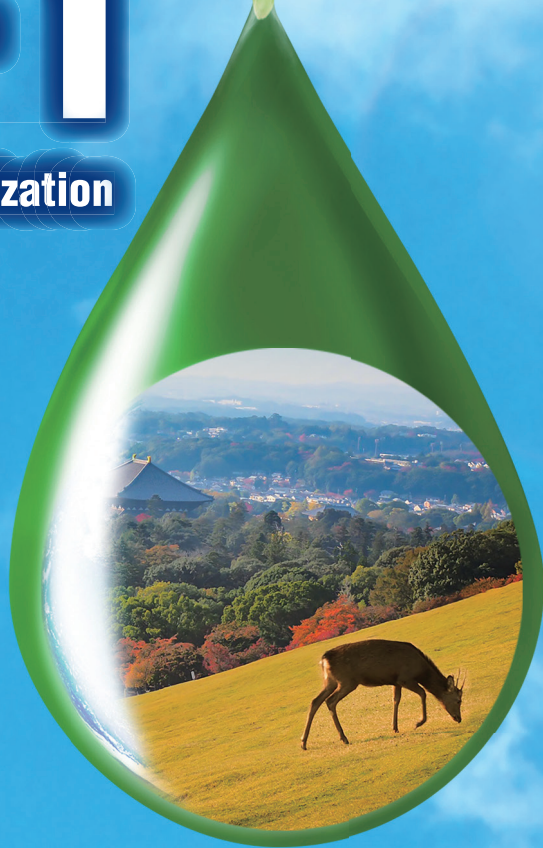




# Third Circular CUUTE-1

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



**Date** Tue 14 - Fri 17 December, 2021

**Venue** Nara Kasugano International Forum 菟 IRAKA

**URL** <http://web.apollon.nta.co.jp/CUUTE-1/>



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



Co Organized by :  
The Society of Chemical Engineers, Japan



Third Circular

# CUUTE-1

The First 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 First Symposium on Carbon Ultimate Utilization Technologies for the Global Environment (CUUTE-1), Nara, Japan, on 14th -17th December, 2021.

The major themes of this new conference will be ultimate carbon utilization, and establishment of low-carbon industries and society. The UN Intergovernmental Panel on Climate Change (IPCC) considers carbon dioxide (CO<sub>2</sub>) emissions as a factor in global warming. Modern steel industry and other manufacturing sectors have achieved high energy savings and reduced CO<sub>2</sub> emissions. However, further activities are required to further reduce carbon according to the demands of the times.

Carbon has High exergy and is essential as an energy source for efficient operation of industry, and innovative effective utilization technologies of carbon resources according to CO<sub>2</sub> emission control is expected to be important more. Then, this new conference is organized to seek paths for ultimate utilization of carbon resources in the iron and steel industry and manufacturing industries for still having harmony with the global environment. Topics include utilization technology of carbon resources in iron and steel, chemical and manufacturing industries, and CO<sub>2</sub> recovery, CO<sub>2</sub> utilization for production of carbon materials and industrial utilization of the carbon materials. Also, including carbon energy system assessment and life cycle assessment integrating the entire processes.

CUUTE-1 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 industry solutions to carbon utilization issues, and will demonstrate how the industries and researches are meeting those many challenges related with the issues.

I heartily welcome your participation in CUUTE-1 in beautiful Autumn of Nara of the Japanese old capital having 1300 years' history.



加藤之貴

Yukitaka Kato,  
Chair of CUUTE-1,  
Tokyo Institute of Technology





# Organizing Committee / International Scientific Committee

## Organizing Committee Members

### Organized by

The Iron and Steel Institute of Japan, ISIJ

### Co-Organized by

The Society of Chemical Engineers, Japan

### Conference Chair

KATO, Yukitaka (Tokyo Institute of Technology)

### Conference Co-Chair

NOGAMI, Hiroshi (Tohoku University)

NAKAGAKI, Takao (Waseda University)

MURAKAMI, Hideki

(NIPPON STEEL CORPORATION)

### Committee

ADSCHIRI, Tadafumi (Tohoku University)

AKAI, Makoto (Kyushu University)

HANAZAWA, Kazuhiro (JFE Steel Corporation)

HAYASHI, Jun-ichiro (Kyushu University)

HAYASHI, Shunichi

(NIPPON STEEL CORPORATION)

