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MESSAGE FROM THE PRESIDENT



IKM moving ahead 2026

Time really flies. Now, we are at the end of third quarter of 2026.

Looking back, we have already the following major events:

❖ The first major event in 2026 was the **IKM 59th Annual General Meeting (59AGM)** which was held on 28th March 2026 in M World Hotel, Petaling Jaya with a record 253 members present. The IKM Council for 2026/2027 was elected.

❖ Another major event in 2026 was the **51st IUPAC World Polymer Congress, or MACRO 2026**, held in the Borneo Convention Centre Kuching (BCCCK), Kuching, Sarawak from 28 – 31st July 2026. **MACRO 2026** had attracted 849 participants from 52 countries. It was a most exciting meeting of top polymer and materials scientists from all over the

world. A report on **MACRO 2026** appeared on this issue of the Berita.

Following from the above, we are having the following in the last quarter of 2026:

❖ Another significant event is the **International Congress on Pure & Applied Chemistry (ICPAC) Colombo 2026** which will be held in Colombo, Sri Lanka from 13 – 16th October 2026. **ICPAC Colombo 2026** is jointly organised with the Institute of Chemistry, Ceylon (ICC) and Asia Chem Corporation Japan.

In conjunction with **ICPAC Colombo 2026**, IKM will hold its 350th Council Meeting in Colombo on 14th October 2026 at the same venue while the Federation of Asian Chemical Societies (FACS) will hold its Executive Committee Meeting on the same date, but in the morning.

❖ The annual **Malam Kimia 2026 – 55th IKM Gala Dinner & Presentation of IKM Awards** will be held on Saturday, 5th December 2026 in the HGH Convention Centre, Sentul, Kuala Lumpur. All are welcome.

❖ Another major event starting in the last quarter of 2026 is the **Continuous Professional Development (CPD)** programmes for IKM members. These programmes have already been developed and we intend to implement them in 2027. This is another new milestone for IKM where our members will be continuously being updated with new knowledge, innovations and skills, and other new developments in services and regulations related to the professional practices of registered chemists.

I am also pleased to remind our members that in 2027, we will be celebrating our 60th Anniversary or Diamond Jubilee. We are planning to celebrate our **IKM Diamond Jubilee (60th Anniversary) 2027** in a big way and are now asking members to come up with proposals. An **IKM Diamond Jubilee (60th Anniversary) 2027 Committee** has just being established to oversee the Celebrations. Please forward your proposal(s) to IKM Honorary Secretary.

We look forward to an exciting year in 2027.

Datuk ChM Dr Soon Ting Kueh

President, Institut Kimia Malaysia

Date: 30th September 2026

Educational Visit to ResourceCo Asia (M) Sdn Bhd by IKM Perak Branch

Plastic waste has become one of the most pressing environmental challenges facing communities and industries today. Although plastics are widely used because they are durable, lightweight and cost-effective, these same qualities also make them difficult to manage after disposal. Plastic waste that is not properly collected or treated may accumulate in landfills, enter waterways or pollute the surrounding environment.

One approach to addressing this issue is to recover the energy contained in suitable plastic waste by converting it into alternative fuel. After undergoing sorting, processing and quality control, selected non-recyclable plastic waste can be transformed into fuel for energy-intensive industries, including cement manufacturing. This process reduces dependence on conventional fossil fuels while diverting waste from landfills and uncontrolled disposal. To gain a better understanding of this waste recovery process, Institut Kimia Malaysia (IKM) Perak Branch organised an educational industrial visit to ResourceCo Asia Sdn Bhd. on 22 June 2026. A total of nine participants from various industries joined the visit, which provided practical exposure to the conversion of plastic waste into alternative fuel for cement processing plants. Upon arrival, the participants received a warm welcome from Ir. Muralindran Kovindasamy, General Manager of ResourceCo Asia Sdn

Bhd. He introduced the participants to the company and outlined the objectives of the visit.

The programme began with a 45-minute briefing on the background of ResourceCo Asia, its operations and its role in sustainable waste management. The participants were introduced to the process of converting selected plastic waste into processed alternative fuel that meets the requirements of cement manufacturing plants. During the briefing, Ir. Muralindran explained that not all plastic waste is suitable for direct recycling. Certain types of mixed, contaminated or low-value plastics and textile waste may be difficult to recycle using conventional methods. Instead of sending these materials to landfills, they can be carefully processed and recovered as an alternative source of energy to replace the coal in cement plant. The production process generally involves several important stages, including waste inspection, sorting, size reduction (Primary shredder), removal of unsuitable materials such as metals, ceramic, glass (magnetic and air separator), blending (Secondary shredder) and quality testing (Lab. Test). These steps are necessary to ensure that the final fuel has consistent characteristics and is suitable for cement industrial use.

The participants actively interacted with Ir. Muralindran throughout the session. The key topic discussed was the role of alternative fuel to replace the coal in cement





manufacturing. Cement production requires a significant amount of heat. Processed fuel derived from suitable waste materials can partially replace conventional fuels in cement kilns. Under carefully controlled operating conditions, this approach allows the energy value of the waste to be recovered while reducing the amount of material requiring disposal. The briefing session concluded with a souvenir presentation and a group photograph. The participants then travelled to the processing plant for a closer look at the actual operations.

During the processing plant visitation, the group observed the machinery and equipment used to receive, sort and process the plastic waste. The visit allowed participants to connect the information presented during the briefing with the real production process. They gained a better appreciation of the technical and operational controls required to produce a consistent alternative fuel.

The participants were also introduced to the laboratory testing carried out as part of the company's quality-control procedures. Laboratory analysis is important because the characteristics of waste-derived fuel may vary according to the type and composition of the incoming materials. The visit also highlighted the relationship between waste recovery and the circular economy. A circular

economy encourages materials to remain in use for as long as possible through reduction, reuse, recycling and recovery. Where conventional recycling is not practical, recovering energy from suitable waste may provide an alternative to landfill disposal. By converting selected plastic waste into alternative fuel, ResourceCo Asia contributes to efforts to reduce plastic pollution and make better use of materials that might otherwise be discarded. The process also supports the concept of minimising waste and working towards zero discharge, where waste streams are carefully managed to reduce their impact on the environment. The visit concluded with a better understanding of how suitable plastic and textile waste can be converted into a useful source of energy for cement manufacturing.

IKM Perak Branch extends its appreciation to Ir. Muralindran Kovindasamy and his team for their warm hospitality, detailed explanations and valuable knowledge shared throughout the visit.

Report prepared by ChM Ts. Dr. Tan Kok Weng



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The Institut Kimia Malaysia (IKM), also known as the Malaysian Institute of Chemistry, is the host of the 21st Asian Chemical Congress (21ACC) and the 23rd General Assembly of the Federation of Asian Chemical Societies (23GA-FACS) to be held in Kuala Lumpur, Malaysia. IKM is a professional scientific organization that enjoys strong support from its members, the government, chemical industries, the academia, the corporate and service sectors. This prestigious event also marks a significant milestone – the celebration of IKM's 60th anniversary.



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Cluster I - Pure & Applied Chemistry

- Physical & Biophysical
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- Computational
- Educational & Public understanding

Cluster III - Thematic Sessions & Symposium

- Artificial Intelligence in Chemistry
- Green Chemistry
- Forum on Quality Assurance and Laboratory Accreditation in Chemistry
- Symposium on Optics and Fibers
- Symposium on Polyfluoroalkyl Substances (PFAS)

Cluster II - Chemistry & SDGs

- SDG2: Zero Hunger - Agriculture & Food Chemistry
- SDG3: Good Health & Well Being - Drug Discovery & Medicinal Chemistry
- SDG5: Gender Equality - Gender, Diversity and Inclusion in Science Education
- SDG6: Clean Water & Sanitation - Water & Wastewater Management
- SDG7: Affordable & Clean Energy - Renewable & Low-cost Energy
- SDG9: Innovation, Industrialization, Entrepreneurship
- SDG13: Climate Action - Sustainable & Green Chemistry

- Symposium on Microplastics
- Symposium on Ryoji Noyori ACES
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BEYOND INNOVATION & INVENTION: FROM LABORATORY DISCOVERY TO MARKET IMPACT THROUGH RDICE AND REGULATORY READINESS

Innovation begins in the laboratory, but impact is only realized when research successfully reaches the marketplace. The transition from laboratory research to market adoption remains one of the greatest challenges faced by researchers, scientists and technopreneurs. Recognising this critical gap, the Institut Kimia Malaysia (IKM), in collaboration with Universiti Teknologi MARA (UiTM), Research Nexus UiTM (ReNeU), MYCN and the Business Innovation & Technology Commercialization Centre (BITCOM), successfully organised the forum entitled ***“Beyond Innovation & Invention: Mastering the Regulatory Landscape for Commercialization”*** on 6 May 2026 at UiTM Shah Alam. The forum brought together stakeholders from government funding agencies, certification bodies, technology transfer offices and successful technology spin-offs to discuss the often-overlooked pathway between invention and commercialization. The programme highlighted the importance of regulatory literacy, certification readiness, intellectual property management and commercialization strategies in ensuring research outcomes achieve meaningful economic and societal impact.

Moderated by Dr. Muhamad Helmi Muhamad Khair, Deputy Director of Legal and IP Management, BITCOM UiTM, the forum featured distinguished panelists representing the various components of the commercialization ecosystem. These included Ts. Mariatini Othman from Malaysian Technology Development Corporation (MTDC), Dr. Md Azman Seeni Mohamed from SIRIM Advanced Materials Research Centre (AMRC), Prof. Dr. Haswira Nor Mohamad Hashim, Director of BITCOM UiTM, and Senior Lecturer of Universiti Teknologi Malaysia (UTM) Assoc. Prof. Ts. ChM. Dr. Rozzeta Dolah, founder of MIZU Paint™ and Managing Director of ZETATECH SDN. BHD., a UTM spin-off company. One of the central themes discussed throughout the forum was that

successful commercialization extends far beyond scientific discovery. Researchers frequently focus on technical development while underestimating the importance of regulatory compliance, certification requirements, technology transfer mechanisms and market validation. As a result, many promising innovations remain confined within laboratories despite possessing strong commercial potential.

Drawing from Dr. Rozzeta's own experience as an academic entrepreneur, as one of the panelists she shared the commercialization journey of MIZU Paint™, a nanotechnology-based cooling and carbon adsorbent coating developed from university research. The journey serves as a practical example of the Research, Development, Innovation, Commercialization and Entrepreneurship (RDICE) framework in action. Following her return from the Massachusetts Institute of Technology (MIT), Cambridge, USA in 2019, Dr. Rozzeta embarked on a mission to translate research outcomes into impactful commercial technologies. Recognising the growing challenges associated with climate change, urban heat accumulation and rising energy consumption, her research team focused on developing advanced nanomaterials capable of reducing heat gain while contributing towards carbon mitigation. This research eventually led to the development of MIZU Paint™, an innovative coating technology designed to improve building energy efficiency through passive cooling while simultaneously adsorbing atmospheric carbon dioxide.

