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SChE 2019

ENERGY SECURITY AND CHEMICAL ENGINEERING CONGRESS 2019

Empowering Growth in Sustainable Energy

17th – 19th July 2019

PARKROYAL PENANG RESORT, PENANG, MALAYSIA

ABSTRACT BOOK

Organized by:

CARIFF
Center of Excellence for Advanced Research in Fluid Flow

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Foreword

Assalamualaikum Warahmatullahi Wabarakatuh

In the name of Allah, the most gracious and merciful. Allah is the almighty

Universiti Malaysia Pahang (UMP) welcomes the delegates Energy Security and Chemical Engineering Congress (ESChE) 2019, organized by the Centre of Excellence for Advanced Research in Fluid Flow (CARiFF), UMP.

With the theme "Empowering Growth in Sustainable Energy", ESChE 2019 is the right avenue to discuss current issues relating to sustainable development related to material, chemical and energy to meet the growing demands of the developing countries without compromising the environment. Energy security experts, material scientists and chemical engineers from all over the world will gather in Penang, Malaysia to discuss the new scientific research and development on energy and chemical engineering fields.

Not only that is ESChE 2019 the platform for intellectual exchange, it is my hope too that the conference will also serve as a constructive meeting point for the delegates to create or enhance collaborative networking among them.

I wish you all fruitful deliberations throughout ESChE 2019 and a pleasant stay in Penang.

Thank you.

PROFESSOR IR. DR. WAN AZHAR WAN YUSOFF

Vice Chancellor, Universiti Malaysia Pahang

Foreword

In the Name of Allah, the Most Beneficent, the Most Merciful.

It is with great pleasure that I welcome the participants of the Energy Security and Chemical Engineering Congress (ESChE) 2019 organised by CARiFF (Centre of Excellence for Advanced Research in Fluid Flow), Universiti Malaysia Pahang in partnership with our regional peers, King Mongkut's University of Technology North Bangkok Thailand, Nguyen Tat Thanh University Vietnam and also two universities from India, namely University of Madras and AMET University. As the organizer, we are pleased and honoured to welcome you to Penang "The Pearl of The Orient" and we hope that you will enjoy the relaxing atmosphere offered by this tropical heaven on top of the expected benefits from exciting scientific interactions, contributing to the future scientific agenda.

CARiFF has previously organized the International Conference on Fluids and Chemical Engineering (1st FluidsChE 2015 and 2nd FluidsChE 2017). For this year, the FluidsChE conference has been renamed as ESChE that emphasizes on Energy Security in line with the Malaysian Government's National Priority Area and also to support CARiFF's strongest research field. ESChE 2019 with the theme "Empowering Growth in Sustainable Energy", aims to provide a platform to discuss ideas and latest research findings especially in Energy, Environment and Chemical Engineering fields. The conference aims to bring together energy and chemical engineering community from around the world to share their findings or ideas in the area of sustainable energy and also chemical engineering development.

I would like to express my appreciation to all committee members of ESChE 2019 from Faculty of Chemical & Natural Resources Engineering for their hardwork and relentless effort. Without their commitment and contributions, this event would not been possible and successfully delivered right this time. Finally, it is envisaged that this intellectual discourse will result in future collaborations between universities, research institutions and industry both locally and internationally. In particular, it is expected that focus will be given to issues on environmental and energy sustainability.

Thank you.

ASSOCIATE PROFESSOR IR. DR. MOHD FAIRUSHAM GHAZALI
Director of CARiFF, Universiti Malaysia Pahang

Foreword

I am pleased to welcome you to the island of Penang to participate in this conference, Energy Security and Chemical Engineering Congress 2019 (ESChE'19). We hope you enjoy the relaxing atmosphere offered by this island besides benefiting from exhilarating scientific interactions with the conference participants who comes from all over the world. This is the third edition of the conference organized by the Centre of Excellence for Advanced Research in Fluid Flow (CARiFF), Universiti Malaysia Pahang. The first two were in 2015 and 2017 focusing on fluid flow and chemical engineering. This year, we have changed the focus into energy security and chemical engineering, which we believe can attract bigger audience. We organize this conference in partnership with our regional peers, King Mongkut's University of Technology North Bangkok, Thailand, Nguyen Tat Thanh University Vietnam and also two universities from India, namely University of Madras and AMET University. The next edition of this conference will be hosted by our partner institution, University of Madras in 2020.

We received 500 abstract submissions from all over the world, mostly from Vietnam, Thailand, India, Indonesia, Iraq, Taiwan, South Korea, UK, Qatar, Australia, Ireland, and Kazakhstan as well as from many Malaysian institutions. The conference theme is "Empowering Growth in Sustainable Energy". The conference proceeding will be published in Scopus indexed IOP Conference Series, while full paper will be published in Web of Science indexed journals after review. I personally thank Assoc. Prof. Cheng, Prof. Hayder A. Abdulbari and Dr. Dai Viet N. Vo, who secured those Special Issues for us. The keynote speakers for this conference, Prof. Tran Dinh Phong, Prof. T.M. Sridhar, Prof. Suttichai Assabumrungrat, Prof. Adul Latif Ahmad and Prof. Taufiq Yap Yun Hin are the field leaders in energy security, sustainable development and chemical technology. I wish to thank Nguyen Tat Thanh University, Vietnam for sponsoring the trip of Prof. Tran Dinh Phong; a high profile speaker who published in Science and Nature, to this conference.

I wish to thank the Organizing Committee who works tirelessly to ensure this conference a success. Our core organizing committee is small in number, but they are highly capable and full of motivation. Finally, we hope that this gathering will create the recipe for scientific exchange between all the participants in a way that can enhance future scientific collaboration among them. We thank the conference main sponsor, Crest NanoSolutions Sdn. Bhd. who always been a main sponsor of our conference since 2015. We also thank other sponsors, namely, Aseptec Sdn. Bhd., Nexus Analytical Sdn. Bhd., PLT Scientific Sdn. Bhd. and AC Scientific Sdn. Bhd. Their contribution has helped us to organize this conference in this beautiful resort.

Thank you.

ASSOCIATE PROFESSOR DR. JOLIUS GIMBUN
Chairman of ESChE 2019

CONFERENCE BACKGROUND

Energy Security and Chemical Engineering Congress or ESChE 2019 is a biennial conference organized by the Centre of Excellence for Advanced Research in Fluid Flow (CARiFF), Universiti Malaysia Pahang in partnership with our regional peers, King Mongkut's University of Technology North Bangkok Thailand, Nguyen Tat Thanh University Vietnam and also two universities from India, namely University of Madras and AMET University. The conference will be an event that brings together energy and chemical engineering community from around the world to share their findings or ideas in the area of sustainable energy and chemical engineering development.

ESChE 2019 will focus on the opportunities offered by the sustainable development related to material, chemical and energy to meet the growing demands of the developing countries without compromising the environment. Energy security experts, material scientists and chemical engineers from all over the world will gather in Penang, Malaysia to discuss the new scientific research and development on energy and chemical engineering fields. Thus, the major focus areas of this conference are:

- Energy security, both renewable and conventional sources
- Sustainable development
- Green technology and material
- Chemical engineering with emphasis on sustainable development

CONFERENCE COMMITTEE

Advisor

Professor Ir. Dr. Wan Azhar bin Wan Yusoff
(Universiti Malaysia Pahang, UMP)

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Associate Professor Dr. Jolius Gimbun

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KEYNOTE SPEAKER 1

CREATION OF A VIABLE ARTIFICIAL LEAF FOR SOLAR WATER SPLITTING

PROF. DR. TRAN DINH PHONG
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

ABSTRACT

Solar water splitting represents a promising technology for converting the abundant but intermittent solar energy into chemical energy stored within the molecule of H_2. The latter will be then stored, transported, distributed as per demand and used as a clean fuel within a fuel cell. The solar water splitting is released by employing an appropriate photoelectrochemical device, usually called as artificial leaf. Several potential configurations have been proposed for the creation of an operational artificial leaf [1]. Perhaps, the most accessible one is by assembling a dual of water electrolysis catalysts with an appropriate light harvester.

In this contribution, we first describe about the preparation of amorphous molybdenum sulfide/ selenide a-Mo(Se)S_x which are effective catalysts for the hydrogen evolution reaction (HER) in water [2,3]. The structure as well as the catalytic operation of these catalysts will be discussed. For example, we have demonstrated that a-MoS_x is a coordination polymer with $[Mo_3S_{13}]^{2-}$ discrete building block cluster and the H_2-evolution is relied on the Mo-vacant defect site [2]. We also discuss on how nanostructured Au or Au/a-MoS_x core/shell could be used as catalysts for the HER [4]. We then describe on the preparation of a dual a-CoWPS hydrogen evolution reaction catalyst and a-CoWOP oxygen evolution reaction catalyst employing a sole $[Co(WS_4)_2]^{2-}$ deposition bath [5,6]. We found that these two catalysts can be easily assembled onto the two sides of an amorphous triple junction Si solar cell (3jn a-Si) via a photo-induced deposition process. The resultant a-CoWPS/3jn a-Si/ a-CoWOP artificial leaf shows promising solar to H_2 conversion yield of 3% that is sustainable for hours under the continuous operation in a neutral pH water [7].

References

1. P. D. Nguyen et al., Journal of Science: Advanced Materials and Devices 2, 399 (2017)
2. P. D. Tran et al., Nat. Mater. 15, 640 (2016)
3. Q. T. Nguyen et al., ACS Appl. Mater. Interfaces 10, 8659 (2018)
4. T. D. Tran et al., Chem. Commun. 54, 3363 (2018)
5. P. D. Tran et al., Energy Environ. Sci. 6, 2452 (2013)
6. L. N. Nguyen et al., Chem. Asian J. 13, 1530 (2018)
7. D. N. Ngoc et al., unpublished data

SPEAKER BIOGRAPHY:

Dr. Phong D. Tran is a Lecturer and Principal Investigator at the University of Science and Technology of Hanoi (USTH). He obtained his PhD degree at University Paris Sud, France in 2007 and his Habilitation de Diriger des Recherches at University Grenoble Alpes, France in 2016. Before joining USTH, he worked as a post-doctoral research associate at CEA Grenoble, France (2009-2010) and as a senior research fellow at Nanyang Technological University, Singapore (2011-2015). His current research interests focus on the development of nanostructured catalytic materials for solar water splitting, solar H_2 generation and solar CO_2 reduction. His approach is to learn the structure and function of enzymes to create novel efficient and robust catalytic materials. He has published over 50 research papers and review articles in international peer-reviewed journals. His current citation score is over 4000 and his H-index is 26.

KEYNOTE SPEAKER 2

MEMBRANE TECHNOLOGIES FOR TREATMENT OF CONTAMINANTS OF EMERGING CONCERN

PROFESSOR DR. ABDUL LATIF AHMAD
UNIVERSITI SAINS MALAYSIA, MALAYSIA

ABSTRACT

Diverse chemicals are being introduced by society in vast quantities for a range of purposes including agricultural, industrial, household as well as for human and animal healthcare. These chemicals are referred to collectively as 'contaminants of emerging concern' (CECs). These contaminants are widespread in the aquatic and terrestrial environments, and include anthropogenic and naturally occurring chemicals, pharmaceuticals and personal care products (PPCPs), metabolites and transformation products of PPCPs, illicit drugs, engineered nanomaterials, and antibiotic resistance genes. Even though it is not yet regulated in drinking water supplies and are not commonly monitored in the environment, these contaminants have the potential to cause adverse ecological and human health effects even at low levels concentration. Many CECs are present at extremely low concentrations making detection and assessments of it challenging. In addition, improper treatment of these contaminants will eventually cause major environmental pollution. However, recent advances have given researchers the ability to detect wide range of contaminants in environment at extremely low concentrations which encouraged researchers to advance on this research topic. Various potential treatment methods to treat the CECs will be presented such as membrane bioreactor (MBR), adsorption and liquid membrane.

