



Second 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



Co-organized by: The Society of Chemical Engineers, Japan





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

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## 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 CO<sub>2</sub> emissions. As the UN Intergovernmental Panel on Climate Change (IPCC) considers carbon dioxide (CO<sub>2</sub>) emissions as the greatest contributor to global warming, it is indispensable to avoid the emission of CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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, CO<sub>2</sub> recovery, CO<sub>2</sub> 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.

A handwritten signature in black ink, which appears to read 'Hiroshi Nogami'.

**Hiroshi Nogami,**  
**Chair of CUUTE-2, Tohoku University**

# Organizing Committee/Executive Committee

## Organizers

### Organized by

The Iron and Steel Institute of Japan

### Co-Organized by

The Society of Chemical Engineers, Japan

### Sponsored by

The Consortium for Scientific and Engineering Research on Ironmaking Processes  
Hyuga Memorial Grant for International Conference

## Organizing Committee Members

### Conference Chair

NOGAMI, Hiroshi (Tohoku University)

### Conference Advisor, Founding Chairman

KATO, Yukitaka (Tokyo Institute of Technology)

### Conference Co-Chair

NAKAGAKI, Takao (Waseda University)

MURAKAMI, Hideki (NIPPON STEEL CORPORATION)

### Committee

KINOSHITA, Toshihide (Kobe Steel, LTD)

KISHIMOTO, Yasuo (JFE Steel Corporation)

MATSUKATA, Masahiko (Waseda University)

YAMAJI, Kenji (Research Institute of Innovative  
Technology for the Earth, RITE)

## Executive Committee Members

KASHIHARA Yusuke (JFE Steel Corporation)

KISHIMOTO, Akira (Kobe Steel, LTD)

KONISHI, Hirokazu (Osaka University)

KUDO, Shinji (Kyushu University)

MURAKAMI, Taichi (Tohoku University)

NATSUI, Takuya (NIPPON STEEL CORPORATION)

NOMURA, Takahiro (Hokkaido University)

OHNO, Koichiro (Kyushu University)

TOYAMA, Takeshi (Nihon University)

UEDA, Shigeru (Tohoku University)

YAMADA, Hidetaka (Kanazawa University)

## International Scientific Committee Members

DE CASTRO, Jose Adilson (Federal Fluminense University)

GUPTA, Govind S. (Indian Institute of Science)

HANAOKA, Tatsuya (National Institute for Environmental Studies)

HONEYANDS, Tom (University of New Castle)

KINOSHITA, Toshihide (Kobe Steel, LTD)

KINZEL, Peter (Paul Wurth)

KISHIMOTO, Yasuo (JFE Steel Corporation)

NOMURA, Seiji (NIPPON STEEL CORPORATION)

ROMEO, Luis M. (University of Zaragoza)

SON, Sanghan (POSCO)

YANG, Yongxiang (TU Delft)

## Corporating Organizations & Companies

Architectural Institute of Japan

The Chinese Society for Metals (CSM), China

Japan Association of Corrosion Control

The Japan Bridge Association

The Japan Institute of Energy

The Japan Research and development Center for Metals

Japan Society of Civil Engineers

The Japan Society of Mechanical Engineers (JSME)

Japanese Society of Steel Construction

The Mining and Materials Processing Institute of Japan

Society of Environmental Science, Japan



# Conference Schedule / Lecturers / Social Events

## Conference Schedule (Tentative)

Day	Morning	Afternoon	Evening
Tue 12 November, 2024		Registration	Welcome Reception
Wed 13 November, 2024	Technical Sessions	Technical Sessions	
Thu 14 November, 2024	Technical Sessions	Technical Sessions	Banquet at Nara Hotel
Fri 15 November, 2024	Technical Sessions	Closing	

## Plenary Lectures



A novel closed-carbon-loop technology based on inprocess carbon dioxide splitting for decarbonising energy-and-carbon-intensive industry

**Prof. Yulong Ding**

University of Birmingham



Strategies and Challenges for the Global Steel Industry to Achieve Carbon Neutrality

