



First Circular CUUTE-2

The Second Symposium on Carbon Ultimate Utilization
Technologies for the Global Environment

Date: Tue 12- Fri 15, November, 2024
Venue: Nara Kasugano International Forum
URL: <https://cuute2.com/>



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



Introduction



On behalf of the symposium, it is my great pleasure to introduce you to the Second Symposium on Carbon Ultimate Utilization Technologies for the Global Environment (CUUTE-2), Nara, Japan, on 12th -15th November 2024.

The major themes of this conference will be ultimate carbon utilization and the establishment of carbon-neutral industries and society. Since the first symposium (CUUTE-1) was successfully convened in 2021, the social trend has drastically accelerated toward carbon neutrality from the mitigation of CO₂ emissions. As the UN Intergovernmental Panel on Climate Change (IPCC) considers carbon dioxide (CO₂) emissions as the greatest contributor to global warming, it is indispensable to avoid the emission of CO₂ to the environment. Carbon, however, is an essential element for various materials, has high exergy, and has a wide variety of chemical and physical functions on the material properties. It is difficult to eliminate the use of carbon in our social and industrial activities. Therefore, it is necessary to establish the technologies for the ultimate use of carbon that will ultimately effectively utilize carbon, reduce its usage, and reduce CO₂ emissions down to the level at which carbon neutrality can be achieved.

The modern steel industry and other manufacturing sectors have achieved high energy savings and reduced CO₂ emissions. However, further challenges are required to further reduce carbon according to the demands of the times. This conference is organized to seek pathways for the ultimate utilization of carbon resources in the iron and steel industry and manufacturing industries to still have harmony with the global environment. Topics include utilization technology of carbon resources in iron and steel, chemical and manufacturing industries, CO₂ recovery, CO₂ utilization for the production of carbon materials, and industrial utilization of carbon materials. Also, include hydrogen, ammonia and energy carriers use for low-carbon industry establishment, and energy system assessment and life cycle assessment integrating the entire processes.

CUUTE-2 intends to gather domestic and international knowledge for the development of new low-carbon technologies and low-carbon processes. This conference will showcase innovation and technology, provide details of the latest industrial solutions to carbon utilization issues, and will demonstrate how industries and researchers are meeting the many challenges related to the issues.

I heartily welcome your participation in CUUTE-2 in the beautiful Autumn of Nara the Japanese old capital having 1300 years of history.

Hiroshi Nogami,
Chair of CUUTE-2, Tohoku University

Important Dates:

●Start of Abstract Submission	November, 2023
●Deadline of Abstract Submission	29 February, 2024
●Notification of Abstract Acceptance	19 April, 2024
●Deadline of Extend Abstract Submission	30 June, 2024
●Deadline of Early Bird Registration	30 August, 2024
●Deadline of Regular Registration	11 October, 2024

Tentative Schedule

●Tue 12 November	Registration and Welcome Reception
●Wed 13 November	Technical Sessions
●Thu 14 November	Technical Sessions and Banquet
●Fri 15 November	Technical Sessions and Closing

CUUTE-2 Topics (tentative)

1. Perspective for Low Carbon Society

- (1) **Megatrends in industrial sector:** Energy efficiency, Decarbonization, Electrification
- (2) **Sector coupling:** Poly-production, Synergy system, Material and electricity network
- (3) **System modeling and analysis:** LC-CO₂ analysis, Techno-socio-economic analysis, Carbon recycling, neutral and negative emission technologies

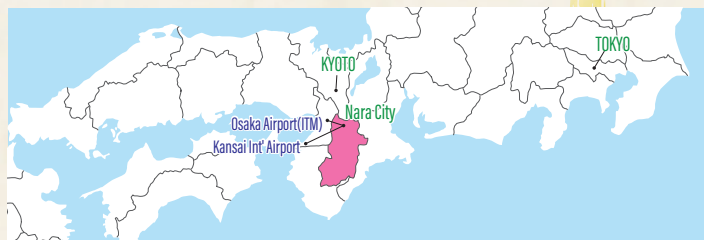
2. Advanced Carbon and Energy Carrier Utilization

- (1) **Iron and steelmaking industry:** Ultimate efficiency improvement, Novel processes, H₂-based ironmaking, Diversification of carbon sources, Process integration
- (2) **Chemical industry:** Oil refinery and petrochemical complex, Biorefinery, Inorganic material production, Process intensification and integration
- (3) **Hydrogen and derived energy carriers:** Hydrogen, Ammonia, MCH, E-fuel, Sustainable aviation fuel, International and domestic supply chain of those
- (4) **Generation and utilization of heat and power:** Utilities in commercial, residential, Industrial, transportation and construction sectors

3. CO₂ Utilization and Storage

- (1) **CO₂ capture/separation technologies:** Pre/post combustion removal, Direct air capture, Amine-based solvents, Membranes, Solid sorbents, Chemical looping, Oxy-fuel
- (2) **CO₂ conversion processes:** Electrolysis cells, Artificial photosynthesis, Catalytic methanation and syngas production, Biological conversion
- (3) **CO₂ utilization/sequestration technologies:** Geological/Ocean storage, Enhanced oil/gas recovery, Mineralization, Solid hydrocarbon feedstocks, Enhanced weathering, CO₂ fertilization, other Negative emission technologies

Conference Venue



Nara Kasugano International Forum

Nara Kasugano International Forum is located in the center of Nara Park, which famous for its beauty nature and 1,200 tame deer in a calm atmosphere. Nara was an ancient capital of Japan, and has many historical temples and shrines containing ton of national treasures.

This conference venue is at a walking distance of 20-25 minutes from many hotels in downtown Nara. Public buses will be available as well.

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