SPEAKER BIOGRAPHY:

Prof. Dr. Abdul Latif Ahmad obtained his BEng, MSc and PhD from the University of Wales, Swansea, UK. He is an internationally renowned researcher and an internationally acclaimed award-winning researcher in membrane science & technology, a Chartered Engineer and a Fellow to The Institution of Chemical Engineers (IChemE), UK. His enthusiasm and dedication towards his research works have been reflected in his achievements in winning numerous scientific invention awards. To-date, a total of 56 personal achievement awards and 69 research product awards have been won. His capability in carrying out quality research work of international standard has been further supported by publication of 383 articles in high impact factor international refereed journals, with current cumulative citation number of 12,298 and h-index of 52.

KEYNOTE SPEAKER 3

PROCESS DESIGN OF INTEGRATED BIOREFINERY IN PULP AND PAPER INDUSTRY FOR SUSTAINABLE DEVELOPMENT

PROFESSOR DR. SUTTICHAI ASSABUMRUNGRAT
CHULALONGKORN UNIVERSITY, BANGKOK, THAILAND.

ASTRACT:

Integrated biorefinery in the existing pulp mill have been considered as a long-term sustainable development for both biorefinery and pulp and paper industries. Among many alternatives of technology, the potential design of practical integrated biorefinery network is specified by a 3-stage systematic methodology involving synthesis, design and innovation. According to our previous work, superstructure-based process synthesis was employed to define optimal technology of integrated biorefinery providing maximum profit. Succinic acid production and black liquor gasification with DME production are the optimal implemented processes in Soda pulping process. In case of Kraft pulping process, black liquor gasification with DME production has also potential to improve profitability of pulp mill, although succinic acid production and lignin extraction from black liquor are defined as the optimal process. To design the optimal network of biorefinery, process simulation of integrated succinic acid and DME process was performed to obtain rigorous configuration as base case and data for process evaluation. In design stage, process bottlenecks are revealed by process analysis supported by computer aided tool. Improvement targets are then defined to debottleneck in innovation stage. Finally, a practical and sustainable biorefinery with pulp and paper industry is proposed for further implementation.

SPEAKER BIOGRAPHY:

Dr. Suttichai is a professor at Department of Chemical Engineering, Faculty of Engineering, Chulalongkorn University. He received his B.Eng. degree from Chulalongkorn University, and M.Sc. and Ph.D. degrees from Imperial College London. His research interest is on process intensification with particular focus on multifunctional reactors. He has published more than 290 peer-reviewed journal-proceedings articles and book chapters. He is now working on several projects, for examples, hydrogen production technologies, biodiesel production, biorefinery and CO_2 capture and utilization. He was the recipient of Outstanding Paper Award from Journal of Chemical Engineering of Japan (2002), Young Scientist Award from the Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King (2003), Outstanding Researcher Award from the National Research Council of Thailand (2009), Research Group Promotion Grant Award from Thailand Research Fund (2008, 2011), PTIT AWARD (Fellow) from Petroleum Institute of Thailand (2011), Outstanding Scientist Award, Thailand Toray Science Foundation (2012) and Distinguished Professor Grant Award from Thailand Research Fund (2015). He was an organizing committee of The 4th Asian Polyolefin Workshop 2011 (APO2011), organized by Chulalongkorn University, Thailand, 2011 and co-chairman of International Symposium in Chemical Reaction Engineering (ISCRE 23), Bangkok, Thailand, 2014. He also served as a scientific committee of The 6th Asia Pacific Chemical Reaction Engineering Symposium (APCRE), Beijing, China, 2011, International Symposium in Chemical Reaction Engineering (ISCRE 22), Maastricht, The Netherlands,

2012, The XXII International conference on Chemical Reactors (CHEMREACTOR-22), University College London, UK, 2016 and The 8th Asia-Pacific Symposium on Chemical Reaction Engineering (APCRE 2017) in parallel to North American Symposium on Chemical Reaction Engineering and European Symposium on Chemical Reaction Engineering, in Shanghai, China, 2017. He was a former Deputy Dean in Research Affairs, Faculty of Engineering and the Energy Cluster Head of Chulalongkorn University. He is also a working committee member of Thai Council of Engineers and Thai Academy of Science and Technology Foundation.

KEYNOTE SPEAKER 4

CATALYSIS, GREEN CHEMISTRY & SUSTAINABILITY: CHALLENGES & OPPORTUNITIES

PROFESSOR DR. YUN HIN TAUFIQ-YAP
UNIVERSITI PUTRA MALAYSIA

ABSTRACT

Catalysis is one of the fundamental pillars of green chemistry which include the design of chemical products and reaction or processes that can reduce or eliminate the use and generation of hazardous substances. The design and application of new catalysts and catalytic systems are simultaneously achieving the dual goals of environmental protection and economic benefit. Green chemistry also known as sustainable chemistry is defined as the practice of chemical science and manufacturing in a manner that is sustainable, safe, and environmental friendly and that consumes minimum amounts of materials, chemicals and energy while producing little or no waste material and hazardous chemicals. Developing green chemistry methodologies is a challenge that may be viewed through the framework of the "Twelve Principles of Green Chemistry". These principles identify catalysis as one of the most important tools for implementing green chemistry. Catalysis offers numerous green chemistry benefits including lower energy requirements, catalytic versus stoichiometric amounts of materials, increased selectivity, and decreased use of processing and separation agents, and allows for the use of less toxic materials. Heterogeneous catalysis, in particular, addresses the goals of green chemistry by providing the ease of separation of product and catalyst, thereby eliminating the need for separation through distillation or extraction. In addition, environmentally benign catalysts such as clays and zeolites, may replace more hazardous catalysts currently in use. This lecture highlights a variety of ways in which catalysis may be used in green chemistry reactions. The role of chemistry in 'greening' existing processes will drive the development of more efficient, selective catalysts and reduced energy consumption.

SPEAKER BIOGRAPHY:

Prof. Dr. Yun Hin Taufiq-Yap is currently a Professor of Catalysis, Head of Laboratory for Sustainable Chemicals and Bioenergy, Catalysis Science and Technology Research Centre, Faculty of Science and Deputy Director of Research Management Centre, Universiti Putra Malaysia. He earned a BSc (Hons) and MSc in 1992 and 1994, respectively at Universiti Putra Malaysia. He then went on to earn his PhD (1997) in heterogeneous catalysis at University of Manchester Institute of Science and Technology (UMIST) UK. His research interests lie on designing heterogeneous catalysts and nanocatalyst for sustainable energy and chemicals production from biomass and renewable resources and environment protection, including the reduction of greenhouse and toxic gas emissions by catalytic technologies. He published various reviews on biodiesel and hydrogen production from biomass, and is author of over 310 scientific publications, several communications in international conferences (over 30 plenary or invited/keynote lectures in the last 5 years), he is author/editor of 2 books on biodiesel. Throughout his career, Professor Taufiq-Yap has been the recipient of the following Awards and Distinctions: National Young Scientist

Award, 2002; Top Research Scientist Malaysia (2013); Visiting Researcher, Cardiff University, 2004, 2005; Appointed Fellow of Academy Science of Malaysia (2015), Malaysia Institute of Chemistry (2009) and Royal Society of Chemistry, UK (2008); Visiting Professor at Nagoya University, Japan, Universiti Teknologi PETRONAS and Curtin University Sarawak, elected Titular Member of International Union for Pure and Applied Chemistry (IUPAC) and Council Member of Asia-Pacific Association of Catalysis Society (APACS).

KEYNOTE SPEAKER 5

GRAPHENE BASED NANOMATERIALS FOR SUSTAINABLE ENERGY STORAGE DEVICES

ASSOCIATE PROFESSOR DR. T.M. SRIDHAR
UNIVERSITY OF MADRAS, INDIA

ABSTRACT

In today's world life without energy is unimaginable and day by day the need for generation and storage is also increasing. Energy security of a nation also determines its economy and industrial growth. This in turn has given scientists an enormous challenge to develop and produce new materials for sustainable growth which is the biggest challenge for the society to benefit and survive in the years to come. In our strive to eliminate fossil fuels targeted at reducing pollution, the research is focused on developing electric vehicle manufacturing, automotive energy storage systems, e-rickshaws, portable electronic devices, smart phone driven systems etc., This has led to keen interest in setting up of battery giga factories and sustainable storage devices. Most research on storage devices is on batteries especially on green technology involving splitting of water using electrochemistry. Among the various metals, lithium is the most explored metal when it comes to energy storage owing to its storage capacity and light weight. But its availability, cost and safety issues have challenged the progress of alternative resources in the development of new storage materials and systems. The need for clean and sustainable technology is thus growing in field of energy conversion and storage.

The use of nanomaterials in energy conversion and storage represents an opportunity to improve the performance, density and ease of transportation in renewable resources. Research on the broad subject of energy conversion and storage calls for expertise from a wide range of backgrounds, from the most fundamental perspectives of the key catalytic processes at the molecular level to device scale engineering and optimization. Nanomaterials exhibit superior, mechanical, electrical properties in addition to its light weight and large surface area. The need for new blends of nanomaterials in technologies for energy storage and sustainability requirements is one of the important areas of academic and commercial research. Nanotechnology offers numerous options and mechanism to integrate nanomaterials that can improve the device performance and its functional properties. A few of them include facilitation of increased harvesting and conversion efficiencies in case of solar cells, reduction in the manufacturing time by using novel device architectures to store more energy. Synthesis and blending of nanomaterials along with its integration in design followed by characterization are a few areas we need to concentrate to develop energy efficient devices.

There is a need to develop synthetic routes to produce new nanomaterials, characterization followed by fabrication, optimal use of green techniques there by reducing toxicity and keeping the environment safe, nanocomposites, nanotextured or nanostructured surfaces to improved energy harvesting, conversion and storage efficiencies. Production of energy is one challenge but storage of energy is an even bigger challenge. Currently it can be stored by chemical, electrochemical and electrical methods. But nanomaterials alone cannot help us in achieving sustainable energy production, storage devices which are the major challenges that our world currently faces. There is a need to explore materials like carbon and graphene for energy storage. However, if one is concerned about the energy/weight ratio and cost of the material, the choice of materials is drastically reduced. The lightest element that can be explored for energy storage and structured to various forms to provide high surface area along with energy storage capacity is carbon and its various forms.

Graphene is a basic carbon material and its family of graphene-related materials called graphenes. It consists of structural or chemical derivatives of graphene which include graphene nanoribbons, stacked graphene nanofibers or graphite nanofibers. Graphene oxide and reduced graphene oxide have recently emerged as alternative energy storage materials. This is attributed to its greater properties like chemical inertness, light weight, availability and low cost. Graphene is a large monolayer sheet of sp2 -bonded carbon, which has unique optical, electrical, mechanical, and electrochemical properties. The surface area of graphene is 2630 $m^2 g^{-1}$, which is drives the need for energy storage applications. Graphene can be easily prepared and a large variety of methods are available to synthesise it including thermal decomposition of graphite oxide followed by reduction of graphene oxide to graphene and CVD growth using a metal catalyst. Electrochemical exfoliation of graphite, unzipping carbon nanotubes are among the many techniques available including the traditional modified Hummer's method. The reduction of graphene oxide to graphene results in a graphene structure that is also one-atom thick and gives us scope to blend with many nanomaterials ranging from semiconducting oxides to dopants that can result in a new range of materials that can be used for making new range of energy storage devices. This presentation focuses on the current trends in development of sustainable graphene based nanocomposites, their challenges and new technologies in energy storage and device fabrication.

SPEAKER BIOGRAPHY:

Prof. Dr. T.M. Sridhar is currently an Associate Professor and head of analytical chemistry department at University of Madras. He has over 21 years of experience in teaching and research arising from his work at Sathyabama University (Asst. Prof.), Rajalakshmi Engineering College (Professor) and University of Madras. His research interest is in biomaterials, electrochemistry and catalysis, among others.