The Development stage involved extensive laboratory optimisation, formulation refinement, performance validation and pilot-scale production activities. Numerous iterations were undertaken to improve thermal reflectivity, durability, weather resistance and manufacturing scalability. These efforts subsequently evolved into a commercially viable product supported by intellectual property protection and

technology ownership mechanisms. A significant milestone occurred in 2020 with the establishment of a UTM spin-off company as the commercialization vehicle for the technology. The process involved technology licensing, business model development, industry engagement, product branding, pilot installations and strategic market validation.

However, one of the most critical lessons shared during the forum was that commercialization success



depends heavily on regulatory readiness. The panel highlighted that certification should not be viewed merely as a compliance exercise but as a strategic tool for market acceptance and customer confidence. For MIZU Paint™, the regulatory journey involved multiple certification and validation pathways. These included NanoVerify certification for nanotechnology verification, MySTI recognition under the Ministry of Science, Technology and Innovation (MOSTI), CIDB SustainBuild recognition for carbon footprint and sustainable construction contributions, JKR Material Listing (JMAL) for government project acceptance, and SIRIM Eco Label certification that validates environmental performance and sustainability credentials. Together, these certifications significantly enhanced market credibility and facilitated industry adoption.

The discussion also highlighted the Entrepreneurship component of RDICE, where research-based innovation must evolve into a sustainable business capable of generating long-term economic value. Through continuous engagement with industry, government agencies and strategic partners, ZETATECH SDN. BHD. has successfully positioned MIZU Paint™ as an example of how deep technology innovations can address real-world challenges while creating economic opportunities. The forum reinforced an important message for researchers and innovators: scientific excellence alone is insufficient to achieve impact. Regulatory planning, certification strategies, intellectual property management and commercialization readiness must be integrated into the innovation process from the earliest stages of development. By understanding these requirements early, researchers can significantly reduce time-to-market and improve the probability of successful commercialization. The session concluded with an engaging question-and-answer segment, followed by networking discussions among participants from academia, industry and government agencies. The exchanges reflected a growing recognition that Malaysia's innovation ecosystem requires stronger collaboration between researchers, technology transfer offices, certification bodies and funding agencies to accelerate the translation of research into market-ready solutions. As Malaysia advances towards a knowledge-driven and sustainability-focused economy, forums such as this play a crucial role in equipping researchers with the practical knowledge required to navigate the increasingly complex commercialization landscape. More importantly, they demonstrate that successful innovation is not defined solely by invention, but by the ability to transform research into tangible benefits for industry, society and the nation.

MIZU Paint™ Commercialization Timeline: A RDICE Success Story

2019 – Returned from Massachusetts Institute of Technology (MIT), Massachusetts, Cambridge, USA.

2019–2020 – Research & Prototype Development

2020 – Universiti Teknologi Malaysia (UTM) Spin-off Incorporated

2020–2022 – Product Development & Pilot Validation (TRL 1 - 5)

2022 – NanoVerify & MySTI Recognition (TRL 6)

2023–2024 – Market Expansion & Industrial Deployment (TRL 7)

2025 – CIDB SustainBuild & JKR JMAL Recognition (TRL 8)

2026 – SIRIM Eco Label Certification (TRL 8)

2026 – The Malaysia Book of Records: First Carbon Dioxide (CO₂) Adsorbent Paint 2026 (TRL 8 & 9)

Today – Commercial deployment TRL 9 through ZETATECH SDN. BHD.

Key Lesson: Successful commercialization requires more than innovation alone. Researchers must strategically navigate the entire RDICE pathway while integrating certification, regulatory compliance, intellectual property management, market validation and entrepreneurship into their innovation journey.

Prepared by

Assoc. Prof. Ts ChM Dr. HjH Rozzeta Binti Dolah CEng



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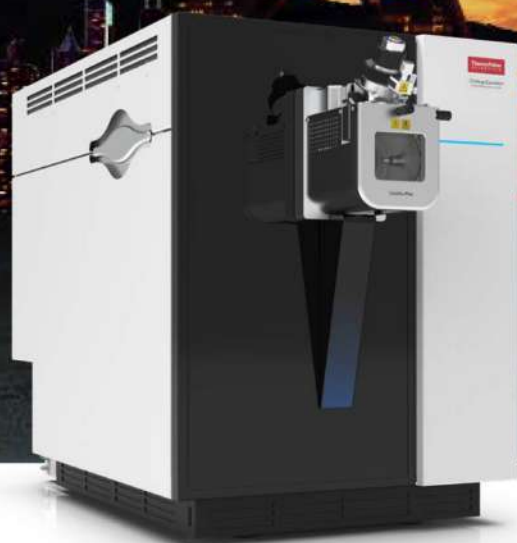
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Karnival Kimia Malaysia (K₂M) 2026: Fostering Scientific Excellence in Terengganu

Karnival Kimia Malaysia (K₂M) 2026 was successfully organized by the Institut Kimia Malaysia Terengganu Branch (IKMTB) in conjunction with FIEST@UniSZA 2026 (Festival of Innovation and Science & Technology Exploration). The event was held on 15 June 2026 (Monday) at Dewan Perdana, Universiti Sultan Zainal Abidin (UniSZA), Gong Badak Campus.

The primary objective of the carnival was to promote chemistry as an exciting and rewarding discipline while increasing public awareness of the importance of chemistry in daily life, environmental sustainability, industry, and technological advancement. The programme also aimed to inspire secondary school students to pursue careers in chemistry and other STEM-related fields through knowledge-sharing sessions, interactive activities, and direct engagement with professionals from academia, industry, and government agencies.

The programme commenced with participant registration, followed by welcoming remarks from the Master of Ceremony. Distinguished guests included Puan Norhaya binti Jaafar, Director of the Department of Chemistry Malaysia Terengganu, Prof. Madya Dr. Aryati Ahmad, Director of FIEST@UniSZA 2026, and Assoc. Prof. ChM Dr. Mohd Aidil Adhha Abdullah, Vice Chairman of the Institute of Chemistry Malaysia (IKM) Terengganu Branch.

The opening ceremony continued with an introduction to the IKMTB and K₂M, presented by Assoc. Prof. ChM Dr. Mohd Aidil Adhha Abdullah. During the session, participants were introduced to the history, vision, and mission of the Institute of Chemistry Malaysia as the professional body representing chemists in Malaysia. The presentation highlighted the role of the Terengganu Branch in promoting chemistry education, professional ethics, networking,



continuous professional development (CPD), scientific collaboration, and community outreach programmes. Participants were also briefed on the objectives of Karnival Kimia Malaysia (K₂M), which serves as a platform to cultivate interest in chemistry among students and the public through educational talks, interactive activities, exhibitions, and engagement with professionals from various sectors.

Following the introduction session, tokens of appreciation were presented to participating schools and exhibition partners in recognition of their support and contribution to the programme. A total of 11 secondary schools (423 students) participated in the programme:

- SMK Chung Hwa Wei Sin
- SMK Padang Negara
- SMK Padang Midin
- SM Sains Kuala Terengganu
- SMKA Dato' Haji Abbas Haji Abbas
- Sekolah Menengah Imtiaz Yayasan Terengganu Kuala Nerus





- SMKA Sheikh Abdul Malek
- SMK Sultan Sulaiman
- SMK Tengku Mahmud
- SMK Belara
- SMK Mengabang Telipot

The Exhibition Zone featured participation from six organizations, providing visitors with valuable exposure to chemistry-related careers, research, laboratory services, scientific demonstrations, and technological innovations. The exhibitors included:

- Department of Fire and Rescue Malaysia (Terengganu)
- Syarikat Air Terengganu (SATU)
- Department of Chemistry Malaysia (KIMIA) Terengganu
- PETRONAS Chemicals Ethylene Sdn Bhd
- Universiti Malaysia Terengganu (UMT)
- Universiti Sultan Zainal Abidin (UniSZA)

The knowledge-sharing session comprised three invited talks delivered by distinguished professionals from government agencies, industry, and the utility sector:

Talk 1: The Beauty of Forensic Chemistry by ChM. Shamsilawati Mustafar from the Department of Chemistry Malaysia, highlighting the application of chemistry in forensic investigations and criminal justice.

Talk 2: Path to be an Environmental Chemist by Kapt. Ts. ChM. Al-Malek Fahd Abdul Hamid from Syarikat Air Terengganu (SATU), focusing on career opportunities and the role of chemists in environmental protection and water quality management.

Talk 3: Journey to Becoming a Chemist in the Oil & Gas Industry by ChM. Dr. Rosyela Azwa Roslan from RFL Petrolab Sdn. Bhd., sharing her professional journey and the importance of chemistry in the oil and gas sector.

These sessions provided participants with valuable insights into the diverse career pathways available in chemistry while



demonstrating the significant contribution of chemists in addressing real-world challenges across multiple industries.

Following the morning sessions, participants actively engaged in a variety of interactive chemistry activities, educational games, and quiz sessions designed to enhance scientific understanding through experiential learning. Attractive prizes were awarded to winners, encouraging active participation and fostering greater interest in chemistry. Participants also had the opportunity to visit the exhibition booths, where they interacted with exhibitors, observed scientific demonstrations, explored laboratory equipment, and learned about career opportunities and research activities in chemistry-related fields. The programme concluded with the FIEST@UniSZA 2026 Career Talk, followed by lunch and the dispersal of participants.

Overall, K₂M 2026 successfully achieved its objectives of promoting chemistry education, enhancing public appreciation of science, and encouraging young students to pursue STEM-related careers. The programme strengthened collaboration among universities, government agencies, professional bodies, and industry partners while providing an engaging platform for science communication,

knowledge sharing, and community outreach. The enthusiastic participation from students, educators, exhibitors, and invited speakers demonstrated the success of the carnival in inspiring the next generation of chemists and promoting lifelong interest in the chemical sciences.



*Prepared by
ChM Nurzuhrah binti Hassan
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IUPAC 51st World Polymer Congress (MACRO 2026)

The IUPAC 51st World Polymer Congress (MACRO 2026) was proudly hosted from 28th to 31st July 2026 at the Borneo Convention Centre Kuching (BCKK), Sarawak, Malaysia, marking a memorable milestone for the global polymer science community.

Organised by Institut Kimia Malaysia (IKM) under the auspices of the International Union of Pure and Applied Chemistry (IUPAC), MACRO 2026 welcomed more than 800 scientists, researchers, academics, industry representatives and participants from 52 countries, with nearly 80% comprising international delegates. As only the second IUPAC World Polymer Congress ever hosted in an ASEAN country, the event placed Malaysia and Sarawak firmly on the international scientific stage.

