UNIVERSITI MALAYSIA PAHANG

SChE 2021

ENERGY SECURITY AND CHEMICAL ENGINEERING CONGRESS 2021

Virtual Conference
3 – 5 November 2021

Sustainable Technological Solution for a Better World

Organizer

Universiti Malaysia PAHANG

Centre for Research in Advanced Fluid and Processes
Pusat Penyelidikan Bendalir dan Proses Termaju

In partnership with

University of Stavanger

Nguyen Tat Thanh University

Ton Duc Thang University

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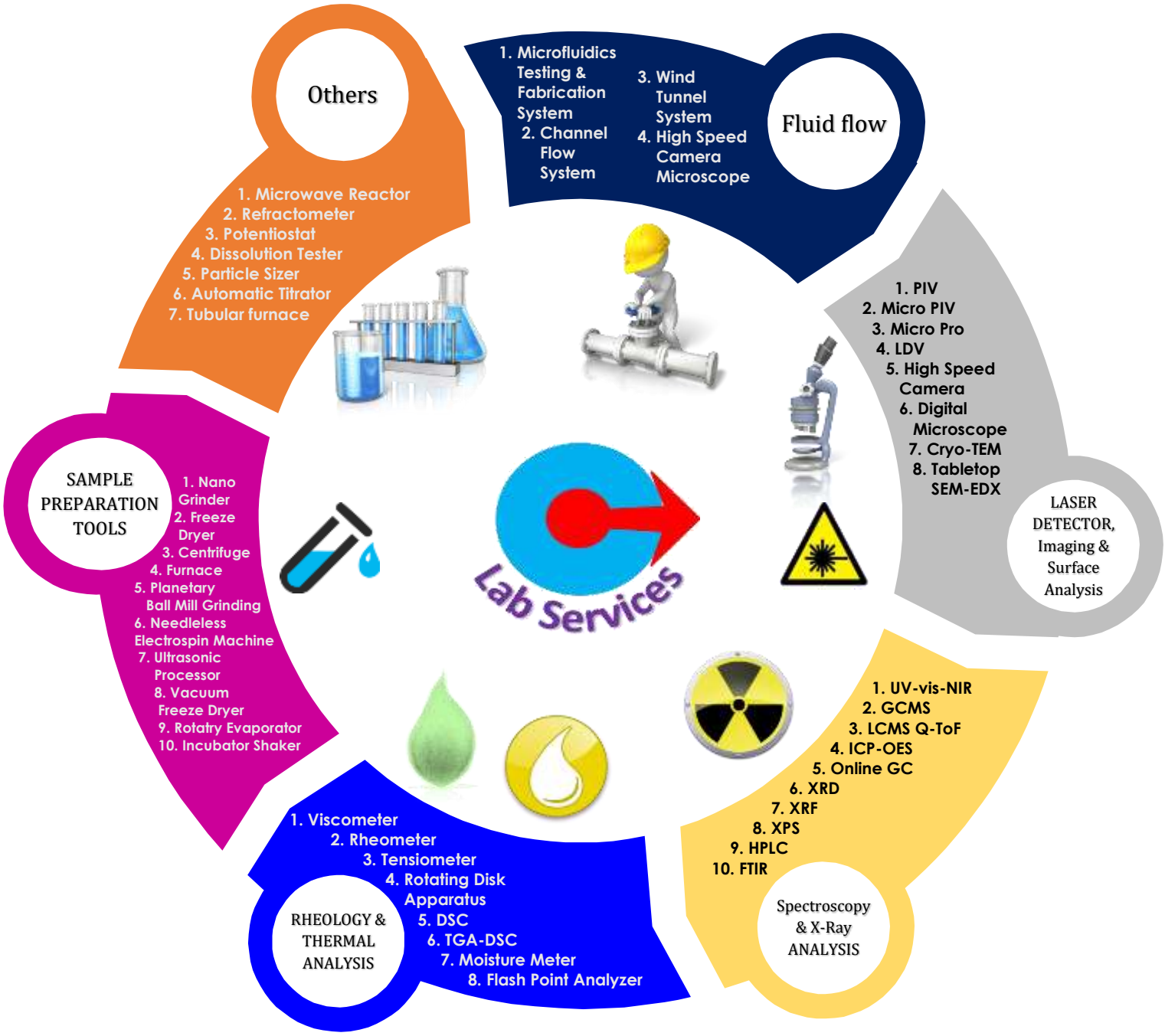

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CONFERENCE BACKGROUND

The Energy Security and Chemical Engineering Congress or ESChE is a biennial conference organised by the Centre for Research in Advanced Fluid & Processes (formerly known as the Centre of Excellence for Advanced Research in Fluid Flow or CARiFF), Universiti Malaysia Pahang, Malaysia.

The centre has previously organised International Conference on Fluids and Chemical Engineering or FluidsChE, being the 1st FluidsChE in 2015 and 2nd FluidsChE in 2017. In 2019, FluidsChE was renamed as the Energy Security & Chemical Engineering Congress (ESChE) with conference theme that emphasizes on Energy Security in line with the Malaysian Government's National Priority Area and also to support the centre's strongest research field.

This conference with its major focus being:

1. Energy security both renewable and conventional sources
2. Sustainable development
3. Green technology and material
4. Chemical engineering with emphasize on sustainable development

ESChE2021 aims to offer opportunities towards sustainable development related to material, chemical and energy to meet the growing demands of the developing countries without compromising the environment.

Our conferences have attracted participants and researchers from all over the world to discuss the new scientific research and development on energy and chemical engineering fields. We hope this will be an event that brings together energy and chemical engineering communities from around the world to share their findings or ideas in the area of sustainable energy development.

CHAIRMAN WELCOMING ADDRESS

ASSOCIATE PROFESSOR IR. DR. MOHD FAIRUSHAM BIN GHAZALI
Director,
Fluid Centre, Universiti Malaysia Pahang

Assalamualaikum & Good Day,

The 2nd Energy Security & Chemical Engineering Congress (ESChE2021) is a conference cum congress that is proposed biennially by Fluid Centre, Universiti Malaysia Pahang along with its collaborators. This conference is coming into its 4th edition and has gathered participants from many parts of the world especially researchers in energy security, green technology, chemical engineering, and many more. Several engineering disciplines or domains (Tracks in the programme book) are selected as the main focus such as "Oil & Gas", "Fluid Flow & Assurance", "Food Sciences & Pharmaceutical Technology", and "Environmental & Wastewater Engineering".

As the director of Fluid Centre, I am proud to present to you a different face of our conference where online and virtual platform will take place replacing the traditional physical meetings. In the face of the pandemic that has been going on for since 2020, there are not many options that we could practice, thus the virtual conference. I hope that this will not hinder the research world and the researchers in presenting our important work for the benefit of others. This virtual conference can be a proper platform to do that and let us hope we can forge better growth from these challenges.

Positively, I can see how much the committee members of ESChE2021 have grown into learning, negotiating, and accepting the importance of multimedia technologies and social medias. The challenge is massive for some, and I applaud the committee members, along with the participants for your willingness and effort to make this into a proper virtual conference. I hope that this experience will make us believe that nothing is impossible.

