

CARBON-NEUTRAL CHEMICAL PRODUCTION VIA ADVANCED NANOCATALYSIS

The shift toward carbon-neutral chemical production requires a convergence of innovation, precision, and interdisciplinary collaboration. This symposium focuses on the transformative role of advanced nanocatalysis, encompassing techniques such as photocatalysis, thermal catalysis, electrocatalysis, photoelectrocatalysis, piezocatalysis and so forth. These approaches enable efficient and sustainable processes for clean energy applications, including hydrogen production, CO₂ conversion, ammonia synthesis, plastic reforming, H₂O₂ production, fine chemical synthesis, biomass valorization, CO conversion, CH₄ oxidation, etc.

Symposium Chair



Prof. Dr. Wee-Jun ONG

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Symposium Objectives:

- Explore Structure-Activity Relationships: Present cutting-edge research explorations on the correlation between nanocatalyst structures and catalytic performances, providing insights into reaction mechanisms at the atomic and molecular levels.
- Advance Mechanistic Understanding: Highlight the use of density functional theory (DFT) calculations and advanced in situ/operando characterization techniques to unravel reaction pathways and optimize catalyst design.
- Bridge Lab to Scale-Up: Showcase innovations in reactor engineering, including transitioning nanocatalytic systems from lab-scale reactors to prototype and pilot-scale applications for industrial viability.
- Foster Multidisciplinary Collaboration: Create a platform for researchers, engineers, and industry leaders to exchange knowledge and strategies for decarbonizing chemical production.

Abstract Submission Deadline:

15th April 2025

Special Issue:

Selected abstracts in this symposium will be invited by the symposium chair for a full paper submission to *Small Methods* (Wiley, IF: 10.7, Q1).

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