Under the inspiring theme “New Polymers and Innovative Materials for a Sustainable Future”, MACRO 2026 brought together leading minds to exchange knowledge, share new discoveries and explore the future of polymer and materials science. Across four dynamic days, delegates participated in plenary and keynote lectures, invited and contributed presentations, specialised symposia, parallel scientific sessions and poster presentations spanning polymer synthesis, advanced materials, green processing, biomedical applications, clean energy, circularity, smart systems and sustainable technologies.

A major highlight was the presence of eight distinguished plenary speakers from leading institutions worldwide, together with the presentation of prestigious IUPAC Polymer Division Awards celebrating scientific excellence, creativity and emerging talent. The Professor Melissa Chan Educational Workshop at Universiti Malaysia Sarawak (UNIMAS) further strengthened the congress's commitment to education, knowledge transfer

and capacity building.

MACRO 2026 was also much more than a scientific congress. The Opening Ceremony, Welcome Reception, Gala Dinner, accompanying-person programme and appreciation events created memorable opportunities for friendship, networking and cultural exchange, while showcasing the warmth and unique character of Sarawak. Held alongside LabAsia Borneo Edition 2026, the congress further connected academia, research and industry, creating valuable opportunities for collaboration and practical application. funded by Business Events Sarawak (BESarawak), the congress became the first large-scale conference in Malaysia to undertake The PLEDGE for Events third-party audited certification process. This milestone demonstrated that sustainability could move beyond discussion and become a measurable part of event delivery, particularly through responsible food management and food waste reduction.

The success of MACRO 2026 was made possible through the commitment and support of many valued partners. The Organising Committee extends its deepest appreciation to the Malaysia Convention & Exhibition Bureau (MyCEB) and Business Events Sarawak (BESarawak) for their strong support, and to all collaborating partners: Tunku Abdul Rahman University of Management and Technology, Universiti Malaysia Sarawak (UNIMAS) and Universiti Teknologi Mara (Cawangan Sarawak), sponsors and exhibitors whose contributions enriched the congress and strengthened its industry engagement.

The Opening Ceremony, held on 28th July 2026 at BCKK, formally welcomed delegates from around the world and was officiated by The Honourable Datuk Amar Professor Dr Sim Kui Hian, Deputy Premier of Sarawak and Minister for Public Health, Housing and Local





Government Sarawak. The ceremony featured addresses by representatives of IUPAC, IKM and the MACRO 2026 Organising Committee, together with the Polymer Division Awards Ceremony. The opening set the tone for four days of intensive scientific exchange, international collaboration and engagement between academia and industry.

The congress also celebrated scientific excellence through the presentation of prestigious **IUPAC Polymer Division Awards**. These included the **2026 IUPAC Stepto Lecture Award**, awarded to Professor Mitsuo Sawamoto;

the **10th Polymer International-IUPAC Award for Creativity in Applied Polymer Science**, awarded to Associate Professor Anindita Das; and the **2026 Hanwha-Total Energies IUPAC Young Scientist Award**, awarded to Associate Professor Yinyin Bao. The respective award and keynote lecture sessions provided an opportunity to recognise outstanding achievements across generations of polymer scientists while inspiring younger researchers to continue advancing the field. The programme book also featured the Polymer Division Awards Ceremony as part of the congress opening programme.



The Welcome Reception was held from 1800hrs to 2000hrs at the BCKK Foyer following the opening activities. It offered delegates a relaxed environment to reconnect with colleagues, establish new professional contacts and meet participants from different countries and research communities.

A major scientific highlight was the distinguished line-up of **eight plenary speakers**:

1. **Professor Elizabeth Gillies**, Western University, Canada
2. **Professor Mitsuo Sawamoto**, Chubu University / Kyoto University, Japan
3. **Professor Cyrille Boyer**, University of New South Wales, Australia
4. **Professor Jian Ping Gong**, Hokkaido University, Japan
5. **Professor Rachel O'Reilly**, University of Birmingham, United Kingdom

6. **Professor Makoto Ouchi**, Kyoto University, Japan

7. **Professor Moon Jeong Park**, Pohang University of Science and Technology, South Korea

8. **Professor Jin Huang**, Southwest University, China

Dedicated symposium sessions further explored areas such as polymer circularity, precision polymerisation, next-generation energy storage, biomedical applications, sustainable bio-based polymers, advanced analytical techniques, photopolymerisation and advanced manufacturing. The breadth of the

programme reflected the increasingly interdisciplinary nature of polymer science and its relevance to sustainability, healthcare, energy, advanced technologies and society.

The MACRO 2026 scientific programme covered a broad spectrum of contemporary polymer science across **12 key areas**:

1. **Advances in Polymer Synthesis**
2. **Polymer Physics & Polymer Characterization**
3. **Advances in Green Polymer Processing**
4. **Advanced Functional Polymer Materials & Membranes**
5. **Biological, Biomedical & Environmentally Friendly Polymers**
6. **Polymeric Materials for Clean & Sustainable Energy**
7. **Elastomers & Latexes**
8. **Durability & Performance**



9. Polymer Materials for Planetary Health: Education, Sustainability, Policy, and Societal Dimensions

10. Polymers in Advanced Manufacturing & Smart Systems

11. Data-Driven & Digital Approaches for Polymer Systems

12. Molecules to Materials: Bridging Pure and Applied Chemistry

Nearly 640 abstracts were presented on-site, reflecting the breadth and diversity of research represented at the congress. Of these, approximately 430 were delivered as oral presentations, comprising keynote, invited and contributed oral presentations.

The sessions were organised across up to 9 concurrent sessions throughout the congress, providing delegates with an extensive choice of scientific presentations and opportunities to exchange knowledge, discuss emerging research and foster new collaborations across the international polymer science community.

A total of 201 posters were presented on-site across two poster sessions during MACRO 2026, providing researchers with an interactive platform to share findings, exchange ideas and engage with fellow delegates, exhibitors and industry partners. The poster programme concluded with the IUPAC Poster Award Competition, recognising outstanding poster presentations during the Closing Ceremony on 31st July 2026.

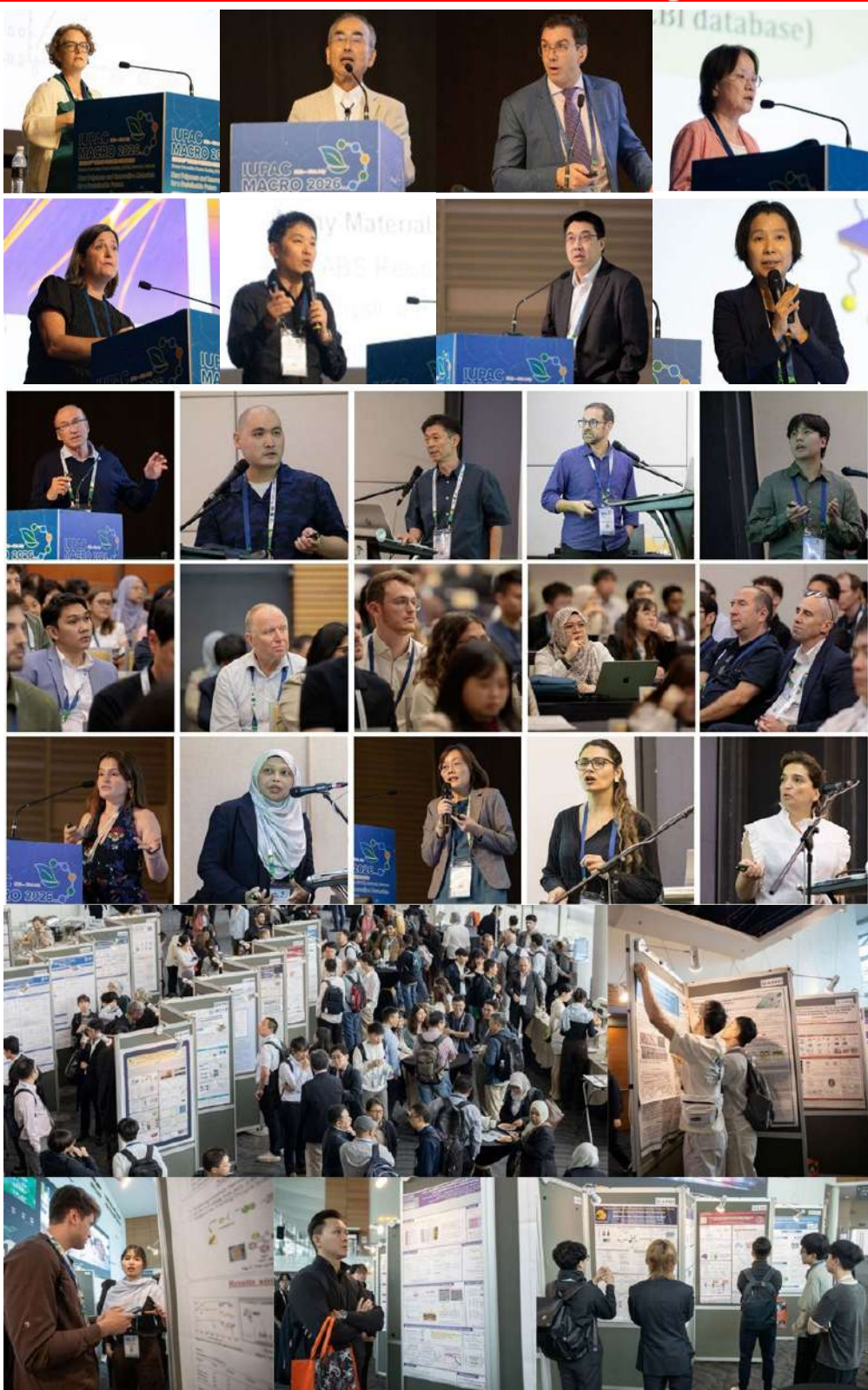
MACRO 2026 was also held alongside LabAsia Borneo Edition 2026, further strengthening interaction between the research, academic and industry communities and creating opportunities for scientific knowledge to connect with technologies, instrumentation and industry applications. The congress exhibition and poster presentation areas provided additional spaces for delegates, exhibitors, partners and researchers to interact, exchange ideas and explore potential collaborations.

Beyond the scientific sessions, delegates were treated to a vibrant programme of networking, social and cultural activities showcasing the hospitality and character of Kuching and Sarawak. The **MACRO 2026 Gala Dinner**, held on 29th July 2026 at the **The Waterfront Hotel Kuching**, was another memorable highlight, featuring dinner, entertainment and opportunities for delegates to network and strengthen friendships beyond the formal congress environment.

An accompanying-person programme also featured a half-day visit to the **Sarawak Cultural Village**, providing

participants with an opportunity to experience Sarawak's rich cultural heritage and traditions. Together, these activities complemented the scientific programme by allowing international visitors to experience the diversity, warmth and distinctive character of Sarawak, while fostering deeper personal and professional connections among participants.

