



Berita IKM - Chemistry September 2021 *in Malaysia*



ARTICLES

- The Secondary Science Education Under Pandemic's Shadow
- IUPAC from A Young Chemist's Perspective



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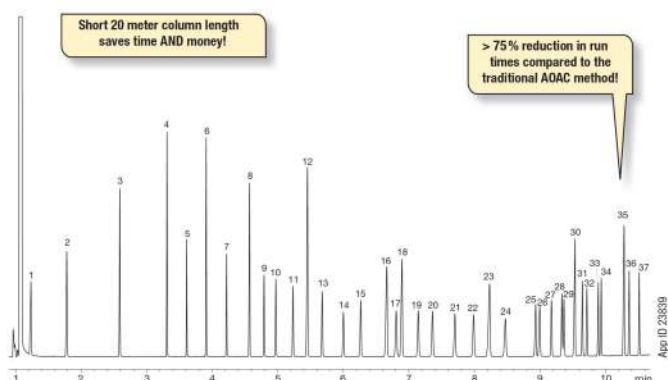
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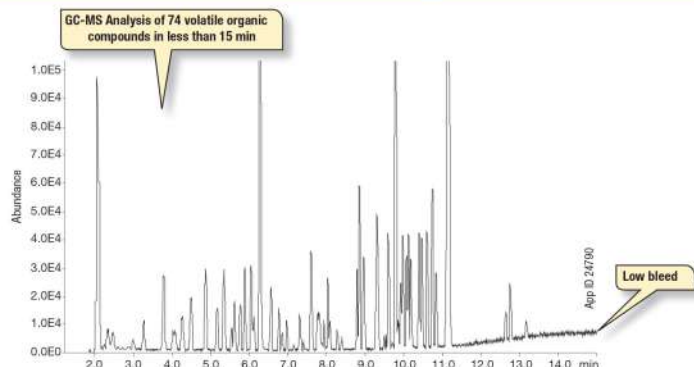
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Message from the President



IUPAC 51st General Assembly (51GA) & 48th World Chemistry Congress (48WCC) 2021

The IUPAC 51GA & 48WCC were held virtually from 5 – 20th August 2021 from Montreal, Canada due to the global COVID-19 pandemic. We have 4 representatives in the IUPAC Council for 2020 – 21 and 9 representatives in 6 Divisions & 3 Committees in IUPAC for 2022 – 2023.

A major event of the IUPAC 51GA is the **World Chemistry Leadership Meeting (WCLM)**. IKM organised WCLM Malaysia 2021 on 18th August 2021 with the theme “The Future of Chemistry in Asia Pacific & The Role of Artificial Intelligence in the Future of Chemistry”. A total of 107 delegates and young observers participated in this session which was live streamed from Kuala Lumpur.

IKM also produced a video on “**IUPAC 2025 – We welcome you to enchanting Malaysia**” to promote and market the IUPAC 53rd

General Assembly (53GA) and 50th World Chemistry Congress (50WCC) which will be held in Kuala Lumpur, Malaysia in July 2025. This video was presented at WCLM Malaysia 2021 and uploaded onto the 51GA Exhibition platform.

There are a number of reports on the IUPAC 51GA & 48WCC in this issue of Berita.

COVID-19 Pandemic

We are still being ravished by the COVID-19 pandemic with daily cases of above 20,000. In spite of the total lockdowns imposed since June 2021, we are still not out of the woods yet. Looks like the only way out is through vaccination. At this moment, we are increasing our vaccination rate to around 400,000 doses per day; but even at this rate, we can only achieve herd immunity of vaccinating 70% of the population by the end of the year. This is going to have serious consequences on the livelihood of our people. IKM is also being seriously affected by the lockdowns. We urge the Government to do something drastic to make sure that people have a chance to earn a living and avoid a meltdown of our economy.

In the meantime, we do urge our members to keep safe and be well. Hopefully in the very near future, we are able to control the spread of this deadly pandemic and life will be back to normal.

Thank you and with best wishes.

Datuk ChM Dr Soon Ting Kueh
President, Institut Kimia Malaysia
Date: 30th August 2021

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IUPAC 51st General Assembly (51GA) & 48th World Chemistry Congress (48WCC) 2021

The IUPAC 51GA & 48WCC were held virtually from 5 – 20th August 2021 from Montreal, Canada due to the global COVID-19 pandemic.

IKM representatives to the IUPAC Council for 2021 are Datuk ChM Dr Soon Ting Kueh, Datin ChM Dr Zuriati Zakaria, Prof Ts ChM Dr Melissa Chan Chin Han and ChM Dr Aqeel Saravanan.

The IUPAC Council first met on Thursday, 5th August & discussed the first four items on the Agenda. Item No. 5 was the Election of Vice President and Treasurer. There were four candidates for Vice President and after three rounds of voting (over three days), Prof Ehud Keinan of Israel was elected Vice President. As for Treasurer, there were two candidates and Dr Wolfram Koch of Germany was elected Treasurer.

After that was the Election of Bureau Members, five to be elected out of a total of eleven candidates. After one round of voting, the following five were elected:

Prof Hamda Garelick (UK)
Prof Zhigang Shuai (China)
Prof Ken Sakai (Japan)
Dr Laura McConnell (USA)
Dr Zoltan Mester (Canada)

This was followed by the 51st Council Meetings plenary sessions on 13th, 14th & 15th August 2021. There is a separate report on the 51st Council Meeting by Datin ChM Dr Zuriati Zakaria in this issue of Berita IKM.

During the 51st Council Meetings, the Council voted for Montreal, Canada to host the IUPAC 54th General Assembly (54GA) and 51st World Chemistry Congress (51WCC) in 2027.

IKM produced a video on “IUPAC 2025 – We welcome you to enchanting Malaysia” to promote and market the IUPAC 53rd General Assembly (53GA) and 50th World Chemistry Congress (50WCC) to be held in Kuala Lumpur, Malaysia in July 2025. This video was uploaded on the 51GA Exhibition platform.

One of the major items discussed at the 51st Council Meetings is the restructuring of IUPAC to create a Science Board working alongside the Executive Board. There is also a proposal to restructure the Bureau. On this, the Council

organized a series of three separate engagement sessions on 10th & 11th August for various regions of the world to discuss the new governance structure of IUPAC. Session 2 was held at 8.00 am, Malaysian time, on 11th August 2021 catering to the NAOs in the Asia Pacific. This Session 2 was chaired by Prof Mei-Hung Chiu of Taiwan with Prof Zhigang Shuai from China, as Co-Chair. There is a separate report on this Session by ChM Dr Aqeel Saravanan.

A major event of the IUPAC 51GA is the World Chemistry Leadership Meeting (WCLM) for the participants and the young observers. This year's WCLM 2021 was held in a different format with four different sessions over three venues, namely Montreal, Canada on 17th August to be followed by Kuala Lumpur, Malaysia, and The Hague, The Netherlands on 18th August and then back to Montreal for the Closing Session.

The WCLM Malaysia 2021 was held on 18th August 2021 with a session of four invited lectures, a panel discussion on “The Future of Chemistry in Asia Pacific” and a special session on “The Role of Artificial Intelligence in the Future of Chemistry” with two keynote lectures. A total of 107 delegates and young observers participated in this session which was live stream from Kuala Lumpur. The video on “IUPAC 2025 – We welcome you to Enchanting Malaysia” was also live streamed during this event. A report on WCLM Malaysia 2021 appeared in a separate section of this Berita.

For IKM, we managed to have the followings representatives being elected to IUPAC Divisions & Committees for 2022-2023:

Committee on Chemistry Education (CCE)
Datuk ChM Dr Soon Ting Kueh
Titular Member

Division I: Physical and Biophysical Chemistry
Assoc. Prof. ChM Dr Chong Kwok Feng
Associate Member

Division II: Inorganic Chemistry
Professor ChM Dr Yang Farina Abdul Aziz
Associate Member

Division III: Organic & Biomolecular Chemistry
Datin ChM Dr Zuriati Zakaria
National Representative

Division IV: Polymer
Professor ChM Ts Dr Chan Chin Han
Titular Member

Division V: Analytical Chemistry
ChM Dr Malarvili Ramalingam
National Representative

Division VII: Chemistry & Human Health
Professor ChM Dr Sharon Teh Geok Bee
Associate Member

Committee on Chemistry and Industry (COCI)
Prof ChM Dr Khozirah Shaari
Associate Member

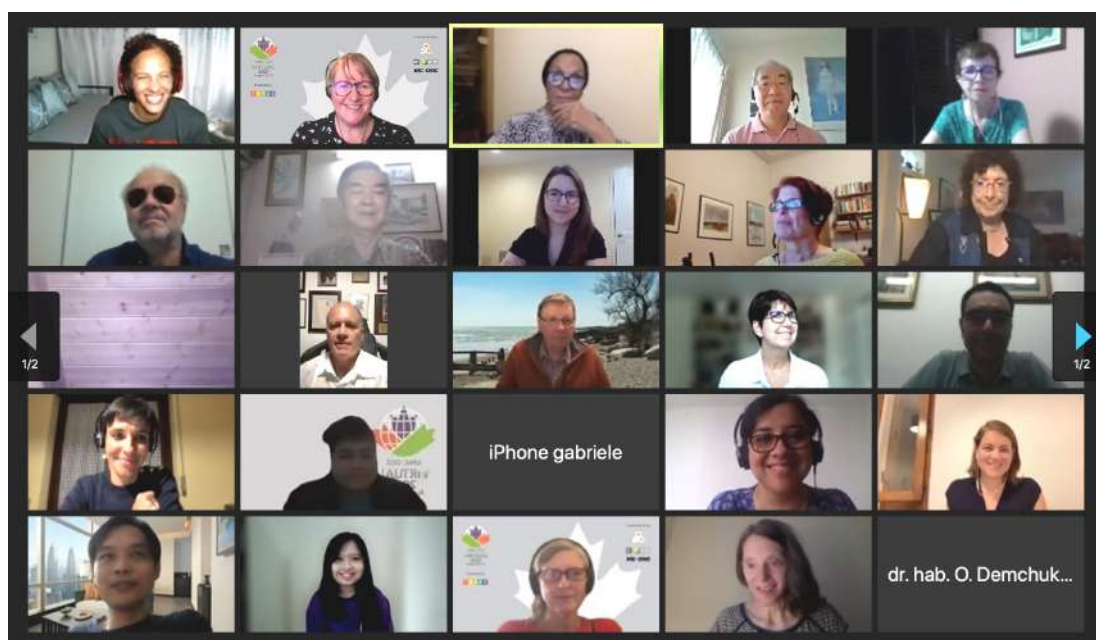
**Committee on Chemical Research Applied to
World Needs (CHEMRAWN)**
ChM Dr Yvonne Choo Shuen Lann
National Representative

Congratulations and I am sure that all our representatives will contribute in promoting the branding of IKM in the international chemistry community.

Our young chemist, Dr Yvonne Choo Shuen Lann, attended the 51GA sessions as a young observer and she has submitted a report on her experience and lessons learned from attending these various sessions.

A Report by:
Datuk ChM Dr Soon Ting Kueh
Date: 21st August 2021

IUPAC 51GA
CHEMRAWN
Session on
09 Aug 2021



IUPAC 51GA - CCE
Meeting on
12 Aug 2021

INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

IUPAC 51st Council Meeting 2021

The Council did not meet physically in Montreal, Canada, but instead meet virtually on 5 August, and 13-15 August 2021. In order to ensure the health and safety of the delegates, speakers, exhibitors, staff, and community during the ongoing COVID-19 pandemic. The IUPAC 51st General Assembly and concurrent 48th World Congress are organized as fully virtual events. The following were a brief summary of the IUPAC 51st Council Meeting being held virtually from Montreal, Canada from 5 – 15 August 2021.