KASAI, Eiki (Tohoku University)

KISHIMOTO, Yasuo (JFE Steel Corporation)

KUDO, Shinji (Kyushu University)

KUNITOMO, Kazuya (Kyushu University)

MARUOKA, Nobuhiro (Tohoku University)

MATSUKATA, Masahiko (Waseda University)

MORITA, Kazuki (The University of Tokyo)

NAKANO, Kaoru (NIPPON STEEL CORPORATION)

NAKAO, Shinichi (Kogakuin University)

NOMURA, Takahiro (Hokkaido University)

NOUCHI, Taihei (JFE Steel Corporation)

OKUYAMA, Goro (JFE Steel Corporation)

ONO, Hideki (Toyama University)

SAITO, Koji (NIPPON STEEL CORPORATION)

SAKAMOTO, Koichi (Kobe Steel, LTD)

SEKIYA, Masahiro

(NIPPON STEEL CORPORATION)

TANAKA, Toshihiro (Osaka University)

TOYAMA, Takeshi (Nihon University)

UEDA, Shigeru (Tohoku University)

YAMADA, Hidetaka

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

YAMAJI, Kenji

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

YAMANAKA, Ichiro (Tokyo Institute of Technology)

YAMASUE, Eiji (Ritsumeikan University)

YASUDA, Hideyuki (Kyoto University)

YASUMURO, Motoharu (Kobe Steel, LTD)

## Corporating Organizations & Companies

Architectural Institute of Japan

Associazione Italiana di Metallurgia (AIM), Italy

The Chemical Society of Japan

The Chinese Society for Metals (CSM), China

Czech Metallurgical Society, Czech Republic

Hungarian Mining and Metallurgical Society (OMBKE), Hungary

The Institute of Life Cycle Assessment, Japan

Japan Association of Corrosion Control

The Japan Bridge Association

The Japan Institute of Energy

The Japan Institute of Metals and Materials

The Japan Research and development Center for Metals

Japan Society of Civil Engineers

The Japan Society of Mechanical Engineers (JSME)

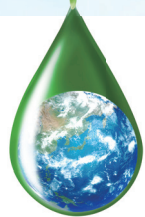
Japanese Society of Steel Construction

The Mining and Materials Processing Institute of Japan

Society of Environmental Science, Japan

The Swedish Steel Producers Association (Jernkontoret), Sweden

# Conference Schedule / Lecturers



## Conference Schedule

Day	Morning	Afternoon	Evening
Tue 14 December, 2021		Registration	Welcome Party
Wed 15 December, 2021	Technical Sessions	Technical Sessions	
Thu 16 December, 2021	Technical Sessions	Technical Sessions	Banquet at Nara Hotel
Fri 17 December, 2021	Technical Sessions	Closing	





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

- (1) **Hydrogen-based energy system:** CO<sub>2</sub>-free hydrogen production, International and domestic supply chain
- (2) **CO<sub>2</sub> capture/separation technologies:** Pre/post combustion removal, Direct air capture, Amine-based solvents, Membranes, Solid sorbents, Chemical looping, Oxy-fuel
- (3) **CO<sub>2</sub> conversion processes:** Electrolysis cells, Artificial photosynthesis, Catalytic methanation and syngas production, Biological conversion
- (4) **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

## Important Dates :

Deadline of Revision for Submitted Abstract :	15 November, 2020
Start of New Abstract (200 words) Submission :	01 December, 2020
Deadline of New Abstract (200 words) Submission :	15 February, 2021
Notification of Abstract Acceptance :	15 April, 2021
Deadline of Extended Abstract ( < 2 pages ) Submission :	30 June, 2021
Deadline of Early Bird Registration :	15 July, 2021





## Call for Abstract

Period of Revision for Submitted Abstract

**01 October - 15 November, 2020**

Deadline of “**New**” Abstract (200 words) Submission

**15 February, 2021**

Notification of Abstract Acceptance

**15 April, 2021**

Deadline of Extended Abstract ( < 2 pages ) Submission

**30 June, 2021**

### Abstract Submission Instruction

- All abstracts must be submitted online at CUUTE-1 website.
- **Only One Abstract per Presenter is accepted for submission.**
- Fax and e-mail submission are not accepted.
- The body of abstract without images should be written not exceeding 200 words.
- 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-1 secretariat (cuute-1@nta.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.