CONFERENCE STRUCTURE

Program	The technical program includes invited keynote speakers (Andaman Ballroom) and parallel oral sessions (Andaman 1, Andaman 2, Jintan, Lawang, Pala).
Oral Presentation	Oral presentation is scheduled for 8 minutes of presentation and 2 minutes of Q&A.
Exhibition	Products and services will be exhibited at Andaman Ballroom.

TENTATIVE PROGRAMME

First day

Time	17th July 2019 (Wednesday)
15:00 – 17:00	**Registration (Hotel Lobby)**

Second day

Time	18th July 2019 (Thursday)				
08:00 – 08:45	**Registration (Foyer)**				
08:45 – 09:00	**Welcoming Speech by Chairman (Andaman Ballroom)**				
Parallel Session 1					
Venue/ Time	**Andaman Ballroom**		**Jintan**	**Lawang**	**Pala**
09:00 – 10:00	Energy 1		Chemical Science 1	Environment 1	Material 1
10:00 – 10:30	**Morning Break & Booth Visit**				
10:30 – 11:05	**Keynote 1 (Andaman Ballroom)** Professor Dr. Tran Dinh Phong University of Science and Technology of Hanoi *"Creation of a Viable Artificial Leaf for Solar Water Splitting"*				
11:05 – 11:40	**Keynote 2 (Andaman Ballroom)** Professor Dr. Abdul Latif Ahmad *Universiti Sains Malaysia, Malaysia* *"Membrane Technologies for Treatment of Contaminants of Emerging Concern"*				
11:40 – 13:00	**Opening Ceremony, Sponsor Acknowledgment & Booth Visit**				
13:00 – 14:00	**Lunch Break**				
Parallel Session 2					
Venue/ Time	**Andaman 1**	**Andaman 2**	**Jintan**	**Lawang**	**Pala**
14:00 – 15:40	Energy 2	Chemical Science 2	Reaction 1	Environment 2	Food, Pharma & Natural Product 1
15:40 - 16:00	**Evening Break & Booth Visit**				
Parallel Session 3					
Venue/ Time	**Andaman 1**	**Andaman 2**	**Jintan**	**Lawang**	**Pala**
16:00 – 17:30	-	-	Simulation 1	Energy 3	Food, Pharma & Natural Product 2
19:45 – 22:00	**Conference Dinner**				

Third day

19th July 2019 (Friday)					
Parallel Session 4					
Venue/ Time	**Andaman Ballroom**		**Jintan**	**Lawang**	**Pala**
08:00 – 10:00	Energy 4		Reaction 2	Environment 3	Food, Pharma & Natural Product 3
10:00 – 10:15	**Morning Break & Booth Visit**				
10:15 – 10:50	**Keynote 3 (Andaman Ballroom)** Professor Dr. Suttichai Assabumrungrat *Chulalongkorn University* *"Process design of integrated biorefinery in pulp and paper industry for sustainable development"*				
10:50 – 11:25	**Keynote 4 (Andaman Ballroom)** Professor Dr. Y.H. Taufiq-Yap Universiti Putra Malaysia *"Catalysis, Green Chemistry & Sustainability: Challenges & Opportunities"*				
11:25 – 11:50	**Keynote 5 (Andaman Ballroom)** Associate Professor Dr. T.M. Sridhar University of Madras *"Graphene based nanomaterials for sustainable energy storage devices"*				
Parallel Session 5					
Venue/ Time	**Andaman 1**	**Andaman 2**	**Jintan**	**Lawang**	**Pala**
11:50 – 12:50	Green Technology	-	Chemical Science 3	Environment 4	Food, Pharma & Natural Product 4
12:50 – 14:30	**Lunch**				
Parallel Session 6					
14:30 – 15:40	Energy 5	Material 2	Chemical Science 4	Environment 5	Food, Pharma & Natural Product 5
15:40 – 16:00	**Evening Break & Booth Visit**				
Parallel Session 7					
16:00 – 17:30	Energy 6	Material 3	Chemical Science 5	-	-

OFFICIAL OPENING CEREMONY

Thursday, 18 July 2019		
Time		**Programme**
11:30 a.m.	:	Arrival of the Participants
11:40 a.m.	:	Arrival of VIPs
11:50 a.m.	:	Arrival of YBhg. Professor Ir. Dr. Wan Azhar bin Wan Yusoff Vice Chancellor of Universiti Malaysia Pahang
	:	Recitation of Du'a
12.00 p.m.	:	Welcoming Speech by Associate Professor Ir. Dr. Mohd Fairusham bin Ghazali, Director of the Centre of Excellence for Advanced Research in Fluid Flow (CARiFF), Universiti Malaysia Pahang and Co-Chair of ESChE 2019
12.10 p.m.	:	Opening Speech and Officiating the Launch of ESChE 2019 by YBhg. Professor Ir. Dr. Wan Azhar bin Wan Yusoff Vice Chancellor of Universiti Malaysia Pahang
12.25 p.m.	:	Montage Presentation
12.35 p.m.	:	Sponsor Acknowledgment
12.50 p.m.	:	Photo Session and Booth Visit
1.00 p.m.	:	Lunch

CONFERENCE DINNER

Thursday, 18 July 2019		
Time		**Programme**
07:45 p.m.	:	Arrival of the participants
08:00 p.m.	:	Arrival of VIPs
08:15 p.m.	:	Welcoming speech by Associate Professor Dr. Jolius Gimbun, Chairman of ESChE 2019
	:	Recitation of Du'a
	:	Video presentation
	:	Dinner and cultural performance
	:	Lucky draw
	:	Photo session
10.00 p.m.	:	End of dinner

*Theme: Traditional dress

PARALLEL SESSIONS

18th July 2-19, 09.00 – 10.00 am (Parallel Session 1)			
Track A: Energy 1 (Andaman Ballroom) Chairperson: Dr. Trinh Duy Nguyen, Tat Thanh University		**Track B: Chemical Science 1 (Jintan) Chairperson: Dr. Nurfatehah Wahyuny binti Che Jusoh, UTM**	
ESCE444	CHARACTERIZATION OF THE POLYSACCHARIDE MONOOXYGENASE AN3860	ESCE429	IMPROVED LITHIUM ION CONDUCTIVITY OF TITANIUM DIOXIDE INCORPORATED PVDF-HFP/CELLULOSE ACETATE ELECTROLYTE MEMBRANE
ESCE364	FEEDSTOCK RECYCLING OF MIXED PLASTIC WASTE USING PYROLYSIS	ESCE311	MODELING AND OPTIMIZATION OF THE EUCALYPTUS GLOBULUS LEAVES OIL EXTRACTION PROCESS BY THE STEAM DISTILLATION:THE RESPONSE SURFACE METHOD BASED ON THE CENTRAL COMPOSITE APPROACH (RSM-CCD MODEL)
ESCE432	ENHANCING PHOTOCATALYTIC WATER SPLITTING EFFICIENCY BY PSEUDOCUBIC α-Fe_2O_3 DOPING Zn/Sn FOR THE PURPOSE OF FORMING P-N JUNCTION	ESCE290	NANOPOROUS CARBON BASED PALM KERNEL SHELL AND ITS CHARACTERISTICS OF METHANE AND CARBON DIOXIDE ADSORPTION
ESCE356	DEVELOPMENT OF NEW HIGH TEMPERATURE POLYMER ELECTROLYTE MEMBRANE FUEL CELLS FOR SUSTAINABLE POWER SYSTEMS	ESCE031	MICROSCALE INTEGRATED UNIT OF REACTION AND SEPARATION FOR BIODIESEL PRODUCTION: PROCESS SIMULATION STUDY
ESCE131	HYDROGEN-RICH GAS PRODUCTION VIA ETHANOL STEAM REFORMING OVER CeO_2-SUPPORTED Pt CATALYST FROM SIMPLE CERIUM-TRIETHANOLAMINE COMPLEX	ESCE013	ENLARGEMENT OF OIL DROPLETS BY USING ASYMMETRIC STRUCTURE OF POLYVINYLIDENE FLUORIDE MEMBRANES
ESCE032	DYNAMICS OF MICROFLUIDIC FOAM FLOW IN IMPROVED OIL RECOVERY	ESCE039	OPTIMIZATION OF REACTION CONDITIONS FOR THE PRODUCTION OF CYCLODEXTRIN (CD) USING CYCLODEXTRIN GLUCANOTRANSFERASE (CGTASE) IMMOBILIZED ON HOLLOW FIBER MEMBRANE
Track C: Environment 1 (Lawang) Chairperson: Dr. Nur Farhana Jaafar, USM		**Track D: Material 1 (Pala) Chairperson: Prof. Dr. Hayder A Abdulbari, UMP**	
ESCE190	MICROBIAL DEGRADATION OF CHLORINATED PHENOLS: A COMPARATIVE STUDY OF DEGRADATION KINETICS	ESCE046	3D HYPERBRANCHED AG NANOCRYSTALS INTEGRATED ZNO NANOPILLARS: A NEW HYBRID PHOTOANODE FOR IMPROVED VISIBLE-LIGHT PHOTOELECTROCHEMICAL WATER SPLITTING
ESCE9220	INVITRO STUDIES ON POLYMER-GO INCORPORATED NANO-HAP SCAFFOLDS FOR DRUG DELIVERY	ESCE455	SYNTHESIS OF ANTI-CORROSION POLYMERS FROM THIADIAZOLE
ESCE452	CO_2 ABSORPTION CAPACITY, MODELING AND ENTHALPY OF AQUEOUS BLEND OF MDEA/PIPERAZINE/ARGININE	ESCE391	FACILE SYNTHESIS OF MOS_2-FLAKES/AMORPHOUS-CARBON COMPOSITE AS ANODE FOR LITHIUM-ION BATTERIES
ESCE406	EFFECT OF SOLUTION PH ON THE ADSORPTION BEHAVIOR OF CONGO RED DYE ON THE MG-AL LAYERED DOUBLE HYDROXIDE	ESCE349	EFFECT OF MICROWAVE POWER INTENSITY ON SYNTHESIS OF MESOPOROUS TITANIA NANOPARTICLES: PHOTOACTIVITY PERFORMANCE AND KINETIC STUDIES
ESCE244	PALM OIL MILL EFFLUENT FINAL DISCHARGE TREATMENT USING ACTIVATED CARBON	ESCE203	THE SYNTHESIS OF BIVO4 BY SOLVOTHERMAL METHOD USING GLYECROL-WATER AS MIXED SOLVENTS AND THEIR PHOTOCATALYTIC ACTIVITY UNDER VISIBLE LIGHT IRRADIATION
ESCE150	ENVIRONMENTAL ANALYSIS OF BIOGAS UPGRADING TECHNOLOGY	ESCE062	FABRICATION OF PVDF/HMO MIXED MATRIX MEMBRANE: EFFECT OF HMO LOADING ON OIL/WATER SEPARATION

