

Thermal-Based Printing and Advanced Nanozymes for Analytical Sensor Applications

Assistant Professor Chong-You Chen

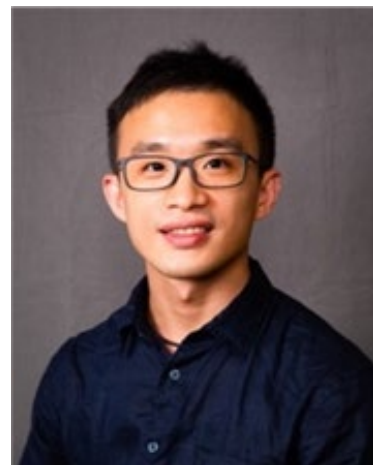
Department of Chemistry, National Taiwan Normal University

Date: Friday, February 2, 2024 15:00-16:00

Venue: Faculty of Engineering Bldg. 2, Room 31B

Abstract:

This talk introduces our recent research on heat-based printing and advanced nanozymes. Our thermal-based printing approach is solvent-free, utilizing external energy to initiate reactions in precursors and directly generate functional nanomaterials on surfaces. This method, employing localized energy, enables in-situ synthesis of nanosensors at specific regions on device substrates. Our strategy is versatile, applicable to various nanomaterials such as graphene, metal nanoparticles, and carbon dots. In the second part, we focus on advanced nanozymes, fabricated using electronic waste and supramolecular assemblies. These nanozymes can recognize certain targets, leading to an inhibition effect on their catalytic activities. This target-induced inhibition process allows for highly selective and sensitive detection of specific analytes. Our innovative approaches in advanced printing and nanomaterials not only pave the way for more sustainable and efficient methods in nanotechnology but also hold great potential for significant advancements in analytical sensor technology.



Shortbio:

Chong-You Chen is currently an assistant professor in Department of Chemistry, National Taiwan Normal University. His research bridges printing technologies and analytical chemistry, aiming to develop the advanced nanofabrication for optical/electrochemical sensors and separation science. He received his B.S. and M.S. from National Chiao Tung University in 2011 and 2014, respectively, under the guidance of Prof. You-Zhug Hsieh on capillary electrophoresis and nanoparticle-based sensors. He obtained his Ph.D. from National Taiwan University in 2018, focusing on the surface molecular environment control for bioanalytical applications supervised by Prof. Wei-Ssu Liao. From 2018-2022, he worked at the Industrial Technology Research Institute (ITRI), exploring potential applications of waste LCD glass in sustainable nanotechnology. In 2022, he joined the Department of Chemistry at National Changhua University of Education. He was honored as a Japan Visiting Research Student (2018), a Future Leader by the American Chemical Society CAS (2018), and The Phi Tau Phi Scholastic Honor Member (2018). He awarded the Yen Thesis Award (2018), Lam Research Thesis Award (2018), Outstanding Thesis Award (2019), and Quality Model Award in Material and Chemical Research Laboratories (ITRI, 2020).

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