

2026

1.28 (wed.) 12:10
12:50

12:10-12:15

◆ Introduction

12:15-12:40

◆ Seminar
(Presentation)

12:40-12:50

◆ Q&A

Online
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Harvesting Hope: Biomass Pathways to Clean Fuels and Chemicals



Key Words

Biomass

Gasification

Pyrolysis

Green energy

Green House Gases

CO₂ captureAssistant Professor **Muhammed Ashik URAMPULLY**Institute for Materials Chemistry and Engineering Department of
Advanced Device Materials, Kyushu University

Dr. Urampully Muhammed Ashik is an Assistant Professor at the Institute for Materials Chemistry and Engineering, Kyushu University, Japan. Dr. Ashik has been affiliated with Kyushu University since 2017, first as a Postdoctoral Researcher (2017–2023) and later as a Research Assistant Professor (2023–2024). Earlier, he was a Lecturer at M.E.S Ponnani College, India (2010–2011).

Dr. Ashik earned his B.S. from Calicut University (2008), M.S. and M.Phil. from Mahatma Gandhi University (2010, 2012), and Ph.D. in Reaction Engineering from the University of Malaya, Malaysia (2016).

His research focuses on materials development and greenhouse gas (GHG) capture and utilization, particularly converting CH₄ and CO₂ into hydrogen and syngas using catalytic processes. In 2019, he received Japan's Grant-in-Aid for Young Scientists (KAKENHI) as Principal Investigator to develop CO₂ capture sorbents.

Dr. Ashik has co-authored over 30 papers in leading journals. His current work emphasizes simultaneous recovery of chemicals and syngas from biomass for sustainable solutions.

Crude oil, a fossil fuel formed over millions of years from ancient biomass, remains a cornerstone of modern society. It provides energy for transportation and electricity, serves as a raw material for petrochemicals, and drives global economies. However, its non-renewable nature, environmental impact, and price volatility pose significant challenges. In contrast, biomass offers a sustainable alternative. Derived from plants, agricultural residues, and organic waste, biomass is renewable and part of the natural carbon cycle. It can be converted into biofuels, heat, electricity, and green chemicals, supporting energy security and reducing greenhouse gas emissions. Despite challenges such as land-use competition and lower energy density, advancements in conversion technologies make biomass a promising pathway to clean fuels and chemicals. By minimizing the reliance on crude oil and exploring biomass-based solutions, we can achieve lower carbon footprints, cleaner energy, and economic resilience. This presentation explores strategies for "Harvesting Hope from Biomass," highlighting its role in a sustainable future.