18th July 2-19, 02.00 pm – 03.40 pm (Parallel Session 2)			
Track A: Energy 2 (Andaman 1) Chairperson: Dr. Teguh Ariyanto, UGM		**Track B: Chemical Science 2 (Andaman 2) Chairperson: Prof. Dr. T.M. Sridhar, Univ. Madras**	
ESCE487	EFFECT OF GAS AND LIQUID PROPERTIES ON HYDRODYNAMICS WITH ELEVATED PRESSURE UNDER BINARY/TERNARY LIQUID MIXTURES SYSTEM	ESCE289	NOVEL FINNED SPACER FOR FOULING CONTROL IN SUBMERGED MICROALGAE FILTRATION
ESCE462	GIS-BASED METHOD FOR FINDING OPTIMAL OCEAN ENERGY LOCATION: A CASE STUDY OF TERENGGANU STATE	ESCE146	PRODUCTION OF CLEAN FUEL OIL BY THE USE OF GREEN SOLVENTS
ESCE456	ANNUAL ENERGY OUTPUT SIMULATION OF AN OPTICAL CONCENTRATOR BASED PV SYSTEM FOR ENERGY SECURITY	ESCE179	EFFECT OF MICROSTRUCTURES IN MICROCHANNEL FOR MIXING INTENSIFICATION
ESCE291	BIOGAS PRODUCTION FOR ELECTRICITY FROM FRUIT WASTE: A CASE STUDY OF GEMAH RIPAH BIOGAS PLANT, YOGYAKARTA	ESCE075	STUDY ON THE POTENTIAL USE OF POLYPROPYLENE NANOFIBER TO PRODUCE MONOLITH WITH HOMOGENOUS
ESCE241	QUANTITATIVE ANALYSIS AND SPECIATION OF ALKALI METAL EMISSIONS FROM BIOMASS COMBUSTION IN A 150 kW FURNACE BY OPTICAL EMISSION SPECTROSCOPY	ESCE126	FABRICATION OF ZIF-8/PSF MIXED MATRIX MEMBRANES FOR CO_2/CH_4 SEPARATION
ESCE214	THE EFFECTS OF BIOMASS BINDERS AND MOISTURE CONTENTS ON THE MECHANICAL DURABILITY OF RICE HUSK PELLETS	ESCE105	EXPLOSION OF RICE FLOUR AT DIFFERENT CONCENTRATION AND MOISTURE CONTENT
ESCE076	KINETIC STUDY OF SYNGAS PRODUCTION VIA THERMOCHEMICAL CYCLES OF H_2O/CO_2 SPLITTING USING $La_{0.3}Sr_{0.7}Co_{0.7}Fe_{0.3}O_3$ (LSCF)	ESCE110	VIABILITY OF HYDROGEN PRODUCTION FROM A DEDICATED OFFSHORE WIND FARM
ESCE064	MICROBIAL ADAPTATIOM DURING A SINGLE STEP SHIFT FROM MESOPHILIC TO THERMOPHILIC CONDITION IN A HIGH-RATE UASB TREATING PALM OIL MILL EFFLUENT	ESCE082	SOLID-LIQUID EQUILIBRIUM STUDY ON LOCAL COMPOSITION FOR PRECISELY CLOUD-POINT PREDICTION OF DIESEL AND BIODIESEL
ESCE010	COMPARISON OF CERIA AND ZIRCONIA BASED ELECTROLYTE FOR SOLID OXIDE ELCTROLYSIS CELLS	ESCE037	APPLICATION OF TWO LEVEL FACTORIAL DESIGN TO STUDY THE MICROBE GROWTH INHIBITION BY PINEAPPLE LEAVES JUICE
ESCE007	TECHNO-ECONOMIC ASPECTS OF SUSTAINABLE ENERGY DEVELOPMENT FROM COAL	ESCE135	APPROACH ON A SUSTAINABLE AND STABLE CONTINUOUS EMULSION LIQUID MEMBRANE (CELM) FOR PHENOL RECOVERY
Track C: Reaction 1 (Jintan) Chairperson: Prof. Dr. Aishah Jalil, UTM		**Track D: Environment 2 (Lawang) Chairperson: Dr. Chiam Chel Ken, UMS**	
ESCE023	PREPARATION OF REDUCED GRAPHENE OXIDE MODIFIED TITANIUM DIOXIDE NANOTUBE AS VISIBLE LIGHT ACTIVE CATALYST	ESCE465	CLIMATE CHANGE IMPACT ON TROPICAL CYCLONE EVOLUTION AND STORM SURGE SEVERITY IN THE EAST COAST OF PENINSULAR MALAYSIA
ESCE435	CATALYTIC TRANSFER HYDROGENATION OF CASTOR OIL USING GLYCEROL-BASED REACTION	ESCE459	EXTRACTION OF PURE SILICON FROM SEDIMENTS IN IRAQI-TIGER RIVER
ESCE411	FABRICATION OF GAS-PHASE PHOTOCATALYTIC OXIDATION ANALYSERS	ESCE347	EFFECTIVE UTILIZATION METHOD OF USED MOTOR OILS

18th July 2-19, 02.00 pm – 03.40 pm (Parallel Session 2)			
Track C: Reaction 1 (Jintan) Chairperson: Prof. Dr. Aishah Jalil, UTM		**Track D: Environment 2 (Lawang) Chairperson: Dr. Chiam Chel Ken, UMS**	
ESCE389	ABSORPTION OF SULFUR DIOXIDE (SO_2) USING EUTECTIC IONIC LIQUIDS (EILS)	ESCE211	INFLUENCE OF MONSOON SEASONS ON ACCIDENTAL CHLORINE LEAK AND DISPERSION AROUND GEBENG INDUSTRIAL AREA
ESCE365	PHOTODEGRADATION OF PARACETAMOL USING ELECTROSYNTHESIZED SILVER SUPPORTED ON DURIO ZIBETHINUS HUSK	ESCE273	REMEDIATION ON UNDERGROUND WATER POLLUTION: A CASE STUDY
ESCE346	METAL OXIDES–MODIFIED MESOPOROUS SILICA NANOPARTICLES FOR CO_2 CAPTURE	ESCE263	ENHANCED REMOVAL OF METHYLY ORANGE FROM AQUEOUS SOLUTION BY CHITOSAN-$CaCl_2$ BEADS
ESCE345	ENHANCED HYDROGEN-ASSISTED CRACKING OF 1,3,5-TRIISOPROPYLBENZENE OVER FIBROUS SILICA ZSM-5: INFLUENCE OF CO-SURFACTANT DURING SYNTHESIS	ESCE216	PRELIMINARY STUDY OF PLANT EXTRACT ON SEED GERMINATION
ESCE336	UNIQUE STRUCTURE OF FIBROUS ZSM-5 CATALYST EXPEDITED PROLONGED HYDROGEN ATOM RESTORATION FOR SELECTIVE PRODUCTION OF PROPYLENE FROM METHANOL	ESCE101	A KINETIC STUDY OF BIOGAS PRODUCTION FROM ANAEROBIC DIGESTION VINASSE WASTE
ESCE017	HIGH YIELD OF ISOSORBIDE PRODUCTION FROM SORBITOL DEHYDRATION CATALYSED BY AMBERLYST 36	ESCE054	COMPREHENSIVE STUDIES ON METHYLENE BLUE ADSORPTION ONTO NA-BENTONITE CLAYAND ITS KINETICS, ISOTHERM AND THERMODYNAMICS
ESCE012	MICROKINETIC MODELLING FOR COBALT BASED SOLID CATALYZED FISCHER TROPSCH SYNTHESIS	ESCE048	EFFICIENT REMOVAL OF Pb (II) FROM AQUEOUS SOLUTION USING MAGNETIC ZINC OXIDE/GRAPHENE OXIDE HYBRID
Track E: Food, Pharma & Natural Product 1 (Pala) Chairperson: Dr. Dayang Norulfairuz Abang Zaidel, UTM			
ESCE461	STUDY THE SYNERGISTIC EFFECT BETWEEN NANOPARTICLES AND SPIRAMYCIN ON IMMUNOLOGICAL RESPONSE AGAINST TOXOPLASMOSIS		
ESCE9102	CHEMOPREVENTIVE EFFECT OF RASAM (A TRADITIONAL SOUTH INDIAN SPICE SOUP) ON DMBA INDUCED MAMMARY CARCINOMA		
ESCE232	APPLICATION OF BIOMASS NUTRIENT SOLUTION FROM HYDROTHERMAL CARBONIZATION IN TOMATO GROWTH EFFECT AND INSECT PEST AND DISEASE PREVENTION AND CONTROL		
ESCE230	OPTIMIZATION OF SWEET POTATO PECTIN EXTRACTION USING HYDROCHLORIC ACID AND ITS RHEOLOGICAL PROPERTIES		
ESCE209	EFFECT OF MICROWAVES ENERGY ON VOLATILE COMPOUNDS IN PEPPER (PIPER NIGRUM L.) LEAVES ESSENTIAL OIL		
ESCE207	MICROWAVE APPLICATIONS WORK TO OPTIMIZE THE CONDITIONS FOR EXTRACTING ANTHOCYANINS FROM BUTTERFLY PEA FLOWERS		
ESCE205	OPTIMIZATION OF ESSENTIAL OIL YIELD FROM VIETNAMESE GREEN PEPPER (PIPER NIGRUM) USING HYDRO-DISTILLATION METHOD		
ESCE092	A THOROUGH COMPARISON OF DIFFERENT PRETREATMENT METHODS ON KENAF FIBER		
ESCE056	FLORY-HUGGINS THEORY BASED APPROACH FOR ESTIMATION OF AQUEOUS SOLUBILITY OF STARCH FROM VARIOUS BOTANICAL SOURCES		
ESCE063	CULTIVATION OF MICROALGAE IN FLUIDIZED BED BIOREACTOR: IMPACTS OF LIGHT INTENSITY AND CO2 CONCENTRATION		

18th July 2-19, 04.00 pm – 05.40 pm (Parallel Session 3)			
Track C: Simulation 1 (Jintan) Chairperson: Dr. Siti Kholijah Abdul Mudalip, UMP		**Track D: Energy 3 (Lawang) Chairperson: Prof. S. Pushpavanam, IIT Madras**	
ESCE489	EFFECT OF PLATE VELOCITY ON NANOPATICLE MIGRATION IN FREE CONVECTION FLOW DUE TO UNIFORM HEAT FLUX	ESCE443	SUMMARY OF PAST WORK OF MAINTENANCE PRIORITIZATION AND OPTIMIZATION MECHANISMS FOR POWER PLANT
ESCE463	MODELLING FLOW IN A FISHWAY USING LABSWE™	ESCE442	SUMMARY OF PAST WORK OF MAINTENANCE PRIORITIZATION AND OPTIMIZATION MECHANISMS FOR POWER PLANT
ESCE446	STRUCTURE DIVERSITY OF THE COPPER ACTIVE SITE AND ITS INTERMEDIATES IN POLYSACCHARIDE MONOOXYGENASES	ESCE384	EFFECT OF TORREFACTION CONDITIONS ON THE PHYSICOCHEMICAL PROPERTIES OF EMPTY FRUIT BUNCHES
ESCE421	SYNTHESIS OF INTER-PLANT WATER NETWORK INVOLVING MULTIPLE CONTAMINANTS	ESCE299	PRODUCT DISTRIBUTION AND KINETIC STUDY FROM PYROLYSIS OF INDONESIA PALM OIL RESIDUES
ESCE127	LOW DENSITY POLYETHYLENE TUBULAR REACTOR CONTROL USING MODEL PREDICTIVE CONTROL	ESCE271	MODELING OF SWINE FARM MANAGEMENT FOR ENHANCEMENT OF BIOGAS PRODUCTION AND ENERGY EFFICIENCY
ESCE295	MODELING OF CO_2-MEA ABSORPTION SYSTEM IN THE PACKED COLUMN USING SULZER DX STRUCTURED PACKING	ESCE258	POTENTIAL RECOVERY OF SUGAR-DERIVATIVE COMPOUNDS FROM HYDROTHERMAL TREATMENT OF OIL PALM EMPTY FRUIT BUNCH
ESCE252	OPTIMIZATION OF REACTION PARAMETER FOR RADIATION GRAFTING OF BLACK SEED OIL ONTO LOW DENSITY POLYETHYLENE USING DESIGN OF EXPERIMENT APPROACH	ESCE240	SIMULATION OF ASH COMPOSITION AND CHARACTERISTICS FROM THE COMBUSITON OF BIOMASS IN CHINA
ESCE102	THE INFLUENCES OF FLUID DYNAMICS IN THE CALCINER FOR CEMENT PRODUCTION	ESCE213	A FEASIBILITY STUDY ON UTILISING EXCESS ENERGY FROM PALM OIL MILLS FOR MOBILE ENERGY STORAGE SYSTEM
ESCE098	SUMMARY OF PAST WORK OF MAINTENANCE PRIORITIZATION AND OPTIMIZATION MECHANISMS FOR POWER PLANT	ESCE168	SIMULATION ANALYSIS OF FUEL CELL INTEGRATION IN A HYBRID CAR
Track E: Food, Pharma & Natural Product 2 (Pala) Chairperson: Dr. A. Gnanamani, CLRI India			
ESCE326	PROCESS FOR THE PRODUCTION OF MICROENCAPSULATED VIETNAMESE LEMONGRASS (CYMBOPOGON FLEXUOSUS. STAFF) ESSENTIAL OIL		
ESCE319	STUDY TECHNOLOGICAL PROCESSES TO DEVELOP HAND WASH PRODUCT CONTAINING NATURAL LEMONGRASS (CYMBOPOGON CITRATUS) ESSENTIAL OIL.		
ESCE233	STUDY ON HUMIC ACID DERIVED FROM EFB BASED VERMICOMPOST AS BIOPESTICIDE		
ESCE208	USING MICROWAVE ENERGY IN THE PROCESS OF EXTRACTING EUCALYPTUS GLOBULUS LEAVES ESSENTIAL OIL		
ESCE206	STORAGE CONDITIONS WITH TOTAL ANTHOCYANIN CONTENT OF CLITORIA TERNATEA L		
ESCE204	EXTRACTION OF ESSENTIAL OIL FROM LEMON (CITRUS AURANTIFOLIA) LEAVES: OPTIMIZATION, COMPOSITION AND ANTI-		
ESCE138	EXTRACTION OF RED SEAWEED (EUCHEUMA SPINOSUM) USING NAOH AS ALKALI TREATMENT		
ESCE325	PRELIMINARY PHYTOCHEMICAL SCREENING, DETERMINATION OF TOTAL POLYPHENOLS AND FLAVONOIDS CONTENT IN THE LEAVES OF HOUTTUYNIA CORDATA THUNB		