An **Appreciation Dinner for the MACRO 2026 Plenary Lecturers** was held on 30th July 2026 at **Bangkok Thai Seafood Restaurant in Kuching**, bringing together the distinguished plenary speakers, IKM Council members



and invited guests in a warm and informal setting. The dinner provided an opportunity for the Organising Committee to express its sincere appreciation to the plenary lecturers for their valuable contributions to the scientific programme and for sharing their expertise with the international polymer science community. It also offered a relaxed occasion for guests to strengthen professional relationships, exchange views and reflect on the highlights of the congress. The evening served as a fitting gesture of gratitude and hospitality, recognising the important role of the plenary lecturers and invited guests in contributing to the success and memorable experience of MACRO 2026.

As part of MACRO 2026's commitment to community engagement, a dedicated **CSR Exhibition area** was provided for local associations, social organisations and community-based enterprises in Sarawak. The initiative enabled participating

groups to showcase and sell handicrafts, souvenirs and locally made products to conference delegates, helping to raise funds and create greater awareness of their respective causes. A total of eight CSR exhibitors participated, including the Kuching Autistic Association, Sarawak Children's Cancer Society, Sarawak Society for the Deaf, Wamb Malaysia, Heart Treasures Sdn Bhd, PERKATA Sarawak, Elly Loe Handcrafts and Borneo Penan Bags. **The initiative reflected MACRO 2026's broader commitment to social inclusion, community support and responsible event practices.**

The Closing Ceremony on 31st July 2026 marked the conclusion of four days of scientific exchange, collaboration, networking and international friendship at MACRO 2026. The ceremony provided an opportunity to reflect on a congress that had brought together more than 800 participants from 52

countries and demonstrated both the global strength of the polymer science community and Malaysia's capacity to host a major international scientific gathering. An important component of the closing programme was the **IUPAC Poster Awards**, recognising outstanding contributions from participants in the congress poster programme and reinforcing MACRO 2026's commitment to encouraging scientific excellence and supporting emerging researchers. The closing also provided an appropriate occasion to recognise the scientific contributions of the plenary, keynote, invited, oral and poster presenters, together with the dedication of symposium chairs, session chairs, committee members and volunteers. Appreciation was similarly extended to collaborating organisations, sponsors, exhibitors, partners and supporters whose



contributions were instrumental to the congress's success.

On behalf of the Organising Committee, heartfelt appreciation is extended to all **delegates, plenary speakers, keynote and invited speakers, oral and poster presenters, symposium chairs, session chairs, committee members and volunteers** whose active participation and dedication contributed greatly to the success of MACRO 2026. Sincere thanks are also extended to all **supporters, collaborating organisations, sponsors, exhibitors and partners** whose contributions were instrumental in making the congress possible. Special appreciation is extended to **Business Events Sarawak (BESarawak)** for its strong support of MACRO 2026 and, in particular, for **initiating and funding The PLEDGE for Events initiative**, which enabled the congress to set a new sustainability benchmark for large-scale conferences in Malaysia. Appreciation is also extended to the **Malaysia Convention & Exhibition Bureau (MyCEB)** and other supporting partners for their valuable contributions towards the successful delivery of this international congress. Looking ahead, it is hoped that the scientific

knowledge shared, collaborations forged and professional networks strengthened during **MACRO 2026** will continue to advance polymer and materials science and contribute to innovative solutions for a more sustainable future. Importantly, the congress also demonstrated that sustainability can extend beyond the subjects discussed in lecture halls and be translated into meaningful actions within the organisation and delivery of international events. The legacy of MACRO 2026 therefore extends beyond scientific discovery. Through international collaboration, education, recognition of scientific excellence, engagement between academia and industry, and pioneering initiatives such as **The PLEDGE for Events**, the congress has helped establish new connections and new benchmarks that can continue to create positive impact well beyond the four days in Kuching.

Once again, **thank you to everyone who contributed to the success of the IUPAC 51st World Polymer Congress (MACRO 2026), Kuching, Sarawak, Malaysia!**





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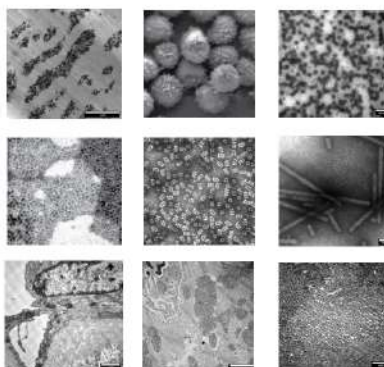
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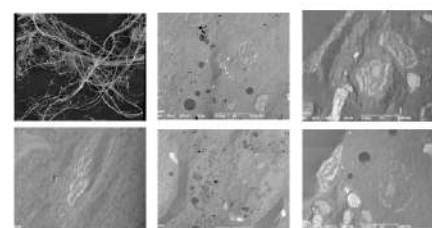
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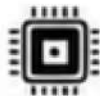
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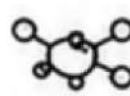
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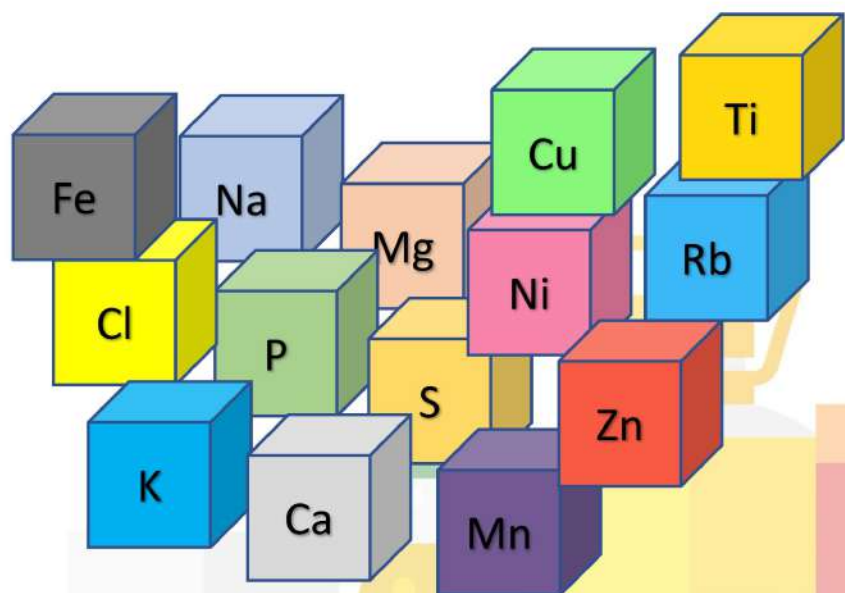


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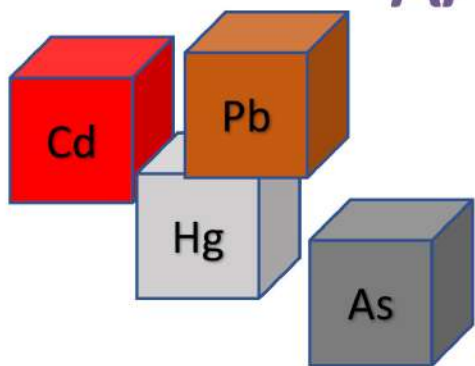
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IUPAC Polymer Division Meeting at the 51st IUPAC World Polymer Congress (MACRO 2026)

Siang Yin Lee, Yvonne Shuen Lann Choo, Rusli Daik, Sook Wai Phang

The IUPAC Polymer Division held its annual meeting on 27th and 28th July 2026 at The Waterfront Hotel in Kuching, Sarawak, Malaysia, in conjunction with the 51st IUPAC World Polymer Congress (MACRO 2026). Conducted in a hybrid format, the two-day meeting brought together Polymer Division members, subcommittee representatives and National Representatives for discussions on the administration, scientific activities and future strategic direction of the division. Prof. Dr. Igor Lacik, President of the IUPAC Polymer Division, delivered the opening remarks and welcomed the participants to the meeting.

The first day began with consideration of the meeting agenda and the minutes of the previous Polymer Division Meeting held in Kuala Lumpur in 2025. The programme then covered membership matters for the 2026-2027 term, nominations for Emeritus Members, reports relating to the IUPAC Science Board and updates arising from the IUPAC Council meeting of 21st July 2026. Budgetary and project-management matters were also discussed, including recently awarded projects, applications under consideration and proposals being prepared under the newly established project system. Website management and communication activities were reviewed as part of the Divisional efforts to improve access to its programmes and outputs.

A major component of the programme focused on the continuing development of the IUPAC World Polymer Congress series. Prof. Dr. Rusli Daik, representing the Division of Polymers & Materials Chemistry of Institut Kimia Malaysia (IKM), presented an update on MACRO 2026 in Sarawak. Further updates were scheduled for MACRO 2028 in Strasbourg, France, and MACRO 2030 in Chile. The meeting also considered the bids submitted by Milan, Maastricht and Mumbai to host MACRO 2032, with the formal voting included in the second-day agenda. The bid submitted by Milan, Italy, was successful, and the city was selected to host the MACRO 2032.

The scientific and educational work of the Polymer Division was highlighted through reports from its subcommittees. These included Polymer Terminology, Polymer Education, Modelling of Polymerization Kinetics and Processes, and Structure and Properties of Commercial Polymers. The meeting also received updates on conferences and educational activities, including the

AIE conference and POLY-CHAR 2026. Reports from other IUPAC bodies and initiatives addressed areas such as polymer characterization, chemical education, publications, the IUPAC Gold Book, green chemistry and sustainable development, and terminology and nomenclature.

On the second day, participants addressed the future direction of the Polymer Division following the July 2026 IUPAC Council meeting, the Polymer Division Awards associated with MACRO 2026, and several broader initiatives. These included a report on a Wikipedia editing course, engagement between IUPAC and the International Younger Chemists Network, and the 50th anniversary conference of the Polymer Society of Korea, scheduled for September-October 2026 with IUPAC endorsement. National Representatives also presented reports on polymer-related activities in their respective countries, providing a valuable international overview of current developments and opportunities for collaboration.

The meeting provided an important platform for coordinating the Divisional scientific, educational and organizational activities while strengthening links among members and National Representatives from different regions. The hybrid participation of overseas members further broadened the exchange of views and enabled wider engagement. The next Polymer Chemistry Division meeting is scheduled to take place during the 54th IUPAC General Assembly and 51st World Chemistry Congress in Montréal, Québec, Canada, from 9th to 16th July 2027. Overall, the Kuching meeting reflected the Division continuing commitment to international cooperation, effective scientific governance and the advancement of polymer science.





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Differential scanning calorimetry (DSC) is a powerful thermal analysis technique used to measure heat flow associated with material transitions. It provides critical insights into melting point, crystallization behavior, glass transition, curing, specific heat capacity, and thermal stability. Widely used in industries such as polymers, pharmaceuticals, chemicals, and food, DSC supports material development and quality assurance through precise thermal characterization.

