclosure to patenting, licensing, and spin-off formation. Key data on the Faculty of Engineering's patent and copyright filings were presented, together with selected spin-off success stories from UM's research ecosystem, to illustrate how research outputs can be translated into market-ready solutions and industry partnerships.

The interactive session saw active participation and questions on IP ownership, publication versus patenting timelines, and available support for technology validation and industry engagement.

Attendees included academic staff from Mechanical, Biomedical, Chemical, Civil, and Electrical Engineering, as well as industry-linked representatives and postgraduate students, reflecting strong interest in research translation.

The Deputy Dean of Research Office records appreciation to UMCIE for their collaboration and to all participants for their constructive engagement. Building on this roadshow, the Deputy Dean's office plans to continue working with UMCIE to provide targeted clinics and workshops that help engineering researchers protect and commercialise their innovations for broader societal and industrial impact



Guest Lectures

**INVITED LECTURES BY
INTERNATIONAL EXPERTS SHARING
CUTTING-EDGE RESEARCH AND
INNOVATION PATHWAYS.**



FAKULTI KEJURUTERAAN
Faculty of Engineering

GUEST LECTURE

Talk 1: Nanoengineered Microsystems: Concepts and Demonstrations



21st January, 2026 (Wednesday)

11.00 am

The Cube, Level 2, Block L,
Faculty Of Engineering

Associate Professor
Nguyen Van TOAN,
Tohoku University

Talk 2: Metal-Assisted Chemical Etching Subjected to Micro/Nano Devices

22nd January, 2026 (Thursday)

10.00 am

The Cube, Level 2, Block L,
Faculty Of Engineering

[Click here for RSVP](#)

(Limited to 30 pax only)

Organized by Deputy Dean (Research & Innovation),
Faculty of Engineering

Associate Professor
Dr. Nguyen Van Toan from Tohoku University,
Japan on 21-22 January 2026



FAKULTI KEJURUTERAAN
Faculty of Engineering



Topic 1:

Light-Controlled Mechanical Properties
via Dislocations: A New Frontier in
Functional Materials

Date : 2nd March 2026 (Monday)
Time : 10.00 AM
Venue : The Cube, Level 2, Block L,
Faculty of Engineering

Topic 2:

Strategies for High-Impact Publishing in
Materials Science and Engineering

Date : 3rd March 2026 (Tuesday)
Time : 10.00 AM
Venue : Green Cube, Level 1, Block D,
Faculty of Engineering



Speaker:
PROFESSOR DR. ATSUTOMO NAKAMURA
THE UNIVERSITY OF OSAKA

Professor Dr. Atsutomo Nakamura,
Osaka University
2 & 3 March 2026



Upcoming Events



The poster features a background image of industrial machinery with sparks. On the left, there are three stylized orange and white chevrons pointing right. On the right, there are five orange rounded rectangles stacked vertically, each containing a field of study. At the top, the Universiti Malaysia and Faculty of Engineering logos are displayed. The main title 'MEKANIKUM 2026' is in large, bold, orange letters. Below it, the subtitle 'International Conferences on Mechanical Engineering Advances 2026' is in white. Further down, three associated conferences are listed in white. The dates '2-3 September 2026' are in an orange box. The location 'Connexion (Nexus), Bangsar South, Kuala Lumpur, MALAYSIA' is in an orange box with a location pin icon. The 'CALL FOR ABSTRACTS' section is in large white letters, followed by 'Important Dates :'. A timeline with six orange circles connects the dates: Abstract submission opening (01-04-2026), Abstract submission deadline (31-05-2026), Acceptance notification (19-06-2026), Early-bird* registration deadline (15-07-2026), Deadline for registration & Full paper submission (15-08-2026), and Conference Date (2-3 Sep 2026). A 'Registration Fees:' table is in an orange box at the bottom, listing fees for various categories. A note about an early-bird discount is also present. At the very bottom, the website and email are provided with icons.