19th July 2-19, 08.00 – 10.00 am (Parallel Session 4)			
Track A: Energy 4 (Andaman Ballroom) Chairperson: Assoc. Prof. Dr Bawadi Abdullah, UTP		**Track B: Reaction 2 (Jintan) Chairperson: Dr. Dai-Viet. N. Vo, Nguyen Tat Thanh University**	
ESCE104	EFFECT OF NITROGEN BUBBLE FOR BIODIESEL PRODUCTION FROM USED OIL	ESCE294	KINETIC STUDY OF ASYMMETRIC SYNTHESIS OF CHIRAL AMINE WITH IMMOBILIZED ω-TRANSAMINASE
ESCE086	EFFECT OF COMBUSTION GAS AND NITROGEN GAS ATMOSPHRERES ON THE TORREFACTION PERFORMANCE OF OIL PALM FROND LEAVES AND STEMS	ESCE231	FREQUENCIES AND PROBABILITIES OF BOND CLEAVAGE FOR HYDROLYSIS OF CELLOOLIGOSACCHARIDES BY TRICHODERMA REESEI CELLOBIOHYDROLASE 7A (TrCel7A)
ESCE9104	ENERGY SECURITY AND HUMAN RIGHT OVERSIGHTS	ESCE224	SYNGAS PRODUCTION VIA CO_2 REFORMING OF CH_4 OVER Zr-Ni/SBA-15
ESCE083	HYDROGEN PRODUCTION FROM SORPTION-ENHANCED STEAM METHANE REFORMING CHEMICAL-LOOPING	ESCE212	SELECTIVE SYNTHESIS OF METHANOL BY PHOTOELECTROCATALYTIC REDUCTION OF CO_2 OVER PANI-CUFE2O4 HYBRID CATALYST
ESCE080	TECHNO-ENVIRONMENTAL ASSESSMENT OF UNBALANCED PRESSURE PEM ELECTROLYZER FOR HIGH PRESSURE HYDROGEN PRODUCTION	ESCE130	A REVIEW AT THE ROLE OF SURFACE BASIC SITES OF CATALYST FOR ENHANCED DRY REFORMING OF METHANE
ESCE079	PRODUCTION OF SYNGAS VIA DRY REFORMING OF METHANE OVER Ni-BASED CATALYST: EFFECT OF Ce-La PROMOTERS	ESCE125	MECHANISTIC STUDY ON CATALYTIC METHANATION OF CARBON MONOXIDE OVER VARIOUS COBALT LOADED ON FIBROUS SILICA KCC-1
ESCE078	HYDROGEN PRODUCTION VIA THERMOCATALYTIC DECOMPOSITION OF METHANE OVER Ni-Cu-Pd/Al_2O_3 CATALYSTS	ESCE111	MECHANISTIC STUDY ON CATALYTIC METHANATION OF CARBON MONOXIDE OVER VARIOUS COBALT LOADED ON FIBROUS SILICA KCC-1
ESCE077	INVESTIGATION OF SYNGAS PRODUCTION MECHANISM VIA H_2O AND CO_2 SPLITTING OVER $La_{0.3}Sr_{0.7}Co_{0.7}Fe_{0.3}O_3$ BY TEMPERATURE PROGRAM STUDY	ESCE237	PHOTOELECTROCATALYTIC CONVERSION OF CO_2 TO METHANOL OVER HETEROSTRUCTURED CuO-CdS CATALYST
ESCE9219	Ag DOPED CeO_2 FOR DETECTION OF H_2S TOXIC GAS USING IMPEDANCE SPECTROSCOPY AT ROOM TEMPERATURE	ESCE169	INFLUENCE OF HYDROGEN PRE-TREATMENT ON LOW-TEMPERATURE NITRIC OXIDE REMOVAL USING COPPER OXIDE SUPPORTED ON ACTIVATED CARBON DERIVED FROM OIL PALM EMPTY FRUIT BUNCH
ESCE050	INCORPORATION OF POLY(VINYLIDENE FLUORIDE) IN SULFONATED POLY(ETHER ETHER KETONE) MATRIX FOR MEMBRANE MECHANICAL STIFFNESS	ESCE164	SO_2 REMOVAL USING MODIFIED FIBROUS MESOPOROUS SILICA KCC-1 CATALYST
ESCE025	CO_2 UTILIZATION FOR COMBINED GASIFICATION AND SORPTION-ENHANCED WATER-GAS SHIFT FOR SYNGAS PRODUCTION OF BIOCHAR	ESCE9101	A COMPARATIVE STUDY ON THE ELECTROCHEMICAL CORROSION BEHAVIOR OF EPOXY COATED CARBON STEEL AND API X-56N PIPELINE STEEL IN 3.5% NACL SOLUTION
ESCE002	PERFORMANCE ANALYSIS AND COST EVALUATION OF ALCOHOL-ASSISTED METHANOL SYNTHESIS FROM CARBON DIOXIDE AND HYDROGEN	ESCE091	Ni-SUPPORTED PALM OIL FUEL ASH CATALYST (Ni-POFA) FROM IN SITU GLYCINE-NITRATE COMBUSTIONFOR METHANE CRACKING

19th July 2-19, 08.00 – 10.00 am (Parallel Session 4)			
Track C: Environment 3 (Lawang) Chairperson: Dr. Suwimol Wongsakulphasatch, KMUTNB		**Track D: Food, Pharma & Natural Product 3 (Pala) Chairperson: Dr. Sureena Abdullah, UMP**	
ESCE366	PHOTOCATALYTIC DEGRADATION OF METHYL ORANGE (MO) USING CARBON QUANTUM DOTS (CQDs) DERIVED FROM WATERMELON RINDS	ESCE430	CHARACTERIZATION AND KINETIC STUDY OF PROTEASE EXTRACTED FROM THE LEAVES OF SYZIGIUM POLYANTHUM AND ITS APPLICATION AS NATURAL MEAT TENDERIZER
ESCE363	RESTORATION OF PRETREATED PALM OIL MILL EFFLUENT USING TiO_2 BASED PHOTOCATALYTIC SYSTEM: AN OPTIMIZATION STUDY	ESCE9105	GC –MS ANALYSIS OF BIOACTIVE COMPOUNDS PRESENT IN DIFFERENT EXTRACTS OF CASSIA OCCIDENTALIS LINN. LEAVES
ESCE338	COMPARATIVE STUDY ON REMOVAL OF BASIC DYES IN AQUEOUS MEDIUM BY ADSORPTION USING Ni-Al LAYERED DOUBLE HYDROXIDE	ESCE330	EVALUATION OF POLYPHENOL, ANTHOCYANIN CONTENT AND ANTIOXIDANT CAPACITY OF VIETNAMESE FRUITS
ESCE270	PASSIVE REMEDIATION OF MINE IMPACTED WATER USING SELECTED TREATMENT MEDIA CONTAINING-BIOREACTOR	ESCE279	SEQUENTIAL ULTRASOUND-MICROWAVE ASSISTED EXTRACTION OF PROTEINS FROM EURYCOMA LONGIFOLIA ROOTS
ESCE107	CONVERSION OF COS IN THE FLUE GAS OVER Pt/Al_2O_3	ESCE257	PRODUCTION OF PHYTOSTEROLS MIX FROM PALM OIL BY-PRODUCTS THROUGH MULTI-STAGED EXTRACTION PROCESSES
ESCE256	INCORPORATING MINING WASTE MATERIALS FOR CARBON SEQUESTRATION IN BRICKS	ESCE243	INTEGRATED PRODUCTION OF PREBIOTIC XYLOOLIGOSACCHARIDES AND HIGH VALUE CELLULOSE FROM OIL PALM BIOMASS
ESCE242	START UP OF SIMULTANEOUS NITRIFICATION, ANAMMOX AND DENITRIFICATION-SEQUENTIAL BATCH REACTOR (SNAD-SBR) FOR TREATING ANAEROBIC PALM OIL MILL(POME) DIGESTER EFFLUENT	ESCE234	DETERMINATION OF CARBON-TO-NITROGEN RATIO CHANGE DURING COMPOSTING OF PALM OIL EMPTY FRUIT BUNCH (EFB) WITH VARIOUS ORGANICS
ESCE103	OZONOLYSIS OF WASTE WATER FROM RUBBER INDUSTRY	ESCE316	EFFECT OF EXTRACTION SOLVENT ON TOTAL POLYPHENOL CONTENT, TOTAL FLAVONOID CONTENT, AND ANTIOXIDANT ACTIVITY OF SOURSOP SEEDS (ANNONA MURICATA L.)
ESCE215	VALORISATION OF RICE STARCH AS NATURAL COAGULANT IN POTABLE WATER TREATMENT	ESCE321	ASSESSMENT OF PRELIMINARY CHEMICAL, POLYPHENOL CONTENT, FLAVONOID CONTENT, AND ANTIOXIDANT ACTIVITY OF CUSTARD APPLE LEAVES
ESCE181	PERFORMANCE OF TIGHT ULTRAFILTRATION MEMBRANE IN TEXTILE WASTEWATER TREATMENT VIA MPR SYSTEM: EFFECT OF PRESSURE ON MEMBRANE FOULING	ESCE322	EVALUATION OF POLYPHENOL, FLAVONOIDS COMPONENTS AND ANTIOXIDANT ACTIVITY OF DINH LANG ROOTS (POLYSCIAS FRUTICOSA) IN DIFFERENT SOLVENTS.
ESCE358	MODELING THE EFFECT OF CHLORINE LEAKAGE FROM CHLOR-ALKALI PLANT USING ALOHA SOFTWARE AND DEVELOPING AN EMERGENCY RESPONSE PLAN AROUND TELOK KALONG INDUSTRIAL AREA	ESCE317	EFFECTS OF DRYING CONDITIONS TO SOURSOP'S JELLY DRYING PROCESS (ANNONA MURICATA L.)
ESCE022	MAJOR ACCIDENT HAZARD AT BIOPROCESS FACILITIES: A CHALLENGE TOWARDS SUSTAINABLE INDUSTRIAL DEVELOPMENT	ESCE388	OPTIMIZATION OF XYLANASE PRODUCTION FROM A NEWLY ISOLATED BACILLUS SP. USING RESPONSE SURFACE METHODOLOGY

