



UNIVERSITI  
MALAYA



# Mini-Symposium

*Innovative nanomaterials for  
sustainable applications*

6 August 2026

THURSDAY

2:00 pm – 4:00 pm



ChM. Dr. Tan Tong Ling (IMU)



ChM. Dr. Then Yoon Yee (IMU)

Venue: The Research Nest, Institute for Advanced Studies,  
Universiti Malaya

Jointly organised by



Division of Green  
& Sustainable Chemistry



## Seminar 1

**Speaker: ChM. Dr. Tan Tong Ling**

**Title: From Waste to Nanomaterials: Multidisciplinary Applications of Carbon Dots**

**Abstract:**

This talk will explore how everyday waste, particularly fruit peel waste and agricultural biomass, can be transformed into luminescent carbon dots through green and sustainable synthesis approaches. These materials are attractive due to their low cost, environmental friendliness, and simple preparation methods. The presentation will highlight how the properties of carbon dots can be tuned through various preparation strategies, including heteroatom doping and surface modification to enhance their performance. It will also showcase their practical applications in heavy metal detection, drug sensing, and agricultural-related uses. Overall, the talk emphasizes how waste materials can be upcycled into value-added nanomaterials, offering sustainable solutions across chemistry, environmental science, and biomedical fields.

**Biography:**

Dr. Tan Tong Ling is an accomplished Malaysian chemist and academic who currently serves as a Lecturer in Pharmaceutical Chemistry at the School of Pharmacy, IMU University in Malaysia. Her academic journey began at Universiti Malaysia Sarawak (UNIMAS), where she earned her Bachelor of Science in Resource Chemistry, followed by a Doctor of Philosophy (Ph.D.) in Chemistry from Universiti Malaya (UM). Dr. Tan's research primarily focuses on nanotechnology and sustainable solutions. Her core work investigates carbon quantum dots (CQDs) as advanced nanocarriers for targeted chemotherapeutic drug delivery. Additionally, during her time as a Post-Doctoral Researcher at the Institute of Advanced Technology, Universiti Putra Malaysia (UPM), she contributed to developing an award-winning, patented "Photosynthesis Enhancer" that utilizes carbon dot technology to boost crop yields. Dr. Tan balances her active research with teaching future healthcare professionals and maintains professional standing as a registered member of both the Royal Society of Chemistry (RSC) and the Institut Kimia Malaysia (IKM).



## Seminar 2

**Speaker: ChM. Dr. Then Yoon Yee**

**Title: Electrospun Nanofibers with Natural Therapeutics for Advanced Wound Dressings**

### **Abstract:**

Electrospinning enables the fabrication of nanofibrous scaffolds with extracellular matrix-like architecture, high porosity, and tunable morphology, making them attractive candidates for wound healing applications. Incorporation of natural and nature derived therapeutic agents has been shown to significantly enhance the biological performance of these scaffolds. Nanofibers prepared from natural and biodegradable polymers and functionalized with plant based bioactives exhibit improved physicochemical properties, including increased porosity, hydrophilicity, and degradability. These modifications promote favorable cell adhesion and proliferation, while antimicrobial assays demonstrate activity against *Staphylococcus aureus* and *Escherichia coli*. Furthermore, in vitro wound scratch assays reveal accelerated wound closure and enhanced tissue regeneration in bioactive modified nanofibers compared to pristine controls. Collectively, these findings underscore the synergistic role of electrospun nanofibers and natural bioactives in promoting wound healing, while highlighting translational challenges related to bioactive stability, fabrication scalability, and regulatory approval. Electrospun nanofiber dressings incorporating natural therapeutics thus represent a promising class of advanced biomaterials for next generation wound care, scalability of fabrication, and regulatory pathways. Electrospun nanofiber dressings incorporating natural therapeutics thus represent a promising class of advanced biomaterials for next generation wound care.

### **Biography:**

ChM Dr. Then Yoon Yee is a Senior Lecturer and the Program Director for the Bachelor of Science (Honours) in Pharmaceutical Chemistry program at the School of Pharmacy, IMU University. He earned his Bachelor of Science (Honours) in Petroleum Chemistry from Universiti Putra Malaysia (UPM) in 2007, followed by a Master of Science and a Doctor of Philosophy in Polymer Chemistry from the same university in 2011 and 2015, respectively. Dr. Then's research expertise focuses on the development of biocompatible polymers and antibacterial materials for applications in tissue engineering, drug delivery, and wound healing. In recognition of his significant contributions to polymer science, he received the IKM/RSC-Synthomer Award in 2016. He has also secured several competitive grants, including the Fundamental Research Grant Scheme (FRGS) from the Ministry of Higher Education, the Malaysia Toray Science Foundation (MTSF) grant, and both the RSC Research Fund and RSC Sustainable Laboratories Grant from the Royal Society of Chemistry (UK). Dr. Then has published over 30 papers in Scopus-indexed journals, achieving an h-index of 18, and serves as a reviewer for multiple national and international journals. He is a life member of the Malaysian Solid-State Science and Technology Society (MASS) and an active member of the Malaysian Institute of Chemistry (MIC), the Royal Society of Chemistry (RSC) and the American Chemical Society (ACS).