

CUUTE-3

**The Third Symposium on Carbon
Ultimate Utilization Technologies for
the Global Environment**



Date Tue 26-Fri 29, October, 2027

Venue Nara Kasugano International Forum



Organized by: The Iron and Steel Institute of Japan, ISIJ



Introduction

It is our great pleasure to announce the Third Symposium on Carbon Ultimate Utilization Technologies for the Global Environment (CUUTE-3), to be held in Nara, Japan, in October 2027. We warmly welcome your participation.

Building on the success of CUUTE-1 (2021) and CUUTE-2 (2024), this symposium advances the mission of promoting innovative technologies for the ultimate utilization of carbon toward a carbon-neutral society. Since CUUTE-2, international efforts toward carbon neutrality have intensified, and the associated technological challenges have become increasingly complex and interdisciplinary.

As emphasized by the Intergovernmental Panel on Climate Change (IPCC), reducing CO₂ emissions is essential to limiting global warming within 1.5 °C. Japan, aligning with this goal, is pursuing ambitious policies to achieve carbon neutrality by 2050. Among industrial sectors, the iron and steel industry plays a pivotal role, requiring innovations beyond conventional energy-saving approaches. New concepts in carbon recycling, CO₂ conversion, and the use of hydrogen and ammonia as energy carriers are indispensable.

CUUTE-3 will focus on the advances of carbon utilization technologies toward practical application. Topics include:

- Perspective for Low Carbon Society
- Advanced Carbon Utilization
- CO₂ Capture, Utilization and Storage (CCUS)

The development of carbon resource utilization technologies transcends individual industries, requiring integration of expertise across chemistry, chemical engineering, materials science, and related disciplines. Through this symposium, we aim to foster innovations that accelerate decarbonization across manufacturing sectors, including ironmaking, and contribute to a sustainable, carbon-neutral society.

By bringing together experts from academia, industry, and government, CUUTE-3 provides a platform to share cutting-edge research and industrial strategies shaping the future of low-carbon manufacturing. We look forward to your active participation in Nara—a city that harmonizes tradition and innovation—as we collectively advance toward a carbon-neutral future.

Chair of CUUTE-3, Tohoku University **Shigeru Ueda**

Important Dates

● Start of Abstract Submission	4 November 2026
● Deadline of Abstract Submission	15 January 2027
● Notification of Abstract Acceptance	15 March 2027
● Deadline of Extended Abstract Submission	31 May 2027
● Deadline of Early Bird Registration	26 July 2027
● Deadline of Regular Registration	30 September 2027

Tentative Schedule

- Tue 26 October 2027 Registration and Welcome Reception
- Wed 27 October 2027 Technical Sessions
- Thu 28 October 2027 Technical Sessions and Banquet
- Tue 29 October 2027 Technical Sessions and Closing

Cuute-3 Topics

1. Perspective for Low Carbon Society

- (1) **Megatrends in industrial sector:** Energy efficiency, Decarbonization, Electrification, Low-Carbon Industry, Iron and Steelmaking Processes
- (2) **Sector coupling:** Poly-production, Synergy system, Material and electricity network, Biomass carbon-neutrality
- (3) **System modeling and analysis:** LC-CO₂ analysis, Techno-socio-economic analysis, Carbon recycling, neutral, and negative emission technologies, Integrated design and modeling of carbon-reduced ironmaking

2. Advanced Carbon Utilization

- (1) **Iron and steel making industry:** Ultimate efficiency improvement, Novel processes, Diversification of carbon sources, Process integration
- (2) **Chemical industry:** Oil refinery and petrochemical complex, Inorganic material production, Process intensification and integration
- (3) **Generation and utilization of heat and power:** Utilities in commercial, residential, industrial, and transportation sectors

3. CO₂ Utilization and Storage

- (1) **Technology Advances:** CO₂ capture, CO₂ utilization, CO₂ transport & storage, CO₂ removal/Negative emissions, Hydrogen production, Artificial photosynthesis
- (2) **R&D&D:** Major R&D programs, National/International projects, Regional projects, Deployments
- (3) **Environmental and Social Impacts:** Life cycle assessment, Environmental impact, Economic perspectives

Conference Venue



Nara Kasugano International Forum IRAKA

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