# Social Events

## Social Events

[Welcome reception]

Date : Tue. 14 December , 2021

Venue: Nara Kasugano International Forum 麓 IRAKA

[Banquet]

Date : Thu. 16 December, 2021

Venue : Nara Hotel

Nara Hotel is one of the most historic hotels in Japan.

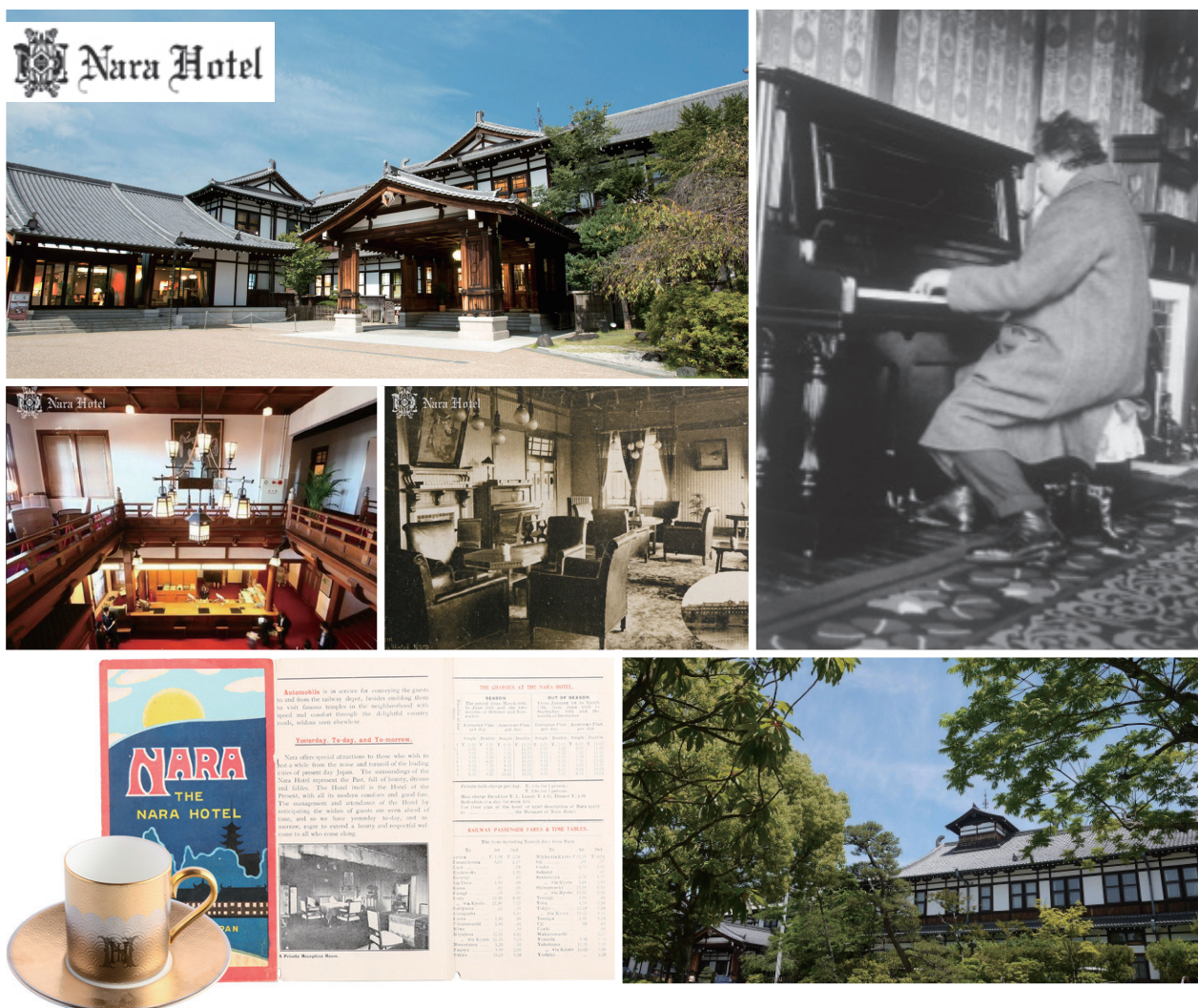
Its appearance has not faded since its construction 100 years ago.

You'll find classical elegance throughout the main building, which

is built of Japanese cypress in the style of a Momoyama period residence.