UNIVERSITI MALAYA
FAKULTI KEJURUTERAAN
Faculty of Engineering

Energy
Materials
Manufacturing
Product Design
Mechatronics/ IoT / Alring

"Sustainability in Mechanical Engineering"
MEKANIKUM 2026
International Conferences on Mechanical Engineering Advances 2026
in conjunction with
International Conference on Smart and Advanced Manufacturing (ICSAM 2026)
International Conference on Next Generation Materials (NEXMAT 2026)
Smart and Sustainable Industrial Ecosystem Conference (SSIEC 2026)

2-3 September 2026

Connexion (Nexus), Bangsar South, Kuala Lumpur, MALAYSIA

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2-3 Sep 2026

Registration Fees:

Student (Local University)	RM 1,000
Student (International University)	RM 1,500
Academic Staff (Local University)	RM 1,500
Academic Staff (International University)	RM 2,000
Industry/ Others	RM 2,000
Non-presenter participant	RM 1,000

*Early-bird will receive 10% discount

www.umevent.um.edu.my mekanikum@um.edu.my

Publications

Total number of WOS-indexed publications (Jan-March 2026) : 181

- DeepFusion encoder for unsupervised monocular metric depth estimation
(<http://dx.doi.org/10.7717/peerj-cs.3299>)
- Scheduling all-scale multi-point manufacturing problems with a single neural model
(<http://dx.doi.org/10.1007/s10489-026-07091-7>)
- HAT-YOLO: Hybrid Attention and Transformer-Integrated Model for UAV Object Detection on Embedded Devices
(<http://dx.doi.org/10.3837/tiis.2026.02.014>)
- Optimal control of drug scheduling of nonlinear chemotherapy model with state constraints and parameter sensitivity analysis
(<http://dx.doi.org/10.1080/10255842.2026.2618579>)
- Optimal network reconfiguration based on discrete metaheuristic techniques for reduction of power loss and carbon emission in distribution networks
(<http://dx.doi.org/10.55730/1300-0632.4177>)
- Development of Wave Water Simulator for Path Planning of Autonomous Robots in Constrained Environments
(<http://dx.doi.org/10.32604/cmc.2026.065539>)
- Toward Efficient Traffic-Sign Detection via SlimNeck and Coordinate-Attention Fusion in YOLO-SMM
(<http://dx.doi.org/10.32604/cmc.2025.067286>)
- Comprehensive Overview and Mitigation Strategies of Nonlinear Transistor Behavior in CMOS Ambient RF Energy Harvesting Systems
(<http://dx.doi.org/10.1109/ACCESS.2026.3659737>)
- A Dual-Band Fully Integrated CMOS Ambient RFEH Rectifier With Dual-Loss Mitigation Technique Scoring > 15-dB Dynamic Range
(<http://dx.doi.org/10.1109/TVLSI.2026.3656686>)
- A Review on Interaction Design for In-Vehicle Warning Systems: Multimodal Fusion, User Adaptation, and Ethical-Legal Frameworks
(<http://dx.doi.org/10.1080/10447318.2025.2592775>)
- Prediction of surface structure and optimization of corrosion resistance in magnesium alloys via machine learning for nanosecond laser processing
(<http://dx.doi.org/10.1016/j.surfin.2025.108407>)

Publications

- Reducing class overlap in feature space using Kalman filtering with particle swarm optimization (<https://www.scopus.com/inward/record.uri?eid=2-s2.0-105026192652&doi=10.1016%2Fj.patcog.2025.112952&partnerID=40&md5=c16d9da08af7ee6cb7c6ba08ab33a487>).
- Development of High-Performance Catalytic Ceramic Membrane Microchannel Reactor for Carbon Dioxide Conversion to Methanol (<http://dx.doi.org/10.3390/membranes16010045>)
- Comparative finite element analysis of stress distribution of different implant-supported crown and abutment materials (<http://dx.doi.org/10.1186/s12903-026-07684-1>)
- Functional experience and safety perceptions in smart refrigerator adoption among older adults: A technology acceptance model for supporting independent living (<http://dx.doi.org/10.1016/j.gerinurse.2026.103903>)
- Room-temperature ammonia detection enabled by tin oxide-reduced graphene oxide hybrid sensors (<http://dx.doi.org/10.1016/j.surfin.2026.108456>)
- Continuous Monitoring of Body Fluid by Flexible Bio-Integrated Flow Sensors (<http://dx.doi.org/10.1002/adma.202523029>)
- Optimized sequence-controlled synthesis of Fe₃O₄-Ag-rGO core-shell nanocatalysts for enhanced 4-nitrophenol reduction and magnetic recovery (<http://dx.doi.org/10.1039/d5cy01344e>)
- Investigation of Ag-ZnO/rGO Hybrid Composite Material as a Photocatalyst for Phenol Degradation in Aqueous Systems (<http://dx.doi.org/10.1021/acsomega.5c04065>)
- A clinical comparison of conventional, custom tray, extraoral scanning, and photogrammetry facial recording techniques for maxillofacial prosthesis fabrication (<http://dx.doi.org/10.1016/j.prosdent.2025.05.018>)
- The algae renaissance: unlocking the potential of algae for food industries (<http://dx.doi.org/10.1080/10826068.2026.2640057>)
- Macrophage efferocytosis mediated by the TP63-RAC2 pathway promotes immunosuppressive remodeling in esophageal cancer (<http://dx.doi.org/10.1016/j.xcrm.2025.102529>)
- Personalized sepsis mortality prediction: An interpretable machine learning nomogram (<http://dx.doi.org/10.1016/j.clinsp.2026.100872>)