**Prof. Takeo Hoshino**

The University of Tokyo



The Challenge of Japanese Steel Industry to achieve Carbon Neutrality

**Dr. Seiji Nomura**

Nippon Steel Corporation



Climate Change and the Global Steel Industry

**Mr. Andrew Purvis**

Director Sustainable Manufacturing at World Steel Association



Update on the development of POSCO's hydrogen-based ironmaking process, HyREX

**Dr. Myoung-Gyun Shin**

Low-Carbon Iron and Steel making R&D Center, POSCO



The Northern Lights project

**Mr. Fredric Spiegel**

Technical Director in the Tokyo office, Equinor



Development of a New Pattern of Low-carbon Green Ironmaking In China

**Prof. Jianliang Zhang**

University of Science and Technology Beijing



# Conference Schedule / Lecturers / Social Events

## Social Events

[Welcome Reception]  
 Date: Tue 12 November, 2024  
 Venue: TBD

[Banquet]  
 Date: Thu 14 November, 2024  
 Venue: Nara Hotel

Nara Hotel is one of the most historic hotels in Japan. The splendor of Nara Hotel's stately appearance has not faded since its construction 100 years ago, and the place continues to evoke the era of its founding in compelling fashion through an imposing and magnificent presence that seems to blend seamlessly with the unique elegance of the ancient capital.





# Topics/ Important Dates

## Topics

### 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- CO<sub>2</sub> 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. H<sub>2</sub>-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, consumer sector, Industrial, transportation and construction sectors

### 3. CO<sub>2</sub> Utilization and Storage

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

<b>Important Dates:</b>	
Start of Abstract Submission	December, 2023
Deadline of Abstract Submission	<del>29 February, 2024</del> <b>31 March, 2024</b>
Notification of Abstract Acceptance	19 April, 2024
Deadline of Extended Abstract Submission	30 June, 2024
Deadline of Early Bird Registration	30 August, 2024
Deadline of Regular Registration	11 October, 2024



## Call for Papers

Deadline of Abstract (200 words) Submission

~~29 February, 2024~~ **31 March, 2024**

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Notification of Abstract Acceptance

**19 April, 2024**

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Deadline of Extended Abstract (< 2 pages) Submission

**30 June, 2024**

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### Abstract Submission Instruction

- All abstracts must be submitted online at CUUTE-2 website.
- **Only One Abstract per Presenter is accepted for submission.**
- Fax and e-mail submission are not accepted.
- The body of abstract should be written not exceeding 200 words. In addition, no image submission is allowed on the system.
- You are requested to choose the Topics that are most applicable to your abstract theme.
- Once the abstract is submitted, notification of abstract receipt will automatically be sent to submitter's registered e-mail address.

If you do not receive the above, please contact to CUUTE-2 secretariat ([cuute-2@or.knt.co.jp](mailto:cuute-2@or.knt.co.jp)).

Extended Abstract submission Instruction will be notified on the website once ready.

### Type of Presentation

Either Oral or Poster presentations are accepted. However, the Program Committee will make the final decision.

## Registration/ VISA/ Accommodation

Deadline of Early Bird Registration  
**30 August, 2024**

Deadline of Regular Registration  
**11 October, 2024**

### Registration Fees

	ISIJ Individual Member	Early Bird Registration Until 30 Aug. 2024	Regular Registration Until 11 Oct. 2024	Onsite Registration
<b>Regular Participant</b>	Member	<b>100,000JPY</b>	<b>110,000JPY</b>	<b>120,000JPY</b>
	Non-Member	<b>110,000JPY</b>	<b>120,000JPY</b>	<b>130,000JPY</b>
<b>Student</b>	Member	<b>50,000JPY</b>	<b>60,000JPY</b>	<b>70,000JPY</b>
	Non-Member	<b>55,000JPY</b>	<b>65,000JPY</b>	<b>75,000JPY</b>
<b>Accompanying Person</b>	-	<b>25,000JPY</b>		
<b>Documents for Visa application</b>	-	<b>10,000JPY</b>		

- Tax included.
- All participants are subject to register online in advance or on-site at the venue.
- All presenters are required to register for Early Bird registration in order to secure a presentation.
- Students are requested to show their Student ID card at the onsite registration desk.

### Entitlement

Registration fees for Regular Participant and Student includes:  
 Session participation, Conference kit, Welcome Reception, Coffee Breaks, Banquet

Registration fee for Accompanying Person includes:  
 Welcome Reception, Coffee Breaks, Banquet

### Payment Methods

After registering through symposium web site, all payments must be made in Japanese yen by credit card.

### Cancellation and Refund Policy

No refund after payment



# Registration/ VISA/ Accommodation

## VISA Information

Please be careful of visa requirement for travel to Japan under participants own responsibility. As of April 2023, Japan has taken measures on the visa exemption arrangements for 69 countries/regions.

For more information, please visit MOFA Japan web site at [https://www.mofa.go.jp/j\\_info/visit/visa/index.html](https://www.mofa.go.jp/j_info/visit/visa/index.html)

Once your participation has been accepted as a presenter or an audience, and you are required to obtain visas to enter Japan, please contact CUUTE-2 Secretariat. In this case, more than one month are required for visa acquisition.

