



Nexus Summit: Sustainability in a Changing World

Navigating the Nexus of Carbon Neutrality, Environment, Energy, Food Security, and Climate Change.

Venue:

**UMTCC, UNIVERSITI MALAYSIA TERENGGANU,
TERENGGANU, MALAYSIA**



Organizers



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Nexus-summit.com



Welcome Message from the Co-Chairs

Dear Colleagues, Esteemed Guests, and Friends,

Welcome to the Nexus Summit: Sustainability in a Changing World (NEXSUM2024). We are honored and delighted to serve as co-chairs for this prestigious gathering of experts, thought leaders, and stakeholders dedicated to addressing the pressing challenges at the intersection of Carbon Neutrality, Environment, Energy, Food Security, Sustainability, and Climate Change.

Our world is undergoing rapid and profound changes, impacting every aspect of our environment, societies, and economies. In such times, it is essential to come together, share knowledge, and collaborate on innovative solutions that will help us navigate these complex challenges. NEXSUM2024 offers a unique platform to do just that. Over the next few days, we will explore cutting-edge research, best practices, and pioneering innovations that are shaping the future of sustainability.

This summit is more than just a conference; it is a call to action. We must leverage our collective expertise and commitment to drive meaningful change and foster a more sustainable and equitable future. Through insightful discussions, engaging workshops, and dynamic networking opportunities, we hope to inspire and empower each of you to make a lasting impact in your respective fields and communities.

We extend our heartfelt gratitude to all the participants, speakers, and partners who have contributed to making NEXSUM2024 a reality. Your dedication and passion are the driving forces behind our shared mission. Let us seize this opportunity to learn from one another, build lasting partnerships, and chart a course towards a better world for all.

Thank you for joining us at NEXSUM2024. Together, we can create a brighter, more sustainable future.

Warm regards,

Meisam Tabatabaei

Professor
Universiti Malaysia Terengganu

Su Shiung Lam

Professor
Universiti Malaysia Terengganu

Scientific Committee

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- Yang Yan
- IC Buddies

CONFERENCE SCHEDULE

24 July 2024

08:00-09:50: Registration

09:50-10:00 Arriving of VIP

10:00-11:00: Opening ceremony

11:00-12:00: Plenary talk

12:00-14:00 Lunch

14:00-15:30 Parallel sessions 1

15:30-16:00 Coffee time

16:00-17:30 Parallel sessions 2

1. National Anthem of Malaysia - 2 min
2. UMT Corporate Video Presentation - 3 min
3. Welcome Remark by Director of the Institute of Tropical Aquaculture and Fisheries (AKUATROP), - 5 min
4. Opening Speech - 10 min
5. Cultural Performance - 15 min
6. NEXSUM2024's International Co-organizers Presentation- 20 min
7. Officiation of NEXSUM2024 Opening and Montage - 5 min
8. Photo session

- Launching Ceremony of International Editorial Office of Biochar and Carbon Research
- Promotion of Biochar and Carbon Research Journals
- Speech by Executive Editor-in-Chief of Carbon Research, Prof. Dr. Hailong Wang

25 July 2024

09:00-10:00 Plenary talk

10:00-10:30 Coffee time

10:30-12:00 Parallel sessions 3

12:00-14:00 Lunch

14:00-15:30 Parallel sessions 4

15:30-16:00 Coffee time

16:00-17:30 Parallel sessions 5

1. NEXSUM2024 Recap - 10 min
2. Closing Remark - 10 min
3. Cultural Performance - 15 min
4. Inauguration of AKUATROP's first newsletter - 10 min
5. Official Release of the July Issue of the Planetary Sustainability - 10 min
6. Awards ceremony - 10 min
7. Thank You Message by Co-Chairs and Introduction of NEXSUM2025 - 10 min
8. Photo session

26 July 2024

09:00-10:00 Plenary talk

10:00-10:30 Coffee time

10:30-12:00 Parallel sessions 6

12:00-13:00 Closing ceremony

13:00-14:30 Lunch

24 July 2024

Plenary talk: Prof. Dr. Vijai Kumar Gupta

Biobased Biorefineries for Sustainable Production of Biomaterials and Bioenergies