Publications

- An improved YOLOv11 network for marine debris detection in underwater environment (<http://dx.doi.org/10.1038/s41598-026-38305-0>)
- Neem-derived silver-decorated RGO/ZnO heterostructure nanocomposite: A bifunctional material for sunlight-driven photocatalysis and solar energy conversion (<http://dx.doi.org/10.1016/j.jsamd.2026.101117>)
- Optimizing carbon sequestration and performance of a sustainable gypsum-based materials using steel slag waste (<http://dx.doi.org/10.1016/j.mtsust.2025.101296>)
- Investigating Long-Term Degradation and Defects of Solar Photovoltaic Modules in Tropical Climates: A Case Study of Malaysia (<http://dx.doi.org/10.1049/rpg2.70198>)
- High-efficiency hybrid MPPT technique with integrated partial shading detection for photovoltaic systems under varying shading conditions (<http://dx.doi.org/10.1016/j.renene.2026.125244>)
- Strategic SA-UNet: Integrating self-attention blocks into U-Net for efficient crack segmentation (<http://dx.doi.org/10.1371/journal.pone.0343162>)
- Explainable multi-modal approach for uncovering key predictors of stroke-risk from ECG, EMG, blood pressure, and respiratory signals (<http://dx.doi.org/10.1038/s41598-026-37777-4>)
- An overview of composites as construction materials for the Development of sustainable structures (<http://dx.doi.org/10.1016/j.mtsust.2025.101298>)
- Exploring university students' perception and acceptance of carbon-neutral lifestyle in the perspective of Universiti Malaya Eco-Campus Blueprint (<http://dx.doi.org/10.1108/IJSHE-09-2025-1114>)
- Enhancing sand production assessment through accurate determination of Young's modulus and Poisson's ratio (<http://dx.doi.org/10.1038/s41598-026-36761-2>)
- Optimized electrical and physiochemical properties of cadmium telluride thin films via copper chloride treatment for photovoltaic applications (<http://dx.doi.org/10.1038/s41598-026-36991-4>)
- Mechanistic pathways and influencing factors in the liquefaction of single and mixed plastics toward waste-to-energy conversion: A structured and critical review (<http://dx.doi.org/10.1016/j.psep.2026.108542>)

Publications

- A comprehensive review of noise-cancellation antenna sensors in ultra-high frequency: techniques, challenges, and future directions
(<http://dx.doi.org/10.1016/j.jestch.2025.102271>)
- Brick-and-mortar engineered Trimethoxy (2-phenylethyl) silane@h-BN/ polyarylate nanofiber paper with ultrahigh thermal conductivity and dielectric strength
(<http://dx.doi.org/10.1016/j.cej.2026.174555>)
- Data-driven inverse design of metastructures for tailored quasi-zero-stiffness performance
(<http://dx.doi.org/10.1007/s10999-026-09897-2>)
- Performance Enhancement of Wireless Power Transfer Systems Through Coil Configuration and Class-E Power Amplifier Integration
(<http://dx.doi.org/10.1080/03772063.2026.2625874>)
- Engineering thermochemical reactors using residence time distribution (RTD): Methods, models, and modern approaches
(<http://dx.doi.org/10.1002/cjce.70241>)
- Leveraging finite element model with transfer learning for data-driven-based structural damage identification
(<http://dx.doi.org/10.1007/s42417-026-02413-y>)
- Engineering back-mixing through an initial bed: Steady-state hydrodynamic control and hybrid flow behavior in vertical helical screw continuous reactors
(<http://dx.doi.org/10.1016/j.cej.2026.174615>)
- Resonant and Quasi-Z Source Based Multiport Converter for High Power EV Fast Charging With Full and Partial Power Processing
(<http://dx.doi.org/10.1109/TIA.2025.3603533>)
- Development and Validation of an AMH-ISMA System for High-efficiency Impact Synchronous Modal Analysis
(<http://dx.doi.org/10.1007/s42417-025-02310-w>)
- Multi-Objective Optimization and Performance Evaluation of Manifold-Based Cooling Systems for Battery Thermal Management Using RSM and NSGA-II
(<http://dx.doi.org/10.23967/j.rimni.2025.10.69320>)
- A New Configurable SC-Based Dual Source Inverter Topology With Improved Reliability
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- A New Configurable SC-Based Dual Source Inverter Topology With Improved Reliability
(<http://dx.doi.org/10.1109/TIA.2025.3584035>)
- Enhancing flood simulation in data-sparse Niger central hydrological area river basin in Nigeria using machine learning-based data fusion
(<http://dx.doi.org/10.1007/s00704-026-06091-4>)
- Operational Solar Flare Forecasting System Using an Explainable Large Language Model
(<http://dx.doi.org/10.1029/2025SW004879>)
- Emulator Based Downscaling of Future Temperature by Evaluating Multiple Machine Learning Models in Peninsular Malaysia
(<http://dx.doi.org/10.1002/joc.70329>)
- Novel advances in real-time pluvial flash flood forecasting under climate change through combination of various machine learning models
(<http://dx.doi.org/10.1007/s00704-026-06037-w>)
- Global monsoon variability in a 1.5 °C warming climate: Observational changes and end-century projections
(<http://dx.doi.org/10.1016/j.atmosres.2026.108765>)