It has been a tumultuous but joyous 2 years preparing for this moment. I would like to thank our collaborators Nguyen Tat Thanh University, University of Stavanger, Ton Duc Thang University. ESChE2021 also would like to thank Universiti Malaysia Pahang for the support given trough out the preparation. Special thanks to the Scientific Committee for designing keynote and parallel sessions, as well as supervising the call for contributions and the call for sessions.

I hope that each of us can celebrate this occasion and move forward together with us. Let's pray that the next edition of this conference will be us seeing each other in flesh, and with that, I wish everybody good luck and thank you.

VICE CHANCELLOR FOREWORD

PROFESSOR DATO' TS. DR. YUSERRIE BIN ZAINUDDIN DIMP.
Perfoming the Duty of Vice Chancellor, UMP

Conference members, ladies and gentlemen,

Alhamdulillah I am delighted and grateful to have the honour of welcoming all of you to this virtual congregation of academicians and researchers organized by the Centre for Research in Advanced Fluid & Processes, UMP.

I am glad to be informed that, despite of the conference being conducted virtually due to current situation of COVID-19 pandemic, ESChE 2021 receives overwhelming paper submissions on various topics related to the conference theme and scope, which have been critically reviewed to qualify their publication in various high impact factor journals.

Since the last series of ESChe in 2019, this conference in my opinion is an ideal platform for constructive intellectual engagement between the delegates to explore the current and evolving innovative strategies especially in Energy, Environment, Chemical and Thermal Engineering fields.

The second edition of ESChE 2021, with the theme "Sustainable Technological Solution for a Better World" will be an impactful event that brings together the energy and chemical engineering communities from around the world to share their findings or ideas in the area of sustainable energy development.

UMP looks forward to organize more virtual events of this sort where participants could congregate with no worries about the physical distancing SOP and more importantly benefiting from the involvement of the international participants. With the participations of fellow delegates from around the globe and more than 200 paper abstract submission, I was hoping with all the paper presented, the participants involve will have a constructive debate as well as interactive exchange throughout the conference.

Also, our centres of excellence have demonstrated their pro-activeness in conducting joint research with the industry. The Fluid Centre for instance works with Petronas, Felda Global Venture, Edotco Group (which is part of Axiata Group Berhad), LKPP Corporation, Malaysian Palm Oil Board (MPOB), and Forest Research Institute Malaysia (FRIM) among others, to utilise the centre's expertise to solve the industrial problem.

In the context of ESChE 2021, I would like to congratulate Director of the Centre for Research in Advanced Fluid & Processes, Associate Professor Ir. Dr. Mohd Fairusham Ghazali as Conference Chair and the rest of organizing committee for your commitment to run the programme.

I would like to take opportunity to extend my most sincere gratitude to the benevolent sponsors, Jeol (Malaysia) Sdn. Bhd., PLT Scientific Sdn. Bhd. and Waters Analytical Instruments Sdn. Bhd. Their contribution has helped us to organize this conference.

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KEYNOTE SPEAKER 1

Title: Root Cause & Failure Analysis (RCFA) & Robustness Improvement of Turbomachinery Lubrication system for Air Separation Unit

Mr. Muhamad Afiq Haji Ahmad
Head of Resident,
ZLNG, Gas and New Energy,
PETRONAS

SPEAKER BIOGRAPHY:

Mr. Muhamad Afiq has obtained his B.E degree in Mechanical (Hons) Majoring in Petroleum, Universiti Teknologi Petronas and Master degree in Asset Management and Maintenance, Universiti Teknologi Petronas. His areas of expertise are in oil and gas, power and utilities, engineering and design, asset management and maintenance, project management, turnaround and shutdown, equipment reliability, investigation and troubleshooting, condition monitoring, digital ecosystem for industry, change management and culture transformation. He is currently Head of Resident, Engineering at Petronas LNG. He also involved in a lot of major projects such as Floating LNG Project, GE Gas Turbine Generator Asset Life Study, Remote Operation Center, ALEXIS Asset Life Extension Project for Gas Processing Plant and others. He has professional certificates of Competent Internal Combustion Engine (ICE) Engineer Grade II by Department of Occupational Safety & Health (DOSH) Malaysia and Certified Machinery Lubrication Analyst Level II by International Council for Machinery Lubrication (ICML).

KEYNOTE SPEAKER 2

Waste and Biomass Valorization for Bioenergy and Bioproducts via Circular Economy in Norwegian Context

Associate Professor Dr. Gopalakrishnan Kumar
Department of Chemistry, Bioscience and Environmental Engineering, University of Stavanger, Stavanger, Norway

ABSTRACT:
Rapid industrial development and urbanization of the society has created a huge necessity of sustainability and pollution prevention through clean technologies. Resource recovery through waste valorization by circular economy would play an important role in the future global energy and materials system. Biomass pretreatment and downstream processing are important steps to consider achieving the maximal process efficiency.
This presentation will discuss:
• New/advanced pretreatment methodologies for the efficient biomass conversion
• Sustainability aspects of waste valorization through circular economy cascade will be discussed
• Various industrial examples of bioproducts generation would be discussed
• Case Study- SCG valorization
Norway placing in the top 2 consumers of coffee in the world. So, it generates a huge amount of SCG (Spent Coffee grounds), which most of the time ends on Landfill/MSW treatment facilities. SCG has numerous valuable and prominent renewable carbon sources that could be converted to value added products such as polymers, feed source and energy. The proposed integrated biorefinery scheme of SCG valorization could direct towards sustainable waste management and entrepreneurship. Some of the Industrial implementation of circular economy for bioproducts from waste biomass would be highlighted.

SPEAKER BIOGRAPHY:
Dr. Gopalakrishnan Kumar serves as Professor in Institute of Chemistry, Bioscience and Environmental Engineering, Faculty of Science and Technology, University of Stavanger, Stavanger, Norway. Additionally, he plays the role as "specially appointed Associate professor" concentrating on research in School of Civil and Environmental Engineering, Yonsei University, South Korea. Prior to these positions he worked as KRF fellow- School of Civil and Environmental Engineering, Yonsei University & Research Professor- Department of Environmental Engineering, Daegu University, South Korea. He has received his PhD from Feng Chia University, Taiwan. He was the recipient of prestigious JSPS post-doctoral fellowships (JSPS, Japan) and Emilio Rosenblueth Fellowship (Mexico) for his post-doctoral studies. He is also visiting faculty in many universities around Europe (Hungary, Czech, Poland), India, Vietnam, China and Turkey. He has extensively published more than 300 SCI papers in highly prestigious Journals (including 7 cover image articles, 8 high cited/hot articles and 1 key scientific article), with total citations of > 10300 & h-index of 55. He also contributed to more than 20 book chapters and edited/editing 5 books. His major research interest includes biofuel/biochemical production from lignocellulose/waste/wastewater and algal biomass via biorefinery and valorization schemes and Microbial fuel/electrolysis cell (MFC&MEC) technologies. Additionally, he is working on application of green synthesized activated carbon and Nano particles for various environmental remediation applications. He also delivered more than 90 speeches (keynote/invited) in various conferences, seminars and workshops. Besides his academic contribution, he also works as consultant/expert for various international academic/research projects in various universities and industries (~3 million USD).