Parallel Sessions 1

1A: Climate Change and Food Security

Chairs: Prof. Mhd Ikhwanuddin, Prof. Dr. Vijai Kumar Gupta, Prof. Dr. Amin Mousavi Khaneghah, Prof. Dr. Meisam Tabatabaei

14:00-14:15 *Amin Mousavi Khaneghah*
Food security and recent challenges in the era of AI
(Keynote speech)

14:15-14:30 *Zemichael Workneh (Online)*
Sustainable and integrated approaches to prevent aquatic ecosystems from pollution in developing countries

14:30-14:45 *Yingru Tao; Weiyang Feng*
Effects mechanism of biochar application on soil carbon sequestration and alfalfa growth in typical mining areas

14:45-15:00 *Minaxi Sharma (Online)*
Valorization of Natural Pigments from Fruits & vegetables processing wastes: Applications in smart and functional foods

15:00-15:15 *Che-Jung Hsu; Ming-Huang Wang; Chiu Wen Chen; Zong-You Ke; Ding-Wen Shi*
The toxicological implications of mercury in muscle tissues of thermal-treated Yellowfin Tuna

15:15-15:30 *Yuxin Deng; Weiyang Feng*
The effects of MPs on the growth of Chinese cabbage in saline-alkali area

1B: Waste Management and Pollution Control

Chairs: Prof. Dr. Jingai Shao, Prof. Dr. Lam Su Shiung

Jingai Shao; Junjie Zhang; Xiong Zhang; Shihong Zhang; Haiping Yang; Hanping Chen
Recent advances in CO₂ adsorption of biomass-based porous carbons (Keynote speech)

Nurul Afiqah Mohammad Zahir; Mun Cong C Leong; Tham Fatt Ng; Choon Weng Lee; Cindy Soo Yun Tan; Su Shiung Lam; Chin Yik Lin; Mohd. Talha Anees
The evaluation of marginal marine sediments as a potential carbon sink using geochemical modelling and experimental approach

Haixin Guo
Biomass derived functional carbon for water pollution treatment

Hongna Li; Binxu Li
Electrokinetic technology enhanced the control of antibiotic resistance and the quality of swine manure composting

Sheetal Kishor Parakh; Yen Wah Tong
Microalgae-based Biotransformation of Food Waste Digestate into Single-Cell Protein

Yu Qiao; Weiyang Feng; Chenglian Feng
Research on the aquatic ecological risk and sensitive toxicity mechanism of tris (2-chloroethyl) phosphate

Parallel Sessions 2

2A: Sustainable Agriculture and Aquaculture

Chairs: Prof. Dr. Cheng-Di Dong, Prof. Dr. Derek Juinn Chieh Chan, Prof. Dr. Liew Hon Jung

16:00-16:15 *C. F. Chen, C. W. Chen, Y. R. Cheng, C. D. Dong*
Microplastics in Coral Reefs from South Penghu Marine National Park in Taiwan Strait (*Keynote speech*)

16:15-16:30 *Eng Huan Hau; John Tan; Mei Xia Chua; Derek Juinn Chieh Chan*
Duckweed as an alternative feed for mealworms: cultivation optimization and feeding efficiency (*Keynote speech*)

16:30-16:45 *Ethan Done (Online)*
Hydroponics: a novel approach to culturing *Aphanomyces euteiches*.

16:45-17:00 *Yu Bon YU MAN; Ka Lai CHOW; Zhang Cheng; Hoi Shan Kwan; Ming ung Wong*
Recycling of food waste and the potential of using activated carbon made from food processing waste-supplemented feed for fish farming

17:00-17:15 *Chun Fung Briston Wong; Ming Hung Wong; Yiu Fai TSANG; Yu Bon YU MAN*
Sustainable and environmentally friendly Nile Tilapia (*Oreochromis niloticus*) farming by using char-based feed

17:15-17:30 *Jie Liu; Jiang Zhan Pei; Mei Feng Shi; Su Wang; Fei Peng Li*
Approaches and practices of breeding integrated planting in cold region based on the concept of eco-agriculture

17:30-17:45 *Odette Wills; MacKenzie Kerr; Zoe Longworth; Mojtaba Shafiee; Mohammadreza Pakravan; Hassan Vatanparast (Online)*
How does climate change affect food security initiatives and the food security status of resultant refugees?