Cure monitoring

Differential scanning calorimetry is an effective tool for monitoring curing behavior of thermosetting polymers, like epoxy resins. By discovering the residual heat release, DSC reveals the degree of cure and helps optimize thermal processing. An epoxy adhesive in three curing states was analyzed in order to reveal the completeness of the curing process. The fresh sample showed the expected significant exothermic activity and no post-curing in the second heating. Despite a longer curing time at 120 °C, the curing process was not fully finished, as the sample still revealed a partial curing signal. Complete cross-linking was only achieved by isothermal pre-curing of the sample at 150 °C, showing no exothermic post-curing peak in the DSC signal. Accurate cure profiling with DSC ensures reliability in high-performance applications across the electronics, photonics, and aerospace industries.

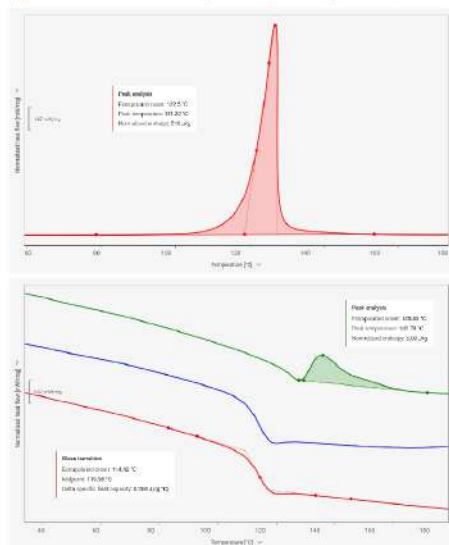


Figure 1: Curing reaction of fresh EPO-TEK 323LP epoxy resin (top) and post-curing patterns (bottom) after pre-curing for two hours at 120 °C (green), one hour at 150 °C (blue), and dynamic heating of fresh resin (red).

Glass transition of elastomers

Sub-ambient DSC analysis is essential for characterizing the glass transition behavior of polymers. Four elastomer samples were studied to evaluate their low-temperature performance. Each material exhibited a distinct glass transition (T_g) shown as a step on the heat flow curve, reflecting its molecular flexibility and composition. While FKM, NBR and EPDM showed a single, well-defined T_g step, NR/SBR displayed a clear dual transition. This double step confirmed the presence of multiple polymer phases: the NR/SBR blend contains well-separated natural rubber and synthetic styrene-butadiene rubber segments. Understanding these transitions helps predict mechanical performance in cold environments and supports material selection in automotive, aerospace, and sealing applications.

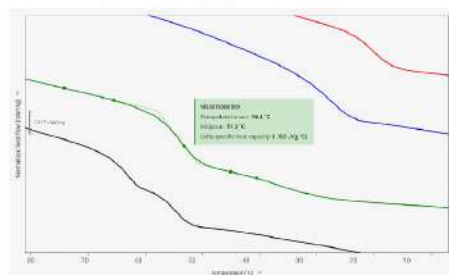


Figure 2: Glass transitions of elastomers: FKM (red), NBR (blue), EPDM (green, shown with example analysis), and NR/SBR blend (black).

Oxidation stability

DSC is also a powerful technique for evaluating the oxidation stability of materials. Two key methods – oxidation induction time (OIT) and oxidation onset temperature (OOT) – are used to determine how long and under what conditions a material resists oxidative degradation. In this case, a high-performance lubricant was analyzed, revealing an OOT of 293.6 °C (meaning the material starts to oxidize and decompose at that temperature when linearly heated under an oxidative atmosphere) and an OIT of 21.4 minutes at 250 °C (meaning the material starts to oxidize and decompose after this time at the given temperature). These results indicate strong oxidative resistance, critical for demanding applications.

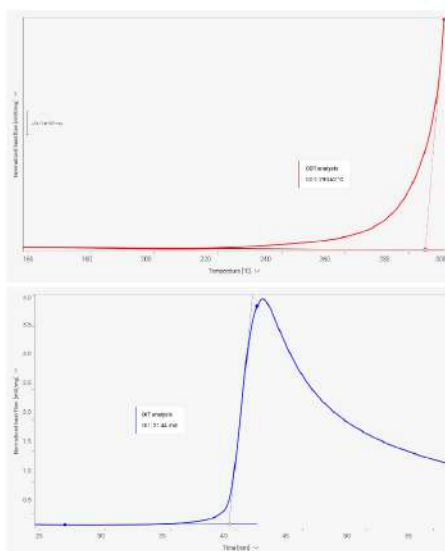


Figure 3: Oxidation onset temperature (top) and oxidation induction time (bottom) of high-performance lubricant Klübersynth GE 14-112.

Polymorphism in pharmaceuticals

Polymorphism is a critical factor in pharmaceutical development, as the crystalline form of an active ingredient can influence its solubility, stability, and bioavailability. DSC is an effective technique for detecting and characterizing such transitions. In the case of carbamazepine, a commonly used anticonvulsant, DSC analysis reveals the behavior of polymorphic form III, which exhibits an endothermic melting peak followed by an exothermic recrystallization into the more stable form I around 175 °C. A second, sharper endothermic event at 190 °C corresponds to the melting of form I. The second heating shows that during the cooling process only form I was formed as there are no thermal effects detected, other than the melting process at 190 °C. Accurate thermal profiling of polymorphic transitions supports drug formulation, regulatory compliance, and consistent therapeutic performance.

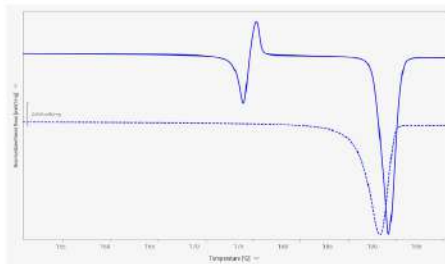


Figure 4: Polymorphism of carbamazepine. First heating (solid) and second heating (dashed) shown.

Melting chocolate

Thermal analysis plays a crucial role in understanding melting properties of compositionally diverse substances. Using DSC, the complex melting behavior of dark chocolate, milk chocolate, white chocolate, and pure cocoa butter was evaluated. The cocoa butter sample displayed a sharp endothermic peak, reflecting its distinct fat phase transition. This peak was also observed in all chocolate variants, becoming less pronounced as cocoa content decreased. Notably, thermal events in the 10 °C to 30 °C range revealed the presence of additional melting substances such as milk components and sugars in chocolate samples. These subtle differences in DSC profiles not only help characterize formulation but also support product development and quality assurance in the confectionery industry, and in other food industries.

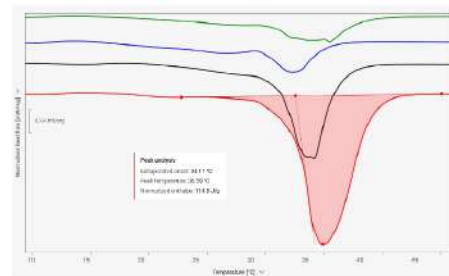


Figure 5: DSC melting profiles of dark chocolate (black), milk chocolate (blue), white chocolate (green), and cocoa butter (red curve with example peak analysis).

Conclusion

The examples and results presented above prove that differential scanning calorimetry is an indispensable tool both in research and quality control of a variety of materials. A single instrument offers unlimited potential for analysis of everyday and high-performance polymers, essential pharmaceutical compounds, thermally complex food products, and much more.



Figure 6: Julia DSC.



Catalysing a Greener Tomorrow: Sustainable Biofuel Research at PutraCAT, UPM

Mohd Azlan Kassim, Azizul Hakim Lahuri, Phang Sook Wai

On 3rd July 2026, the Catalysis Science and Technology Research Centre (PutraCAT) at Universiti Putra Malaysia hosted an exclusive technical visit organised by Division of Physical & Theoretical Chemistry (DPTC), Institut Kimia Malaysia with the theme of "Catalysis for a Sustainable Future". The event provided a deep dive into pioneering research regarding selective oxidation, renewable energy, and nanomaterials, showcasing how academic innovation addresses global environmental challenges. The "Catalysis for a Sustainable Future" session recorded a total participation of 21 attendees, drawing a diverse cross-section of academic staff, researchers, and students across primary Malaysian higher education institutions. Participants from Universiti Putra Malaysia (UPM), Sunway University, Tunku Abdul Rahman University of Management and Technology (TAR UMT), IMU University, Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), and Universiti Teknologi MARA (UiTM). Demographically, the audience comprised roughly 7 senior academic staff and lecturers (including representative faculty and research center fellows from UPM, Sunway University, and IMU) alongside 14 postgraduate researchers and undergraduate students. The program opened with a keynote research talk on "**Catalysis for a Sustainable Future**" with detailed