KEYNOTE SPEAKER 3

Technologies for Oil and Gas Produced Water Treatment: Overview and Development

Professor Dr. Luqman Chuah Abdullah
Department of Chemical and Environmental Engineering, Universiti Putra Malaysia

ABSTRACT:
Produced water is the largest waste stream generated in oil and gas industries. It is a mixture of different organic and inorganic compounds. Due to the increasing volume of waste all over the world in the current decade, the outcome and effect of discharging produced water on the environment has lately become a significant issue of environmental concern. Produced water is conventionally treated through different physical, chemical, and biological methods. In offshore platforms because of space constraints, compact physical and chemical systems are used. There are various physical and chemical methods applied to treat the produced water. Each method has own advantages and disadvantages when used for offshore or onshore units. As high salt concentration and variations of influent characteristics have direct influence on the turbidity of the effluent, it is appropriate to incorporate a physical treatment, e.g., membrane to refine the final effluent. For these reasons, major research efforts in the future could focus on the optimization of current technologies and use of combined physico-chemical and/or biological treatment of produced water in order to comply with reuse and discharge limits. In this work, various physical and chemical treatment methods as well as membrane separation technology are reviewed. Challenges and opportunities of technologies applied to produced water treatment will also presented.

SPEAKER BIOGRAPHY:
Professor Dr. Luqman Chuah Abdullah has obtained his B.E. degree in Chemical Engineering, Universiti Teknologi Malaysia and PhD degree in Chemical Engineering from University of Birmingham, United Kingdom. His research area including chemical processing, material engineering (polymers and nanomaterials), oleochemical and environmental engineering. He is currently Professor from Department of Chemical and Environmental Engineering, Universiti Putra Malaysia (UPM). As an active researcher, he had published more than 600 publications of journals, proceedings, books and technical articles in the various fields of chemical, material and environmental engineering. He was awarded with Top Research Scientists Malaysia (TRSM) by Academic of Science Malaysia (ASM), 2013; Malaysia Rising Star Award by Ministry of Higher Education Malaysia and was selected as a World Top 2% Scientists in catagories of Career-Long Citation Indexed and Citation Impact in Single calendar Year, 2019, Stanford University, USA. He is currently Editor in Chief of Pertanika Journal of Science and Technology and Editorial Member of Journal of Chemistry, Hindawi Publishing Corporation.

PROGRAMME TENTATIVE

FIRST DAY

Time	3rd November 2021 (Wednesday)
15:00 – 17:00	**Registration**

SECOND DAY

Time	4th November 2021 (Thursday)
08:45 – 09:00	**Participants & Guest Arrival**
09:00 – 09:20	**Event Opening (Online streaming)** Link: ESChE 2021 Opening Ceremony
09:20 – 09:45	**Opening Ceremony & Sponsor Acknowledgment**
Venue/ Time	**Parallel Session 1**
09:45 – 10.30	**Keynote 1 - (Online streaming)** Link: Keynote Speaker 1 ***Title: Root Cause & Failure Analysis (RCFA) & Robustness Improvement of Turbomachinery Lubrication system for Air Separation Unit*** **Keynote Speaker: Mr. Muhamad Afiq Hj Ahmad** **ZLNG, Gas and New Energy, PETRONAS** *Chairperson: Assoc. Prof. Ir. Dr. Mohd Fairusham Ghazali*
10:30 – 12:00	**Track 1: Oil & Gas 1** Link: Track 1: Oil & Gas 1 Chairperson: Prof. Dr. Hayder Ab. Abdulbari
	Track 2: Fluid Flow & Assurance / Heat & Mass Transfer Link: Track 2: Fluid Flow & Assurance / Heat & Mass Transfer Chairperson: Dr Nasrul Hadi Johari
	Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 1 Link: Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 1 Chairperson: Dr. Siti Kholijah Abdul Mudalip
	Track 4: Safety & Health / Process Control & Simulation 1 Link: Track 4: Safety & Health / Process Control & Simulation 1 Chairperson: Prof. Dr. Jolius Gimbun
12:00 – 14:00	**Lunch Break**

PROGRAMME TENTATIVE

SECOND DAY

Venue/ Time	Parallel Session 2
14:00 – 15:30	**Track 1: Reaction Engineering & Catalysis 1** Link: Track 1: Reaction Engineering & Catalyst 1 Chairperson: Assoc. Prof. Dr. Sumaiya Zainal Abidin
	Track 2: Environmental & Wastewater Engineering 1 Link: Track 2: Environmental & Wastewater Engineering 1 Chairperson: Dr. Lim Mee Wei
	Track 3: Energy 1 Link: Track 3: Energy 1 Chairperson: Assoc Prof. Dr Hermadina Setiabudi
	Track 4: Advanced Materials 1 Link: Track 4: Advanced Materials 1 Chairperson: Assoc. Prof. Dr Saidatul Shima Jamari
15:30 – 16:15	**Keynote 2 - (Online streaming)** Link: Keynote Speaker 2 ***Title: Waste and Biomass Valorization for Bioenergy and Bioproducts via Circular Economy in Norwegian Context*** **Keynote Speaker: Associate Professor Dr. Gopalakrishnan Kumar** **University of Stavanger (UiS), Norway** *Chairperson: Prof. Dr. Jolius Gimbun*
Venue/ Time	**Parallel Session 3**
16:15 – 17:45	**Track 1: Food Sciences, Natural Products & Pharmaceutical Technology 2** Link: Track 1: Food Sciences, Natural Products & Pharmaceutical Technology 2 Chairperson: Assoc. Prof. Ir. Dr. Chin Sim Yee
	Track 2: Environmental & Wastewater Engineering 2 Link: Track 2: Environmental & Wastewater Engineering 2 Chairperson: Assoc. Prof. Dr. Azilah Ajit
	Track 3: Separation Technology 1 Link: Track 3: Separation Technology 1 Chairperson: Assoc. Prof. Ir. Dr. Chin Siew Choo
	Track 4: Process Control & Simulation 3 Link: Track 4: Process Control & Simulation 3 Chairperson: Assoc. Prof. Ir. Dr. Mohd Fairusham Ghazali