Visited by historical figures and dignitaries such as Helen Keller, Audrey Hepburn, and Albert Einstein, etc. You'll see a old piano which was played by Albert Einstein in the lobby.

(Photo: upper-right)







## Registration / VISA / Accommodation

**Deadline of Early Bird Registration**  
**15 July, 2021**

**Deadline of Regular Registration**  
**12 November, 2021**

### Registration Fees

	Early Bird Registration	Regular Registration	Onsite Registration
Regular Participant	JPY 90,000	JPY 110,000	JPY 120,000
Student	JPY 50,000	JPY 60,000	JPY 70,000
Accompanying Person	JPY 35,000		
Documents for Visa acquisition	JPY 10,000		

- 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 make a presentation.
- Students are requested to show their Student ID card at the on-site 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 16 July, 2021.



# Registration / VISA / Accommodation

## VISA Information

Please be careful of visa requirement for travel to Japan under participants own responsibility.

As of August 2020, Japan has taken measures concerning the Visa Exemption Arrangements with 68 countries and regions. However, visa exemption measures have been suspended for the time being, except few countries/regions, as a border measures against novel coronavirus (COVID-19).

To check the updated information for Border enforcement measures to prevent the spread of novel coronavirus (COVID-19) , please visit Consular Services at Ministry of Foreign Affairs of Japan official site.

[https://www.mofa.go.jp/p\\_pd/ipr/page7e\\_900126.html](https://www.mofa.go.jp/p_pd/ipr/page7e_900126.html)

## Accommodation

CUUTE-1 offers official hotels in downtown NARA with easy access to stations, restaurants, and shops. To the conference venue, it takes approx. 20-30 min. walk, or 10-15 min. bus ride. Please visit at [https://va.apollon.nta.co.jp/cuute-1\\_R/shukuhaku](https://va.apollon.nta.co.jp/cuute-1_R/shukuhaku) (CUUTE-1 Registration and Accommodation)

Booking Deadline: 14 November, 2021.

Rates are per person, per night including breakfast and taxes.



### 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)

**Rate:**

Single Room (16 sq. m): JPY 11,800 - 13,300 /night /person  
Twin Room (23 sq. m): JPY 9,000 - 10,500 /night /person



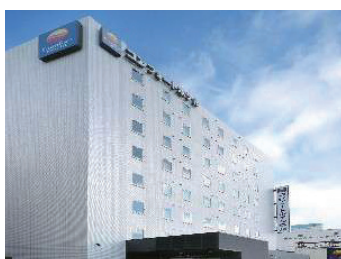
### ② NARA WASHINGTON HOTEL PLAZA

**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)

**Rate:**

Single Room (13.5 sq. m): JPY 9,500 /night /person  
Twin Room (16.5 sq. m): JPY 9,300 /night /person



### ③ COMFORT HOTEL NARA

**Access:**

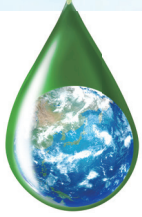
3-minute walk from JR Nara Station-East Exit.Distance of 25-minute walk to Nara Kasugano International Forum.  
(Buses are available from JR Nara Station)

**Rate:**

Single Room (13 sq. m): JPY 7,900 /night /person  
Twin Room (18 sq. m): JPY 6,000 /night /person