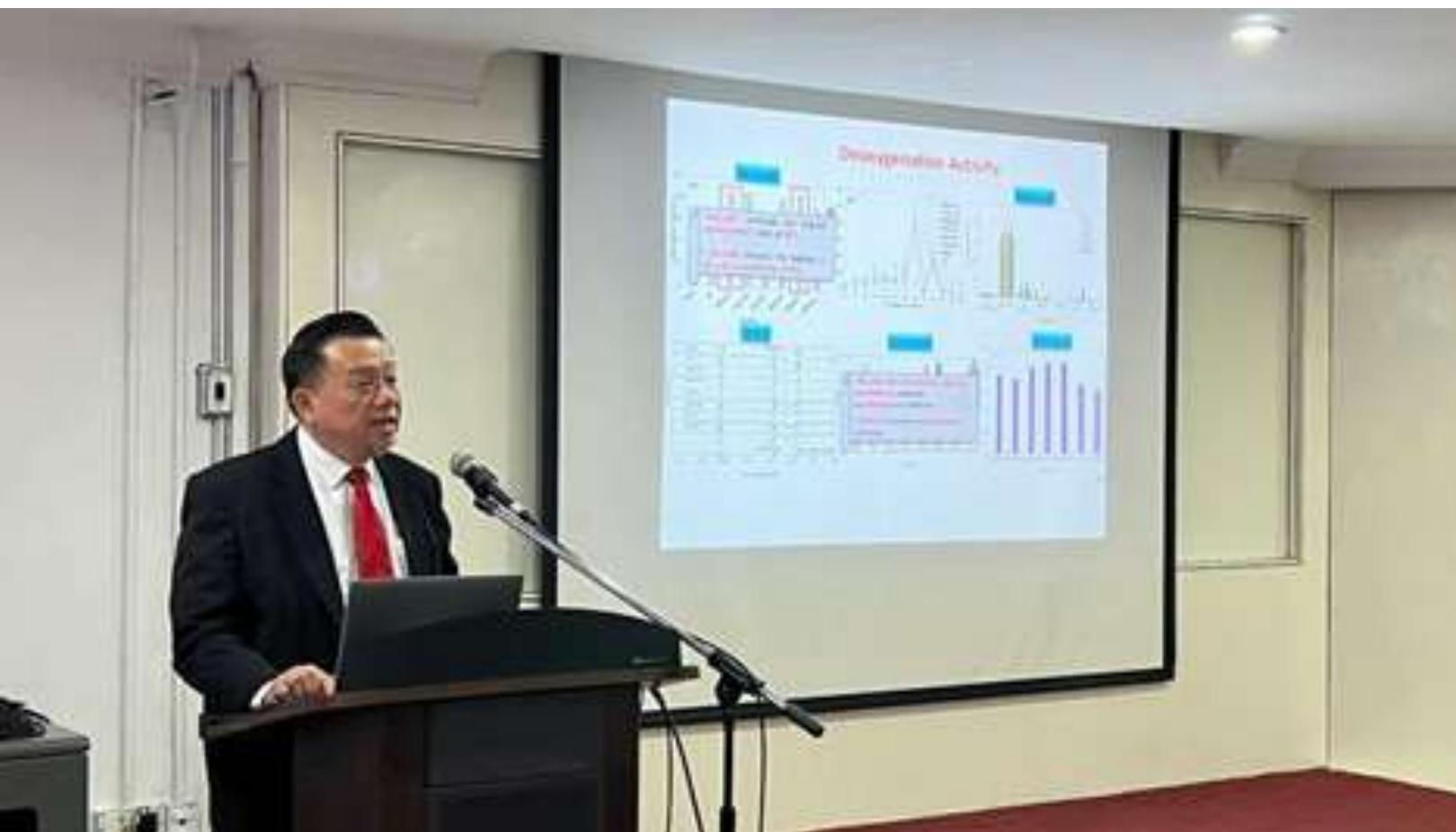
discussions on green chemical technologies before transitioning into an experiential lab visit. During the tour, participants explored the research facility's analytical instruments and experimental setups, facilitating active knowledge exchange and networking between participants across the represented universities.

A Strategic Vision for Renewables

The session, led by Prof. Datuk ChM. Ts. Dr. Taufiq Yap Yun Hin, emphasized the need to balance energy production with food security. A key highlight was the land-use efficiency of palm oil, which utilizes only 76.97 million hectares to meet global demand, compared to the 2.04 billion hectares that would be required for sesame oil. By focusing on non-edible resources like agricultural waste and forestry residues, PutraCAT aligns its research with UN Sustainable Development Goals 7 (Affordable and Clean Energy) and 12 (Responsible Consumption and Production).

Technical Breakthroughs in Biofuels

A significant portion of the sharing session focused on the production of green diesel (C13–C20) and biojet fuel from waste cooking oil, palm fatty acid distillate, and microalgae. Researchers highlighted the economic benefits of Deoxygenation (DO) over Hydrodeoxygenation (HDO), as



DO removes oxygen without the need for expensive high-pressure hydrogen. In the aviation sector, sustainable aviation fuel (SAF) was identified as a critical tool for reducing greenhouse gas emissions by up to 80%. Notably, research involving a $\text{CaO-La}_2\text{O}_3$ catalyst has demonstrated a 42% yield in the biojet fuel range. Furthermore, transitioning from homogeneous to heterogeneous catalysts in biodiesel production was shown to reduce costs by 40–60% while eliminating unfavorable soap formation. While microalgae theoretically offer yields 15–300 times higher than traditional crops, the session also addressed the ongoing scientific debate regarding its commercial scalability.

World-Class Facilities and Collaboration

The visit included a tour of the Laboratory for Sustainable Chemicals and Bioenergy, which houses advanced instrumentation such as:

- XRD 6000 and Agilent Gas Chromatography systems.
 - Fixed-bed reactors capable of operating at 100 bar and 550° C.
 - Specialised setups for photocatalytic water splitting.
- PutraCAT facilities support a robust international network, hosting researchers from various Indonesian institutions and Yemen.

The event concluded by reinforcing the principles of the circular economy. By integrating technological innovation with responsible production, PutraCAT continues to lead the way in transforming biowaste into clean energy, ensuring that the chemical processes of tomorrow are both sustainable and economically viable.



Webinar on IKM/RSC–Synthomer Award in Polymer Science & IKM Research Prize in Polymer and Materials Science

Inspiring Excellence in Polymer and Materials Science Research: Meet the IKM Awardees

Siang Yin Lee, Siti Nurul Ain binti Md Jamil, Nor Yuziah Mohd Yunus, Aik Hwee Eng, Sook Wai Phang, Rusli Daik

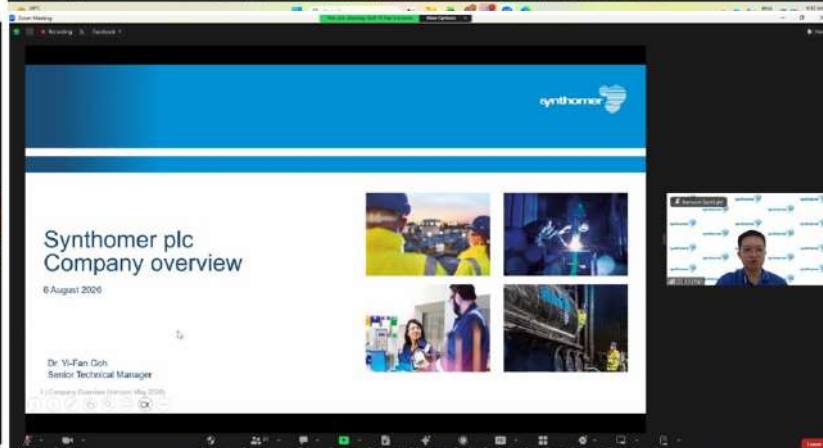
The Division of Polymers and Materials Chemistry (DPMC), Institut Kimia Malaysia (IKM), successfully organised the IKM Webinar 2026 on 6 August 2026 from 9.00 a.m. to 11.30 a.m. via Zoom. The theme of this webinar was “Inspiring Excellence in Polymer and Materials Science Research: Meet the IKM Awardees”. It highlighted the achievements and research contributions of the 2025 recipients of the IKM/RSC–Synthomer Award in Polymer Science and the IKM Research Prize in Polymer and Materials Science. The programme also introduced the two 2026 awards to prospective nominees and provided information on their objectives, eligibility requirements, required documents and nomination deadlines.

A total of 94 participants attended the webinar, comprising representatives from universities, research institutions, professional bodies and industry. Participation is also extended to international institutions in Pakistan and India, reflecting the broad outreach of participants from academic, technical, and professional areas.

The session began with a welcome address and an introduction to the webinar and awards by ChM Dr Nor Yuziah Mohd Yunus, followed by opening remarks from DPMC Deputy Chair II, ChM Dr Eng Aik Hwee of K&W Training & Consulting. The webinar also featured sponsor-company introductions by ChM Dr Ng Thian Hong, Group Chief Strategy Officer of HARPS Global and Central Medicare Sdn. Bhd., and Dr Goh Yi Fan, Senior R&D/Technical Manager at Synthomer Sdn. Bhd. Their participation reflected the important role of industry support in recognising research excellence and strengthening engagement among IKM, researchers, graduates and the polymer and materials science community.

ChM Assoc. Prof. Dr. Siti Nurul Ain binti Md Jamil and ChM Dr. Siang Yin Lee moderated four awardee presentations. The first awardee presentation was delivered by ChM Dr Norfarhana Binti Abdul Samad, recipient of the

IKM/RSC–Synthomer Award in Polymer Science 2025. She presented her research entitled “Sugar Palm Nano-Fibrillated Cellulose Enhanced Rubber-Based Composite Membrane for Palm Oil Mill Effluent Treatment”. An alumna of Universiti Teknologi Malaysia (UTM), she is currently Head of Programme for the Diploma in Chemical Engineering at the Department of Petrochemical Engineering, Politeknik Tun Syed Nasir Syed Ismail, Johor. The second presentation was given by Dr Muhammad Hasnun Bin Md Yusoff, recipient of the IKM Research Prize



ACADEMIC QUALIFICATION

- Bachelor of Science with Honours (Chemical Technology) Universiti Kebangsaan Malaysia (UKM)
- Master of Science (Chemistry) Universiti Kebangsaan Malaysia (UKM)
- Doctor of Philosophy (Chemical Engineering) Universiti Teknologi Malaysia (UTM)

RESEARCH INTEREST:

- Natural fiber and Sustainable materials
- Polymer Membrane
- Wastewater treat

Self-Introduction



- Name: Jacky Yong
- Place of Birth: Ranau, Sabah, Malaysia
- Affiliation: Centre for Ionics, Universiti Malaya (CIUM)
- Education:



SELF INTRODUCTION

MUHAMMAD HASNUN BIN MD YUSOFF

Current: Completed PhD (Analytical Biochemistry) at Analytical Biochemistry Research Centre (ABRC), Universiti Sains Malaysia (USM)

Email: hmyhasnun@gmail.com

WhatsApp No.: (+60) 11 2576 1163

Google Scholar: [QR Code]

Expertise:

- Deep eutectic solvent (DES)
- Extraction
- Polysaccharides
- Biological macromolecules
- Functional foods
- Polysaccharide characterizations
- Enzyme interactions
- Nutraceuticals
- Cosmeceuticals

OXIDATIVE EXTRACTIVE DESULFURIZATION PROCESS USING AMINO ACID-BASED NATURAL DEEP EUTECTIC SOLVENT

Main Supervisor: Dr. Aishah Nussalbah Binte Maori

Academic Status

- PhD in Chemical Engineering, Universiti Teknologi Malaysia
- Successfully passed the PhD Viva Voce with Merit (July 2026)
- Awaiting official graduation

Current Position

- Research Associate
- Universiti Teknologi Malaysia

Research Interests

- Green Chemistry
- Deep Eutectic Solvents
- Molecular Modelling
- Sustainable Separation Processes