PROGRAMME TENTATIVE

THIRD DAY

5th November 2021 (Friday)	
Venue/ Time	**Parallel Session 4**
09:00 – 10:00	**Track 1: Advanced Materials 2** Link: Track 1: Advanced Materials 2 Chairperson: Assoc. Prof. Dr. Suriati Ghazali
	Track 2: Energy 2/Reaction Engineering & Catalysis 2 Link: Track 2: Energy 2/Reaction Engineering & Catalyst 2 Chairperson: Dr. Chiam Chel Ken
	Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 3 Link: Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 3 Chairperson: Assoc. Prof. Syamsul Rizal Abd Shukor
	Track 4: Oil & Gas 2 Link: Track 4: Oil & Gas 2 Chairperson: Ts. Dr. Norida Ridzuan
10:00 – 10:15	**Morning Break**
10:15 – 11:00	**Keynote 3 - (online streaming)** Link: Keynote Speaker 3 ***Title: Technologies for Oil and Gas Produced Water Treatment: Overview and Development*** **Keynote Speaker: Professor Dr. Luqman Chuah Abdullah** **Universiti Putra Malaysia** *Chairperson: Assoc. Prof. Dr. Sumaiya Zainal Abidin*
Venue/ Time	**Parallel Session 5**
11:00 – 12:00	**Track 1: Separation Technology 2** Link: Track 1: Separation Technology 2 Chairperson: Ts. Dr. Azizan Ramli
	Track 2: Separation Technology 3 Link: Track 2: Separation Technology 3 Chairperson: Ts. Dr. Nasratun Masngut
	Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 4 Link: Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 4 Chairperson: Dr. Patrick Tang Siah Ying
	Track 4: Energy 3/Fluid Flow & Assurance 2 Link: Track 4: Energy 3/Fluid Flow Assurance 2 Chairperson: Dr. Sudhakar Kumarasamy

TENTATIVE PROGRAMME

OFFICIAL OPENING CEREMONY (THURSDAY, 4th NOVEMBER 2021)

Time		Programme
8:45 a.m.	:	Arrival of Participants and Guest
9:00 a.m.	:	ESChE2021 Opening by Emcees
9:05 a.m.	:	Prayer Recitation
9:10 a.m.	:	Welcoming Speech by Associate Professor Ir. Dr. Mohd Fairusham bin Ghazali, Director of Centre for Research in Advanced Fluid Flow and Processes (Fluid Centre), Universiti Malaysia Pahang and Chair of ESChE 2021
9:20 a.m.	:	Opening Speech and Official Launching of ESChE 2021 by YBhg. Professor Dato' Ts. Dr. Yuserrie bin Zainuddin Performing the Duty of Vice Chancellor, Universiti Malaysia Pahang
9:30 a.m.	:	Montage Presentation
9:35 a.m.	:	Sponsor Acknowledgment
9:40 a.m.	:	Event Adjourn

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 1

TRACK 1: Oil & Gas 1
Chairman: Prof. Dr. Hayder Ab. Abdulbari
Co-chairman: Ms. Yeong Yi Ling
Link: Track 1: Oil & Gas 1

10.30 – 10.45 **Dr. Maqsood Ahmad (Universiti Teknologi Petronas)**
Evaluation of Water Saturation in Shale Gas Reservoirs by Using Different Techniques – A Case Study from the Permian Murteree Formation, Cooper Basin, South Australia

10.45 – 11.00 **Mr. Imtiaz Ali (Universiti Teknologi Petronas)**
Investigation of Rheological and Filtration Behavior of Polyanionic Cellulose and Tapioca Starch in Nondamaging Water Based Muds

11.00 – 11.15 **Ms. Nurliana Farhana Salehuddin (Universiti Teknologi Petronas)**
Color Monitoring in Petroleum Industry: Methods and Developments

11.15 – 11.30 **Mr. Koh Qi Yun (Universiti Teknologi Malaysia)**
Organic Rankine Cycle for Waste Heat Recovery on Offshore Oil and Gas Platform

11.30 - 11.45 **Dr. Oluwaseun Ruth Alara (Universiti Malaysia Pahang)**
Demulsifier: An Important Agent in Breaking Crude Oil Emulsion

11.45 – 12.00 **Mr. Afif Naqiudien (Universiti Malaysia Sabah)**
Synthesis and Characterization of Nanoelmusions from Palm Oil Stabilized by Sorbitan Monooleate and Polyoxyethylene Sorbitan Monopalmitate for Enhanced Oil Recovery Application

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 1

TRACK 2: Fluid Flow & Assurance/Heat & Mass Transfer
Chairman: Dr Nasrul Hadi Johari
Co-chairman: Ms. Ros Shazuin Rayyanu Mohd Zaki
Link: Track 2: Fluid Flow & Assurance/Heat & Mass Transfer

10.30 – 10.45 **Mr. Sajjad Al-Amshawee (Universiti Malaysia Pahang)**
Extruded and Overlapped Geometries of Feed Spacers for Solution Mixing in Electrochemical Reactors and Electrodialysis-Related Processes

10.45 – 11.00 **Ms. Nur Batrisyia Razman Shah (Universiti Teknologi MARA)**
Prevention of Silicate Scaling Formation during Alkaline-Surfactant-Polymer (ASP) Flooding using Nanomaterial-Based Additives

11.00 – 11.15 **Ms. Niellambare Nadumaran (Universiti Malaysia Pahang)**
Investigation on the Effect of Venturi Geometry Variation on Microbubble Generation

11.15 – 11.30 **Mr. Kriwitch Yasamorn (King Mongkut's University of Technology North Bangkok)**
Study the Effects of Air Injection Port Diameter of Air Blast Atomizer on the Spray Characteristics

11.30 - 11.45 **Ms. At-Tasneem Mohd Amin (Universiti Malaysia Pahang)**
A Numerical Simulation of the Twisted Delta Winglet Swirler in a Circular Tube with a Fully Developed W:EG Flow

11.45 – 12.00 **Assoc. Prof. Dr. Mohamed Tarmizi Ahmad (Universiti Putra Malaysia)**
Analysis of De Laval Rocket Engine Nozzle using Computational Fluid Dynamics

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 1

TRACK 3: Food Sciences, Natural Products & Pharmaceutical Technology 1
Chairman: Dr. Siti Kholijah Abdul Mudalip
Co-chairman: Ms. Nurmaryam Aini Binti Hashim
Link: Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 1

10.30 – 10.45 **Mrs. Nor Azwin Shukri (Malaysian Nuclear Agency)**
Inhibition of Fungi Growth and Shelf-Life Extension of Bread by Sorbic Acid Based Antimicrobial Packaging

10.45 – 11.00 **Mr. Thien Hien Tran (Nguyen Tat Thanh University)**
Citrus Nobilis Lour.var.nobilis Essential Oil Distillation by Using Semi-Industrial Equipment

11.00 – 11.15 **Mr. Khang Van (Nguyen Tat Thanh University)**
Fabrication of Nanostructured Lipid Carriers (NLC) for Encapsulation of GAC (Momordica Cochinchinensis) Oil by using Homogenization Method

11.15 – 11.30 ***Mr. Phu Thuong Nhan Nguyen (Nguyen Tat Thanh University)***
Evaluation of Physical-Chemical Properties of Shampoo Product from Coconut oil (Cocos Nucifera) in Ben Tre Province, Vietnam

11.30 - 11.45 ***Ms. Chenda Hak (King Mongkut's University of Technology Thonburi)***
One-Pot Levulinic Acid Production from Rice Straw in Deep Eutectic Solvent