Publications

- Electrocoagulation strategies for oily wastewater treatment: a review on process efficiency and optimization
(<http://dx.doi.org/10.1007/s13762-025-06847-x>)
- Informing health-oriented transport planning through aerial-based analysis of trip generation behaviour using aerial data
(<http://dx.doi.org/10.1016/j.jth.2026.102273>)
- Engineering back-mixing through an initial bed: Steady-state hydrodynamic control and hybrid flow behavior in vertical helical screw continuous reactors
(<http://dx.doi.org/10.1016/j.cej.2026.174615>)
- Emergency Response Strategy for Power System Resilience Improvement Based on Network Reconfiguration and Mobile Emergency Generator Deployment
(<http://dx.doi.org/10.3390/en19030777>)
- ANN-based PV-integrated power conditioning system for MPPT optimization and power quality enhancement in hybrid microgrids
(<http://dx.doi.org/10.1016/j.egy.2026.109129>)
- Dynamic Modeling and Techno-Economic ANN-MOGWO Optimization of a Solar Multigeneration System for Hydrogen Production and Liquefaction
(<http://dx.doi.org/10.1016/j.fuel.2026.138254>)
- Enhancing Short-Term Load Forecasting Using Hyperparameter-Optimized Deep Learning Approaches
(<http://dx.doi.org/10.3390/en19030705>)
- Techno-Economic and Life Cycle Assessment of a Nanofluid-Based Concentrated PV/T-TEG Hybrid System With Spectral Filtering
(<http://dx.doi.org/10.1002/ese3.70461>)
- Eight years later: How PV degradation affects green hydrogen generation under tropical conditions? (<https://www.scopus.com/inward/record.uri?eid=2-s2.0-105011538209&doi=10.1016%2Fj.fuel.2025.136380&partnerID=40&md5=cc1cd6a31246042b3a3fb426b67070ea>)
- A comprehensive review of noise-cancellation antenna sensors in ultra-high frequency: techniques, challenges, and future directions
(<http://dx.doi.org/10.1016/j.jestch.2025.102271>)
- Utilization of recycled concrete powder in sustainable cement production: A critical review
(<http://dx.doi.org/10.1016/j.job.2026.115727>)
- Influence of eco-processed pozzolan on mechanical performance, CO₂ emissions, and energy demand of cement-based concrete incorporating industrial by-products as coarse aggregates
(<http://dx.doi.org/10.1016/j.conbuildmat.2026.145611>)