2B: Biomass Conversion and Catalysis

Chairs: Prof. Dr. Chi-Wei (John) Lan, Prof. Dr. Hamid Amiri, Prof. Dr. *Feng Shen*

Junyi Ma
A novel strategy for enhancing anaerobic digestion of corn straw by the synergistic effect of biochar and anthraquinone-2,6-disulfonate (*Keynote speech*)

Feng Shen
Catalytic oxidation of biomass to high value-added chemicals (*Keynote speech*)

Qingang Xiong; Fangjun Chen; Yongfeng Zhu
Advanced kinetic modeling and comprehensive product characterization for pyrolysis of pulp and paper mill sludge

Wei Li
Biogeochemical and biophysical effects of large-scale bioenergy crop cultivation

Sharon Meng Xuang Goh; Bridgid Lai Fui Chin; Jundika Candra Kurnia; Su Shiung Lam; Yie Hua Tan; Yee Ho Chai; Nor Adilla Rashidi; Man Kee Lam
Preliminary study on pyrolysis of bamboo biowaste via thermogravimetric analysis

Sivasangar Seenivasagam
Development of a binary metal oxide catalyst for solvent-free ketonization of palmitic acid to produce valuable bio-wax intermediates

Rasyidah Alrozi, Nor Aida. Zubir, Noor Fitrah Abu Bakar, Julius Motuzas, Noor Hana Hanif Abu Bakar, David K. Wang
CaCu_{0.2}Fe_{0.8}O₃ perovskite as effective and reusable heterogeneous catalyst for Fenton-like decaffeination

25 July 2024

Plenary talk: Prof. Dr. Mikhail Kurushkin

Education: an individual's sustainability in a changing world

Parallel Sessions 3

3A: Sustainable Infrastructure and Industry

Chairs: Prof. Dr. Mikhail Kurushkin, Prof. Dr. Chi-Wei (John) Lan, Prof. Dr. Christoph Sprung

10:30-10:45 *Christoph Sprung*
Guiding energy – developing human potential for a future-proof mindset (*Keynote speech*)

10:45-11:00 *Chi-Wei (John) Lan*
Enhancing circular economy through biorefinery of brewing waste: a strategy for producing value-added biomolecules (*Keynote speech*)

11:00-11:15 *Jonathan Jared Java Ignacio; Denny Ng; Jaya Prasanth Rajakal; Kathleen JJ Aviso; Raymond R. Tan*
Deep decarbonization pathway of the cement industry in ASEAN

11:15-11:30 *Ting Chun Yeh; Po Ting Chen; Chi-Wei (John) Lan (Online)*
Concurrent production of Polyhydroxyalkanoates (PHAs) and bioethanol via genetic engineering of yeast cells

11:30-11:45 *Shang-Rong Kuo; Yi-Kai Chih; Wei-Hsin Chen*
A research of the effects of catalyzing the conversion of bio-methanol into hydrogen-rich gases with low-temperature-type Cu-Zn catalyst and Ti-based additive

11:45-12:00 *Bridgid Lai Fui Chin; April Ling Kwang Chee; Agus Saptoro; Yee Ho Chai; Shaharin Anwar Sulaiman*
Catalytic gasification of water hyacinth for syngas production: kinetics modelling and product gas analysis

3B: Biotechnology and Bioprocessing I

Chairs: Prof. Dr. Fubao Sun, Prof. Dr. Yusuf Chisti

Fubao Sun
Enhanced enzymatic hydrolysis of lignocellulosic substrate with less-expensive formulation of domestic cellulase cocktails (*Keynote speech*)

Meysam Madadi
Biphasic Lignocellulosic Biomass Fractionation Towards Sustainable Bioproducts Production