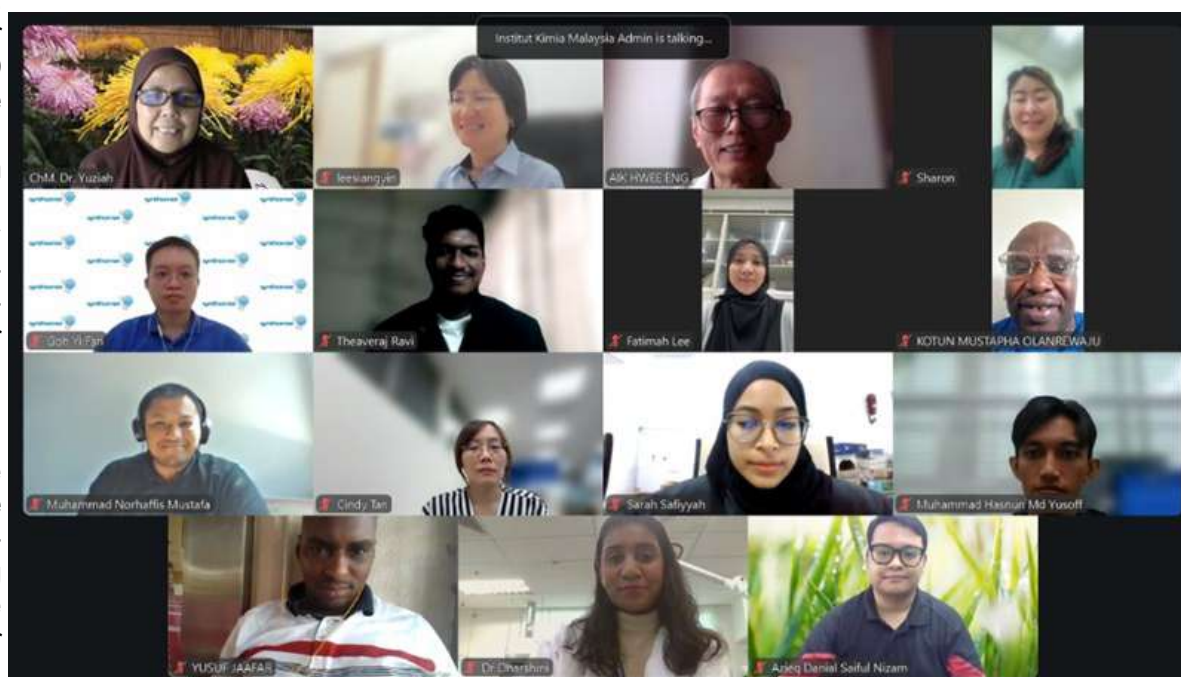
Theaveraj Ravi

Recipient of the IKM Research Prize in Polymer and Materials Science 2025

in Polymer and Materials Science 2025 and a recent PhD graduate of the Analytical Biochemistry Research Centre, Universiti Sains Malaysia. His talk, "Effects of Hydrocarbon Chain Length in Citric Acid Monohydrate-Based Deep Eutectic Solvents on the Extraction of Antioxidant, Anti-Diabetic and Anti-Hypertensive Polysaccharides from Curry Leaves". Dr Theaveraj Ravi of UTM, also a recipient of the IKM Research Prize in Polymer and Materials Science 2025, delivered the third awardee talk entitled "Oxidative Extractive Desulfurization Process Using Amino Acid-Based Natural Deep Eutectic Solvent". The fourth awardee, Dr Jacky Yong, a recent PhD graduate from the Centre for Ionics, Universiti Malaya, presented "Sodium-Ion Conduction in Additives-Enhanced Poly (vinyl alcohol)-Based Solid-State Electrolytes for High-Energy Supercapacitor Application".

Following the technical presentations, ChM Dr Eng Aik Hwee moderated an interactive sharing and question-and-answer session involving the awardees. The discussion covered their

current affiliations, career development following completion of their postgraduate studies and the professional benefits arising from receiving the IKM awards. The webinar concluded with closing remarks and a virtual group photograph at 11.15 am. Overall, the programme provided a valuable platform for recognising outstanding early-career researchers, disseminating current research in polymer and materials science and encouraging future participation in the IKM awards.



IKM Supports University Collaboration to Inspire Future STEM Talents

The Institut Kimia Malaysia (IKM) continued its commitment to advancing chemistry education and STEM outreach by supporting the inaugural IMU University School of Pharmacy Week 2026, held on 25–26 July 2026. Organised under the theme *"Shaping the Future of Health and Wellness"*, the programme showcased the contributions of pharmaceutical sciences to healthcare, beauty, wellness and sustainability while inspiring secondary school and pre-university students to pursue Science, Technology, Engineering and Mathematics (STEM).

IKM was one of five professional organisations supporting the programme, alongside the Malaysian Pharmacists Society (MPS), the Royal Society of Chemistry (Malaysia Local Section), the American Chemical Society (Malaysia Chapter) and the Malaysian Cosmetic Science Society (MCSC). Approved by the Ministry of Education Malaysia, the event attracted more than 200 students, teachers and members of the public from across eight states in Malaysia, including Sabah and Sarawak.

Bringing STEM to Life

Participants experienced STEM through a wide range of interactive, hands-on activities designed to demonstrate the real-world applications of chemistry and pharmaceutical sciences. Laboratory workshops introduced students to drug discovery using 3D molecular modelling, smart hydrogels, bath bomb formulation, cosmetic product development, fragrance science and pharmaceutical tablet manufacturing. The learning experience was further enriched by interactive booths featuring blood glucose testing, molecular model

building, pharmaceutical compounding, sugar-content estimation and educational games. Industry-sponsored exhibitions also provided valuable insights into career pathways and emerging opportunities within the pharmaceutical and cosmetic industries.

To encourage creativity, innovation and scientific communication, students participated in e-Poster Pitching Competitions and attended the forum *"Beyond Beauty: Understanding Cosmetics Through Science"*, where experts from academia and industry shared their perspectives on the science behind everyday products.

Students Inspiring Students

A distinctive feature of the programme was the active involvement of IMU academic staff and student volunteers, who organised laboratory sessions, competitions and





participant engagement activities. Their enthusiasm created a welcoming learning environment where secondary school students could interact with university students, gaining first-hand insights into STEM education, university life and future career opportunities.

Inspiring the Next Generation of STEM Talents

The programme received overwhelmingly positive feedback, with 98% of participants rating the event as good or excellent. Hands-on laboratory workshops were the most highly rated component (69%), followed by the interactive exhibition booths (15%). Participants consistently described the programme as engaging, enjoyable and informative, with many expressing greater interest in pharmaceutical sciences and STEM-related careers.

This outreach programme demonstrated the impact of collaboration between professional bodies, universities and industry in making STEM education engaging and accessible. Building on the longstanding partnership between IKM and the IMU School of Pharmacy since 2019



through the annual Pharmaceutical Chemistry Week, the expanded programme reflects a shared commitment to strengthening STEM outreach and promoting chemistry education among young Malaysians. Through experiential learning and strategic collaboration, IKM continues to nurture scientific curiosity and encourage more students to pursue higher education and careers in chemistry, pharmaceutical sciences and other STEM disciplines.



IKM PERAK BRANCH SOCIAL HI-TEA : CREATING PERFECT CHEMISTRY

The Institut Kimia Malaysia (IKM) Perak Branch successfully organized its Social Hi-Tea event at Artworks Hotel (Cafe Warisan Bonda) on 26 July 2026 under the theme "Creating Perfect Chemistry," designed to foster networking, professional solidarity, and community engagement among its members. Aligned with the theme, the gathering provided an elegant yet relaxed environment for members to connect beyond formal laboratory and technical settings. The event recorded an official attendance of 33 participants, comprising professional chemists from across Perak.

The event was held in a warm, friendly setting, allowing guests to enjoy a delicious food throughout the afternoon. During the session, the Chairperson ChM Dr Wong Lai Peng took the stage to share key highlights of past activities and presented the upcoming lineup of programs scheduled for 2026, while encouraging members to take an active role in future branch initiatives. The gathering provided a great opportunity for chemists and industry peers to catch up, build connections, and swap ideas on daily laboratory practices. To wrap up the day on a fun note, a lucky draw segment was held right before the event came to an end.

The gathering successfully achieved its core objectives by facilitating meaningful interactions among the 33 attending chemistry professionals across academic and industrial sectors. By translating the concept of "Creating Perfect Chemistry" into professional collaboration, the event strengthened member rapport and enhanced engagement within the IKM Perak Branch network. The positive environment also provided a valuable platform for members to exchange technical perspectives and operational best practices in a supportive setting.

Overall, the Social Hi-Tea served as an effective platform for strengthening fellowship and unity among IKM Perak members. The strong turnout and enthusiastic participation from all 33 attendees demonstrate a clear



demand for continued social and professional gatherings. The organizing committee extends its sincere gratitude to all participants for their support and looks forward to hosting future engagement initiatives to keep the branch active and connected.

Report by ChM Jamilahtul Hayati Ahmad Nadzeri





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Innovation with Integrity

IKM's Commitment to Chemistry Education Recognized at ICCECRICE 2026

The 28th IUPAC International Conference on Chemistry Education and the 17th EuChemS European Conference of Research in Chemical Education (ICCECRICE 2026) was held in Erzurum, Türkiye, from July 13 to 17, 2026. The joint conference gathered 272 participants representing 46 countries (153 international delegates and 119 from Türkiye), featuring a rigorous program of 5 plenary lectures, 5 keynote addresses, 134 oral presentations, 74 posters, and 8 workshops revolving around the theme of Chemistry Education in the Age of Artificial Intelligence. Key themes highlighted included *Artificial Intelligence and Digital Technologies*, *Sustainability and Green Chemistry*, *Teacher Development and Conceptual Misconceptions*, and *Practical Learning and Low-Cost Instrumentation*, among others.

Institut Kimia Malaysia (IKM) was represented by a four-member delegation:

Datuk ChM Dr Soon Ting Kueh (President of IKM)

Professor ChM Dr Mageswary Karpudewan (Universiti Sains Malaysia)

Professor ChM Dr Sim Siong Fong (Universiti Malaysia Sarawak)







Asst Prof ChM Dr Yvonne Choo Shuen Lann (IUPAC CCE National Representative for Malaysia, National Taiwan Normal University)



On July 12, Datuk ChM Dr Soon and Asst Prof ChM Dr Yvonne Choo attended the IUPAC Committee on Chemistry Education (CCE) meeting at Ata Practice Hotel, Atatürk University.

During the Opening Ceremony on July 13, Datuk ChM Dr Soon Ting Kueh was awarded the IUPAC **Special Recognition Award for Excellent Service to the Committee on Chemistry Education (ESCCE)**, honoring his extensive leadership and commitment to chemistry education worldwide. The award recognizes excellent service to the CCE, i.e., furthering the CCE priorities and IUPAC strategic objectives related to chemistry education.^[1]



All Malaysian delegates delivered oral presentations aligning with the conference's core themes:

Asst Prof ChM Dr Yvonne Choo Shuen Lann (OP-021): *Beyond the Algorithm: Cultivating the Retrosynthesis Mindset in the Age of AI*

Professor ChM Dr Mageswary Karpudewan (OP-053): *Systems Thinking Integrated Chemistry Teaching Methods Course: A Structured Approach for Training Chemistry Preservice Teachers on Systems Thinking*

Professor ChM Dr Sim Siong Fong (OP-149): *Promoting STEM Engagement in Rural Schools through Carnival-Based Chemistry Education*



Beyond the lecture halls, delegates had the opportunity to network and experience the region's rich heritage during the Erzurum City Excursion, culminating in a celebratory conference banquet at the Palan Hotel.