Publications

- Effect of calcined concrete slurry waste on the hardened properties and microstructure of fly ash-based alkali-activated materials
(<http://dx.doi.org/10.1016/j.cscm.2026.e05775>)
- Sintered artificial aggregates using aluminium dross and waste glass: insights into strength, microstructure and interfacial transition zone of lightweight aggregate concrete
(<http://dx.doi.org/10.1016/j.jobbe.2026.115468>)
- Alkali-activated material synthesized from co-utilization of waste glass powder and steel slag
(<http://dx.doi.org/10.1016/j.cscm.2026.e05887>)
- Advanced sustainable concrete incorporating high-volume fly ash and porcelain aggregate reinforced with multiscale fibers: Systematic assessment
(<http://dx.doi.org/10.1016/j.conbuildmat.2026.145481>)
- Analytical and experimental study on the behavior of self-compacting geopolymer concrete with nanosilica
(<http://dx.doi.org/10.1002/suco.70470>)
- Mechanistic pathways and influencing factors in the liquefaction of single and mixed plastics toward waste-to-energy conversion: A structured and critical review
(<http://dx.doi.org/10.1016/j.psep.2026.108542>)
- Cultivation of microalgae in calcium and phosphate-rich wastewater as a substitute nutrient medium for crack healing in cement-mortar using microbially induced calcite precipitation (MICP) method
(<http://dx.doi.org/10.1016/j.jece.2026.121587>)
- Comparative evaluation of seven precipitation products in rainfall estimation over tropical Peninsular Malaysia
(<http://dx.doi.org/10.1007/s00477-025-03166-y>)
- Fenchyl alcohol-based hydrophobic deep eutectic solvents for phenol removal from water: A study on extraction performance and reusability
(<http://dx.doi.org/10.1016/j.jwpe.2026.109901>)
- Brick-and-mortar engineered Trimethoxy (2-phenylethyl) silane@h-BN/ polyarylate nanofiber paper with ultrahigh thermal conductivity and dielectric strength
(<http://dx.doi.org/10.1016/j.cej.2026.174555>)
- Biototoxicity evaluation and electrooxidation as a sustainable removal strategy of organic booster biocides released from ship antifouling paints
(<http://dx.doi.org/10.4491/eer.2025.204>)

Publications

- A preliminary investigation on visual arts in impacting the sleep quality among university students
(<http://dx.doi.org/10.1177/13591053261425377>)
- Environmental passion and AI literacy shape the impact of green rewards on pro-environmental behaviors
(<http://dx.doi.org/10.3389/fpsyg.2026.1699919>)
- Lemon Defect Detection Based on Seagull Algorithm Optimization-Support Vector Machine Model
(<http://dx.doi.org/10.1007/s10341-025-01744-6>)
- AI-powered investment recommendations in the agri-food sector
(<http://dx.doi.org/10.1016/j.fuel.2026.138254>)
- Valorisation of non-edible and waste cooking oils into hybrid biolubricants: A tribological study
(<http://dx.doi.org/10.1016/j.indcrop.2026.122693>)
- Recent advances in vaccination strategies against acute hepatopancreatic necrosis disease (AHPND) in shrimp for sustainable aquaculture industry: A comprehensive review
(<http://dx.doi.org/10.1016/j.fsi.2026.111136>)
- Operational Solar Flare Forecasting System Using an Explainable Large Language Model
(<http://dx.doi.org/10.1029/2025SW004879>)
- A TimesNet-based Real-time Forecasting System for the F10.7 Index Using DRAO and Chinese Langfang Datasets
(<http://dx.doi.org/10.3847/1538-4365/ae2be3>)
- Macrophage efferocytosis mediated by the TP63-RAC2 pathway promotes immunosuppressive remodeling in esophageal cancer
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- Deep eutectic solvents in battery recycling: A sustainable path forward
(<http://dx.doi.org/10.1016/j.jpowsour.2026.239475>)
- Novel design of tubular metamaterials with sign-switchable Poisson's ratio and tunable mechanical properties for intestinal stents (<http://dx.doi.org/10.3389/fbioe.2026.1779512>)
- Thermodynamic performance and environmental analysis of advanced diversified energy systems based on CO₂ energy storage and deep utilization of methane
(<http://dx.doi.org/10.1016/j.applthermaleng.2025.129674>)