Binghua Yan
A ternary buffering system and associated microbial community coping with acid inhibition during high solid anaerobic digestion of rice straw

Hikmat Hidayat Muhammad Rapaiee; Cindy Soo Yun Tan
Superabsorbent Interpenetrating Polymer Network Hydrogels Grafted Sodium Humate with for Removal of Pb(II), Cu(II) and Methylene Blue Dye

Thai-Khuong Le; Ya-Ting Chen; Shuchen Hsieh; Shu-Ling Hsieh
Polystyrene nanoplastics exposure induces oxidative stress on colorectal cancer cells

Huei Yeong Lim; Nor Adilla Rashidi; Suzana Yusup
One pot microwave-assisted synthesis of 2,5-dimethylfuran from bamboo hydrolysate in presence of green solvent and low-cost metal catalyst

Parallel Sessions 4

4A: Biochar Applications and Sustainable Materials I

Chairs: Prof. Dr. Junting Pan, Prof. Dr. Wei-Hsin Chen

14:00-14:15 *Junting Pan*
Biochar enhances anaerobic digestion: the mechanisms and future perspectives (*Keynote speech*)

14:15-14:30 *Ziyue Tang; Wei Chen; Yingquan Chen; Haiping Yang; Hanping Chen*
(*Online*)
Study on the removal of N/O and reaction mechanism of preparing hydrocarbon-rich liquid oil from microalgae pyrolysis.

14:30-14:45 *Kuan-Ting Lee; Situmorang Gabriela; Wei-Hsin Chen*
Improving biochar-EVA composite characteristics by optimizing the distribution of torrefied spent coffee grounds using sodium percarbonate treatment

14:45-15:00 *Yaqoob Rashid Alhindasi; Norhasanah Abdul Shukor Lim; Natarajan Rajamohan*
(*Online*)
Sustainable application of Ferrochrome slag as green aggregate material for novel application in concrete- A review

15:00-15:15 *Fui Kiew Liew; Cindy Soo Yun Tan; Yit Iian Liew; Robin Yee Hui Chang*
Effect of bamboo charcoal on thermal-mechanical properties of bamboo charcoal/recycled low-density polyethylene composites

15:15-15:30 *Pei-Ying Lin; Chiao-Mei You; Shuchen Hsieh*
Amplified antibacterial performance via surfactant-modified magnetic biochar

4B: Biotechnology and Bioprocessing II

Chairs: Prof. Dr. Yusuf Chisti, Prof. Dr. Yen Wah Tong

Yen Wah Tong
Improving food waste anaerobic digestion efficiency with biochar in decentralized systems (*Keynote speech*)

Ajeet Singh Chauhan; Anil Kumar Patel; Chiu Wen Chen; Reeta Rani Singhanian; Cheng Di Dong
Driving Lipid Yield: TiO₂-Assisted Dual Cultivation with Nitrogen Stress in *Aurnatiochytrium* sp.

Shini Yang; Zhenzhen Xu; Yan Zhao
An effective method for enrichment of non-acylated anthocyanin monomer by enzymatic normalization strategy: a case of cyanidin-3-sophorose-5-glucoside

Yeqing Li
Anaerobic digestion of biomass and the high-value utilization of biogas

Jingmiao Zhang; Ao Xia; Qingming Zhou; Xianqing Zhu; Yun Huang; Xun Zhu; Qiang Liao
Production of carbon dots, biofuels, bio-adsorbents, and biological nutrients via hydrothermal conversion of *Chlorella pyrenoidosa* and oilseed rape straw

Parallel Sessions 5

5A: Biochar Applications and Sustainable Materials II

Chairs: Prof. Dr. Wei-Hsin Chen, Prof. Dr. Cheng-Di Dong

16:00-16:15 *Wei-Hsin Chen*
Progress in low-temperature biochar for biofuel, environment, and materials (*Keynote speech*)

16:15-16:30 *Sunita Varjani; Himanshu Kesarwani*
Nanomaterials and biochar: pioneering advances in the oil and gas industry

16:30-16:45 *Tao Luo (Online)*
Dynamic load demand investigation of biogas consumption in Chinese rural area

16:45-17:00 *Dimberu G. Atinafu; Ji Yong Choi; Beom Yeol Yun; Sumin Kim*
Sustainable thermal buffering of microencapsulated bio-phase change material through engineered biochar dopant

17:00-17:15 *Ji Yong Choi; Dimberu G. Atinafu; Beom Yeol Yun; Sumin Kim*
Smart hybridization of corncob biochar and expanded graphite for improved adsorption and high thermal transport of bio-phase change material.