11.45 – 12.00 ***Ms. Nur Amalina Ramli (Universiti Malaysia Pahang)***
Reinforcement Effect of Carboxymethyl Sago Starch in Carrageenan Biocomposite for Hard Capsule Application

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 1

TRACK 4: Safety & Health/Process Control & Simulation 1
Chairman: Prof. Dr. Jolius Gimbun
Co-chairman: Dr. Chia Vi Vien
Link: Track 4: Safety & Health/Process Control & Simulation 1

10.30 – 10.45	**Dr. Komsoon Somprasong (Chiang Mai University)** *Integrated Spatial Risk Assessment of Gas Accumulation During Atmospheric Inversion over Operating Area in the Deep Open Pit Coal Mine*
10.45 – 11.00	**Mr. Muhammad Firdaus Husin (Universiti Teknologi MARA)** *Decision-Making Tool for Process Hazard Evaluation and Risk Assessment during Preliminary Design Stage*
11.00 – 11.15	**Mr. Nguyen Le (Nguyen Tat Thanh University)** *Carbon Footprint Calculation and Proposing Solutions to Reduce Carbon for Garment Technology Processes in Vietnam*
11.15 – 11.30	**Mrs. Zafirah Zakaria (Universiti Teknologi Malaysia)** *Recognizing Design Issues in Chemical Process Industries*
11.30 - 11.45	**Dr. Siew Yoong Leong (Universiti Tunku Abdul Rahman)** *Effect of Drying Technique on Hermetia Illucens Prepupae Fatty Acid*
11.45 – 12.00	**Prof. Dr. Jolius Gimbun (Universiti Malaysia Pahang)** *CFD Modelling of Chlorine Leak Dispersion and Risk Zone Forecast in Telok Kalong Industrial Area*

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 2

TRACK 1: Reaction Engineering & Catalysis 1
Chairman: Assoc. Prof. Dr. Sumaiya Zainal Abidin
Co-chairman: Ms. Nornasuha Abdullah
Link: Track 1: Reaction Engineering & Catalyst 1

14.00 – 14.15	**Ms. Mythili Thangavel (Universiti Malaysia Pahang)** *Valorisation of Palm Oil Via Cross-Metathesis Reaction with 1-Octene*
14.15 – 14.30	**Assoc. Prof. Kitirote Wantala (Universiti Khon Kaen)** *Low Thermal Oxidation of Gaseous Toluene Over Cu/Ce Single-Doped and Co-Doped OMS-2 on Different Synthetic Routes*
14.30 – 14.45	**Mr. Muhammad Amirul Aiman Abdul Rani (Universiti Kebangsaan Malaysia)** *Recent Catalytic Synthesis of 5-hydroxymethylfurfural (HMF) from Carbohydrates with Process Development Analysis - A Review*
14.45 – 15.00	**Dr. Trang Nguyen Thi Thu (Vietnam Academy of Science and Technology)** *Integrated Photocatalysis and Microfiltration for Methylene Blue Degradation: Kinetic and Cost Estimation*
15.00 – 15.15	**Ms. Nurul Asmawati Roslan (Universiti Malaysia Pahang)** *A Kinetic Evaluation: Hydrogen Production Via Glycerol Dry Reforming Reaction over Ru-Ni-Supported on Extracted Alumina from Aluminum Dross*
15.15 – 15.30	**Mr. Ahmad Salam Farooqi (Universiti Teknologi Petronas)** *Performance of Ni-Sr/MgO-ZrO_2 bimetallic catalyst for CO_2 Reforming of Methane: Effect of Sr addition*

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 2

TRACK 2: Environmental & Wastewater Engineering 1
Chairman: Dr. Lim Mee Wei
Co-chairman: Ms. Nurul Faizah Binti Abd Ghapar
Link: Track 2: Environmental & Wastewater Engineering 1

14.00 – 14.15 **Dr. Nor Ruwaida Jamian (Universiti Teknologi Malaysia)**
The Effects of Additives Towards the Particulate Size Distribution from Palm Fiber and Shell Combustion

14.15 – 14.30 **Ms. Nor Asyikin Ismail (Universiti Teknologi MARA)**
Influence of pH and Benzo[a]Pyrene Concentration on Growth of Bacteria - Fungus

14.30 – 14.45 **Ms. Nazirah Awang Husain (Universiti Teknologi Malaysia)**
Microbial Treatment of Water in Tube Wells for Improved Water Quality

14.45 – 15.00 **Ms. Chong Mei Mei (Universiti Teknologi Malaysia)**
Adsorption of Nitrate Ions towards Cellulose Powder

15.00 – 15.15 **Mr. Rab Nawaz (Universiti Teknologi Petronas)**
Synthesis and Structural Elucidation of Core-Shell Structured Black Titanium Dioxide

15.15 – 15.30 **Mr. Prabu Rajandran (Universiti Malaysia Pahang)**
Characterization of Beta-Cyclodextrin Functionalized Rice Husk Biochar

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 2

TRACK 3: Energy 1
Chairman: Assoc Prof. Dr Hermadina Setiabudi
Co-chairman: Ms. Siti Nor Amira Rosli
Link: Track 3: Energy 1

14.00 – 14.15	**Ms. Wasipim Chansiriwat (Khon Kaen University)** *Production of Renewable Light Fuel Range over Heterogenous Calcium Oxide-Based Catalyst Derived from Gypsum Waste by Pyrolytic Catalysis Process: Effect of Magnesium Contents*
14.15 – 14.30	**Dr. Nabila A. Karim (Universiti Kebangsaan Malaysia)** *The Mechanism of Electro-Oxidation of Glycerol on the Pd-Au Catalyst Surfaces: A DFT Studied*
14.30 – 14.45	**Mrs. Aliyah Jamaludin (Universiti Malaysia Pahang)** *Membraneless Enzymatic Biofuel Cell Powered by Starchy Biomass*
14.45 – 15.00	**Mr. M. Devendran Manogaran (Universiti Teknologi Petronas)** *An Overview on The Treatment Processes of Poultry Manure*
15.00 – 15.15	**Mr. Fahman Ullah (Universiti Teknologi Petronas)** *Density Functional Theoretical Calculations for The Electronic Structure of Carbon and Copper Co-Doped TiO_2 Rutile Model*
15.15 – 15.30	**Prof. Dr. Jolius Gimbun (Universiti Malaysia Pahang)** *Optimization of Bioethanol Production from Oil Palm Trunk Sap*

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 2

TRACK 4: Advanced Materials 1
Chairman: Assoc. Prof. Dr Saidatul Shima Jamari
Co-chairman: Ms. Siti Zubaidah binti Adnan
Link: Track 4: Advanced Materials 1

14.00 – 14.15 **Ms. Nor Amira Marfur (Universiti Sains Malaysia)**
Synthesis of Mixed-Phase Mesoporous Titania Nanoparticles using Different Surfactants for Photocatalytic Degradation of 2-Chlorophenol