19th July 2-19, 11.50 – 12.50 pm (Parallel Session 5)			
Track A: Green Technology (Andaman Ballroom) Chairperson: Dr. Balu Ranganathan, Palm Connect LLP		**Track B: Chemical Science 3 (Jintan) Chairperson: Dr. Siti Munirah Sidik, UPSI**	
ESCE9302	APPROACHES TO RESTRICT THE GROWTH OF MICROORGANISMS ON	ESCE428	IMPROVED LITHIUM ION CONDUCTIVITY OF TITANIUM DIOXIDE INCORPORATED
ESCE238	A GREEN ROUTE FOR CONTINUOUS SYNTHESIS OF SILVER	ESCE362	CELLULOSE HYDROLYSIS IN AN ENZYMATIC MEMBRANE REACTOR
ESCE9300	RE-RESEARCHING TRADITIONAL HERBAL MEDICINES: PAST IS THE WAY FOR A HEALTHY FUTURE	ESCE361	ESTIMATION OF SOLUTE TRANSPORT PARAMETER AND MASS TRANSFER COEFFICIENT IN NANOFILTRATION FOR SOLVENT-DILUTED PALM OIL
ESCE360	IMPROVEMENT OF ETHYLENE EPOXIDATION BY PALLADIUM–SILVER CATALYSTS IN A LOW-TEMPERATURE DIELECTRIC BARRIER DISCHARGE SYSTEM	ESCE277	FORMATION OF NaY ZEOLITE MEMBRANE: INFLUENCE OF INTERMEDIATE LAYER AND ITS CHARACTERIZATION
ESCE383	OPTIMIZATION OF OSMOTIC DEHYDRATION PROCESS FOR AONLA (EMBLICA OFFICINALIS GAERTN) PIECES WITH SALT SOLUTION AND SPICES BY RESPONSE SURFACE METHODOLOGY	ESCE344	BIOGASOLINE SYNTHESIS VIA FLUID CATALYTIC CRACKING OF WASTE COOKING OIL USING TREATED EGGSHELL
Track C: Environment 4 (Lawang) Chairperson: Assoc. Prof. Dr. Nurak Grisdanurak, Thammasat University		**Track D: Food, Pharma & Natural Product 4 (Pala) Chairperson: Dr. Nurrulhidayah Salamun, UTM**	
ESCE132	TRACE ELEMENT CONCENTRATIONS IN FINE SEDIMENT AND LINKAGES TO NON-POINT POLLUTION SOURCE: LOWER JOHOR RIVER BASIN	ESCE313	PHYSICAL AND CHEMICAL PROFILE OF ESSENTIAL OIL OF VIETNAMESE OCIMUM GRATISSIMUM L
ESCE030	A REVIEW ON GREEN SYNTHESIS OF ZnO NANOPARTICLES USING CORRIANDRUM SATIVUM LEAF EXTRACT AND IT'S APPLICATION IN TEXTILE INDUSTRY: A PROSPECT TOWARDS GREEN CHEMISTRY	ESCE036	ORGANIC ACID PRETREATMENT OF OIL PALM TRUNK BIOMASS FOR FERMENTABLE XYLOSE PRODUCTION
ESCE011	GLYCEROL ETHERIFICATION FACILITATED BY MICROWAVE IRRADIATION OVER LITHIUM-MODIFIED-ZEOLITE Y CATALYST	ESCE021	SUGAR PROFILE AND ENZYMATIC ANALYSIS OF STINGLESS BEES HONEY COLLECTED FROM LOCAL MARKET IN MALAYSIA
ESCE493	REDUCTION OF ORGANICS IN DAIRY WASTEWATER BY ADSORPTION ON A PREPARED CHARCOAL FROM IRAQI SUGARCANE	ESCE320	STUDIES ON PRELIMINARY CHEMICAL, POLYPHENOL CONTENT, FLAVONOID CONTENT, AND ANTIOXIDANT ACTIVITY OF SOURSOP LEAVES
ESCE335	A STUDY ON REMOVAL OF ORGANIC DYES FROM AQUEOUS SOLUTION BY ADSORPTION TECHNIQUE USING VIETNAMESE EXFOLIATED GRAPHITE	ESCE066	MOLECULAR RECOGNITION OF CROSSLINKED CARRAGEENAN FOR BIOCOMPOSITE APPLICATION

19th July 2-19, 02.30 pm – 03.40 pm (Parallel Session 6)			
Track A: Energy 5 (Andaman 1) Chairperson: Associate Professor Ir. Dr. Mohd Fairusham bin Ghazali, UMP		**Track B: Material 2 (Andaman 2) Chairperson: Dr. Teh Lee Peng, UKM**	
ESCE038	CHARACTERISTIC OF FATTY ACIDS BIOTRANSFORM FROM Hermetia illucens PREPUPAE FED WITH VARIOUS ORGANIC WASTE BEFORE CONVERSION TO METHYL ESTER FORM	ESCE043	COMPOSITE OF KAOLIN-SODIUM ALGINATE BEADS FOR METHYLENE BLUE ADSORPTION
ESCE026	THERMAL EFFECT ON CO-PRODUCT TAR PRODUCED WITH SYNGAS THROUGH CO-GASIFICATION OF COCONUT SHELL AND CHARCOAL	ESCE044	ANTIOXIDANT ACTIVITIES AND TOTAL PHENOLIC CONTENT OF MALAYSIAN HERBS AND THEIR EFFECT AS ACTIVE PACKAGING FILM IN MEAT PATTIES
ESCE045	HIERARCHICALLY $SrTiO_3$@TiO_2@Fe_2O_3 NANOROD HETEROSTRUCTURESFORENHANCED PHOTOELECTROCHEMICAL WATER SPLITTING	ESCE024	GREEN SYNTHESIS OF CARBON QUANTUM DOTS (CQDs) FROM OIL PALM BIOMASS
ESCE040	BIODIESEL PRODUCTION FROM WASTE COOKING OIL THROUGH CaO.MK10 CATALYST	ESCE236	ADSORPTION OF HCl ON MODIFIED ACTIVATED CARBON: A DFT STUDY
ESCE491	FAST PYROLYSIS OF PALM EMPTY FRUIT BUNCH IN AN AUGER REACTOR: BIO- OIL COMPOSITION AND CHARACTERIZATION	ESCE306	MICROWAVE-ASSISTED SOLVOTHERMAL SYNTHESIS OF $BiVO_4$ AND THEIR VISIBLE-LIGHT-DRIVEN PHOTOCATALYTIC ACTIVITY
ESCE239	PRELIMINARY TREATMENT OF PETROCHEMICAL WASTEWATER BY THE MICROBIAL FUEL CELL	ESCE352	OPTIMIZATION OF REACTION PARAMETER FOR RADIATION GRAFTING OF BLACK SEED OIL ONTO LOW DENSITY POLYETHYLENE USING DESIGN OF EXPERIMENT APPROACH
ESCE115	THE OFFSHORE CURRENT ENERGY POTENTIAL IN MALAYSIA	ESCE262	SYNTHESIS AND CHARACTERIZATION OF THERMO-RESPONSIVE IONIC LIQUID
Track C: Chemical Science 4 (Jintan) Chairperson: Assoc. Prof. Dr. Unalome Wetwatana Hartley, KMUTNB		**Track D: Environment 5 & Energy (Lawang) Chairperson: Prof. Dr. Chantaraporn Phalakornkule, KMUTNB**	
ESCE097	EVALUATION ON THE FACTORS INFLUENCING THE DEPOSITION OF WAX USING FULL FACTORIAL DESIGN	ESCE033	PARTICULATE MATTER DISPERSION AT BIOMASS ENERGY PLANT USING AERMOD ATMOSPHERIC DISPERSION MODELLING: A CASE STUDY
ESCE065	DYNAMIC FLAME BEHAVIOUR IN A STRAIGHT AND 90-DEGREE BEND PIPE FOR PREMIXED HYDROGEN/AIR AND METHANE/AIR	ESCE287	MODIFIED FOOD WASTE FOR POLLUTANTS SORPTION
ESCE062	FABRICATION OF PVDF/HMO MIXED MATRIX MEMBRANE: EFFECT OF HMO LOADING ON OIL/WATER SEPARATION	ESCE458	WATER QUALITY MONITORING ALONG A RIVER IN PENINSULAR MALAYSIA
ESCE468	WATER FLUX PREDICTION OF UV-GRAFTED NANOFILTRATION MEMBRANE FOR FORWARD OSMOSIS APPLICATION	ESCE058	EFFECT OF WATER ALTERNATING GAS (WAG-N_2) AFTER AFTER WATER OR GAS FLOODING ON OIL RECOVERY IN SANDSTONE RESERVOIRS
ESCE441	ENERGY OPTIMIZATION FOR NATURAL POLYISOPRENE GLOVE PRODUCTION WITH THE PRESENCE OF NANO ACCELERATOR	ESCE278	INFLUENCE OF ACTIVATION TEMPERATURE AND ACID CONCENTRATION ON THE SLUDGE-BASED ACTIVATED CARBON PRODUCTION
ESCE328	THE EFFECT OF ROSELLE CALYCES EXTRACT ON THE CHEMICAL AND SENSORY PROPERTIES OF CUPCAKES	ESCE189	AN IMPROVED HYBRID NANOCOMPOSITES OF ZEOLITIC IMIDAZOLATE FRAMEWORK-8/RICE HUSK DERIVED
ESCE180	HUMAN HAIR-TITANIUM DIOXIDE INTEGRATED IN PHOTOCATALYTIC MICROFLUIDICS REACTOR FOR VISIBLE-LIGHT WATER TREATMENT	ESCE495	PROCESS OPTIMIZATION OF CATALYTIC STEAM REFORMING OF TOLUENE TO HYDROGEN USING RESPONSE SURFACE METHODOLOGY (RSM) AND ARTIFICIAL NEURAL NETWORK-

19th July 2-19, 02.30 pm – 03.40 pm (Parallel Session 6)	
Track E: Food, Pharma & Natural Product 5 (Pala) Chairperson: Assoc. Prof. Dr. M. K. Mohan Maruga Raja, Parul University, India	
ESCE099	OPTIMIZATION OF SAPONINS AND ANTIOXIDANTS EXTRACTED FROM FENUGREEK SEED USING MICROWAVE-ASSISTED EXTRACTION AND RESPONSE SURFACE METHODOLOGY AS OPTIMIZING TOOL
ESCE327	APPLY ANTHOCYANIN NATURAL COLORS FROM BUTTERFLY PEA (CLITORIA TERNATEA L.) EXTRACTS TO CUPCAKE
ESCE037	APPLICATION OF TWO LEVEL FACTORIAL DESIGN TO STUDY THE MICROBE GROWTH INHIBITION BY PINEAPPLE LEAVES JUICE
ESCE087	GROWTH AND YIELD OF PLEUROTUS OSTREATUS BY USING SUGARCANE BAGASSE AS AN ALTERNATIVE SUBSTRATES IN MALAYSIA
ESCE318	EFFECT OF PRESERVATION METHOD TO COLOR, ASCORBIC ACID, PHENOLICS AND ANTIOXIDANT ACTIVITY IN FRESH SOURSOP PULP (ANNONA MURICATA L.)
ESCE129	FORMULATION AND EVALUATION OF ANTIMICROBIAL HERBOSOMAL GEL FROM QUERCUS INFECTORIA EXTRACTS
ESCE096	FACTORS AFFECTING DILUTE NITRIC ACID PRETREATMENT OF OIL PALM FROND BAGASSE FOR XYLAN RECOVERY
ESCE221	PREDICTION OF RESERVOIR SEDIMENTATION USING SOIL WATER ASSESSMENT TOOL (SWAT) TOWARDS DEVELOPMENT OF SUSTAINABLE CATCHMENT MANAGEMENT