## Accommodation

Please arrange the accommodation on your own arrangement.



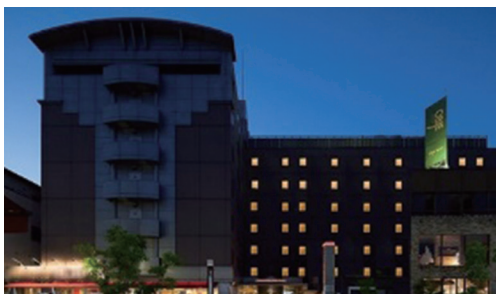
### ① *Hotel Nikko Nara*

**Access:** 1-minute walk from JR Nara Station-West Exit.  
Distance of 30-minute walk to Nara Kasugano International Forum.  
(Buses are available from JR Nara Station)



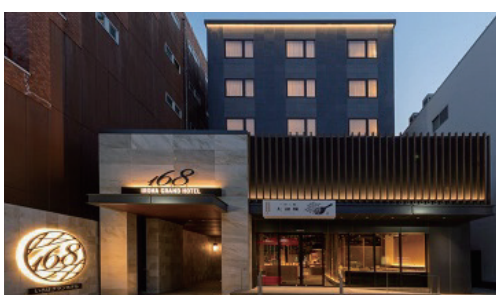
### ② *Comfort Hotel Nara*

**Access:** 3-minute walk from JR Nara Station East Exit.  
Distance of 35-minute walk to Nara Kasugano International Forum.  
(Buses are available from JR Nara Station)



### ③ *NARA WASHINGTON HOTEL PLAZA*

**Access:** 5-minute walk from JR Nara Station-East Exit.  
Distance of 25-minute walk to Nara Kasugano International Forum.  
(Buses are available from JR Nara Station)



### ④ *Iroha Grand Hotel*

**Access:** 2-minute walk from Kinetsu Nara Station.  
Distance of 24 minute of walk to Nara Kasugano International Forum.  
(Buses are available from Kintetsu Nara Station)

# Conference Venue / Access to Nara

## Conference Venue

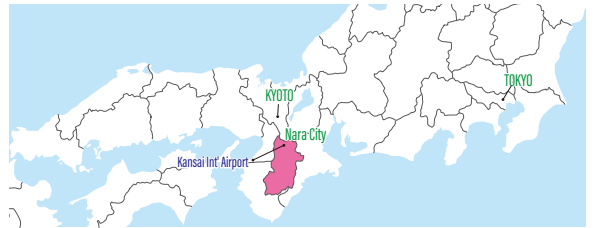
### Nara Kasugano International Forum 菟 IRAKA

Nara Kasugano International Forum is located in the center of Nara Park, 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.