17:15-17:30 *Huize Chen; Ao Xia; Yun Huang; Xianqing Zhu; Jingmiao Zhang; Xun Zhu; Qiang Liao*
Silver nanoparticles promote the reduction of CO₂ to CH₄ in g-CN_x-based bio-nano hybrids

5B: Renewable Energy and Biogas

Chairs: Prof. Dr. Yingru Zhao, Prof. Dr. Junting Pan

Yingru Zhao
Smart integrated energy: progress, applications, and challenges ahead (*Keynote speech*)

Yi-Hua Chen; Yi-Kai Chih; Wei-Hsin Chen
The effects of adding multi-component material to Cu-Zn catalyst on hydrogen productivity through Methanol Steam Recombination (MSR)

Jing Jie Wang; Yi-Kai Chih; Wei-Hsin Chen
The effects of adding molybdenum carbide to copper-nickel catalysts on the efficiency of hydrogen production by methanol steam reforming

Fuke Ai; Yameng Li; Quanguo Zhang; Zhiping Zhang
Exploring potential bacterial community for enhanced photo-fermentation bio-hydrogen production from agricultural waste: addition of *Enterobacter hormaechei*

ALSultan Abdulkareem; Taufiq Yap Yun Hin
Efficient Z-scheme water splitting using (W₂/3Y₁/3)2AlC as H₂ evolution photocatalyst and Pt-BiVO₄

26 July 2024

Plenary talk: Prof. Dr. Jo-Shu Chang

Bicarbonate-based Microalgal Cultivation: A Venue for Carbon Capture, Storage, and Utilization

Parallel Sessions 6

6A: Waste Management and Water Treatment

Chairs: Prof. Dr. Nor Azman Kasan, Prof. Dr. Carol Sze Ki Lin

6B: Microwave and Energy Applications

Chairs: Prof. Dr. Lam Su Shiung, Prof. Dr. Huacheng Zhu, Dr. Rock Keey Liew

10:30-10:45 *Carol Sze Ki Lin; Jinhua MOU; Zihao Qin; Yahui Miao; Johnny Sik Chun Lo*
Development of waste biorefineries towards a circular bioeconomy
(Keynote speech)

Huacheng Zhu; Yang Yang
Industrial microwave energy application: challenges and advanced approaches *(Keynote speech)*

10:45-11:00 *Kang Kang (Online)*
Biomass and industrial waste-based carbon materials for water decontamination *(Keynote speech)*

Peter Nai Yuh Yek
Enhancing biomass conversion through advanced microwave wet torrefaction of empty fruit bunches for wood vinegar production

11:00-11:15 *Weiying Feng*
Chemical composition, sources and ecological effect of organic matter in water ecosystems *(Keynote speech)*

Fengming Yang; Huacheng Zhu
Research on microwave propagation in gradient index metamaterials and high-efficiency microwave energy applications

11:15-11:30 *Fathi Hamood Al Jabri; Muruganandam Loganathan; Rajamohan Natarajan (Online)*
Sustainable treatment of oil produced water using novel methods – a review

Qiulin Wang; Huacheng Zhu
Enhancing microwave plasma torch efficiency with electromagnetic black hole integration for industrial applications

11:30-11:45 *Xin Jin; Changlei Xia (Online)*
Natural biomass mediated functionalized composite towards wastewater treatment

Jo-Han Ng; Koguleshun Subramaniam; Wong Kang Yao; Wong Kok Hoe; Cheng Tung Chong
Microchannel reactors for microwave-assisted biodiesel production: a study on the effects of reactants

