講演会のご案内

ナレスワン大学（タイ王国）より 2 名の講師をお迎えして、下記の通り講演会を開催いたします。ぜひ、ご聴講ください。

- 日　時：2026 年 3 月 13 日（金）13:30～14:30
- 場　所：総合研究棟 1F　106 室
- 主　催：アクア・リジェネレーション機構　特別栄誉教授　遠藤守信

【講演内容】

- **講演 1**

講師：ナレスワン大学　理学部准教授／副学部長（国際交流担当）／
Center of Excellence for Biomaterials センター長　**Sukunya Ross** 氏
演題：**Biodegradable Polymers: Structure, Degradation Mechanisms, and Applications**

- **講演 2**

講師：ナレスワン大学　理学部准教授　**Gareth Michael Ross** 氏
演題：**Precision Macromer Design via RAFT Polymerisation for Reactive Polymer Interfaces and Nanocarbon Hybrid Materials**

【講演要旨】

- **講演 1**

Biodegradable Polymers: Structure, Degradation Mechanisms, and Applications

Sukunya Ross

Biopolymer Group, Center of Excellence for Biomaterials, Department of Chemistry
Naresuan University, Thailand 65000, Thailand
Phone +66 55 96 3445, Fax +66 55 963-402, E-Mail: sukunyaj@nu.ac.th

Biodegradable polymers are macromolecules capable of undergoing degradation through biological and physicochemical processes, either in environmental conditions or within the human body. But what does biodegradation truly mean? How does environmental degradation differ from in vivo degradation? And what mechanisms govern these processes? The fundamental principles underlying biodegradable polymer systems are examined, with emphasis on the relationship between molecular structure and degradation behavior. Key structural factors, including the nature of the repeating unit, chemical bonding, molecular architecture, crystallinity, melting temperature (T_m), and glass transition temperature (T_g), are discussed in relation to degradation kinetics and material performance. Applications of biodegradable polymers are also explored, encompassing both natural and synthetic systems. Representative examples include sustainable packaging materials and biomedical applications such as tissue engineering scaffolds. A clear understanding of how molecular design and structural characteristics translate into functional properties and real-world applications is emphasized.

- **講演２**

Precision Macromer Design via RAFT Polymerisation for Reactive Polymer Interfaces and Nanocarbon Hybrid Materials

Gareth Michael Ross

Biopolymer Group, Center of Excellence for Biomaterials, Department of Chemistry
Naresuan University, Thailand 65000, Thailand
E-Mail: gareth@nu.ac.th

Precise control over polymer architecture is increasingly important for the design of functional materials. This seminar introduces reactive macromers synthesized via Reversible Addition Fragmentation chain Transfer polymerisation as versatile building units for reactive polymer systems. By tailoring molecular weight, end group functionality, and chain architecture, macromers enable programmable network formation and surface reactivity. Photo responsive macromers capable of rapid crosslinking under 395 nm UVA irradiation are presented as representative examples to illustrate how molecular design influences gelation behaviour, mechanical response, and network structure, supported by NMR and FTIR analysis. The discussion also considers precision macromers as interfacial modifiers for polymer nanocarbon hybrids, where functional anchoring groups can improve dispersion and interfacial bonding with carbon nanotubes, carbon nanofibers, and graphene based materials. Overall, the seminar outlines a general framework linking controlled polymerisation with coatings, fibres, conductive composites, membranes, and responsive polymer networks.