19th July 2-19, 04.00 pm – 05.40 pm (Parallel Session 7)			
Track A: Energy 6 (Andaman 1) Chairperson: Dr. Herma Dina Setiabudi, UMP		**Track B: Material 3 (Andaman 2) Chairperson: Ast. Prof. Dr. Mohan Krishna S, Alliance University,India**	
ESCE049	THE EFFECT OF MATERIAL ON BIPOLAR MEMBRANE FUEL CELL PERFORMANCE: A REVIEW	ESCE293	ONE-POT MICROWAVE-ASSISTED GREEN SYNTHESIS OF AMINE FUNCTIONALIZED GRAPHENE QUANTUM DOTS FOR HIGHLY VISIBLE LIGHT PHOTOCALYTIC APPLICATION
ESCE006	EFFECT OF DIFFERENT CULTURE MEDIA FOR THE OIL YIELD AND FATTY ACID METHYL ESTER PRODUCTION IN FRESHWATER MICROALGAE CHLORELLA VULGARIS	ESCE359	MELT BLENDS OF POLY(LACTIC ACID) AND RECYCLED HIGH DENSITY POLYETHYLENE (rHDPE)
ESCE018	EFFECTS OF TEMPERATURE AND EFFLUENT FROM H_2-UASFF ON BIOMETHANE PRODUCTION IN CH_4-UASFF BIOREACTOR	ESCE264	STRUCTURAL STRENGTHENING USING NATURAL FIBERS COMPOSITE – A REVIEW
ESCE297	PRODUCTION AND CHARACTERISATION OF BIO-COMPRESSED NATURAL GAS (BIO-CNG) FROM PALM OIL MILL EFFLUENT (POME)	ESCE057	MAGNETIC HYDROXYAPATITE AS ADSORBENT OF METHYLENE BLUE
ESCE340	SYNGAS PRODUCTION THROUGH STEAM AND CO_2 REFORMING OF METHANE OVER NI-BASED CATALYST-TECHNICAL REVIEW	ESCE199	DEGRADATION OF CRYSTAL VIOLET OVER $BiVO_4$ PHOTOCATALYST UNDER VISIBLE LIGHT IRRADIATION
ESCE351	INFLUENCE OF HYDROGEN AND CARBON MONOXIDE CONCENTRATION ON REDUCTION BEHAVIOR OF MOLYBDENUM OXIDE CATALYST	ESCE497	EFFICIENT PRODUCTION OF HYDROGEN BY MIXED METAL OXIDE PHOTOCATALYSTS WITH GRAPHENE OXIDE SUPPORT
ESCE357	CHARACTERIZATIONS OF SURFACTANT SYNTHESIZED FROM CORN OIL AND USED AS DEMULSIFIER FOR W/O EMULSION	ESCE348	A FACILE IN-SITU ELECTROLYSIS METHOD OF IRON SUPPORTED ON MESOPOROUS TITANIA NANOPARTICLES AS PHOTOCATALYST
ESCE368	MODELING THE EFFECT OF CHLORINE LEAKAGE FROM CHLOR-ALKALI PLANT USING ALOHA SOFTWARE AND DEVELOPING AN EMERGENCY RESPONSE PLAN AROUND TELOK KALONG INDUSTRIAL AREA	ESCE165	MECHANICAL PROPERTIES OF STYRENE BUTADIENE RUBBER TOUGHENED GRAPHENE REINFORCED POLYSTYRENE
ESCE399	INFLUENCE OF HYDROGEN AND CARBON MONOXIDE ON REDUCTION BEHAVIOUR OF IRON OXIDE AT HIGHER TEMPERATURE: EFFECT OF CONCENTRATIONS	ESCE071	SYNTHESIS AND CHARACTERIZATION OF PHASE CHANGE MATERIAL INTEGRATED WITH ALUMINIUM WASTE AS THE THERMAL ENERGY STORAGE MEDIUM

19th July 2-19, 04.00 pm – 05.40 pm (Parallel Session 7)	
Track C: Chemical Science 5 (Jintan) **Chairperson: Assoc. Prof. Dr. Sumaiya Zainal Abidin**	
ESCE109	EFFECT OF CONCENTRATION OF [EMIM][BF_4] IONIC LIQUID ON IONIC LIQUID-POLYMERIC MEMBRANE (ILPM) FOR CO_2/CH_4 SEPARATION
ESCE276	FABRICATION OF 6FDA-BASED COMPOSITE MEMBRANES LOADED WITH MIL-125 (Ti) FOR CO_2 SEPARATION
ESCE261	CO_2 ADSORPTION OF MSU-2 SYNTHESIZED BY USING NON-IONIC POLYETHYLENEOXIDE (PEO)-BASED SURFACTANTS
ESCE253	MICROENCAPSULATION OF MAHKOTA DEWA PLANT EXTRACTS USING SPRAY DRYING TECHNIQUE
ESCE247	DISPERSION OF TITANIUM OXIDE NANOPARTICLES IN MIXED MATRIX MEMBRANE USING POLYHEDRAL OLIGOMERIC SILSESQUIOXANE FOR CO_2 / CH_4 SEPARATION
ESCE089	DEVELOPMENT OF IONIC SALT FOR CALCITE AND BARITE SOLID SCALE DISSOLUTION
ESCE447	EFFECT OF SPENT COFFEE GROUNDS AND RICE HUSK AMOUNT TOWARDS THE SWELLING KINETICS OF HYDROGEL USING GRAFT POLYMERIZATION
ESCE286	TOTAL PHENOL CONTENT OF CLINACANTHUS NUTANS LINDAU (C.NUTANS) EXTRACT WITH VACUUM SOLVENT-FREE MICROWAVE EXTRACTION (SFME)
ESCE245	PALM OIL MILL EFFLUENT TREATMENT USING UV LIGHT/HYDROGEN PEROXIDE PROCESS
ESCE390	SYNTHESIS, CHARACTERIZATION, STABILITY AND THERMAL CONDUCTIVITY MEASUREMENT OF SURFACTANT-FREE MWCNTS JATROPHA OIL BASED GREEN NANODISPERSION
ESCE034	THE THERMAL PROPERTIES OF POLYURETHANE/NEOPRENE BLENDS ON PROSTHETIC FOOT
ESCE341	SYNGAS PRODUCTION FROM ETHANOL DRY REFORMING USING CU-BASED PEROVSKITE CATALYST
ESCE385	EFFECT OF ZIRCONIA PROMOTER ON NICKEL/ MESOSTRUCTURED SILICA NANOPARTICLES FOR ENHANCED CO_2 REFORMING OF CH_4

LIST OF NON-PRESENTERS

PAPER ID	TITLE
ESCE494	ELUCIDATION OF FLUX DECLINE PHENOMENON IN ULTRAFILTRATION OF POLYDISPERSE SILICA SOLUTION
ESCE475	ENUMERATION OF PROBIOTIC STRAINS IN SYNBIOTIC SAMPLES
ESCE474	ENZYMATIC HYDROLYSIS FOR SUGAR RECOVERIES FROM PINEAPPLE LEAVES
ESCE466	ENZYMATIC HYDROLYSIS FOR SUGAR RECOVERIES FROM PINEAPPLE LEAVES
ESCE453	KINETIC STUDY OF ULTRASONIC- ASSISTED EXTRACTION OF PROPOLIS
ESCE451	SCREENING OF SIGNIFICANT FACTORS AFFECTING PRAVASTATIN PRODUCTION BY PENICILLIUM SP. ESF21P
ESCE449	THE ROLE OF N-METHYL-2-PYRROLIDONE AND METHANOL IN THE INHIBITION OF CARBON STEEL CORROSION IN MONOETHANOLAMINE SOLUTIONS
ESCE445	CO-GASIFICATION BETWEEN COAL/SAWDUST AND COAL/WOOD PELLET: PARAMETRIC STUDY USING RESPONSE SURFACE METHODOLOGY
ESCE439	EVALUATION THE EFFECT OF SALINITY LEVEL ON ORGANIC REMOVAL AND AMMONIUM OXIDATION IN A DOWN-FLOW HANGING SPONGE (DHS) BIOREACTOR
ESCE437	A NOVEL ENHANCEMNET FOR THE START-UP OF METHANE FERMENTATION REACTOR BY INOCULATING THE ACCLIMATED SLUDGE AS A SEEDING MATERIAL
ESCE433	EVALUATION OF BIO-RED PIGMENT EXTRACTION FROM MONASCUS PURPUREUS FTC5357
ESCE431	CHEMICAL INVESTIGATION OF EUPHORBIA HIRTA L. GROWN IN VIETNAM
ESCE426	LOW-TEMPERATURE CATALYTIC CONVERSION OF GREENHOUSE GASES (CO_2 AND CH_4) TO SYNGAS OVER CERIA-MAGNESIA MIXED OXIDE SUPPORTED NICKEL CATALYSTS
ESCE423	CHEMICAL CONSTITUENTS OF THE STEM OF COCCINIA GRANDIS
ESCE422	CHEMICAL CONSTITUENTS OF THE RHIZOME OF DRYNARIA BONII AND THEIR CELL PROLIFERATION ACTIVITY ON OSTEOBLAST MG-63 CELLS
ESCE407	1,4-DIISOPROPYLBENZENE AND N-DODECANE CATALYTIC HYDROCRACKING OVER PLATINUM CHROMIUM OXIDE ZIRCONIA
ESCE404	PREPARATION OF ACTIVATED CARBON FROM MORINGA OLEIFERA LEAF AND ITS APPLICATIONS FOR ADSORPTION OF METHYLENE BLUE FROM AQUEOUS SOLUTION
ESCE403	REMOVAL OF PHOSPHATE FROM AQUEOUS SOLUTION BY USING NANOPARATICLES ZNO
ESCE395	QUALITY PARAMETERS OF BREAD INCORPORATED WITH GREEN COFFEE BEANS (GCB)

PAPER ID	TITLE
ESCE394	PRELIMINARY STUDY ON EFFECT OF INLET TEMPERATURE TOWARDS MOISTURE CONTENT AND ANTIOXIDANT ACTIVITY IN SPRAY DRIED CANTELLA ASIATICA L. POWDER
ESCE392	IMMOBILIZATION OF ALCOHOL DEHYDROGENASE (ADH) ON POLYMER MEMBRANE FOR REACTIVE SEPARATION OF FORMALDEHYDE TO METHANOL
ESCE387	ANTIMICROBIAL PROPERTIES AND SENSORY EVALUATION OF BREAD ENRICHED WITH GREEN COFFEE BEANS (GCB)
ESCE368	BEHAVIOR OF TUNGSTEN OXIDE IN THE PRESENCE OF NICKEL ADDITIVE UNDER HYDROGEN AND CARBON MONOXIDE ATMOSPHERES
ESCE358	MODELING THE EFFECT OF CHLORINE LEAKAGE FROM CHLOR-ALKALI PLANT USING ALOHA SOFTWARE AND DEVELOPING AN EMERGENCY RESPONSE PLAN AROUND TELOK KALONG INDUSTRIAL AREA
ESCE354	FABRICATION AND CHARACTERIZATION OF POLYAMIDE THIN FILM COMPOSITE MEMBRANE ON THE NYLON 6, 6 SUBTRACT FOR ISOPROPANOL DEHYDRATION
ESCE350	EFFECT OF SPENT COFFEE GROUND AND RICE HUSK ASH CONTENT IN POLY (ACRYLIC ACID-CO-ACRYLAMIDE) SUPERABSORBENT POLYMER VIA INVERSE SUSPENSION POLYMERIZATION
ESCE302	EFFECTS OF CLIMATE CHANGE ON PATTERNS AND RISKS OF FOREST FIRE IN U MINH HA NATIONAL PARK, VIETNAM, PROPOSE THE SOLUTIONS TO PROTECT
ESCE301	EVALUATION OF CURRENT SITUATION OF MELALAUCA FOREST IN THE U MINH NATIONAL PARK, VIETNAM UNDER THE SITUATION OF CLIMATE CHANGE AND PROPOSED SOLUTIONS FOR CONSERVATION AND SUSTAINABLE DEVELOPMENT
ESCE300	STUDY ON SMART IRRIGATION TECHNOLOGY USING SOIL MOISTURE SENSOR SYSTEM FOR VINES IN DROUGHT-PRONE SOUTHERN CENTRAL COAST REGION
ESCE288	OPTIMIZATION OF LOVASTATIN IN SOLID-STATE FERMENTATION USING OIL PALM FROND
ESCE286	TOTAL PHENOL CONTENT OF CLINACANTHUS NUTANS LINDAU (C.NUTANS) EXTRACT WITH VACUUM SOLVENT-FREE MICROWAVE EXTRACTION (SFME)
ESCE272	THERMOGRAVIMETRIC KINETICS OF CATALYTIC PYROLYTIC CONVERSION OF PALM KERNEL SHELL WITH ACID TREATED COAL BOTTOM ASH
ESCE266	STUDY ON CAPACITIVE DEIONIZATION MICROFLUIDIC DESALINATION
ESCE223	BIOELECTROCHEMICAL CELL (BECC) INTEGRATED WITH GRANULAR ACTIVATED CARBON (GAC) IN TREATING SPENT CAUSTIC WASTEWATER: EFFECTS OF SOLID RETENTION TIME (SRT) AND ORGANIC LOADING RATE (OLR)
ESCE222	BIOELECTROCHEMICAL CELL (BECC) INTEGRATED WITH GRANULAR ACTIVATED CARBON (GAC) IN TREATING SPENT CAUSTIC WASTEWATER: EFFECTS OF MIXED LIQOUR SUSPENDED SOLID (MLSS)
ESCE211	INFLUENCE OF MONSOON SEASONS ON ACCIDENTAL CHLORINE LEAK AND DISPERSION AROUND GEBENG INDUSTRIAL AREA
ESCE184	A REVIEW ON HYBRID PROCESSES FOR PALM OIL MILL EFFLUENT: POSSIBLE APPROACHES
ESCE183	A REVIEW ON AEROBIC BIOLOGICAL PROCESSES FOR PALM OIL MILL EFFLUENT POSSIBLE APPROACHES
ESCE182	A REVIEW STUDY OF BIOFILM BACTERIA AND MICROALGAE BIOREMEDIATION FOR PALM OIL MILL EFFLUENT: POSSIBLE APPROACH