Publications

- Synergistic effects of nanomaterial composition and temperature on the thermophysical properties of clove-treated MWCNTs/hBN hybrid nanofluids for thermal applications (<http://dx.doi.org/10.1007/s10973-025-15274-6>)
- Prediction of surface structure and optimization of corrosion resistance in magnesium alloys via machine learning for nanosecond laser processing (<http://dx.doi.org/10.1016/j.surf.2025.108407>)
- High fidelity numerical modeling of thermal behavior in laser powder bed fusion (LPBF) of AlSi10Mg and Ti6Al4V: accelerated prediction and process optimization (<http://dx.doi.org/10.1007/s00170-025-16849-1>)
- Energy structure analysis of the process heating system in crude glycerin refinery using a physics-guided dual-region echo state network for multirate steam modeling (<https://www.scopus.com/inward/record.uri?eid=2-s2.0-105024079709&doi=10.1016%2Fj.applthermaleng.2025.129365&partnerID=40&md5=ef9c3af64e69c3a425434c0ad24fc5f7>)
- A Hybrid LightGBM-WOA Model for Accurate Prediction of Back-Break in Mine Blasting Operations: A Case Study (<http://dx.doi.org/10.1155/vib/4973137>)
- Effects of corrosion rate, mechanical properties, toxicity, and bone healing towards different surface modification of biodegradable metallic: A systematic review (<http://dx.doi.org/10.1016/j.mtsust.2026.101307>)
- Saturable absorption in Mg₂Sn_{1-x}Sb_x alloy for Q-switched and mode-locked erbium-doped fiber lasers (<http://dx.doi.org/10.1364/AO.586378>)
- Simulation-based Evaluation of a Cephalofoil-inspired Bow for Low Speed Passive Manoeuvrability of Torpedo-class Autonomous Underwater Vehicles (<http://dx.doi.org/10.47176/jafm.19.3.3830>)
- Heat transfer enhancement for annular heat exchangers using inclined dimple configurations (<http://dx.doi.org/10.1016/j.csite.2026.107667>)
- Influence of Pectin-Based Gel Polymer Electrolytes on Ionic Conductivity and Photovoltaic Performance of DSSCs (<http://dx.doi.org/10.1002/macp.202500451>)
- Impact of psychrometric conditions on cycling performance of lithium-ion polymer cells (<http://dx.doi.org/10.1016/j.icheatmasstransfer.2026.110538>)

Publications

- Tribological Performance of Micro and Nano-Titanium Carbide-Reinforced Copper Composites Manufactured by Powder Metallurgy: Experimental Studies and Modelling (<http://dx.doi.org/10.3390/met16010066>)
- High-efficiency hybrid MPPT technique with integrated partial shading detection for photovoltaic systems under varying shading conditions (<http://dx.doi.org/10.1016/j.renene.2026.125244>)
- Design, photocatalytic and electrochemical performance of a Ni-MOF@CoO composite as a durable catalyst for hydrogen evolution and water remediation (<http://dx.doi.org/10.1016/j.jallcom.2025.185910>)
- High-performance soldering achieved through an energy-efficient magnetic field-assisted microwave hybrid joining: A multiscale study via molecular dynamics and first-principles calculations (<http://dx.doi.org/10.1016/j.msea.2026.149915>)
- Sedimentation and yield stress of magnetorheological fluids; challenges and new directions (<http://dx.doi.org/10.1007/s00397-025-01536-5>)
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- Enhanced Mechanical and Thermal Properties of Epoxy Nanocomposites Reinforced With Mg67-Ti33 and Mg67-Ti32-SWCNTs1 (<http://dx.doi.org/10.1002/pc.70914>)
- Effective soap removal from biodiesel using NiO-doped ZnO nanoparticle adsorbent (<http://dx.doi.org/10.1002/cjce.70323>)
- Multielectrode Advanced Oxidation Treatment of Tannery Wastewater: Mass Transfer Characterization, Process Performance, Kinetic Modeling, and Energetic Analysis (<http://dx.doi.org/10.3390/pr14020184>)
- Multi-energy storage integration through a two-stage decentralized peer-to-peer multi-energy market in the multi-vector energy microgrid (<https://www.scopus.com/inward/record.uri?eid=2-s2.0-105023053247&doi=10.1016%2Fj.est.2025.119476&partnerID=40&md5=bb7ac9e75992d37fc19b80b1c1b9f513>)

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Enginitium is the quarterly bulletin published by the Research Office at the Faculty of Engineering, Universiti Malaya. Its mission is to celebrate the achievements of our faculty members, particularly focusing on their research initiatives and contributions to knowledge and society. This publication seeks to foster a vibrant culture of knowledge sharing and collaboration within our academic community. Through Enginitium, we aspire to inspire and inform, showcasing the impactful work being conducted at the Faculty of Engineering, Universiti Malaya.

We invite all members of the Faculty of Engineering, UM to contribute to Enginitium. Whether you have a research article, thoughts on recent developments in engineering, or updates about activities within your research team, we would love to feature your work. Your contributions will not only enrich our bulletin but also inspire and inform fellow researchers and practitioners. Please submit your articles and updates via email to: fk_tdr@um.edu.my. We look forward to your valuable contributions!



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