14.15 – 14.30 **Ms. Nur Syazwanie Izzati Chik (Universiti Teknologi MARA)**
Effect Of Rice Husk Ash Gel on The Properties of Integral Membrane from A Blend of Polysulfone/ Chitosan/ Polyvinyl Alcohol

14.30 – 14.45 **Ms. Anis Syahirah Ismail (Universiti Malaysia Perlis)**
Synthesis of Graphite-based Imprinted Polymer for Selective Removal of Nitrate Ions from Aqueous Solution

14.45 – 15.00 **Mr. Abdulwasiu Muhamed Raji (Universiti Teknologi Malaysia)**
Intumescent Flame Retardant Based on Sepiolite Filled Rigid Polyurethane Foam

15.00 – 15.15 **Ms. Norasikin Hafiz (Universiti Malaysia Sabah)**
Synthesis of Carboxymethyl Cellulose (Cmc) from Cocoa Pod Husk

15.15 – 15.30 **Dr. Wan Hazman Danial (International Islamic University Malaysia)**
Recent Advances on the Enhanced Thermal Conductivity of Graphene Nanoplatelets Composites: A Short Review

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 3

TRACK 1: Food Sciences, Natural Products & Pharmaceutical Technology 2 / Process Control & Simulation 2
Chairman: Assoc. Prof. Ir. Dr. Chin Sim Yee
Co-chairman: Ms. Nur Shafiqah Mohd Nasir
Link: Food Sciences, Natural Products & Pharmaceutical Technology 2 / Process Control & Simulation 2

16.15 – 16.30 **Dr. Chia Vi Vien (Universiti Malaysia Pahang)**
Thermal-Induced Andrographolide, 14-Deoxy-11, 12-Didehydroandrographolide and Neoandrographolide Synthesis from Andrographis Paniculata Extracts

16.30 – 16.45 **Ms. Kok Yu Hui (International Institute of Tehnology MJIIT, Universiti Teknologi Malaysia**
Control Analysis of Biomass Gasification with Combined Heat and Power System

16.45 – 17.00 **Ms. Nurmaryam Aini Hashim (Universiti Malaysia Pahang)**
Recovery of Omega-3 Fish Oil from Monopterus Albus Eel Fish using Microwave Assisted Extraction Process

17.00 – 17.15 **Mr. Thien Hien Tran (Nguyen Tat Thanh University)**
Study on Assessing the Properties of Body Wash from Coconut Oil in Ben Tre Province

17.15 – 17.30 **Ms. Nor Amira Othman (Universiti Malaysia Pahang)**
Chlorella Vulgaris Blending Induce the Performance of Carrageenan Bio-Film

17.30 – 17.45 **Prof. Dr. Jolius Gimbun (Universiti Malaysia Pahang)**
2D and 3D Particle Image Velocimetry Measurement of Air Flow Over a Scaled-Down Model of Bukit Gemok in Telok Kalong Industrial Area

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 3

TRACK 2: Environmental & Wastewater Engineering 2
Chairman: Assoc. Prof. Dr. Azilah Ajit
Co-chairman: Mr. Muhammad Hanafi Yusop
Link: Track 2: Environmental & Wastewater Engineering 2

16.15 – 16.30 **Ms. Nuntiya Paepatung (King Mongkut's University of Technology Thonburi)**
Comparative Rates and Yields of Electrons Released from ZVI Powder in Batch Reactors with and without Inoculated Hydrogenotrophic Methanogens

16.30 – 16.45 **Ms. Hasnida Mohamed Haniffa (International Institute of Technology (MJIIT), Universiti Teknologi Malaysia**
Analyzing the Viability of Carbon Capture and Storage Technology via Swot-Pestle Analysis: Case Study in Malaysia

16.45 – 17.00 **Dr. Lim Mee Wei (Segi University Malaysia)**
Design of a Water Quality Monitoring System Utilizing IOT Platform for Hydroponics Application

17.15 – 17.15 **Ms. Tran Hong Minh (Hanoi University of Science and Technology)**
Synthesis and Characterization of N-doped Graphene Oxide Quantum Dots/FeBDC Composite for Methylene Blue Decomposition

17.15 – 17.30 **Ms. Nur Aqilah Mohd Razali (Universiti Teknologi Malaysia)**
Synthesis and Characterization of Sodium Tungstate: Investigation of Surfactant Effect and Its Photocatalytic Application (rxn engineering & catalysis)

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 3

TRACK 3: Separation Technology 1
Chairman: Assoc. Prof. Ir. Dr. Chin Siew Choo
Co-chairman: Ms. Fiona Ling Wang Ming
Link: Track 3: Separation Technology 1

16.15 – 16.30 **Prof. Dr. Chantaraporn Phalakornkule (King Mongkut's University of Technology North Bangkok)**
Evidence of Loss of N_2/O_2 Adsorption Selectivity of LiLSX Due to Ion Exchange Between Sodium Aerosol and Lithium Cations

16.30 – 16.45 **Mrs. Siti Nur Nadzmiah Mohd Nor (Universiti Malaysia Pahang)**
Effect of Extraction Time and Temperature on Total Flavonoid Content (TFC) and Total Coumarin Content (TCC) of Petai Belalang (Leucaena leucocephala) Seed

16.45 – 17.00 **Ms. Siti Zu Nurain Ahmad (Universiti Teknologi Malaysia)**
Effects of Different Solvent on the Preparation of Zeolitic Imidazolate Framework-8 (Zif-8) for the Removal of Lead and Cadmium

17.00 – 17.15 **Dr. Chiam Chel Ken (Universiti Malaysia Sabah)**
Separation of Stable Oil/Water Emulsion by Using Commercial Microfiltration Polyvinylidene Fluoride Membranes

17.15 – 17.30 **Ms. Kohmalam Ayanasamy (Universiti Malaysia Pahang)**
High Sugar Production from Hydrolysate of Pineapple Residues via Integrated Enzyme-Membrane System

17.30 – 17.45 **Mrs Nurafiqah Rosman (Universiti Teknologi Malaysia)**
Visible-light Responsive PVDF-ZnO/Ag_2CO_3/Ag_2O Mixed Matrix Membrane with Enhanced UF Antifouling Properties and Photocatalytic-Filtration Performance of Pharmaceutical Removal

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 3

TRACK 4: Process Control and Simulation 3
Chairman: Prof. Madya. Ir. Dr. Mohd Fairusham Ghazali
Co-chairman: Ms. Lim Yee Peng
Link: Track 4: Process Control & Simulation 3

16.15 – 16.30 **Mr. Muhammad Syafiq Sulaiman (Universiti Sains Malaysia)**
Performance Evaluation for Linear Based Model Predictive Control in Controlling Production Rate and Reactor Temperature of Ethylene Glycol Reactor

16.30 – 16.45 **Mrs. Nurfaziera Rahim (Universiti Teknologi MARA)**
Optimization of Fuzzy Logic in the Integration of Surface Water Treatment Based on Water Quality Index (WQI)