Council Opening

Thursday, 5 August 2021 Time: 08:00 – 09:30 pm

Purpose: To kick start the elections cycle, including for Vice President, Treasurer and 5 Elected Members of Bureau

Plenary sessions

Session 1: Friday, 13 August 2021 8:00 – 11:00 pm

Session 2: Sunday, 15 August 2021 5.00 – 8.00 am

Session 3: Sunday, 15 August 2021 8:00 – 11:00 pm

Decisions taken at the 51st Council Meeting are as follows:-

1. Election of the Officers and Elected Members of the Bureau

On 1 January 2022, Professor Javier García Martínez (Spain), Vice President and President-Elect of IUPAC, will become President for two years. Professor Ehud Keinan will be the new Vice President. Treasurer Colin Humphris (United Kingdom) will retire and Wolfram Koch (Germany) was elected by the Council for a four-year term. Secretary General Richard Hartshorn (New Zealand) was re-elected by the Council in July 2019 for a four-year term and will continue his service for two more years. Christopher M.A. Brett (Portugal), current President, will become Past President and remain an officer and a member of the Bureau for a period of two years. Meanwhile, Qi-Feng Zhou (China), current Past President, will retire. Also, the appointments of the following Division Officers were approved by Council (Motion 10 below for summary). Starting in January 2022 the full Bureau will be composed as follow:

Officers

Javier García Martínez (Spain), President

Ehud Keinan (Israel), Vice President

Christopher M.A. Brett (Portugal), Past President

Richard Hartshorn (New Zealand), Secretary General

Wolfram Koch (Germany), Treasurer

Elected Members

Ghada Bassioni (Egypt) (2020-2023)

Mei-Hung Chiu (China/Taipei) (2016-2019; 2020-2023)

Petr Fedotov (Russia) (2020-2023)

Hemda Garelick (United Kingdom) (2022-2025)

Laura McConnell (USA) (2022-2025)

Zoltan Mester (Canada) (2022-2025)

Gloria Obuzor (Nigeria) (2020-2023)

Bipul Behari Saha (India) (2020-2023)

Ken Sakai (Japan) (2018-2021; 2022-2025)

Zhigang Shuai (China/Beijing) (2022-2025)

Division Presidents

Pierangelo Metrangolo (Italy) – Physical and Biophysical Chemistry Division (Div I)

Lidia Armelao (Italia) – Inorganic Chemistry Division (Div II)

Amelia P. Rauter (Portugal) – Organic and Biomolecular Chemistry Division (Div III)

Christine Luscombe (USA) – Polymer Division (Div IV)

David Shaw (USA) – Analytical Chemistry Division (Div V)

Roberto Terzano (Italy) – Chemistry and the Environment Division (Div VI)

Helle Møller Johannessen (Denmark) – Chemistry and Human Health Division (Div VII)

Michelle Rogers (USA) – Chemical Nomenclature and Structure Representation Division (Div VIII)

Standing Committee Chairs

Francesca Kerton, (Canada) – CHEMRAWN Committee

Marietjie Potgieter (South Africa) – Committee on Chemistry Education (CCE)

Anna Makrova (Russia) – Committee on Chemistry and Industry (COCI)

Buxing Han (China/Beijing) – Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD)

Leah McEwen (USA) – Committee on Publications and Cheminformatics Data Standards (CPCDS)

Jürgen Stohner (Switzerland) – Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS)

The Bureau will elect three members among the Elected Members of Bureau to the Executive Committee. That election by Bureau will take place at a meeting to be held 1 Sep 2021.

2. IUPAC 2027

Council voted on the host of the 54th General Assembly and 51st World Chemistry Congress.

The National Research Council (NRC), the Canadian Society for Chemistry (CSC) and the Canadian National Committee for IUPAC (CNC-IUPAC) will host the IUPAC 54th General Assembly and 51st World Chemistry Congress from 16 – 23 July 2027 in Montréal, Canada.

3. Other Motions voted on by Council

Motion 1: Council approved the Minutes of 50th Council Meeting in Paris, France.

To be posted on the IUPAC website, and NAO's to be notified.

Motion 2: Council ratified all decisions taken by the Bureau and Executive Committee through calendar year 2020, since those approved by the Council at Paris, France (Minute 3, 50th Meeting).

Motion 3: Council approved the Kazakhstan: Republican public association "B.A. Beremzhanov Kazakhstan Chemical Society (RPA "KChS") as a National Adhering Organization effective 1 January 2022.

Motion 4: Council approved the recommended 2022-2023 Budget

Motion 5: Council approved the future appointment of the Centenary Endowment Fund Board of Directors including external Directors by the Executive Committee. Council also gives approval to the Executive Committee to progress the formation of the fund and its guiding documents.

Motion 6: Council approved the proposed modification to the Terms of Reference to allow up to eight (8) National Representatives to the membership of ICGCSD.

Motion 7: Council approved the Composition and Terms of Reference of the Centenary Endowment Board.

Motion 8: Council approved the Composition and Terms of Reference of the Committee on Ethics, Diversity, Equity and Inclusion.

Motion 9: Council formally adopted the Recommendations approved by the Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS) and published, or scheduled to be published, in Pure and Applied Chemistry from August 2019 through August 2021.

Motion 10: Council approved the results from elections of Division Committee Officers.

For reference, the appointments as of January 2022 are summarized here below:

Division I – Physical and Biophysical Chemistry Division

President: Pierangelo Metrangolo (Italy)

Vice President: Prof. Frances Separovic (Australia)

Past President: Timothy Wallington (USA)

Secretary: Attila Csaszar (Hungary)

Division II – Inorganic Chemistry Division

President: Lidia Armelao (Italia)

Past President: Lars R. Öhrström (Sweden)

Secretary: Daniel Rabinovich (USA)

Division III – Organic and Biomolecular Chemistry Division

President: Amelia P. Rauter (Portugal)

Vice President: Einar Uggerud (Norway)

Past President: Nikolay Nifantiev (Russia)

Secretary: Slawomir Jarosz (Poland)

Division IV – Polymer Division

President: Christine Luscombe (USA)

Vice President: Igor Lacik (Slovakia)

Secretary: Paul Topham (UK)

Division V – Analytical Chemistry Division

President: David Shaw (USA)

Vice President: Derek Craston (UK)

Past President: Zoltan Mester (Canada)

Secretary: Luisa Torsi (Italy)

Division VI – Chemistry and the Environment Division

President: Roberto Terzano (Italy)

Vice President: Annemieke Farenhorst (Canada)

Past President: Hemda Garelick (UK)

Secretary: Fani Sakellariadou (Greece)

Division VII – Chemistry and Human Health Division

President: Helle Møller Johannessen (Denmark)

Vice President: Vladimir Gubala (UK)

Past President: Rita Cornelis (Belgium)

Secretary: Linda Johnston (Canada)

Division VIII – Chemical Nomenclature and Structure Representation Division

President: Michelle Rogers (USA)

Past President: Alan Hutton (South Africa)

Secretary: Risto Laitinen (Finland)

Motion 11: Council received the results from elections of Titular Members of the Division Committees.

Motion 12: Council reauthorizes the Commission on Physicochemical Symbols, Terminology and Units, the Commission on Isotopic Abundances and Atomic Weights, and the IUBMB- IUPAC Joint Commission on Biochemical Nomenclature (JCBN).

Motion 13: Council is asked to approve that the one language in which the official records of the meeting of the Council, Bureau and Executive Committee shall be kept and published will be English for the period of 2022-2025.

A Report by:

Datin ChM Dr Zuriati Zakaria

Date: 23 August 2021



INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

Discussion with NAOs On Governance Structure Session 2: Wednesday 11th August 2021, 08.00 (China) (UTC+8) Moderators: Mei-Hung Chiu (Zoom Organizer) & Zhigang Shuai

Introductory Remarks from the Chairperson

Prof Mei-Hung Chiu welcomed everyone for this session. She informed that she will Chair the session with Prof Zhigang Shuai as the Co-Chair and members were requested to introduce themselves.

IUPAC Vision, Mission & Values and Scientific Activities

Prof Mei-Hung shared the slides on the vision, mission & values of IUPAC.

Vision - An indispensable worldwide resource for chemistry

Mission - Provides objective scientific expertise and develops the essential tools for the application and communication of chemical knowledge for the benefit of humankind and the world.

Values - Scientific excellence, communication, transparency, diversity, and ethical behaviour

A detailed information on IUPAC activities were shared with the members comprising:

- Setting and Recommending "Standards"
- Sharing Emerging Science
- Building Worldwide Capacity
- Publishing
- Networking
- Honouring

Organizational Structure Review

The focus of the meeting was to provide recommendations to changes in the Governance Structure of IUPAC.

Members were presented with the responsibilities of the Proposed Boards:

- **Science Board (SB)**
- **Executive Board (EB)**

The Science Board (SB) - recommended to be the body responsible for the Scientific work of IUPAC

Responsibilities

- Set the long term scientific vision of the Union and facilitate inter divisional and Standing Committee interactions and joint activities
- Review and update the existing divisional and standing committee structure.
- Review output of divisions and standing committees in the core area of projects, conferences, publications, and
- Oversee outreach activities and provide support of chemistry in emerging areas.

The Executive Board (EB) - recommended as

the body overseeing:

- Administrative operations of IUPAC
- IUPAC finances and ensuring the financial health of IUPAC
- Setting strategic priorities (in conjunction with the SB)
- Fund raising

These responsibilities include but are not limited to oversight of Secretariat business; engaging with Committees; seeking sponsorship; and interactions with other agencies.

Governance Structure of SB & EB

Prof Mei-Hung shared WG's Recommendations on the Governance Structure Composition of the Science Board (SB) and the Executive Board (EB).

SB - consist of Division Presidents and Standing Committee Chairs, together with representation by one or more Officers of IUPAC. The Associate Director is ex officio non-voting member in their role as manager of projects and publications.

EB - to consist of the five Officers of the Union (President, Vice President, Immediate Past President, Secretary General, and Treasurer) plus a number of elected members (EMs) nominated by the NAOs and elected by Council, as well as representation from membership of the SB. The EB to be chaired by the IUPAC President and the Executive Director is ex officio non-voting member.

Input from NAOs

Prof Mei-Hung informed that the Bureau seeks input from Council on composition and roles of the EB and SB. The following questioned were posted to the members and discussed.

Executive Board

Elected members on the EB, terms of office and their roles

Dr Soon Ting Kueh proposed 10 members to be elected to the EB and to serve maximum of 2 terms of 2 years each. The challenge would be to get enough representation from different regions of the world. A balanced geographical diversity of elected members could be achieved by retiring 5 elected members every 2 years. Prof Melissa Chan suggested to include members from non-represented regions. Prof Ken Sakai informed that the initial composition was recommended to be 5 elected members.

Nominating Committee for the EB elections

Dr Soon Ting Kueh informed that a nominating committee would create hurdle for the NAOs and Prof David Black agreed with Dr Soon. Prof Mary Garson explained the reason for proposing a nominating committee. Prof Frances Separovic supported the formation of a nominating committee.

Lines of communication between the SB, EB and Council

Prof David Black and Dr Soon Ting Kueh raised concern that a parallel system is not suitable. The committee agreed that it has to be a hierarchy system.

Roles of EB

Prof David Black suggested that the members should be able to contribute everything as fully as possible.

Science Board

Composition and the roles of SB members

Dr Soon Ting Kueh suggested to appoint IUPAC Vice President as the Chairman for SB. Prof David Black recommended the President to be the Chairperson for both EB & SB. Dr Soon Ting Kueh recommended 3 members from EB to serve in the SB with the Vice President to be the Chairperson of SB. Prof David Black and Prof Mary Garson insisted that the Secretary General

to be included in SB.

Diversity and inclusion in the members of the EB and SB

Prof Mei-Hung emphasised on the need to have diversity and inclusion in members in both EB & SB. Dr Soon Ting Kueh mentioned that this could be achieved through election and co-opting representatives from unrepresented regions. The co-opted representatives would not be having voting rights.