PAPER ID	TITLE
ESCE176	TUNGSTEN-DOPED TITANIUM DIOXIDE SUPPORTED LOW PT LOADING ELECTROCATALYSTS FOR ETHANOL OXIDATION REACTION IN ACIDIC FUEL CELLS
ESCE170	A NOVEL MICROBIAL BIOFILM CARRIER FOR WASTEWATER REMEDIATION
ESCE160	EVALUATING AND CALCULATING CO_2 EMISSIONS FROM INDUSTRIAL PARKS: A CASE STUDY IN HO CHI MINH CITY, VIETNAM
ESCE159	ESTIMATING AND EVALUATING THE AMOUNT OF CO_2 ABSORBED BY VEGETATION: A CASE STUDY IN HO CHI MINH CITY, VIETNAM
ESCE158	EFFECT OF INITIAL COD CONCENTRATION, THE FRACTION OF NITROGEN AND PHOSPHORUS ON TREATMENT ABILITY OF PARA GRASS (BRACHIARIA MUTICA) VEGETATION IN THE STABILIZATION POND
ESCE157	ASSESSING THE ABILITY TO TREAT INDUSTRIAL WASTEWATER BY CONSTRUCTED WETLAND MODEL USING THE BRACHIARIA MUTICA
ESCE155	OPERATION CONDITIONS AND PERFORMANCE OF WASTE STABILIZATION PONDS USING PARA GRASS (BRACHIARIA MUTICA) VEGETATION FOR TREATMENT OF INDUSTRIAL WASTE IN INDUSTRIAL PARK, DISTRICT 12, HO CHI MINH CITY, VIETNAM
ESCE143	INVESTIGATION OF IRIDIUM COMPOSITION IN TI1-XIRXO_2 (X=0.1, 0.2, 0.3) NANOSTRUCTURED SUPPORTS AS POTENTIAL CATALYST SUPPORTS FOR METHANOL ELECTRO-OXIDATION
ESCE142	PROMISING UTILIZATION OF FLY ASH AS AN ECO-FRIENDLY SUSTAINABLE ADDITIVE FOR ENHANCEMENT IN FLAME RETARDANCY OF COMPOSITE PRODUCTION – A REVIEW
ESCE140	SYNTHESIS AND CHARACTERIZATION THE MULTIFUNCTIONAL NANOSTRUCTURES TIXW1-XO_2 (X = 0.5; 0.6; 0.7; 0.8) SUPPORT AS A ROBUST NON-CARBON SUPPORT FOR PT NANOPARTICLES IN FUEL CELLS APPLICATIONS
ESCE139	HIGH STABLE PT/ITO CATALYST AS A PROMISING ELECTROCATALYST FOR DIRECT METHANOL FUEL CELL
ESCE121	DEXAMETHASONE INDUCES TOXICITY IN MICE AND THE ROLE OF PARSLEY AS A PROTECTIVE EFFECTS.
ESCE112	TREATMENT OF LEACHATE BY COAGULATION-FLOCCULATION PROCESS USING POLYALUMINUM CHLORIDE (PAC) AND TAPIOCA STARCH (TS)
ESCE095	REMOVAL OF WASTE VOLATILE SOLVENTS USING HOT BUBBLES
ESCE094	INFLUENCE OF HEAT REMOVAL USING FINE BUBBLES
ESCE093	COMPUTATIONAL FLUID DYNAMIC STUDIES OF AUTOTHERMAL SPIRAL REACTOR
ESCE090	MULTIOBJECTIVE OPTIMIZATION OF BATCH ELECTRODIALYSIS FOR MINIMIZING ENERGY CONSUMPTION BY USING NON-DOMINATED SORTING GENETIC ALGORITHM (NSGA-II)
ESCE085	SUSTAINABILITY ANALYSIS ON LANDFILLING AND EVALUATION OF CHARACTERISTICS IN LANDFILL LEACHATE: A CASE STUDY
ESCE081	CO_2 TO METHANOL VIA PHOTOCATALYSIS ROUTES OVER NICKEL-LOADED CDS PHOTOCATALYST UNDER VISIBLE LIGHT IRRADIATION
ESCE073	EVALUATION OF FACTORS FOR CELLS GROWTH OF IMMOBILIZED CHLORELLA VULGARIS VIA FACTORIAL DESIGN APPROACH

PAPER ID	TITLE
ESCE071	THE UTILIZATION OF PHASE CHANGE MATERIAL COMPOSITE DERIVED FROM FATTY ACID AND WASTE MATERIALS AS THERMAL ENERGY STORAGE MEDIUM
ESCE060	KOTASAS LAKESIDE, KUANTAN: TREATMENT OF EUTHROPHIC LAKE BY USING PHYTOREMEDIATION TECHNOLOGY
ESCE059	DEVELOPMENT OF CAPRA HIRCUS FEED FROM WASTE TO WEALTH BY UTILIZE ARTOCARPUS HETEROPHYLLUS LEAVES AND PALM OIL ACID (POA) FROM PALM OIL MILL EFFLUENT (POME)
ESCE041	ADSORPTION OF NI (II) IONS USING GRAFTED RECYCLED PAPER-BASED CELLULOSE ADSORBENT
ESCE029	OXYGEN SEPARATION THROUGH PI/NCC CARBON MEMBRANE: EFFECT OF HEATING RATES
ESCE028	DEVELOPMENT OF PI/NCC-BASED TUBULAR CARBON MEMBRANE BY CONCERNING COATING-CARBONIZATION-CYCLES FOR OXYGEN SEPARATION PERFORMANCE
ESCE016	A COMPREHENSIVE REVIEW AND PERCEPTION OF CARBON MOLECULAR SIEVE MEMBRANES FOR HYDROGEN PRODUCTION AND PURIFICATION
ESCE015	BTDA-TDI/MDI POLYIMIDE /NANOCRYSTALLINE CELLULOSE-DERIVED CARBON MOLECULAR SIEVE MEMBRANES: IMPACT OF AGING TIMES TOWARDS HYDROGEN PURIFICATION
ESCE014	PREPARATION AND CHARACTERIZATION OF POLYIMIDE CARBON MEMBRANE CONCERNING SEVERAL ADDITIVES FOR HYDROGEN SEPARATION PERFORMANCE

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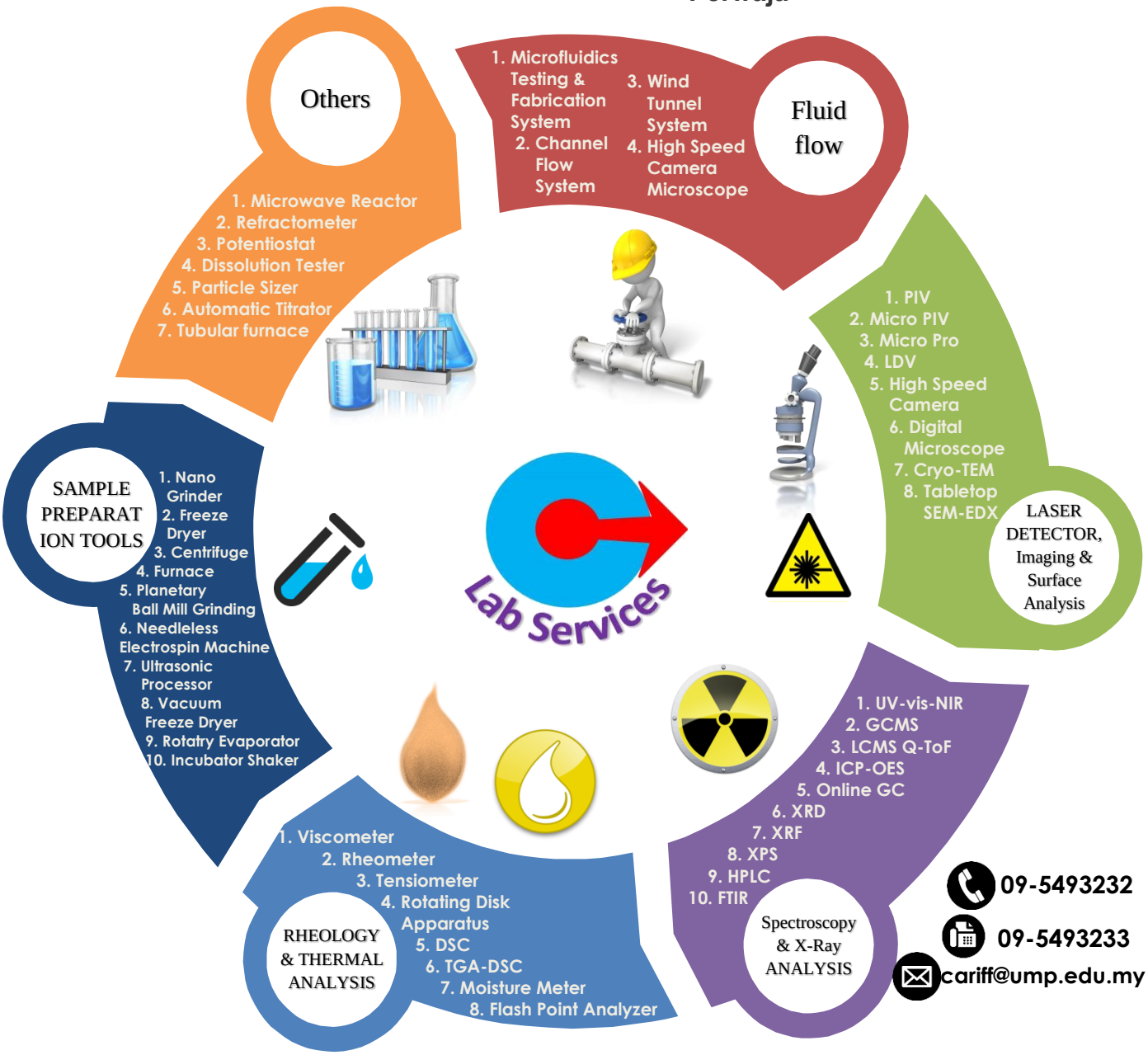

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