16.45 – 17.00 **Ms. Siti Zubaidah Adnan (Universiti Malaysia Pahang)**
Mathematical Modelling and Analysis of Dynamic Behavior for Seeded Batch Potash Alum Crystallization Process

17.00 – 17.15 **Ms. Ramsha Jahan (Universiti Teknologi Petronas)**
A Multi-Objective Optimization of H_2S Conversion into Sulfur by Claus Process using iCON Simulation

17.15 – 17.30 **Mr. Phariyaphong Sakoralee (King Mongkut's University of Technology Thonburi)**
Numerical Simulation and Parametric Study of Pulverized Coal Combustion by using CFD

17.30 – 17.45 **Ms. Wan Ying Chai (Universiti Malaysia Sabah)**
Model Predictive Control in Fermentation Process - A Review

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 4

TRACK 1: Advanced Materials 2
Chairman: Assoc. Prof. Dr. Suriati Ghazali
Co-chairman: Pavethra a/p Sivanesan
Link: Track 1: Advanced Materials 2

09.00 – 09.15 **Ms. Norashikin Mat (Universiti Kebangsaan Malaysia)**
Recent Development in Metal Oxide-Based Core-Shell Material for CO_2 Capture and Utilization

09.15 – 09.30 **Mr. Ali Shaan Manzoor Ghumman (Universiti Teknologi Petronas)**
Preparation and Characterization of Inverse Vulcanized Copolymers using Taramira Oil

09.30 – 09.45 **Ms. Zuraini Izati Zulkifli (Universiti Kebangsaan Malaysia)**
Review on CO_2 Adsorption and Conversion Studies Using Metal Organic Framework Based Material

09.45 – 10.00 **Ms. Norliana Bakar (Universiti Malaysia Pahang)**
Effects of Pineapple Leave Fiber as Reinforcement in Oil Palm Shell Lightweight Concrete

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 4

TRACK 2: Energy 2/Reaction Engineering & Catalysis 2
Chairman: Dr. Chiam Chel Ken (Universiti Malaysia Sabah)
Co-chairman: Ms. Siti Nurqurratulainie Miskan
Link: Track 2: Energy 2/Reaction Engineering & Catalyst 2

09.00 – 09.15 **Mrs. Nur Azreena Idris (Malaysian Palm Oil Board)**
Hydrodeoxygenation of Oleic Acid for Effective Renewable Diesel Production using Zeolite-Based Catalysts

09.15 – 09.30 **Mr. Nagaasaran Ramesh (Universiti Malaysia Pahang)**
Effect of Different Solvent System on Oil Extraction from Immobilized Microalgae Cells of Chlorella Vulgaris: Kinetic and Thermodynamic Studies

09.30 – 09.45 **Mr. Mohamad Razlan Md Radzi (Universiti Teknologi Petronas)**
Mo-promoted Ni/CeO_2 Synthesized Via Sonochemical Method as Potential Catalyst in Aqueous Phase Reforming of Glycerol for Production of 1,3-propanediol

09.45 – 10.00 **Mrs. Nguyen Thi Kim Oanh (Nguyen Tat Thanh University)**
A Bimetallic-Catalyzed Oxidative Esterification Reaction Forming α-Acyloxy Ether

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 4

TRACK 3: Food Sciences, Natural Products & Pharmaceutical Technology 3
Chairman: Assoc. Prof. Dr. Syamsul Rizal Abd Shukor (Universiti Sains Malaysia)
Co-chairman: Ms. Nur Amalina Ramli
Link: Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 3

09.00 – 09.15 **Dr. Anisuzzaman S M (Universiti Malaysia Sabah)**
A Short Review on Production of Enzyme-Treated Spray-Dried Tomato Powder

09.15 – 09.30 **Mrs. Wan Nur Suzilla Wan Yusuf (Politeknik Sultan Haji Ahmad)**
Physicochemical and Microbial Analysis of Plant-Based Foodwaste and Potential Used as an Animal Feed

09.30 – 09.45 **Ms. Yi Sze Koh (Monash University Malaysia)**
Synergistic Effects of Palm Bunch Ash and Glutathione on Plant Growth and Development

09.45 – 10.00 **Dr. Hoe Boon Chin (Monash University Malaysia)**
Extraction of Carotenoids from Crude Palm Oil by Solvolytic Micellization: Economic Evaluation and Life Cycle Assessment

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 4

TRACK 4: Oil & Gas 2
Chairman: Ts. Dr. Norida Ridzuan
Co-chairman: Mr. Mohd Aiman Hamdan
Link: Track 4: Oil & Gas 2

09.00 – 09.15 **Mr. Mohd Hardyianto Vai Bahrun (Universiti Malaysia Sabah)**
Synthesis and Optimazation of Surfactant-Stabilized Palm Oil-Based Nanoemulsion for Enhanced Oil Recovery

09.15 – 09.30 **Mr. Koh Qi Yun (Universiti Teknologi Malaysia)**
Prospects of Energy Recovery in Offshore Oil and Gas Operations

09.30 – 09.45 **Mr. Afif Naqiudien (Universiti Malaysia Sabah)**
A Short Review on Application of Nanoemulsion for Enhanced Oil Recovery

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 5

TRACK 1: Separation Technology 2
Chairman: Ts. Dr. Azizan Ramli
Co-chairman: Mr. Ukasyah Zulfaqar Shahrulakmar
Link: Track 1: Separation Technology 2

11.00 – 11.15 **Ms. Wan Nur Aisyah Wan Osman (Universiti Teknologi Petronas)**
Comparative Between Vertical and Horizontal Panel Orientation for Optimum Surface Patterning Effect

11.15 – 11.30 **Dr. Quoc-An Trieu (Nguyen Tat Thanh University)**
An In-Depth Investigation into Adsorption Equilibrium, Kinetics, and Thermodynamics of Spent Coffee Grounds for Methylene Blue Removal

11.30 – 11.45 **Dr. Lee Muei Chng (Universiti Tunku Abdul Rahman)**
Extraction of Cellulose from Sugarcane Bagasse via Ultrasonic-assisted Alkaline Technology

11.45 – 12.00 **Ms. Cynthia Chin (Universiti Malaysia Sabah)**
A Short Review on Industrial Grade Oxygen Production from Air by Pressure Swing Adsoprion (PSA)

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 5

TRACK 2: Separation Technology 3
Chairman: Ts. Dr.Nasratun Masngut
Co-chairman: Ms. Yashini a/p K.Selvanathan
Link: Track 2: Separation Technology 3

11.00 – 11.15 **Ms. Normalija Battak (Universiti Malaysia Sabah)**
A Short Review on Removal of Trace Antibiotic from Water using Packed Bed Adsorption Process

11.15 – 11.30 **Dr. Quoc An Trieu (Nguyen Tat Thanh University)**
Zirconium Dioxide Nano-Hybrids for Adsorption of Palladium and Gold

11.30 – 11.45 **Mr. Mohd Hardyianto Vai Bahrun (Universiti Malaysia Sabah)**
A Short Review on Pressure Swing Adsorption (PSA) Technology for Nitrogen Generation from Air