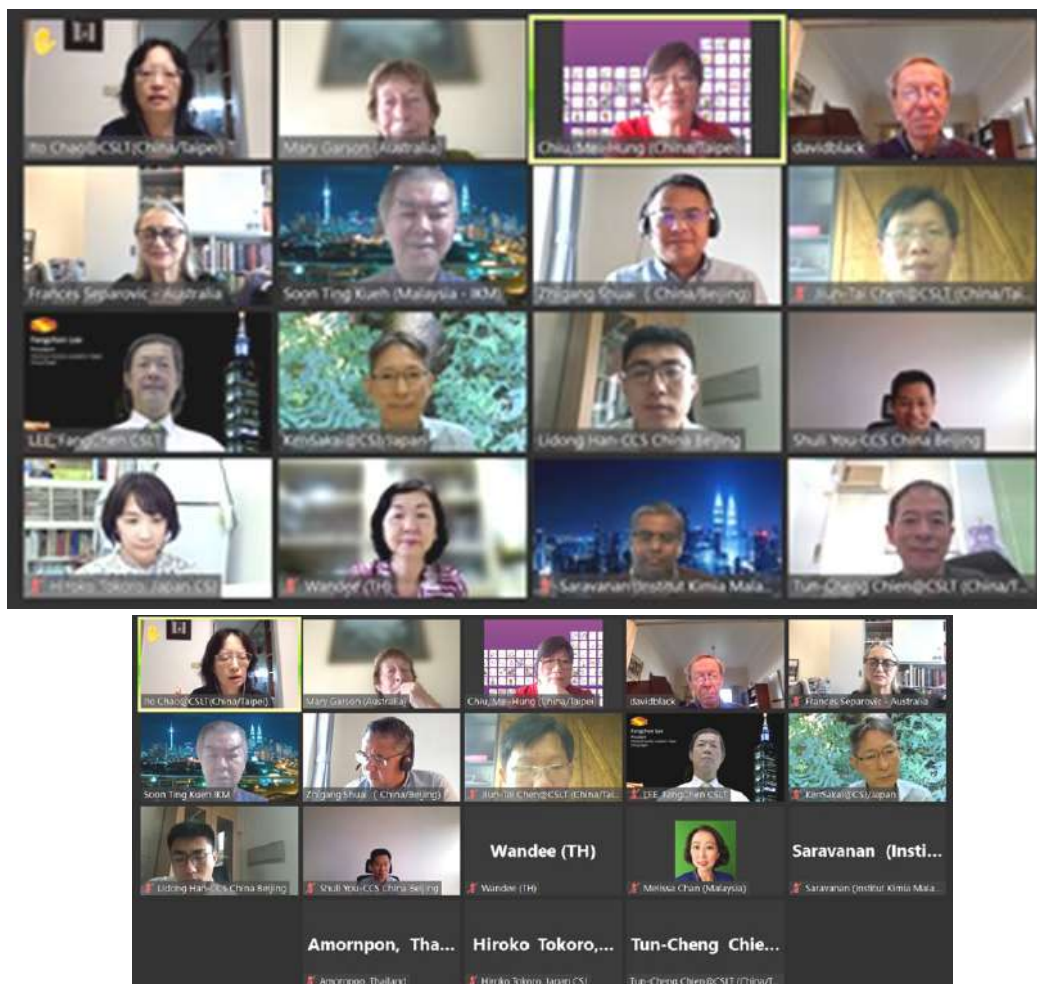
Other matters

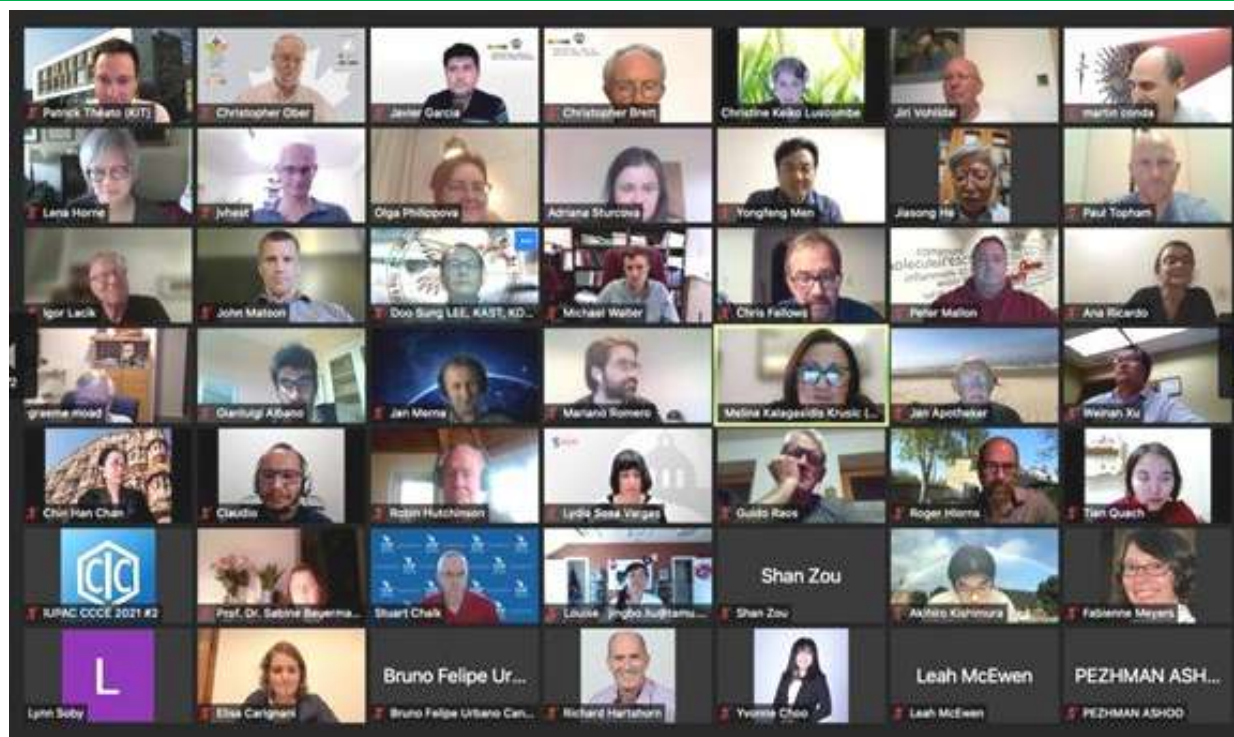
Prof Ken Sakai and Prof Ito Chao raised the concern on limiting the term of an elected member to 2 years. An elected member should be allowed to serve up to 4 years. Dr Soon Ting Kueh supported this proposal. The 2 + 2 term is viable. Dr Soon Ting Kueh requested the final documents for approval to be presented at a physical meeting. Prof Ito Chao suggested the terms of elected members could be revised to address continuity issues. NAOs should be allowed to meet annually for better interaction among member countries. Prof Mei-Hung concluded the meeting by thanking everyone

A Report by:

ChM Dr Aqeel Saravanan

Date: 11th August 2021

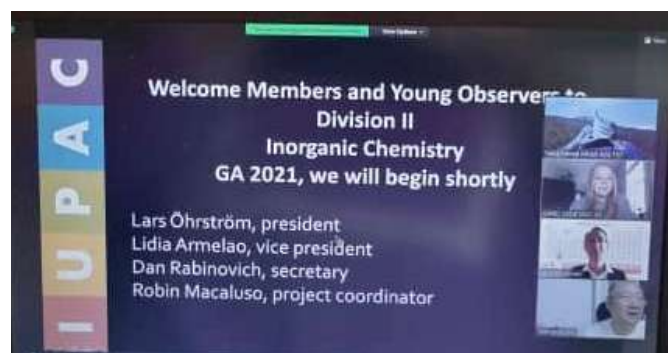




IUPAC Polymer Division Meeting on 11 Aug 2021



IUPAC Sub Committee of Polymer Education Meeting on 17 Aug 2021



IUPAC Division II Inorganic Chemistry Meeting on 10 Aug 2021



IUPAC Division VII Chemistry and Human Health Meeting on 13 Aug 2021

HYBRID EVENT: VIRTUAL/LIMITED-IN-PERSON

IUPAC INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY



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AND
THE CHEMICAL SOCIETY OF NIGERIA (CSN)

Announce

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IN CONJUNCTION WITH
44TH
ANNUAL INTERNATIONAL
CONFERENCE OF THE
CHEMICAL SOCIETY OF NIGERIA

@



Theme:

Global Electrical & Electronic Waste: Health Hazards For Africa

Sub Themes:

Health Implications | Management
Recycling | Disposal | Economics

Pre-conference activities:
November 7-8, 2021

Conference Days:
November 9-11, 2021

Online (virtual):
Zoom

Onsite (for Limited-in-person):
Yard 158, Oregun, Lagos, Nigeria

SPEAKERS:

- | | |
|---|--|
| <input type="checkbox"/> Prof. Aliyu Jauro, NESREA, Nigeria | <input type="checkbox"/> Maurizio Peruzzini, Italy |
| <input type="checkbox"/> Prof. Oladele Osibanjo, JAWURA EVN., Nigeria | <input type="checkbox"/> Dr. Ifeanyi Ochonogho, E-terra Tech, Nigeria |
| <input type="checkbox"/> Federico Magalini, SOFIE, UK | <input type="checkbox"/> Prof. Moses Nkem Chendo, Nigeria (Host/PRE CSN) |
| <input type="checkbox"/> Debasis Chatterjee, India | <input type="checkbox"/> Christer Forsgren, Stena Recycling, Sweden |
| <input type="checkbox"/> Diane Purchase, UK | <input type="checkbox"/> Dr. Ayokunle Adedolapo Fasawe, LASEPA, Nigeria |
| <input type="checkbox"/> Prof. Leiv K. Sydnes, Norway (Chair, IAB) | <input type="checkbox"/> Nadia Kandile, Egypt |
| <input type="checkbox"/> Seun Popoola, Nigeria | <input type="checkbox"/> Prof. Linda Godfrey, South Africa |
| <input type="checkbox"/> Adrian Clews, Hinckley Recycling, Nigeria | <input type="checkbox"/> Jay O. Oghifo (LOC Chair) |
| <input type="checkbox"/> Lindokuhle Nene, Rhodes University, South Africa | |

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Chair, LOC
08037137447

Prof. Leiv SYDNES
Chair IAB

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Event email: chemrawnxxi@e-wasteafrica.org | Event Manager: 08033588953, 08170650173

CONFERENCE REGISTRATION FEES:

- ▶ **CSN Fellows**
N25,500
- ▶ **CSN Members**
N15,500
- ▶ **Non-CSN Members**
N30,500
- ▶ **Students**
N6,500
- ▶ **IUPAC/FASC/RSC/
ACS Members**
\$300
- ▶ **Other Foreign Participants**
\$325
- ▶ **Exhibition Booths**
**N350,000 per 9sqm
booth space**



Institut Kimia Malaysia (IKM) was given an opportunity to organize the World Chemistry Leadership Meeting (WCLM) 2021 Malaysia Programme and live stream from Kuala Lumpur, Malaysia. It is an honour for IKM to be involved in the IUPAC WCLM 2021 programme as part of the IUPAC 51st General Assembly (51GA) being held virtually from Montreal, Canada.

The WCLM Malaysia 2021 Committee headed by Datuk ChM Dr Soon Ting Kueh managed to put together experts from this part of the world sharing their views on The Future of Chemistry in Asia Pacific & the Role of Artificial Intelligence.

WCLM Malaysia 2021 comprised a Panel Presentation of four Invited Lectures on

- Chemistry for Economic Development
- Chemistry for Environmental Protection
- Chemistry for Societal Harmonization
- Chemistry for Sustainable Development

followed by a Panel Discussion on "The Future of Chemistry in Asia Pacific", and two Keynote Lectures on "The Role of Artificial Intelligence".

The topics were chosen to showcase the importance of chemistry in socio-economic and sustainable development in Asia Pacific and the role of Artificial Intelligence in the future development of chemistry. Asia Pacific is going to

be a major economic and political region in the world in the near future and chemistry will be playing a key role in this transformation.

Speakers and their Topics

Chemistry for Economic Development

Professor Dr Mayumi Nishida

Institute for Catalysis, Hokkaido University, Japan

Chemistry for Environmental Protection

Dato' Professor ChM Dr Mazlin Mokhtar

LESTARI, Universiti Kebangsaan Malaysia, Malaysia

Chemistry for Societal Harmonization

Professor Dr Mei-Hung Chiu

Graduate Institute of Science Education, National Taiwan Normal University, Taiwan

Chemistry for Sustainable Development

Professor Dr Chulhee Kim

Department of Polymer Science and Engineering, Inha University, South Korea

The Role of Artificial Intelligence in Chemistry in the Future

Professor Dr David Winkler

School of Biochemistry and Genetics, La Trobe University, Australia

Artificial Intelligence and de novo Drug Design

Professor Dr Luhua Lai

College of Chemistry and Molecular Engineering, Peking University, China

The content of the programme was good and the speakers were excellent. The live streaming also went on smoothly without any hitches. Based on the feedbacks of the participants, the WCLM Malaysia 2021 was a big success. The programme had a total of 136 registered participants.



WORLD CHEMISTRY LEADERSHIP MEETING 2021 (MALAYSIA PROGRAMME)

Wednesday, 18 August 2021, 9.00 – 12.00 noon Kuala Lumpur

MALAYSIA TIME

PROGRAMME DETAILS

9.00 am

Welcome

ChM Dr Malarvili Ramalingam

9.05 am

Opening Address

Datuk ChM Dr Soon Ting Kueh
President, Institut Kimia Malaysia

9.15 am

IUPAC Address

Professor Dr Christopher K Ober
Chair, IUPAC WCLM 2021

9.20 am

Video on **"IUPAC 2025 - We Welcome You to Enchanting Malaysia"**
The Future of Chemistry in Asia Pacific

9.30 am

Chemistry for Economic Development

Professor Dr Mayumi Nishida
Institute for Catalysis, Hokkaido University, Japan

9.45 am

Chemistry for Environmental Protection

Dato' Professor ChM Dr Mazlin Mokhtar
LESTARI, Universiti Kebangsaan Malaysia, Malaysia

10.00 am

Chemistry for Societal Harmonization

Professor Dr Mei-Hung Chiu
Graduate Institute of Science Education, National Taiwan Normal University, Taiwan

10.15 am

Chemistry for Sustainable Development

Professor Dr Chulhee Kim
Department of Polymer Science and Engineering, Inha University, South Korea
Chairperson: Professor ChM Ts Dr Melissa Chan Chin Han

10.30 am

Panel discussion

Moderator: Datuk ChM Dr Soon Ting Kueh

Keynote Lectures on The Role of Artificial Intelligence

11.00 am

The Role of Artificial Intelligence in Chemistry in the Future

Professor Dr David Winkler
School of Biochemistry and Genetics, La Trobe University, Australia
Chairperson: Datin ChM Dr Zuriati Zakaria

11.30 am

Artificial Intelligence and de novo Drug Design

Professor Dr Luhua Lai
College of Chemistry and Molecular Engineering, Peking University, China
Chairperson: ChM Marhayani Md. Saad

12.00 noon

Closing Address

Datuk ChM Dr Soon Ting Kueh



MAYUMI NISHIDA

Hokkaido University, Institute for Catalysis, Research and Development Division and National Institute of Advanced Industrial Science and Technology (AIST), Interdisciplinary Research Center for Catalytic Chemistry, Japan



Prof. Nishida has been a professor of Hokkaido University since 2014 and a cross-appointment fellow of AIST since 2015. She started her career in academia in 1979 after graduating from Tsukuba University. During working for 20 years in academia, she received Ph.D. from Hokkaido University in 1992 and changed her career to industry in 1998. She had been involved in new technology/business development related to metallocene catalysts at Koei Chemical Company, Ltd., which is a subsidiary of SUMITOMO CHEMICAL COMPANY, LIMITED, for 15 years and came back to academia in 2014 as a professor of Hokkaido university. Her mission is to work for industry-academia collaboration. She was appointed as an outside director (audit & supervisory committee members) of RAINEXT Corporation in 2020.