The momentum generated in Erzurum will carry forward to the next global gathering. The 29th International Conference on Chemistry Education (ICCE 2028), themed *"Educating Future Generations for Responsible Chemistry,"* is scheduled to take place at the Universidad de Alcalá in Madrid, Spain, from July 10 to 14, 2028.^[2]

^[1] <https://iupac.org/what-we-do/awards/chemistry-education-awards/>

^[2] <https://congresosalcala.fgua.es/icce2028>



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MG200
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NM200
High Planetary Ball Mill



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Cutting Mill



JC5
Jaw Crusher Floor standing



VM3
Vibratory Disc Mill



BM40
Planetary Ball Mill



SS3000
Vibratory Sieve Shaker



M10
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BP40
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Altura Poroshell HILIC-Z

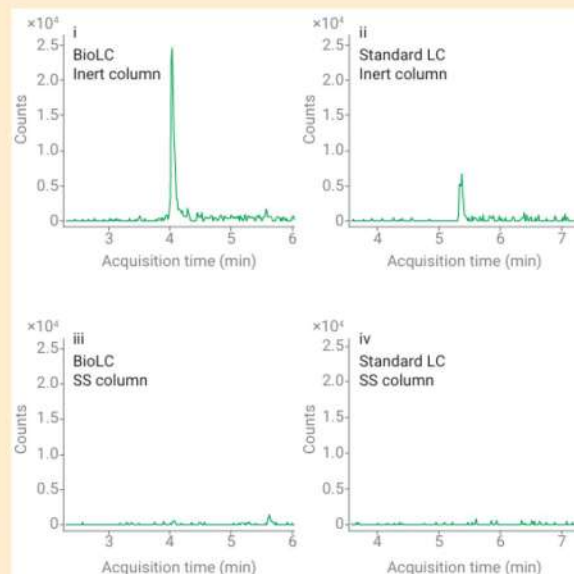


Figure 2 - Evaluating inert column and LC systems with phosphopeptides.

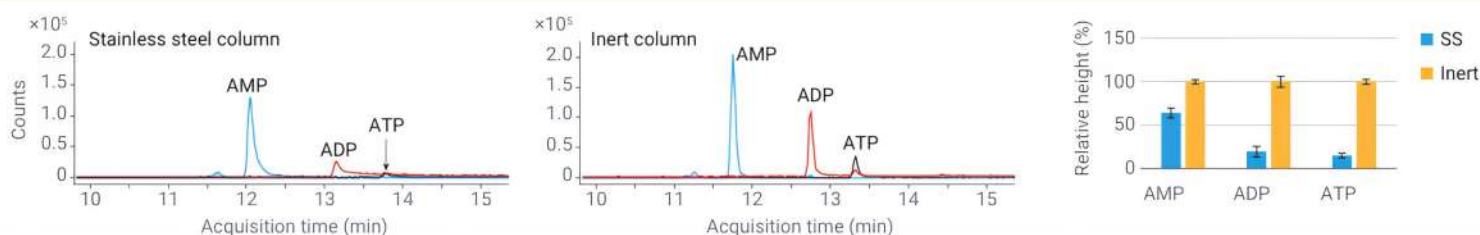


Figure 1 - Comparison of chromatographic performance between stainless steel (SS) and Agilent Altura Ultra Inert HPLC column hardware.





MYCN-IKM Participation in Kuala Lumpur Engineering Science Fair (KLESF) 2025

As part of MYCN-IKM's continuous commitment to fulfil its mission to promote public understanding and appreciation of Chemistry, MYCN-IKM participated in the recent KLESF 2025 event. KLESF 2025 is themed Quantum Future: The infinite Possibility with thematic exhibitions focused on AI, ICT, robotics, IoT and 5G.

With over 60,000 visitors, KLESF 2025 managed to attract 28 private and public universities and 462 schools to participate in the three-day event held from Nov 14 to Nov 16, 2025 at the MINES International Exhibition & Convention Centre, Kuala Lumpur.

KLESF has proven itself as an effective platform for the promotion of STEM education in Malaysia since first organized in 2013 by the Malaysian Industry-Government Group for High Technology (MIGHT), Asean Academy of Engineering and Technology (AAET), Institution of Engineers Malaysia (IEM), and Universiti Tunku Abdul Rahman (UTAR). With an aim to enhance interest in Chemistry as

part of STEM education, and to emphasize practical and hands-on skills, MYCN-IKM organized a hand-on workshops to demonstrate to the public that Chemistry could be interesting, fun and that it is important and relevant to both our daily life and our country's economy.

With the help of dedicated student helpers, MYCN organized a hand-on workshop on DIY keychains. Visitors created their own designs and painted on a polymer which upon heating shrank and hardened permanently. The hardened piece was then made into a keychain for them to take home. The roles, mission and functions of IKM, MYCN and the Chemist Act 1975 were also explained to the general public and many of our visitors now understand that a chemist is a profession just like an engineer or accountant.

Report by
Assoc. Prof. ChM Dr. Lim Teck Hock



MERCURY SOLUTION FOR AMBIENT AIR

Mercury emissions has no boundaries. Emitted mercury can travel relatively hundreds of miles away from its source of emission. Thus, reduction of mercury in the atmosphere requires transboundary effort. There are two main sources of mercury emissions, namely natural and anthropogenic emissions. Anthropogenic emissions account for most of the mercury emissions which made up about 2200 metric tons per year.

AM-6F Fully Automated & Continuous Mercury Monitor



- Designed to measure gaseous elemental mercury (GEM) from ambient air accurately down to the sub nano-gram per cubic-meter level.
- **Technique:** Direct Gold Amalgamation Sampling - CVAFS (Fluorescence technology) Detection.
- **Applications:** Continuous Measurement of Mercury in Ambient Air and Gaseous Matrices.



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 - **WA-5A** - Atomic Absorption Spectroscopy (AAS)
 - **WA-5F** - Atomic Fluorescence Spectroscopy (AFS)
- **Applications:** Ambient air, Working environment air, Fuel gas, Natural Gas, Shale Gas, LPG, Other Gaseous Matrices



EMP-Gold+ Field-Portable Mercury Monitor

- Designed for on-site measurement of Total Gaseous Mercury (TGM)
- **Technique:** Automatic Direct Gold Amalgamation Sampling with onboard Mercury Collector Tube and Pump
- **Applications:** Targeted site ambient air monitoring, Soil gas, and other gaseous samples



EMP-3 Portable Mercury Survey Meter

- Designed on-site measurement of gaseous elemental mercury (GEM) in workplace ambient air for occupational safety, health, and hygiene.
- **Technique:** Double-beam cold vapor atomic absorption spectrometry (CVAAS)
- **Applications:** Mostly employed for workplace air measurement for occupational safety. It can be used for direct measurement of gaseous elemental mercury in natural gas, shale gas, and LPG from Tedlar bag, etc.



IKM NEW MEMBERS & MEMBERSHIP UPGRADING

New Members (MMIC)		Nor Afifah Binti Sulaiman, ChM M/7412/11870/26
Aatiq Kazimi Bin Norzuhaimi, ChM M/7424/11897/26		Norashikin Binti Albar, ChM M/7427/11901/26
Agustono Wibowo, ChM Dr. M/7421/11891/26		Nur Atasya Binti Zainal, ChM M/7440/11925/26
Alsultan Abdulkareem Ghassan Abdulkareem, ChM Dr. M/7428/11903/26		Nurashikin Binti Hamdan, ChM M/7429/11905/26
Asmaliyana Binti Ahmad Supa'at, ChM M/7436/11920/26		Nursyairah Binti Arshad, ChM M/7426/11900/26
Atiqah Binti Zaid, ChM M/7443/11929/26		Nurun Najwa Binti Ruslan, ChM Dr. M/7407/11860/26
Azrad Bin Usman, ChM M/7445/11935/26		Pang Chuan Kian, ChM Dr. M/7433/11916/26
Chin Jia Min, ChM M/7409/11866/26		Rosidah Binti Shardin, ChM M/7442/11928/26
Ding Sie Hao, ChM Dr. M/7439/11924/26		Rusydina Binti Redzuan, ChM M/7406/11858/26
Eswhari A/P Ganasan, ChM M/7416/11881/26		Siti Farahana Binti Othman, ChM M/7431/11910/26
Faiqah Binti Ramli, ChM Dr. M/7432/11912/26		Siti Khadijah Binti Mazran, ChM M/7451/11950/26
Faten Syahira Binti Mohamed Yusof, ChM M/7420/11890/26		Siti Zairyn Binti Fakurol Rodzi, ChM M/7408/11862/26
Faun Ke Er, ChM M/7430/11907/26		Siti Zulaikha Binti Zainal Abidin, ChM M/7425/11898/26
Hairul Amiza Binti Azman, ChM M/7437/11922/26		Stanley Stewart Lim Hon Yung, ChM M/7452/11952/26
Hamidah Binti Osug, ChM M/7446/11939/26		Tay Eue Kam, ChM Dr. M/7414/11879/26
Keith Davis Anak Korla, ChM M/7447/11940/26		Tressy Runai Anak Franky, ChM M/7450/11948/26
Loumi Binti Surugau, Prof. ChM Dr. M/7444/11934/26		Visnu Manikanda Rao A/L Munandi, ChM M/7405/11855/26
Lye Zhi Ying, ChM M/7411/11869/26		Wan Mohd Faizal Bin Wan Mohd Nasir, ChM Dr. M/7410/11868/26
Mohamad Hisyam Bin Ismail, ChM Dr. M/7435/11919/26		Wong Leong Seng, ChM M/7434/11918/26
Mohamad Izzat Bin Ahmad Din, ChM M/7423/11896/26		Wong May Yee, ChM M/7422/11892/26
Mohd Fahmi Bin Badulrudin, ChM M/7419/11889/26		Zamharirah Binti Ahamad Mashat, ChM M/7415/11880/26
Muhamad Yuzaini Azrai Bin Mat Yunin, ChM M/7417/11886/26		Zhang Yuxin, ChM M/7438/11923/26
Muhammad Hafizuddin Bin Abu Bakar, ChM M/7441/11926/26		
Muhammad Shafuan Bin Rudzlan Apandi, ChM M/7449/11946/26		
Nadzirah Sofia Binti Anuar, ChM Dr. M/7448/11943/26		
Nagentheraan A/L Munesveran, ChM M/7413/11872/26		New Members (LMIC)
Noor Afizah Binti Rosli, ChM Dr. M/7418/11888/26		Adam bin Azmi, ChM L/4099/11914/26
		Ahmad Hussain Bin Hamdan, ChM L/4077/11865/26

Ahmad Izzat Azani Bin Ahmad Tajuddin, ChM L/4071/11663/26
Amru Al-Ass Bin Razali, ChM L/4110/11945/26
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