11:45-12:00 *Latonia Nur Adyanis; Chung Hsuan Lin; I-Hsin Hsu; Lin-Chi Wang*
Chemical inhibitors to mitigate persistent organic pollutants in e-waste thermal treatment

Ruxu LI; Huacheng Zhu
Microwave heating multiphysics computation of moving complex-shaped samples

Poster Session

Evaluation Panel: Dr. Khor Wai Ho, Dr. Mohd Fazhan Mohd Hanafiah

- 1 *Yoong Kit Leong; You Chen Lin; Hong-Wei Yen*
Scale-up of genetically modified *Kluyveromyces marxianus* fermentation from flask-scale to fermentor-scale for high-value astaxanthin production
- 2 *Yu Qiao; Weiyang Feng*
Research on the Composition Characteristics of Dissolved Organic Matter in Daihai and the Mechanism of Microbial Influence
- 3 *Wei-Hao Lu; Pei-Ying Lin; Yi-Wei Chiang; Li-Yin Lin; Shuchen Hsieh*
Enhanced free radical scavenging of iron-copper biochar and wood vinegar composite with light-induced activation
- 4 *Yi-Wei Chiang; Pei-Ying Lin; Shuchen Hsieh*
Ultrasonic-assisted alkali-activated biochar for enhanced CO₂ capture
- 5 *Jie Bu; Yen Wah Tong*
Enhancing anaerobic digestibility of bone meal through biochar amendment
- 6 *Wei-Jhan Tong; Shu-Ling Hsieh; De-Sing Ding; Shuchen Hsieh; Cheng Di Dong; Chiu Wen Chen; Ya-Ting Chen*
Effects of polyethylene microplastics combined with pH on oxidative stress and histopathological damage in *Briareum violacea*
- 7 *Yu-Die Chen; Pei-Chun Liao; Ya-Ting Chen; Chun-Yung Huang; Chun-Hung Liu; Shu-Ling Hsieh*
The protective role of *Sargassum crassifolium* extract against polystyrene nanoplastic-induced immune response in *Litopenaeus vannamei*
- 8 *Pei-Chun Liao; Yu-Die Chen; Chun-Yung Huang; Chun-Hung Liu; Chih-Chung Wu; Shu-Ling Hsieh*
Protective effects of *Sargassum crassifolium* extract against oxidative damage induced by polystyrene nanoplastics in *Litopenaeus vannamei*
- 9 *Ting-Yu Chang; Ya-Ting Chen; Yu-Wen Huang; Shuchen Hsieh; Cheng Di Dong; Chiu Wen Chen; Shu-Ling Hsieh*
Effect of polystyrene nanoplastics combined with cadmium on oxidative stress in clone 9 cells

Poster Session (cont.)

- 10 *Yi-Hsuan Su; Yu-Wen Huang; Ruo-Qi Xu; Chih-Chung Wu; Shu-Ling Hsieh*
Cytotoxic effects of polystyrene nanoplastics on cells
- 11 *Jih-Heng Chen; Jo-Shu Chang*
Recycling the condensed water generated by the dehumidifier for microalgae cultivation and protein production
- 12 *Chee Chung Wong*
Water distribution pipeline leakage modelling using Multi Criterion Decision Analysis (MACD) for Sibu district
- 13 *Chee Swee Wong*
Nutrient recovery from palm oil mill effluent (POME) via adsorption of modified biochar
- 14 *Tung Chuan Tiong*
Implementation and enhancement of electrochemical oxidation for wastewater treatment
- 15 *Guojie Song*
Integrated approach for co-production of bioethanol and light aromatics from lignocellulose through polyethylene glycol-aided acidic glycerol pretreatment
- 16 *Chieh-Ming Chung; Chi-Wei (John) Lan; Jui-Jen Chang*
From shark to yeast: Fermentation-based squalene

27 July 2024

One-day Excursion: Exploring Underwater Diversity

FREE
Included in
Registration
Package

One-day Excursion: Snorkeling Extravaganza

Exploring Underwater Diversity



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27 July 2024
One-day Excursion