MAZLIN MOKHTAR

Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia, Malaysia

Mazlin Bin Mokhtar, BSc (Tasmania), PhD (Queensland) is a Professor of Environmental Chemistry at Universiti Kebangsaan Malaysia (UKM, The National University of Malaysia). He is currently a Director of the Institute for Environment and Development (LESTARI) at UKM since August 2005 - 15 January 2014; and again since 1 March

2019-28 February 2022. He was appointed by the Honorable Minister of Natural Resources and Environment Malaysia as Chairman of the Malaysian Environmental Quality Council from 2015-2018. In 2018 the Honorable Minister of MESTECC (Ministry of Energy, Science & Technology, Environment, and Climate Change) appointed Prof Mazlin as Chairman of Evaluation Committee of Lynas rare earth operations in Malaysia. In 2019 Prof Mazlin was appointed by the Honorable Minister of KATS as Deputy Chairman of a special Committee to develop SOP for Bauxite Mining and Exportation. He was a member of the National Steering Committee of the UNDP GEF Small Grants Programme 2000-2018 (longest serving member); esteemed Nomination Committee Member of the prestigious Merdeka Awards Malaysia (Environment Category) of 2015-2017 & 2020-2022; Advisory Committee of the National River Care Fund, Member of WWF Malaysia's Board of Trustees 2014-2018; and currently Chairman of Sub Sector on Advocacy, Awareness, Capacity Building & Public Participatory Platforms (AACB+PPP) of the National Water Sector Transformation 2040 Study sponsored by the Economic Planning Unit (EPU) of Prime Minister's Department & Academy of Sciences Malaysia (ASM). Professor Mazlin was awarded Winner of the coveted national environmental award Anugerah Langkawi 2017/2018. His Royal Highness The Sultan of Kedah Darul Aman had bestowed upon Prof Mazlin the Darjah Setia DiRaja Kedah DSDK on 14 January 2014 which carried the title Dato'; and earlier His Royal Highness The Sultan of Perak had bestowed upon him the Pingat Paduka Mahkota Perak PMP in 2002 based upon his excellent services to country and society for sustainability of one, and many.



MEI-HUNG CHIU

National Taiwan Normal University, Graduate Institute of Science Education, Taiwan

Dr. Mei-Hung Chiu is a Distinguished Professor at the Graduate Institute of Science Education, National Taiwan Normal University. Dr. Chiu was the Chair of Committee on Chemistry Education (2012-15) and is an elected member of the Bureau and Executive Committee of IUPAC since 2016. She published over 100 articles on conceptual understanding

of scientific phenomenon, modeling-based competence, facial recognition system and augmented reality in science education, in international and national well-known journals. Dr. Chiu was a recipient of the Distinguished Contribution to Chemical Education Award from the Federation of Asian Chemical Societies in 2009, the Distinguished Contribution to Science Education Award from Eastern-Asian Science Education Association in 2016, and the Distinguished Woman in Chemistry or Chemical Engineering from IUPAC in 2021. She was elected as the President of the National Association for Research in Science Teaching (2016-2017) based in the USA, the first president from a non-English speaking country.

CHULHEE KIM

**Department of Polymer Science and Engineering,
Inha University, South Korea**

Chulhee Kim is a Professor of Polymer Science and Engineering at Inha University. He obtained a BS in Chemistry from Seoul National University, and an MS from Korea Advanced Institute of Science and Technology (KAIST). After working at the Korea Institute of Science and Technology (KIST), he obtained a PhD at The Pennsylvania State University. After two years working at AT&T Bell Labs, Murray Hill, in 1992 he returned to the KIST as a senior researcher. From 1993 he started his academic career at Inha University. He was the recipient of the Samsung Academic Award from the Polymer Society of Korea in 2009. He served as the Editor-in-Chief for Macromolecular Research in 2011-2013. He also served as the President of Polymer Society of Korea in 2018. He currently is a member of Korean Academy of Science and Technology.





DAVID WINKLER

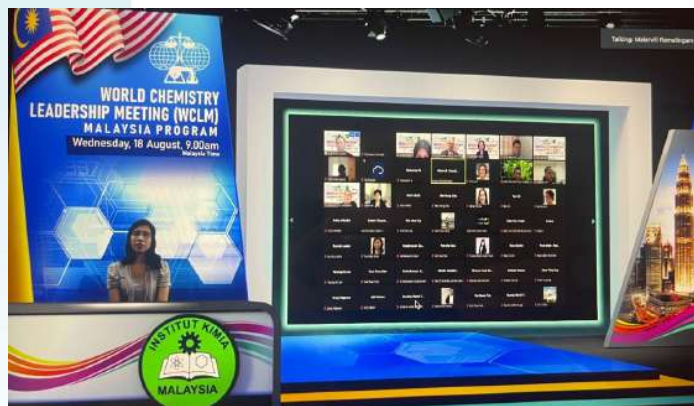
School of Biochemistry and Genetics, La Trobe Institute for Molecular Science, La Trobe University, Bundoora, Australia

Dave is a Professor of Biochemistry & Genetics at La Trobe Institute for Molecular Science at La Trobe University, a visiting Professor in Pharmacy at the University of Nottingham, and a Fellow at CSIRO Data61. He previously spent >30 years at CSIRO researching the application of computational chemistry, AI, and machine learning methods to the design of drugs, agrochemicals, nanomaterials and biomaterials. He has authored over 250 refereed journal articles and book chapters, has an H index of 50, and is an inventor on 25 patents. He has won several prestigious awards including the CSIRO Medal for Business Excellence, RACI's Adrien Albert award for contributions to medicinal chemistry, and ACS Herman Skolnik award for excellence in cheminformatics. He is ranked 227th out of 81,000 medicinal chemists, and 999th out of 520,000 chemists worldwide (Mendeley 2019). He is past President of the Federation of Asian Chemical Societies (FACS) and the Asian Federation for Medicinal Chemistry (AFMC)

LUHUA LAI

College of Chemistry and Molecular Engineering, Peking University, China

Prof. Luhua Lai is a professor in the College of Chemistry and Molecular Engineering, Peking University. She serves as associated editor for PLoS Computational Biology (2005-2013), Journal of Medicinal Chemistry, and Quantitative Biology. Professor Lai's group works on deciphering the basic laws governing protein sequence, structure and function relationship. They develop computational methods and programs, and use them to study biomolecules and systems of interest together with experimental approaches. The current research areas of Professor Lai's group include: (I) Systems based drug design with focus on metabolism and control. (II) Structural based drug design, method development and applications. Some of the programs they developed, like the de novo drug design program LigBuilder are widely used worldwide. (III) AI in cheminformatics and drug discovery. (IV) Functional protein design.



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Vanta pXRF analyzers provide fast, precise, nondestructive assessment of mercury contamination directly on oil and gas assets. The mercury inspection should be carried out during the decommissioning process as shown in Figure 1.



Figure 1: Infographic of Mercury Analysis in the Decommissioning process.

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Figure 2: In-situ quantitative analysis with Olympus pXRF.

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W: www.crest-group.net



The Secondary Science Education Under Pandemic's Shadow

Lee Mei Leng

Ex-Principal Sekolah Menengah Kebangsaan Damansara Jaya &
Sekolah Sri Tenby Setia Eco Park, Setia Alam

The Malaysian Secondary Science Education has undergone several changes in medium of instruction, assessment criteria, moving away from SPM Practical Science Examinations to delivery approaches when the present pandemic settled in as early as 2020 with indefinite school closures. Schools have to make up the missing face to face teaching by adopting online teaching and hybrid learning on a digital platform. All these changes have serious effects on today's generation of students.

After a few years, the medium of instruction changed to Bahasa Malaysia until 2003 when it was reverted back to English with the PPSMI (Bahasa acronym for Teaching & Learning of Science and Mathematics in English) policy in place starting with Year 1, Form 1 and Lower 6. Then in 2013, PPSMI was abolished and replaced by DLP which is the Dual Language Programme whereby schools have to apply get selected to teach in English. Schools had to show their 5 years of excellent examination results to be selected to teach in English for these two

I started teaching Chemistry in English with the Nuffield Science approach in 1976. Teaching Chemistry then was so interesting where every lesson started with an experiment conducted and based on experimental findings, we had very active & interesting discussions with no language barrier leading to the topic taught. Students experienced the thrills of experimenting with a friend or in a group of two or three. Most students complained that experimenting was fun but observations of colour changes of solutions were difficult to remember. Looking back, in fact these initial years are my most enjoyable part of my entire teaching career of 30 yrs. As a teacher then, I associated colour change of oxidising agent like acidified solution of Potassium manganate (VII) with the change of colours of *Brunfelsia calycina* flowers from purple to colourless (white being associated with no colour) as this plant has only purple and white flowers on the same plant. Another example used is the leaves of a plant called *Eugenia oleina* which has young orange leaves and green matured leaves. It was quoted for the change of colour of another oxidising agent acidified solution of Potassium dichromate (VI) from orange to green.



subjects. So, in the present-day scenario, some schools or some classes in certain schools are teaching in English and others are still in Bahasa Malaysia. In the vernacular Primary Schools these two subjects are still taught in Chinese or Tamil. Thus, for public examinations, Science & Mathematics questions of the national schools are now set bilingually. To some, bilingual questions may be clearly understood if read in Bahasa but to others these questions are distracting as students have tendency to read both languages for each question.

This pandemic sees the abolishment of the Std 6 Primary School Achievement Test (UPSR) at the beginning of 2021. At the same time, this year's Form 3 Assessments (PT3) which replaced Lower Secondary Assessment (PMR) since 2014 is cancelled and the SPM (Malaysian Certificate of Education) at the end of Form 5 is to be deferred to a later date due to loss of curriculum coverage time affected by pandemic's school closure.

All these assessments are replaced by ongoing School-Based Assessments (PBS) for the subjects involved. The reason given is students will be less pressured with examinations as most schools had focused on exam-preparation programmes to get more students to score straight As. In so doing, students will have more time to explore learning to be more creative. Thus, the roles of teachers have become very important to make sure all these intended learning outcomes are attained. On the contrary, the situation now definitely sees students less motivated to learn, have no peer pressure at home, feeling isolated from their peers & lacking in physical team sports activities.

Added to all these negative effects, the fun of experimenting is gone with the scrapping of SPM Practical Examinations since 2000. This practical component for mastering Science process skills was replaced by Paper 3 which was a written test on theory of practical and eventually replaced by PEKA (Bahasa acronym for Assessment of Practical Science Work) whereby experiment is conducted and its report is marked to identify the skills shown.

In today's pandemic scenario, when students do not carry out experiment in the laboratory, they lack the practical skill in handling certain instruments and apparatus. The important titration technique has long been neglected since the outbreak of the pandemic. Online theory lessons are easily presented but students are lacking in basic laboratory techniques to be confident at tertiary levels to conduct experiments. Besides this aspect, there is no emphasis at Secondary level on the accuracy of measurements collected

when readings are presented. Throughout my student's days, only my Form 6 Physics teacher emphasised on how to present readings with the correct accuracy.

Science is a practical subject and experiments are essential for the studies. When practical sessions are done away during this pandemic and earlier by the abolishment of Practical Science Examinations for SPM Pure Sciences and Additional Science, less experiments are carried out and the short cut is to provide the observations and readings to discuss to arrive at a convenient conclusion for the concepts touched. Let us all hope this pandemic will be over soon to revert to a system whereby students are carrying out experiment all by themselves. In the meanwhile, Practical Skills Sheets with notes and guidelines to use certain laboratory apparatus are useful for interested students to read at home. Also, videos for the same purpose will be the added value for these students.

Considering the global and local pandemic situation, online teaching and learning will be the new norm for schools now and the near future. Teachers feel that they can cover online as much as the physical lesson for the same time duration as there is no distraction. The plus factor is that they can conduct lessons from the comfort of their homes but students still prefer physical classes. The effectiveness of this new norm depends mainly on the creativity of teachers to deliver clear, well-structured and interesting lessons to engage students to learn. The delivery approach must include notes to be displayed, video clips of experiments shown and doing exercises on the spot with immediate discussion. No homework should be given. Quiz is also well received as it is another way to gauge students' understanding of the contents of the day's lesson. Excellent teachers have even prepared their own workbook ready for lessons for students to refer to during the online lesson and they make notes everyday for their students. During online lessons, students respond to the teacher's questions by switching on the audio. In between lessons, the teacher may send video clips of experiments to the chat group of her/his students. Thus, an effective excellent teacher will provide effective lessons in any situation.

Kudos to all effective teachers.

Writer's notes

This sharing is a collection from my experiences, encounters and personal perception summarized after serving in Government schools in Perak and Selangor for 31 years and 8 years in a Malaysian Private School with Std 1 to Form 5 which I started in 2009 when I was the School Principal.

Advance Solution for



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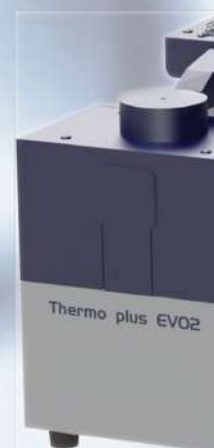
**Resin
Development**

**Resin
Manufacturing**

**Compound
Development**



**100MHz NMR
Spectrometer**



NEX CG II

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IUPAC from A Young Chemist's Perspective

When you hear the name of the International Union of Pure and Applied Chemistry (IUPAC), you would naturally be reminded of the chemical nomenclature you learned in chemistry class or textbooks. At that age, you may have resented the people who created such “complex” naming system to make life difficult for you as a student but as you get older, particularly when you are pursuing chemistry as a career be it in academia or industry, you learn to appreciate the standards that have been put in place to make life easier for you. Have you ever wondered who are the people behind all the chemical nomenclature and terminology, standardisation methods for measurements, etc.? What do these people do at the IUPAC biennial General Assembly (GA) and World Chemistry Congress (WCC), such as the recent virtual IUPAC 2021? And how did I get involved in IUPAC as a young chemist?