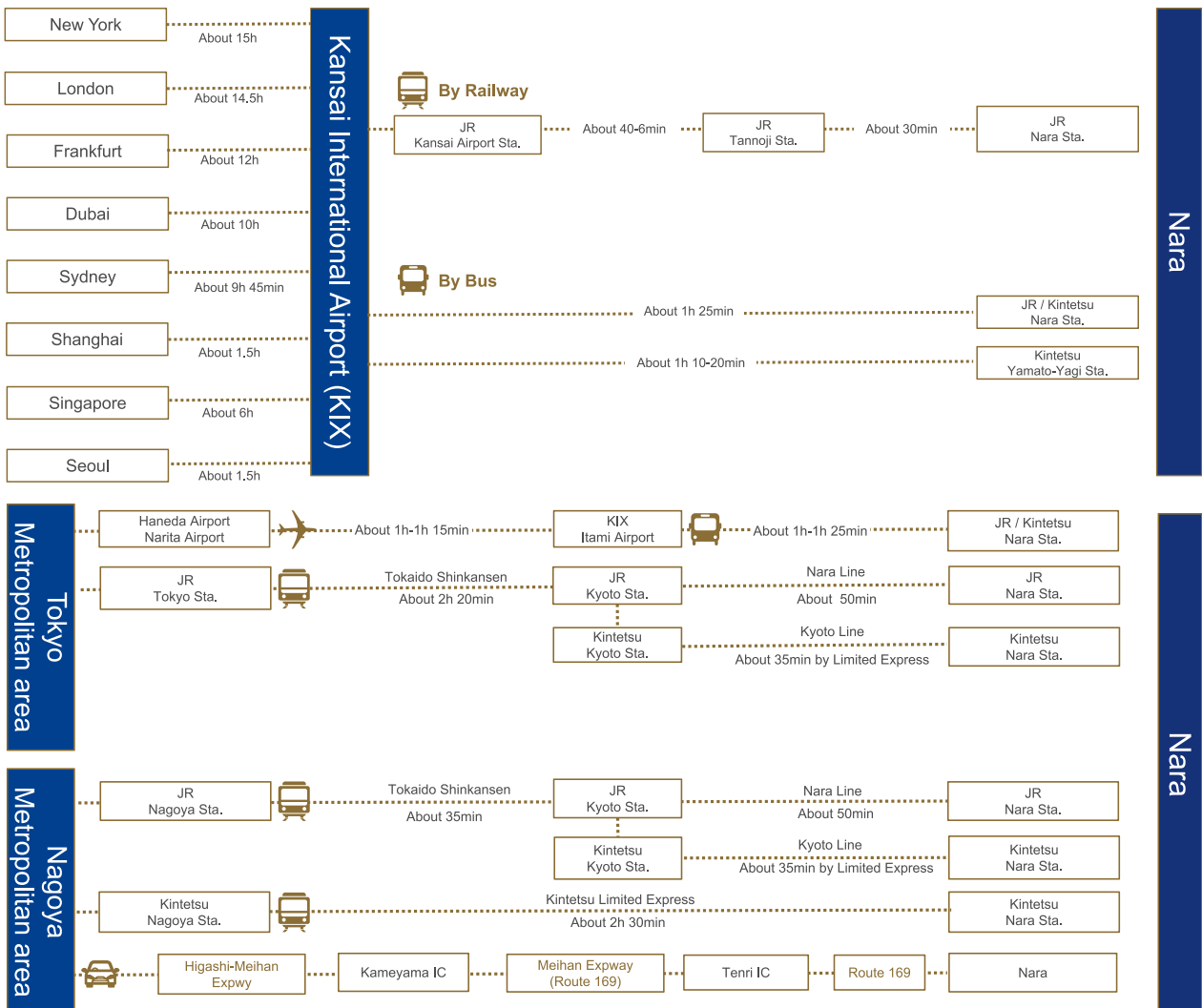
## Access to Nara

Nara is located in the center of Japan and the middle of the Kansai region. The highway and railway systems are well developed making Nara accessible from both Osaka and Kyoto in less than an hour. When coming by airport limousine or train from Kansai International Airport it takes only about 90 minutes making Nara very accessible for visitors from overseas.



## Access from major cities overseas to OSAKA, Kansai (KIX)

Kansai International Airport is a 24-hour airport with 1366 weekly flights that service 84 cities from 25 countries worldwide. Train, bus and all manner of transportation tickets for foreign travelers are available.





## General Information (Travel Tips)

### Nara's Weather:

In November, it is the last month of the autumn in Nara. It is another comfortable month, with an average temperature varying between 16.5°C (61.7°F) and 6.4°C (43.5°F).

### Currency:

Only Japanese Yen is acceptable at stores and restaurants. Foreign currency can be changed into Japanese yen at airports, hotels, and major banks.

#### Cash/Credit Cards

Although credit cards are becoming much more widely accepted, however cash remains king.

#### ATMs & Currency Exchange

To withdraw cash on an internationally issued card, use one of the convenience store ATMs at either 7-11, FamilyMart or Lawson. At Yume Kaze Plaza which is located walking distance from the venue of conference, a foreign currency exchange machine is available for 12 currencies such as U.S dollar, Euro, and Chinese yuen etc.

### Tipping:

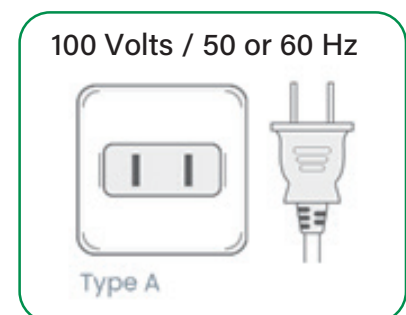
Tipping in Japan is not customary.

#### How to pay the bill at restaurants?

Most restaurants in Japan require customers to pay for their meals at the front register, rather than leave money with the waiter or waitress.

### Electricity:

The voltage in Japan is 100 Volt, which is different from North America (120V), Central Europe (230V) and most other regions of the world. Japanese electrical plugs is Type A and outlets resemble North American ones.



### Insurance:

The organizers will not bear the responsibility for any accident which might occur. We recommend participants to take out adequate travel insurance such as medical and personal coverage.

### Special Requirements:

If you require any special assistants such as special diet or disability, please input the requirement in the comment field on the online participation registration.