11.45 – 12.00 **Ms. Elysandra Peter (Universiti Malaysia Sabah)**
Removal of Phenolic Compound from Water Agriculture Drainage System Using Packed Bed Adsorption: A Review

DETAILED PARALLEL TENTATIVE

PARALLEL SESSION 5

TRACK 3: Food Sciences, Natural Products & Pharmaceutical Technology 4
Chairman: Dr. Patrick Tang Siah Ying (Monash University Malaysia)
Co-chairman: Mr. Muhammad Norzaman Kathiman
Link: Track 3: Food Sciences, Natural Products & Pharmaceutical Technology 4

11.00 – 11.15 **Mr. Misbahudin Alhanif (Universitas Diponegoro)**
Thin-layer Drying of Papaya (Carica papaya) Seeds: Drying Kinetics, Mathematical Modeling and Effective Moisture Diffusivity

11.15 – 11.30 **Dr. Nor Aini Ahmad (Universiti Sains Malaysia)**
Analysis of Water Content in Esterification of Isoamyl Acetate by using Gas Chromatography – Thermal Conductivity Detector (GC-TCD) with Watercol 1910 Column

11.30 – 11.45 **Mr. Nguyen Le (Nguyen Tat Thanh University)**
Antiaging and Antibacterial Efficiency of Copper Ion on Cut Rose Vase Life (Rosa L.Hybrid)

DETAILED PARALLEL TENTATIVE

	PARALLEL SESSION 5
	TRACK 4: Energy 3 / Fluid Flow Assurance 2 **Chairman: Dr. Sudhakar Kumarasamy** **Co-chairman: Dr. Nurul Nadia Mohd Zawawi** **Link: Track 4: Energy 3/Fluid Flow Assurance 2/Finite Element Anlysis**
11.00 – 11.15	**Mr. Abu Hasnat Mustafa (Universiti Malaysia Pahang)** *Immobilization of Cellulase onto Silica Coated Magnetic Nanostructure for the Hydrolysis of Lignocellulosic Biomass*
11.15 – 11.30	**Mr. Ali Ba Saleem (Universiti Malaysia Pahang)** *Investigation of the Stability of Cerium Oxide in Diesel Fuel for Nano-Enhanced Fuel Formulation*
11.30 – 11.45	**Dr. Wafaa Kamil Mahmood (Universiti of Technology Iraq)** *Investigating the Effect of Solid-Polymer-Surfactant Complex on the Flow Enhancement Stability in Extreme Shearing Flow Environment*
14.45 – 12.00	**Harunal Rejan Ramji (Universiti Melaysia Sarawak)** *Finite Element Analysis of 1-D, 2-D axisymmetric and 3-D Transient Redox Simulation on a Single Electrode Microdisk* *Research Area: Finite Element Method, Electrochemistry*.

ACKNOWLEDGEMENT

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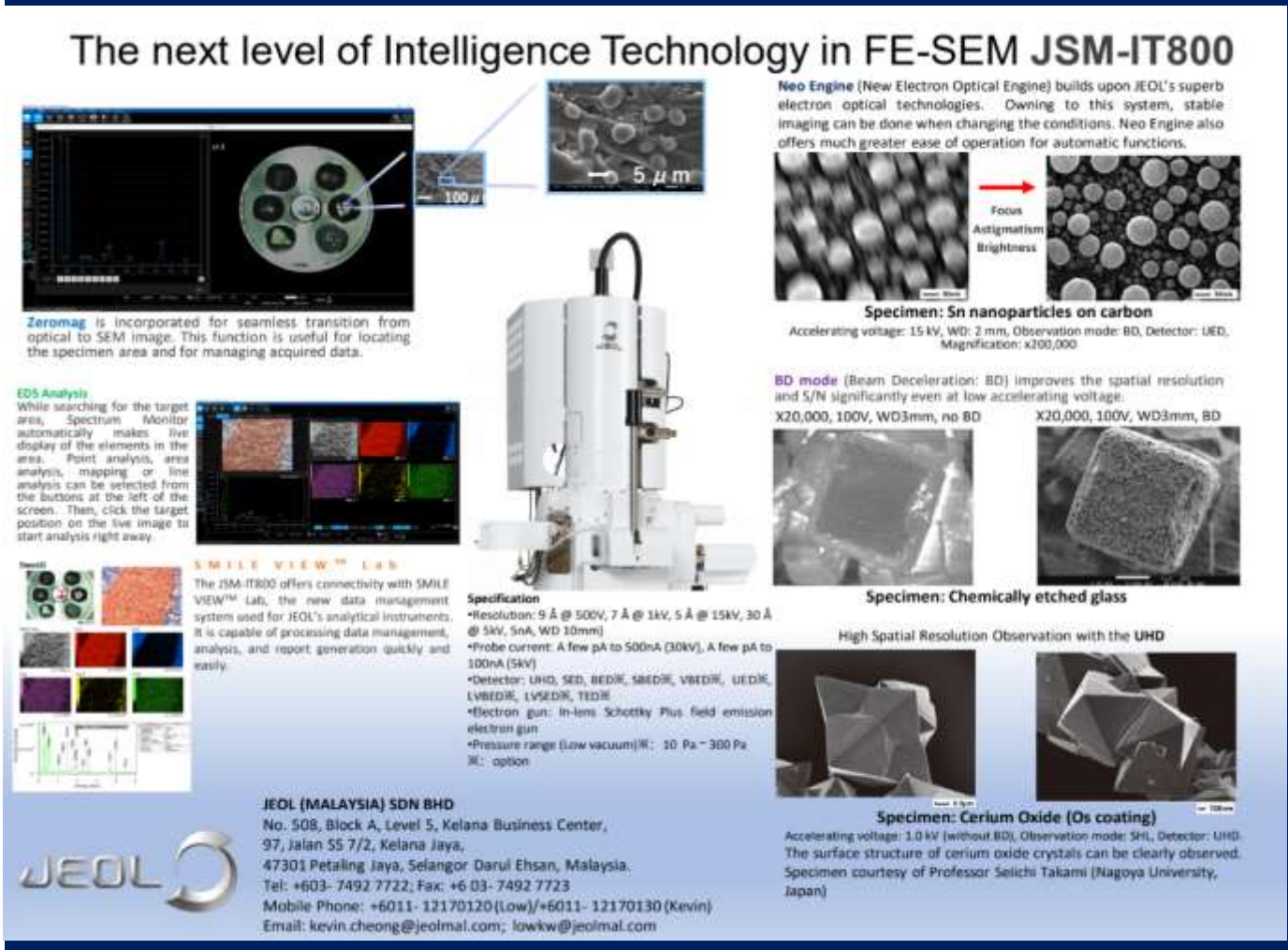

We would like to record a special thanks to all other organizations, committee members and individuals who had contributed their invaluable assistance, ideas, valuable time and efforts in making this conference a successful time.

Centre for Research in Advanced Fluid and Processes

Pusat Penyelidikan Bendalir dan Proses Termaju

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