My IKM & IUPAC Journey – 10 Years' Highlights

10 years ago, IUPAC celebrated the International Year of Chemistry (IYC) 2011 under the unifying theme of “Chemistry – Our life, Our Future”. Various activities were planned with the primary goals of eliminating the negative image of chemistry and bringing about a “Renaissance of Chemical Science in the century” [1]. One of them was the International Video and Essay Competition on “A World without Polymers?” organised by the IUPAC Polymer Division. Out of curiosity and my love for chemistry, I stepped out of my comfort zone, took up the challenge to participate in the video category of the competition and won first prize [2]. With the sponsorship of the organiser, Institut Kimia Malaysia (IKM), Akademi Sains Malaysia (ASM) and the Malaysian Rubber Glove Manufacturers Association (MARGMA), I was able to travel to San Juan, Puerto Rico for the award ceremony held at IUPAC 2011. The exposure was enlightening and has opened up many opportunities for me in the years that follow.



Having graduated with my Bachelor's degree (with Honours) in Pure Chemistry from Universiti Sains Malaysia in 2014, I went abroad to pursue my PhD in Chemistry at Newcastle University focused on the design and synthesis of fluorescent organic compounds and polymers for use in energy applications. Since I enjoyed communicating chemistry to the general public (particularly about Polymers) in various IKM events during my undergraduate, I actively involved myself in science outreach events as a STEM ambassador and a member of the Royal

Society of Chemistry while I was in the UK. Upon graduation, I returned to Malaysia to embark on my academic journey as a chemistry lecturer based in the School of Energy and Chemical Engineering of Xiamen University Malaysia. In celebration of both the IUPAC centenary (IUPAC 100) and the International Year of Periodic Table (IYPT) in 2019, the IUPAC and the International Younger Chemists Network (IYCN) announced the creation of a Periodic Table of Younger Chemists to showcase a diverse group of 118 outstanding younger chemists from around the world who embodied the mission and core values of IUPAC. I was very grateful to have been awarded the element Bohrium alongside two other Malaysians – Dr Magaret Sivapragasam (Ytterbium) and Dr Felicia Lim Phei Lin (Samarium) [3]. In the same year, I was given the opportunity to contribute in the preparation of IUPAC 2025 and MACRO 2026 bidding slides. IKM successfully won both bids to host IUPAC 2025 in Kuala Lumpur and MACRO 2026 in Kuching, Sarawak! The preparation for the events are underway. In 2020, I was elected as the youngest council member in IKM history to serve its 2020/2021 term. It was a challenging experience having to take up new roles that come with greater responsibilities, yet not having as much time to adapt or contribute due to various reasons attributed to the COVID-19 pandemic. However, I still learned a lot from the process, improved on my leadership skills, enhanced my understanding of the organisation, its international affiliations (e.g. IUPAC) and its flagship events/activities. I was also actively involved in the Malaysian Young Chemists Network (MYCN) as the Media Ambassador Chairperson, which resulted in being nominated as one of the two International Younger Chemists Network (IYCN) Malaysian Delegates. Eventually, it came full circle when I participated in IUPAC 2021 as an invited speaker, as a Malaysian Delegate in the IYCN GA, as a Young Observer (YO) in Division IV Polymer GA and as a National Representative (NR) (2022-2023) in the Committee on Chemical Research Applied to World Needs (CHEMRAWN) GA. Little did I know that 10 years after my first IUPAC encounter, I'd be given such privileges to serve both organisations (IUPAC and IKM) that got me to where I am now.

Virtual IUPAC 2021: Two Weeks Well Spent!

Thanks to the COVID-19 pandemic, IUPAC 2021 went virtual with meetings and live Q&A held in Zoom, social events/exhibitions hosted in Gather.Town, plenaries were live-streamed, oral presentations were pre-recorded and poster presentations were uploaded ahead of time on the



conference platform. As the attendees were based around the world across different time zones, we all did our best to cope with the sessions, even if it meant having to sleep at 2 AM or to wake up a few hours later at 5 AM to catch the live stream/Q&A of a plenary.

51st IUPAC General Assembly

My week started with the IYCN's first online GA on August 8th, 8 PM MYT. Also in attendance were ChM Dr Shahrul Nizam Ahmad (Universiti Teknologi MARA, UiTM) – Malaysian Delegate and Assoc Prof ChM Dr Lee Hooi Ling (Universiti Sains Malaysia). Each represented country received one vote to reflect a stand in the proposed changes to the Statutes and Bylaws as well as in the voting of executive board candidates. As it was virtual, the voting was done via a secure and anonymous platform oversee by election observers. Towards the end of the GA, we were given the opportunity to networking and connect with various IYCN subcommittees in separate breakout rooms. The public outreach subcommittee, in particular, had positive team dynamics which resonated with me. The second meeting I attended was the GA of CHEMRAWN on August 10th, 5 AM MYT chaired by Prof Francesca Kerton (Memorial University of Newfoundland, Canada). In attendance were Datuk ChM Dr Soon Ting Kueh (Institut Kimia Malaysia, National Representative, 2020-2021) and Assoc Prof ChM Dr Juan Joon Ching (Universiti Malaya, Associate Member, 2020-2021) while I was there as a YO. During the session, discussion leaders presented updates about their meaningful projects which revolved around the following six IUPAC goals:

1. Address global issues
2. Advance research through scientific discussion
3. Assist industry towards sustainable

development, wealth creation and improvement of the quality of life

4. Foster communication among chemists and organisations with special emphasis on needs in developing countries

5. Enhance education and the application of chemistry globally

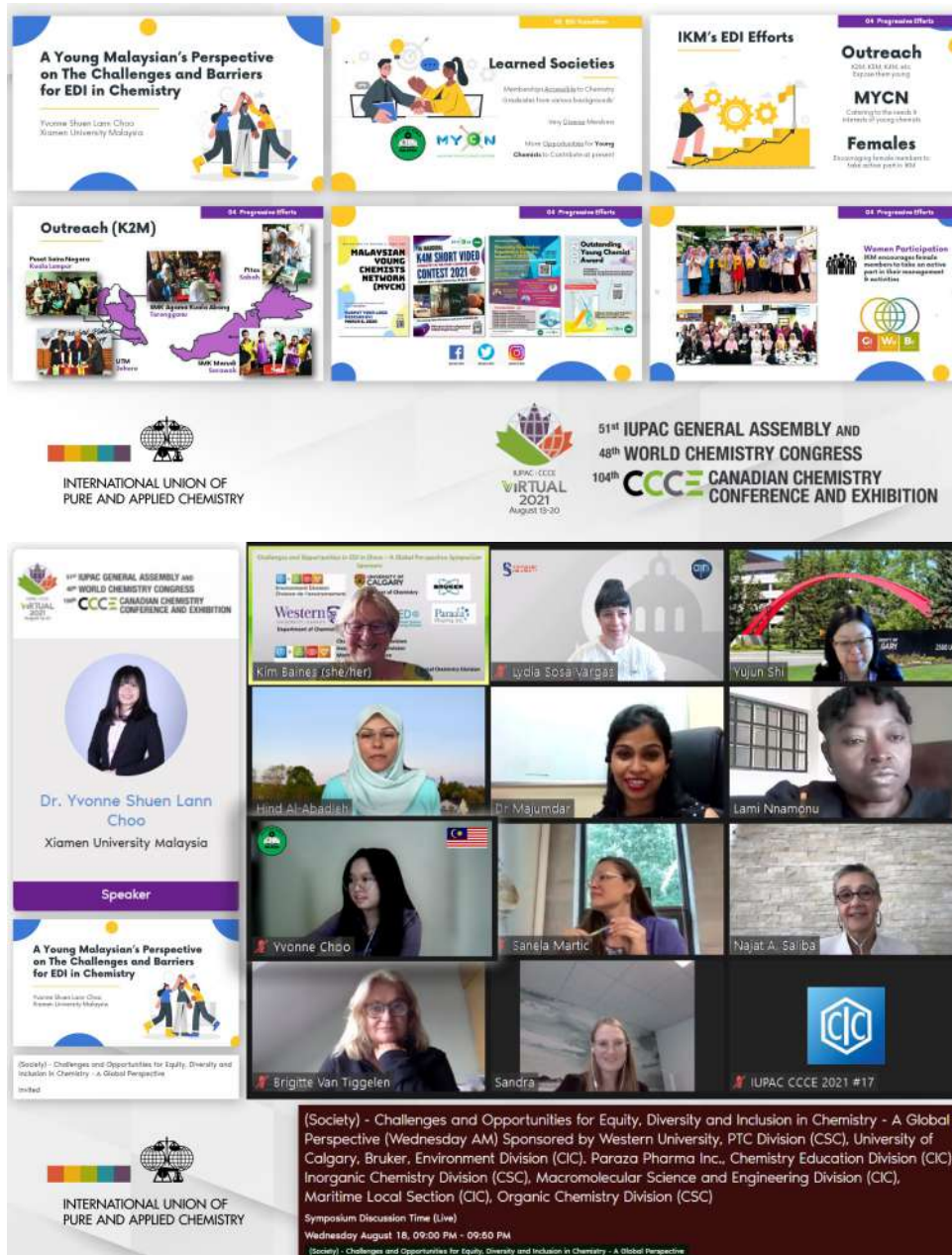
6. Increase the diversity in IUPAC bodies

In an effort to reach out to the social-media active generation, CHEMRAWN made use of its Twitter and Facebook platforms to showcase its projects (e.g. E-Waste Conference, Prize for

Green Chemistry, etc.), re-tweeting of important issues/research areas (e.g. Microplastic pollution, SDG, etc.). On August 11th, 5 AM MYT, I attended the GA of Division IV Polymer chaired by Prof Christine Luscombe (University of Washington, USA). In attendance was Prof ChM Ts Dr Chan Chin Han (Universiti Teknologi MARA, UiTM, Titular Member, 2020-2023) while I was there as a YO. It was apparent that the Polymer Division is one of the most active divisions within IUPAC as reflected by the high number of turn up (members/observers and the impressive number of completed, ongoing and upcoming projects. In addition to the GA, fellow YOs were invited to join in subcommittee task group (project) meetings and special sessions held concurrently with the IUPAC 2021. The Subcommittee of Polymer Terminology (SPT) had thoughtfully arranged a session after their opening to brief YO about the task group meetings they had planned within the 2 weeks and encouraged us to attend those we were interested in, to better understand them. I felt very welcomed and cherished in the meetings – given the chance to brainstorm new project ideas, share perspectives and contribute despite being new to the division. At the SPT closing session, the chair of the SPT subcommittee – Prof Dr Patrick Théato (Karlsruhe Institute of Technology, Germany) announced that I will be officially invited back to attend next year's at MACRO2022 alongside several other YOs.

48th IUPAC World Chemistry Congress

I was invited by the chairs of the (Society) - Challenges and Opportunities for Equity, Diversity and Inclusion (EDI) in Chemistry – A Global Perspective Symposium to give a talk about my perspective of EDI within the Malaysian chemistry community at IUPAC 2021. Equity, Diversity and



discussion) session for speakers to interact with those in attendance. Many insightful stories/experiences were shared and possible solutions/progressive efforts were discussed. Despite being virtual, IUPAC 2021 successfully hosted several social sessions on Gather.Town. It is a fun platform that enabled attendees to mingle in the virtual conference space as personalised avatars. I got to talk to Dr Fabienne Meyers – the Associate Director of IUPAC and Mr Frank Sekeris – the Congress Manager of IUPAC 2023 at their virtual booths. We reminisced about IYC 2011, IYPT 2019, talked about IUPAC 2023, IUPAC 2025 and anticipated the day when conferences could be in-person. All in all, these two weeks have been extremely fruitful as I have learned a lot about IUPAC from its people and through participation in various task group (project) meetings and GAs. I have also made many new connections and got to be involved in some of the projects. If I had to briefly describe IUPAC in my own words, I would say it is a welcoming organisation that is made up of inspiring individuals from very diverse backgrounds and areas of expertise but they all had a common goal – to contribute and advance chemistry for the betterment of society! It was meaningful to look back on my last 10 years with IKM and IUPAC through the preparation of this report. Time to look forward to the next decade contributing to chemistry education, research and the community. Thank you IKM and IUPAC for entrusting me with these responsibilities, I promise to serve to the best of my ability.

Inclusion are three terms that may sound foreign to a lot of us in Malaysia simply because we have not been exposed to them as much as the West. According to Cambridge dictionary, equity refers to “the situation in which everyone is treated fairly and equally”, diversity refers to “the fact of there being people of many different groups in society, within an organisation, etc.” and inclusion refers to “the idea that everyone should be able to use the same facilities, take part in the same activities, and enjoy the same experiences, including people who have a disability or other disadvantage”. As the world progresses to prioritise EDI and acknowledges its importance in our community/workplace, we must recognise IKM’s EDI efforts within its organisation – from the establishment of the Malaysian Young Chemists Network (MYCN) to the involvement of women in leadership roles in the council. Such key efforts have been showcased as part of my 15-minutes pre-recorded video. There was also a live Q&A (symposium

chemistry for the betterment of society! It was meaningful to look back on my last 10 years with IKM and IUPAC through the preparation of this report. Time to look forward to the next decade contributing to chemistry education, research and the community. Thank you IKM and IUPAC for entrusting me with these responsibilities, I promise to serve to the best of my ability.

References:

- [1] Jin, J.-I. (2011), Significance of the International Year of Chemistry 2011. *Chem. Eur. J.*, 17: 9-11. <https://doi.org/10.1002/chem.201003326>
- [2] [Anon.] (2011), A World without Polymers: Chemistry International -- Newsmagazine for IUPAC, 33(6), 24-25. <https://doi.org/10.1515/ci.2011.33.6.24>
- [3] Choo, Y.S.L. (2019), The Three Malaysians in IUPAC’s Periodic Table of Younger Chemists: *Berita IKM*, 136, 18-20.

Report prepared by,
ChM Dr Yvonne Choo Shuen Lann
August 2021

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IUPAC Division III Organic and Biomolecular Chemistry Meeting

The IUPAC Division III Meeting was held on 10 August 2021 at 10pm Malaysian time. The meeting was chaired by the Division III President, Prof. Amelia Rauter from Portugal. Datin ChM Dr Zuriati Zakaria attended as the National Adhering Organisation representative for Malaysia. Division III consists of a Division Committee (comprising 10 Titular members, 6 Associate Members and 10 National Representatives) and five Sub-committees that oversee the activities in specific areas of organic and biomolecular chemistry. Division III is also involved into activity of Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD) which acted initially as the Subcommittee on Green Chemistry of Division III.

The five sub-committees and their elected Chairs are:

- *Sub-Committee on Organic Synthesis (Chair: Nikolay Nifantiev, Russia – to be rotated)*
- *Sub-Committee on Biomolecular Chemistry (Chair: Zhen Xi, China)*
- *Sub-Committee on Biotechnology (Chair: Fengwu Bai, China)*
- *Sub-Committee on Photochemistry (Alex Griesbeck, Germany)*
- *Sub-Committee on Structural and Mechanistic Organic Chemistry (Chair: Ian Williams, UK)*

These sub-committees used to meet annually (in 2020-2021 – mainly in the on-line remote mode). The Division III oversees the biannual awarding of the Thieme-IUPAC Prize for Organic Synthesis for scientists under the age of 40 years whose research has had a major impact on the field of synthetic organic chemistry. This prize is generously supported by the scientific publisher Thieme and includes an award of €5000. The 2020 Thieme-IUPAC Prize has been awarded to Professor Ang Li of the Shanghai Institute of Organic Chemistry, CAS (China) for his outstanding investigations towards the total synthesis of structurally and biologically interesting natural products. Division III provides scientific expertise to address critical world needs. A project launched in 2015 (Healthy Life and Active Ageing: the Contributions of Functional Food Ingredients; PI Prof. Amelia Rauter) seeks to bring chemistry to the general public. A continuation of the project entitled 'Bridging ethnic food cultures through chemistry' is in progress. Another project in which IUPAC provides scientific expertise to address critical world needs concerns the "Human health risk

consideration on nano-enabled pesticides for industry and regulators". The project "Biomass Burning in Sub-Saharan Africa" was successfully finished with the publication a book". The Committee discussed about new projects submitted and invited members to submit as some budget are available.

The meeting also informed members about some conferences which were postponed due to the COVID 19 pandemic. Some are listed as follows:-

- International Conference on Organic Synthesis (ICOS). 23rd ICOS, Shanghai, China, 18-23 October 2020, <http://icos2020.sioc.ac.cn/dct/page/1>, postponed to 16-21 Oct 2022.
- International Symposium on the Chemistry of Natural Products (ISCNP) and International Conference on Biodiversity (ICOB). ISCNP31 & ICOB11 October 25th – 29th 2020 in Napoli, Italy, <https://www.iscnp31-icob11.org/>, postponed for 24-28 October 2021
- International Symposium on BioOrganic Chemistry (ISBOC). ISBOC-13, October 23-26, 2021, Singapore
- International Carbohydrate Symposium (ICS). 30th ICS, Shanghai, China, 12-17 July 2020, <http://ics2020.sioc.ac.cn> – postponed till 2024.
- International Conference on Physical Organic Chemistry (ICPOC). 25th ICPOC, Hiroshima, Japan, 5-10 July 2020, <https://icpoc25.jp/> - ICPOC-25 has been postponed to July 10-15 2022
- IUPAC International Symposium on Photochemistry (PhotoIUPAC) 28th, Amsterdam, Netherlands, 12-17 July 2020. <https://photoiupac2020.amsterdam/> rescheduled for July 17-22, 2022.
- International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS) 21st OMCOS, Vancouver, Canada, July 25-29, 2021. <https://omcos2021.ca/> rescheduled for July 24-28, 2023
- International Symposium on Glycoconjugates (GLYCO). GLYCO26, Taipei, Taiwan, August 29 – September 3, 2021, <http://glyco26.org/> rescheduled for Aug 27 – Sept 01, 2023

Report by
Datin ChM Dr Zuriati Zakaria

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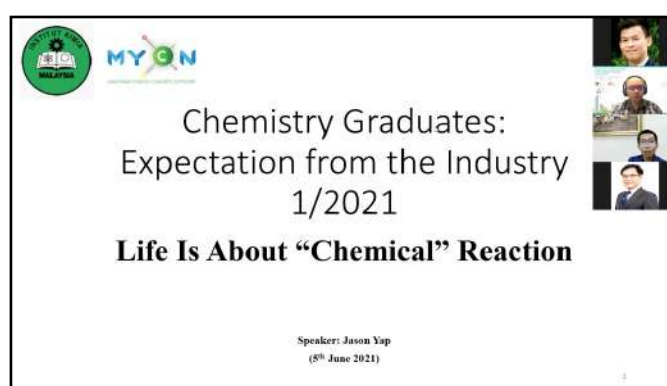
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MYCN Career Talk Series

Chemistry Graduates: Expectation from the Industry

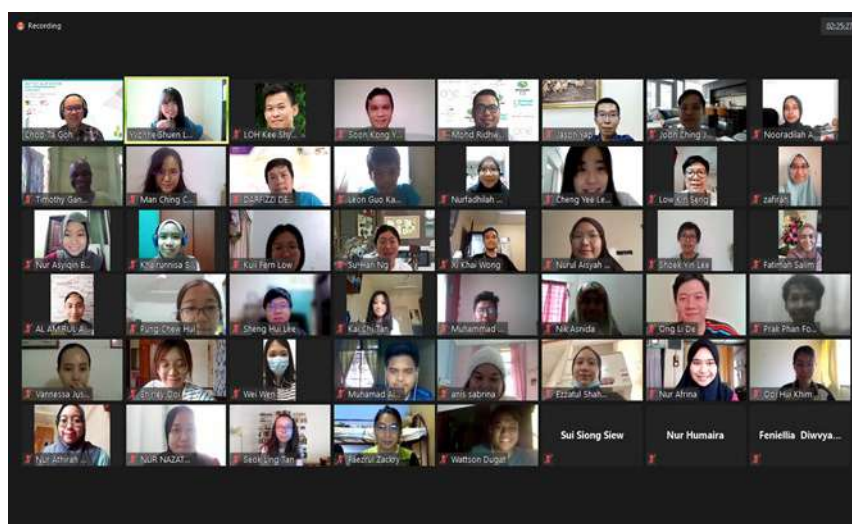
The Malaysian Young Chemists Network (MYCN) successfully organised a career talk entitled 'Chemistry Graduates: Expectation from the Industry'. The objective of the career talk is to create a platform for industry players to share their experiences and expectations with chemistry graduates from higher education institutions in Malaysia. The event was held on 5 June 2021 together with Karvinial Kerjaya dan Kemahiran Kimia Malaysia (K4M) virtually via Zoom. Assoc Prof Dr Goh Choo Ta successfully chaired and organized this event. There were two prominent speakers from the industry invited to share their views during the event. The first speaker was Mr. Jason Yap, Manager cum Quality Management Representative from Matrix Oleochem Sdn Bhd and QMR for Natural Bleach Sdn. Bhd, with 19 years of experience in pharmaceutical, sealant & adhesive, glove, green plasticiser, and presently in oleo chemical and food industries. He has also established QMS & FSMS for the companies and supports 6 continents' customers. The second speaker was Mr. Mohd Ridhwan Rusli, the Manager of the Human Resource Department, Boustead Properties Berhad. He has more than 10 years experience in human resources, and his expertise include Recruitment Matrix, Hay Job Evaluation and Strategic Workforce Planning Certification. A total number of 248 participants have registered for the MYCN career talk, whereby 80% of the participants were from public universities, 5% from private universities and remaining 15% from other entities such as industry and agencies. This event has served its purpose to prepare the fresh graduate for more employability opportunity.



Prepared by

Assoc Prof ChM Dr Goh Choo Ta,
MYCN Career Talk Chairman

Assoc Prof ChM Dr Juan Joon Ching,
MYCN Chairman



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Karvinal Kerjaya dan Kemahiran Kimia Malaysia (K4M)

Malaysian Young Chemist Network (MYCN), Institut Kimia Malaysia (IKM) has successfully organized the inaugural Karvinal Kerjaya dan Kemahiran Kimia Malaysia (K4M) Short Video Contest in May 2021. This event is inspired by Assoc Prof Dr Juan Joon Ching (MYCN Chairman) to create a platform for the undergraduate student in university-level for a pitching competition. Dr Yong Soon Kong (MYCN Deputy Chairman) has led and chair the K4M event. This is IKM's third outreach programs after Karnival Kimia Malaysia (K2M), and Kuiz Kimia Kebangsaan Malaysia (K3M). Initially, K4M was proposed in January 2020 as a live pitching competition for the undergraduate to showcase their talent. This will enable the judge from the different industries to take this opportunity to employ them based on their talent. In addition, the undergraduate will have the opportunity to meet and inquiry about job opportunity. However, due to limitations of the COVID-19 pandemic in April 2020, K4M was modified to be a video-making competition. The K4M Short Video Contest is a platform for outstanding students to showcase skills in pitching research ideas using short video. The opening of the K4M Short Video Contest was first announced on the 1st April 2021 via MYCN's social media portals and IKM's website. Based on this year's theme - 'Chemistry in the post-COVID Recovery', participants from various public and private universities in Malaysia submitted a 5-minute-long video about utilizing innovative ideas in addressing the challenge of returning to normalcy after the COVID-19 pandemic.

The responses have been over-whelming and entries were of impressive quality. The best ten videos were selected by MYCN members from the industry and academia according to the judging criteria, i.e., creativity, originality, scientific content, story-telling ability, and ability to deliver a concise and meaningful summary at the end of video. to advance to the final stage. The public was allowed to view the videos in YouTube and vote their favourite videos. The final judging stage was concluded on the 4th June 2021 and the announcement ceremony was conducted on the following day in conjunction with MYCN's Inaugural Career Talk Series. Mister Leon Guo Kang from Universiti Malaya has delivered a video about using biodegradable materials for manufacturing facemask and successfully won



the second runner up. The first runner up goes to the team from Universiti Teknologi MARA lead by Miss Nurul Aisyah Jundi who has produced a video on using Raman spectroscopy for fast detection of COVID-19. The winner of the inaugural K4M Short Video Contest is Miss Christine Law Shing Wei from Monash University Malaysia. Her videos on repurposing drugs for managing COVID-19 has captured hearts of judges and the public. Huge congratulations to the winners of the inaugural K4M Short Video Contest 2021. Special thanks to fellow MYCN members for making the inaugural K4M a success.

Committee members:

Dr. ChM. Fatimah Salim (Universiti Teknologi MARA), Dr. ChM. Wong Lai Peng (Universiti Tunku Abdul Rahman), Assoc Prof Dr ChM Juan Joon Ching (Universiti Malaya), Dr. ChM. Yvonne Choo Shuen Lann (Xiamen University Malaysia), Ts. Dr. ChM. Sin Jin Chung (Universiti Tunku Abdul Rahman), ChM. Lee Shoek Yin (Afcon Chemicals Sdn Bhd), Dr. ChM. Lee Hooi Ling (Universiti Sains Malaysia), Assoc. Prof. Ts. Dr. ChM. Lam Sze Mun (Universiti Tunku Abdul Rahman), ChM. Mohd Faris Mohd Rudi (Institut Penyelidikan Sains & Teknologi Pertahanan), ChM. Tan Dai Chuan (Universiti Putra Malaysia), Dr. ChM. Chien Ing Yeo (Sunway University), ChM. Yao Jun Chua (ALS Technichem (M) Sdn Bhd), Dr. ChM. Tan Yee Seng (Sunway University).

Prepared by Dr. ChM. Yong Soon Kong (Universiti Teknologi MARA), ChM. Nor Fateha Azuan (CAIQTEST Malaysia Sdn. Bhd.) & Assoc Prof Dr Juan Joon Ching (University of Malaya)



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Winner
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Drug repurposing: a safe bet?
Christine Law Shing Wei
(Monash University Malaysia)

Scan the QR code to watch the winning video:




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Chemistry in the post-COVID recovery

Drug repurposing: a safe bet?

by Christine Law



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NURUL AISYAH BINTI JUNDI
NURUL AIN FATEHA BINTI ZAMZAM
MIRA AFIQAH BINTI RHYME
NUR FARZANA SYAFIQAH BINTI MOHD FAISAL

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Nurul Aisyah binti Jundi (UiTM)
Nurul Ain Fateha binti Zamzam
Mira Afiqah binti Rhyme
Nur Farzana Syafiqah binti Mohd Faisal

Scan the QR code to watch the winning video:



Potential materials for biodegradable medical mask

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Leon Guo Kang

Chemistry in the post-COVID Recovery



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Congratulations

K4M Video Contest 2021
Second Runner Up
RM200 Cash Prize + Cert



Potential Materials for Biodegradable Medical Mask
Leon Guo Kang (Universiti Malaya)

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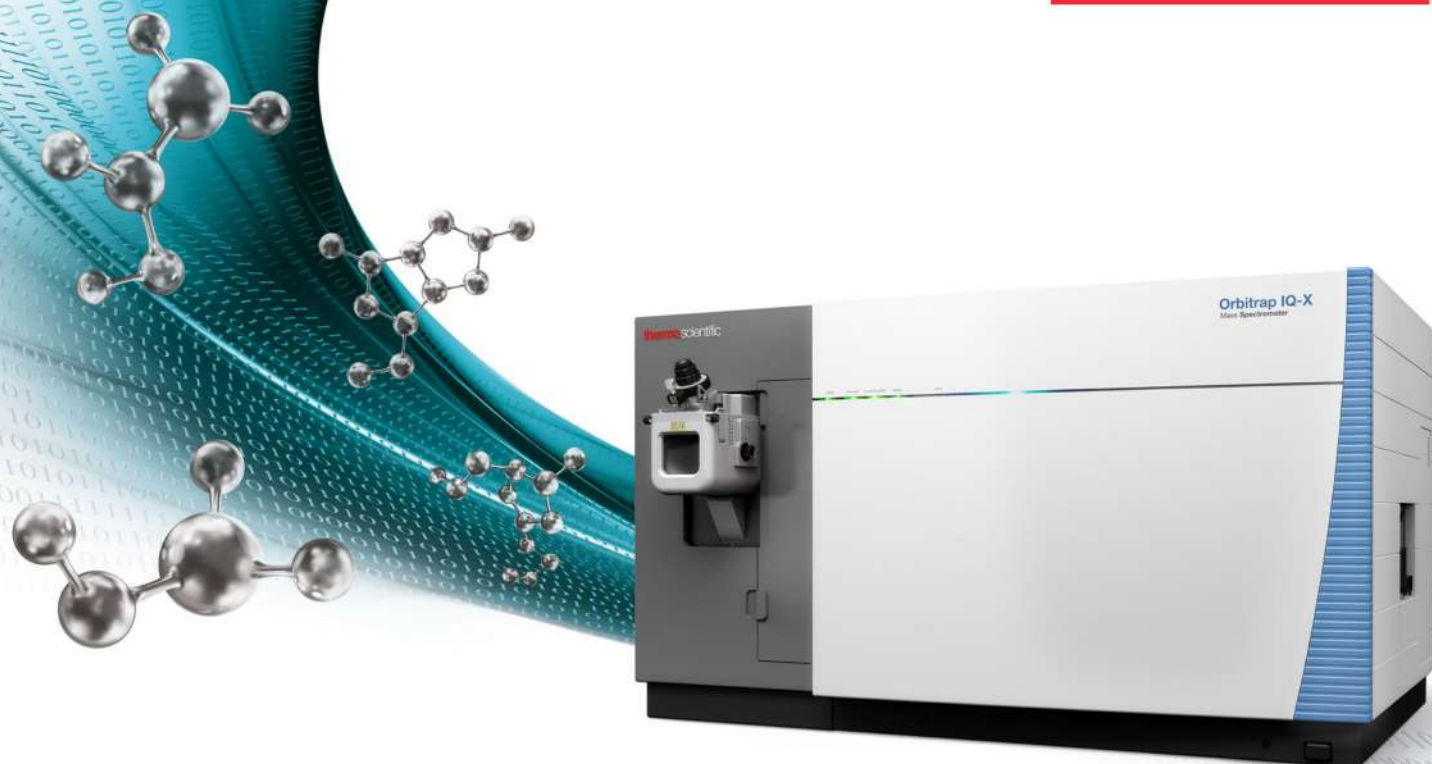


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Congratulations

K4M Video Contest 2021 FINALISTS
(in alphabetical order):

1. AIMA HAKIM BIN MOHAMED ISMAIL, UiTM
2. AUNI BATRISYA BINTI MOHAMAD ZAIHAN, UiTM
3. CHRISTINE LAW SHING WEI, MONASH
4. GILBERT RAPHAEL BONG, UKM
5. LEON GUO KANG, UM
6. NUR IZZATI AIMA BINTI AHMAD HISHAM, UiTM
7. NURHIDAYAH BINTI ABDUL HALIM TAWFEK, UiTM
8. NURUL AISYAH BINTI JUNDI, UiTM
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1.	ALS TECHNICHEM (M) SDN BHD No. 19, Jalan Kencana Mas 1/1 Tebrau Business Park, Taman Daya 81100 Johor Bahru, Johor	Water, Sewage & Industrial Effluents Solid Waste Environmental Sampling Oils & Food Microbiology
2.	ALS TECHNICHEM (M) SDN BHD Wisma ALS, No. 21, Jalan Astaka U8/84 Section U8, Bukit Jelutong 40150 Shah Alam, Selangor	Water, Sewage & Industrial Effluents, Solid Waste, Sediment Indoor/ Outdoor Air, Oils & Food, Toiletries, Medical Devices, Stack Emission, Blood & Urine, GMO, Nucliec Acid Testing
3.	ASEAN BINTULU FERTILIZER SDN BHD 18th KM, Jalan Tanjung Kidurong P.O. Box 482 97008 Bintulu, Sarawak	Gases Water Wastewater Urea
4.	ASIATEST LABORATORY SERVICE SDN BHD Mezzanine Floor, No. 3 Lot 5 Lorong Kilang F (SLIE) Off Jalan Kilang Kolombong, Jalan Ulam Raja, Kolombong 88450 Kota Kinabalu, Sabah	Water & Sewage Industrial Effluent Food & Toiletries Surface, Equipment & Personnel Hand Air Monitoring
5.	CENTRAL LABORATORY BORNEO SAMUDERA SDN BHD BSSB Central Laboratory KM 37 Tawau - Semporma Highway Locked Bag 28 91009 Tawau, Sabah	Soil Foliar Fertilizer Crude Palm Oil Water Palm Oil Mill Effluent
6.	CHEMSAIN KONSULTANT SDN BHD Lot 7, Lorong Suria, Off Lorong Buah Duku 1 Taman Perindustrian Suria Jalan Kolombong 88450 Kota Kinabalu, Sabah	Water & Wastewater, Industrial Effluent, Soil, Food, Air, Fertilizer, Lube Oil, Crude Oil, Edible Oil, Biodiesel, Natural Gas
7.	CHEMSAIN KONSULTANT SDN BHD No. 29, Jalan Astaka U8/84A Taman Perindustrian Bukit Jelutong Seksyen U8 40150 Shah Alam, Selangor	Water & Wastewater Biodiesel Crude Oil Field Testing
8.	EXCELVITE SDN BHD Lot 56442, 7.5 Mile Jalan Ipoh/ Chemor 31200 Chemor, Perak	Tocotrienol / Tocopherol Complex Mixed Carotene Phytosterols Content Plant Squalene Lycopene Content Solvent Residue
9.	FEDMAS ASSAY OFFICE SDN BHD 122-5-1 Jalan Sungai 10150 Georgetown, Pulau Pinang	Gold Jewellery
10.	FGV AGRI SERVICES SDN BHD FGV Analytical Laboratory (Sabah) Jalan Lempoyang, Bandar Sahabat P.O. Box No. 2, Pos Cenderawasih 91150 Lahad Datu, Sabah	Soil Plant Fertilizer Effluent/ Water
11.	FGV JOHOR BULKERS SDN BHD FGV Johor Bulkurs (FJB) Testing Laboratory Lorong Sawit Satu, Kawasan Pelabuhan Johor 81700 Pasir Gudang, Johor	Palm oil Vegetable Oil Products Oleo-chemicals Products
12.	FOREST RESEARCH INSTITUTE MALAYSIA (FRIM) Soil Chemistry Laboratory Biotechnology Forestry Division 52109 Kepong, Selangor	1. Soil 2. Plant

	NAME OF LABORATORIES	AREA OF TESTING
13.	FOREST RESEARCH INSTITUTE MALAYSIA (FRIM) Wood Composite Testing Laboratory 52109 Kepong, Selangor	Determination of Formaldehyde Emission from Wood based Panel Product
14.	FOREST RESEARCH INSTITUTE MALAYSIA (FRIM) Wood Preservative Analytical Laboratory Biocomposite and Wood Protection Programme Forest Products Division 52109 Kepong, Selangor	Copper-Chrome-Arsenic (CCA) in Treated Wood & Preservative Boron in Treated Wood & Preservative
15.	INDAH WATER KONSORTIUM SDN BHD Central Laboratory Services Loji Rawatan Kumbahan Sg. Besi Lot 33519 Bukit Jalil 57000 Kuala Lumpur	Water Wastewater
16.	INDAH WATER KONSORTIUM SDN BHD Northern Laboratory Services Lebuh Cecil Rae, Canning Garden 31400 Ipoh, Perak	Water Wastewater
17.	INDAH WATER KONSORTIUM SDN BHD Selangor Laboratory Services Jalan Batu Nilam 13, Bandar Bukit Tinggi 41200 Klang, Selangor	Water Wastewater
18.	INDAH WATER KONSORTIUM SDN BHD Southern Laboratory Services Loji Rawatan Kumbahan Taman Tasik Utama, Jalan TU Utama, 75450 Keroh, Melaka	Water Wastewater
19.	JABATAN KIMIA MALAYSIA NEGERI MELAKA Lot 5221, Jalan Tun Kudu Hang Tuah Jaya 75450 Bukit Katil, Melaka	Environment Monitoring, Water, Foods, Industry & Trade Tariff Clasification, Narcotic, Toxicology, Criminalistic
20.	JABATAN KIMIA MALAYSIA NEGERI PAHANG Jalan Dato Bahaman, Alor Akar 25662 Kuantan, Pahang	Chemical Microbiology
21.	KUALITI ALAM SDN BHD Ladang Tanah Merah A3 Division 71960 Bukit Pelandok 71000 Port Dickson, Negeri Sembilan	Solid & Sludge Waste Liquid Waste Waste & Wastewater Soil Analysis
22.	LEMBAGA AIR PERAK LAP Laboratory Jalan St. John 30200 Ipoh, Perak	Chemical Microbiology
23.	LUBETECH SDN BHD No. 8, Jalan Utas 15/7 P.O. Box 7052 40915 Shah Alam, Selangor	Lubricants Fluids
24.	MAHAMURNI PLANTATIONS SDN BHD UTCL Laboratory, Lot 2135, Batu 23 1/2 Jalan Johor Bahru - Kota Tinggi 81900 Kota Tinggi, Johor	Foliar, Compost, Fertilizer, Soil, Effluent, Water, Palm Oil, Field Latex
25.	MALAYSIA LNG SDN BHD KM 18 Tanjung Kidurong 97007 Bintulu, Sarawak	Water Gas
26.	MALAYSIAN PALM OIL BOARD (MPOB) Analytical Testing Services Laboratory Advanced Oleochemical Technology Division (AOTD) 6, Persiaran Institusi, Bandar Baru Bangi 43000 Kajang, Selangor	Palm Oil Palm Kernel Their Products & By-Products
27.	MALAYSIAN REFINING COMPANY SDN BHD Analytical Technology and Services Department (ATSD) Bangunan Pentadbiran, Persiaran Penapisan 76300 Sungai Udang, Melaka	Petroleum Water

	NAME OF LABORATORIES	AREA OF TESTING
28.	MALAYSIAN TIMBER INDUSTRY BOARD (MTIB) Fibre and Biocomposite Centre (FIDEC) Lot 152, Jalan 4, Kompleks Perabot Olak Lempit 42700 Banting, Selangor	Chemical Mechanical
29.	NABBIR LABORATORY (KL) SDN BHD No. 263 - 267, Jalan Nilai 3/21, Kawasan Perindustrian Nilai 3, 71800 Nilai, Negeri Sembilan	Water & Wastewater Environmental Monitoring
30.	NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH) Industrial Hygiene Analytical Laboratory, Lot 1, Jalan 15/1, Seksyen 15, 43650 Bandar Baru Bangi, Selangor	Chemical Microbiological
31.	NATIONAL POISON CENTRE Toxicology Laboratory, Universiti Sains Malaysia, 11800 USM, Pulau Pinang	Chemical
32.	PENGURUSAN AIR SELANGOR SDN BHD Northern Regional Laboratory, Sungai Selangor Phase 2 Water Treatment Plant, Lot 657, KM 3.5 Off Jalan Ijok, 45600 Bestari Jaya, Selangor	Raw Water Semi-treated Water Drinking Water
33.	PENGURUSAN AIR SELANGOR SDN BHD Southern Regional Laboratory, Sungai Labu Water Treatment Plant, Kampung Lembah Paya, Salak Tinggi 43900 Sepang, Selangor	River Water, Raw Water, Filtered Water, Treated Water, Effluent & Wastewater
34.	PENGURUSAN AIR SELANGOR SDN BHD Southern Regional Laboratory, Sungai Semenyih Water Treatment Plant, Presint 19, 62200 Putrajaya	Raw Water, Effluent Water, Treated Water, Drinking Water
35.	PERBADANAN BEKALAN AIR PULAU PINANG LABORATORY (PBAPP) Sungai Dua Treatment Plant, Jalan Merbau Kudong, Sungai Dua, 13800 Butterworth, Pulau Pinang	Raw Water Settled Water Treated Water
36.	PETRONAS CHEMICALS AMMONIA SDN BHD Laboratory, Petronas Petroleum Industrial Complex Jalan Kuantan - Kuala Terengganu 24300 Kerteh, Kemaman, Terengganu	Water Wastewater Petroleum Petroleum Product
37.	PETRONAS CHEMICALS DERIVATIVES SDN BHD Centralised Laboratory KM 106, Jalan Kuantan - Kuala Terengganu 24300 Kerteh, Kemaman, Terengganu	Utilities, Butyl Acetate, Butanol, Olefin, Ethanamine, Butyl Glycol Ether, Alkoxylation, Ethylene Glycol
38.	PETRONAS CHEMICALS ETHYLENE SDN BHD Central Laboratory, Lot 3834 Kawasan Bukit Tengah KM 105 Jalan Kuantan - Kuala Terengganu 24300 Kerteh, Terengganu	Water & Wastewater Ethylene Product Polyethylene Product
39.	PETRONAS CHEMICALS METHANOL SDN BHD Rancha-Rancha Industrial Estate P.O. Box 80079 87010 Labuan	Methanol Water Gas Environment
40.	PETRONAS CHEMICALS MTBE (M) SDN BHD PCMTBE Laboratory, Lot 111 Gebeng Industrial Estate P.O. Box 1, Balok, 26080 Kuantan, Pahang	Chemical Gasses Water
41.	PETRONAS GAS BHD Analytical Technology, Utilities Gebeng, Gas Processing & Utilities, Lot 139A, Phase III, Gebeng Industrial Area, 26080 Kuantan, Pahang	Water
42.	PETRONAS GAS BHD Analytical Technology Kertih, Gas Processing & Utilities, KM 105, Jalan Kuantan - Kuala Terengganu 24300 Kertih, Kemaman, Terengganu	Gas, Water, Wastewater
43.	PETRONAS GAS BHD Analytical Technology Santong, Gas Processing & Utilities, KM 8, Kg. Tok Arun, Off Jalan Santong 23100 Paka, Dungun, Terengganu	Gas, Water, Wastewater

	NAME OF LABORATORIES	AREA OF TESTING
44.	PETRONAS GAS BHD Analytical Technology, Utilities Kertih KM 105, Jalan Kuantan-Kuala Terengganu 24300 Kertih, Kemaman, Terengganu	Water
45.	PETRONAS GAS BHD Laboratory Tanjung Sulong Export Terminal Tanjung Sulong, 24000 Kemaman, Terengganu	Gas Water Wastewater
46.	PETRONAS PENAPISAN (TERENGGANU) SDN BHD Analytical Technology & Services (ATS) 24300 Kerteh, Kemaman, Terengganu	Petroleum & Petroleum Products Aromatics - Benzene & p-Xylene Gas Utility Water Wastewater
47.	PETRONAS RESEARCH SDN BHD Lot 3288 & 3289, Off Jalan Ayer Itam Kawasan Institusi Bangi 43000 Kajang, Selangor	Water (Drinking Water, Formation Water & Sea Water), Crude Oil, Fuel, Polyol Ester, Natural Gas, Scale Inhibitor, Polymer, Surfactant, Core Analysis, Deposit, Sludge & Emulsion, PVT Analysis
48.	SGS (MALAYSIA) SDN BHD SGS Sakura Onsite Laboratory, Lot 107, Block 1, Kemena Land District, Samalaju Industrial Park 97008 Bintulu, Sarawak	Chemical
49.	SHELL MDS (M) SDN BHD Shell MDS (M) Laboratory Tanjung Kidurong 97000 Bintulu, Sarawak	Chemical, Physical, Process Gasses, Petroleum and Petroleum Products, Waxy Raffinate, Waxes, Effluent Water/ Ground Water, Process Gasses
50.	SIME DARBY PLANTATION RESEARCH SDN BHD Chemical Laboratory, R&D Centre Sabah, KM18, Jalan Merotai-Bombalai, 91007 Tawau, Sabah	Soil, Plant, Fertilizer, Effluent, Palm Oil & Palm Kernel
51.	SIME DARBY PLANTATION RESEARCH SDN BHD Lab Services, R&D Centre Carey Island, Lot 2664, Jalan Pulau Carey, 42960 Pulau Carey, Selangor	SMR & Latex, Water & Wastewater, Palm Oil & Palm Kernel, Soil & Fertilizer, Plant & Compost, Pesticide & Microbiology
52.	TRIENEKENS (SARAWAK) SDN BHD Laboratory, Lot 1235, Block 4, Sentah-Segu Land District Mile 15, Kuching-Serian Road, Jalan Mambong, 93250 Kuching, Sarawak	Water & Wastewater Sludge
53.	UNIQ SDN BHD Block A, UKM - MTDC Technology Centre 43600 Bangi, Selangor	Chemical Microbiology Nucleic Acid

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Malaysian Refining Company Sdn Bhd
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National Institute of Occupational Safety and Health (NIOSH)
Industrial Hygiene Analytical Laboratory, Bandar Baru Bangi, Selangor

PETRONAS Chemicals Ethylene Sdn Bhd
Central Laboratory, Kerteh, Terengganu

PETRONAS Chemicals MTBE (M) Sdn Bhd
PCMTBE Laboratory, Kuantan, Pahang



Heartiest Congratulations

to

Dato' ChM Dr Hj Mas Rosemal Hakim bin Mas Haris
IKM Council Member

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Thermo Fisher Scientific Inc., the world leader in serving science, has announced enhanced and new analytical systems to empower scientists, researchers and laboratory professionals in academia, biopharmaceutical, environmental, food, forensic, pharmaceutical, and research industries to advance science.



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Thermo Scientific™ TriPlus™ 500 HS connected to the TRACE™ 1310 TOGA Analyzer

Enhanced: Gas chromatography headspace autosampler

The Thermo Scientific TriPlus 500 Headspace Autosampler is now available with a new version featuring an external transfer line which can be connected to the GC inlet, supporting those analytical setups where a direct column connection is not possible.

A relevant example is the analysis of dissolved gases in transformer oil according to the method ASTM D-3612C, which implies the connection of the headspace autosampler to a Transformer Oil Gas Analyzer (TOGA).

For any testing laboratory conducting volatiles analysis, static headspace-gas chromatography, with its simplicity and broad applicability, is one of the most reliable and robust techniques. The headspace autosampler is popular within analytical testing and QA/QC laboratories in pharma, forensic, food packaging, and environmental fields.



Thermo Scientific™ FAIMS Pro Duo interface with Thermo Scientific™ Orbitrap Exploris™ 240 mass spectrometer

Enhanced: Differential ion mobility interface for higher productivity and data quality

The Thermo Scientific FAIMS Pro Duo interface builds upon the foundation of the Thermo Scientific FAIMS Pro interface to support biological mass spectrometry (MS) and extend differential ion mobility to a broader range of applications, including proteomics, plasma profiling, and targeted small-molecule quantitation.

With the new interface, scientists in pharmaceutical, biopharmaceutical and clinical research laboratories can benefit from a differential ion mobility interface that increases productivity and data quality for qualitative and quantitative workflows.

The FAIMS Pro Duo interface easily integrates with Thermo Fisher's next-generation mass spectrometers, including the Thermo Scientific Orbitrap Tribid mass spectrometers, Thermo Scientific Orbitrap Exploris mass spectrometers, Thermo Scientific TSQ Altis triple quadrupole mass spectrometer, and Thermo Scientific TSQ Quantis triple quadrupole mass spectrometer.

New: Innovative analytical software for enhanced data acquisition and analysis

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The latest analytical software updates enable more strength and flexibility in laboratory workflows in numerous fields, including biotherapeutic characterization, metabolomics, and forensic analysis — providing users with intelligent data acquisition and increased confidence in results. The software includes:

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- The newest Thermo Scientific BioPharma Finder 4.1 software
- The new Thermo Scientific myLibrary Enterprise and myLibrary Pro
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Knowledge Exchange

Thermo Fisher Scientific, the world leader in serving science, is sharing knowledge with chemists, researchers, scientists and other laboratory professionals in Malaysia through virtual experiences, conferences, and forums. Check out these opportunities to connect, learn and exchange knowledge with experts worldwide!

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At Thermo Fisher Scientific, we understand that you and your peers face challenges in your work. Whether you are in research or applied markets such as food, environmental, epidemiology, and many others, we aim to support your journey.

Throughout 8 months of this year, our 2021 Chromatography Innovation Series has 4 topics with spotlights on the latest innovations, applications, information, and research for gas chromatography (GC) and gas chromatography mass spectrometry (GC-MS), pharmaceutical industry, liquid chromatography (LC), and ion chromatography (IC).

To deliver a unique virtual experience, we have brought forth the Innovation Summit 2021 Series, now part of our Chromatography Innovation Series, focusing on the latest innovations for chromatography and mass spectrometry.

Innovation Summit

2021 Series: Liquid Chromatography and Mass Spectrometry
Tuesday, 14 September 2021
1pm

Learn how to deliver next-level qualitative and quantitative productivity and performance, power discovery, and enable breakthroughs at this virtual experience. Go #BeyondBrilliant plus #ExcelinProductivity with new analytical innovations.

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Accelerating into Pharma 4.0



Our world today is anything but normal. Amidst this “never normal” environment, global pharmaceutical manufacturing is continuing its digital transformation. In such a changing environment, Asia’s laboratory managers and professionals have many questions and challenges that need to be addressed.

Thermo Fisher Scientific is stepping forward to help Asia’s scientific community address the challenges. Commencing on 6 October 2021, Thermo Fisher Scientific will host Pharma 4.0 – 2021, Transforming Pharmaceutical Manufacturing, an eConference, and a series of online forums in October and November 2021.

Expert speakers at Pharma 4.0 eConference and forums will include the world’s leading pharmaceutical companies, such as Moderna and Novartis, as well as regulators.

Topics include:

- Managing Pharmaceutical Quality: In and Beyond COVID
- Impact of COVID on Pharma 4.0
- Strategies for Streamlining Biologics Production
- The Key Role of Analytical Procedure Lifecycle Management

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The mRNA Revolution: How the race for a COVID-19 vaccine has brought mRNA therapeutics to everyone's attention

In this expert article on AnalyteGuru.com, the author from Thermo Fisher Scientific shares about the discovery of the molecule of ribonucleic acid (RNA) around 60 years ago as the critical intermediary between DNA, the genetic code and protein, as well as the research over the years.

Today, confidence in mRNA is high and the research community continues to work together to find the next generation of prevention, treatment and cures of many diseases such as influenza, HIV, cytomegalovirus (CMV), Zika virus, and cancers.



Read the full article on AnalyteGuru.com here:



Wastewater Surveillance of COVID-19

Wastewater (i.e., sewage) testing for SARS-CoV-2 (the virus that causes COVID-19) can be helpful to public health agencies and government officials as a novel complement to existing COVID-19 surveillance systems.

Testing the amount of the virus in sewage water can serve as an early warning of COVID-19 in communities. The fluctuation of virus levels in the sewage water can help communities see how well preventive measures are working. Wastewater-based epidemiology (WBE) programs can be an invaluable additional predictive tool for addressing the COVID-19 pandemic.

However, traditional water testing involves multiple wet chemical analyses for multiple parameters. Each test requires a separate sample and often multiple sequential steps which extends the testing process. With slow processes and the need for specialist staff to run and monitor equipment, water quality testing is labor-intensive, time-consuming and inefficient.

In an expert article on AnalyteGuru.com, Dr. Hari Narayanan of Thermo Fisher Scientific based in Florida, United States shares about the use of automated discrete analysis, a technique that utilizes colorimetric and enzymatic measurements of several analytes simultaneously from a single sample through photometric analysis.

Read the full article on AnalyteGuru.com here:





Application Spotlight

Food Safety Matters - in this section, we put the spotlight on toxic elements in food, and shares innovations and knowledge to address analytical challenges in the laboratories.

Food Safety Matters: Testing for toxic elements in food

On 8 April 2021, the United States Food and Drug Administration (US FDA) announced its "Close to Zero: Action Plan for Baby Foods" in which it sets out actions to reduce exposure to toxic elements in infant and toddler foods to as low as possible. Stating that reducing levels of toxic elements in foods is complicated and multifaceted, the US FDA's action plan will be a science-based, iterative approach to decreasing exposure to toxic elements from foods.

Simply measuring the total amount of an element in a sample does not provide the complete picture. Industries such as pharmaceutical, food, and environmental often measure elements that can exist as multiple molecular forms, or 'species', that exhibit different physiochemical properties. To determine a sample's safety or toxicity, lab professionals need to identify and quantify the different species of an element that might be present in a sample. The method of choice for speciation analysis is ion chromatography (IC) coupled with inductively coupled plasma mass spectrometry (IC-ICP-MS).

Determination of inorganic arsenic in rice using IC-ICP-MS

In this Application Note, the authors from the University of Aberdeen and Thermo Fisher Scientific demonstrate how the coupling of ion chromatography (IC) with inductively coupled plasma mass spectrometry (ICP-MS) can meet regulatory requirements in the field of arsenic determination.

Learn about their methods and the materials used including the samples, chemicals, extraction of arsenic species, standards, and instrument configuration. The application note also covers method evaluation and application of the developed method to rice samples available on the market.

Download the Application Note 43255 here:



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