## Conference Venue / Access to Nara



### Conference Venue

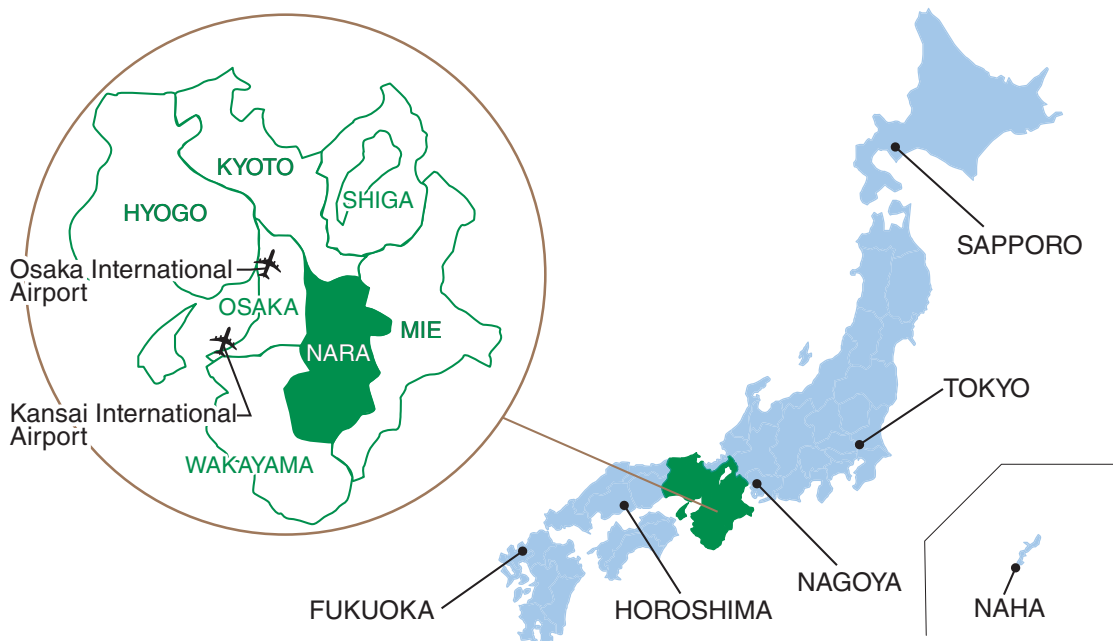
#### Nara Kasugano International Forum 葦 IRAKA

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

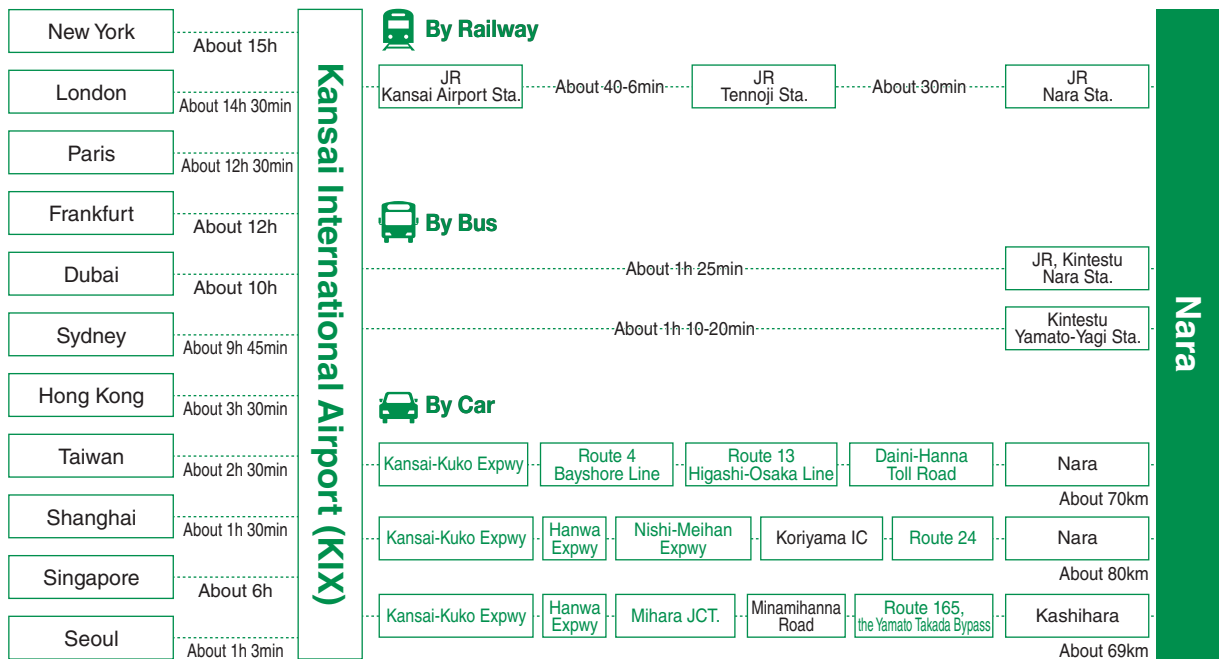
Nara is located in the center of Japan and the middle of the Kansai region. The highway and railway systems are well developed making Nara accessible from both Osaka and Kyoto in less than an hour. When coming by airport limousine or train from Kansai International Airport it takes only about 90 minutes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



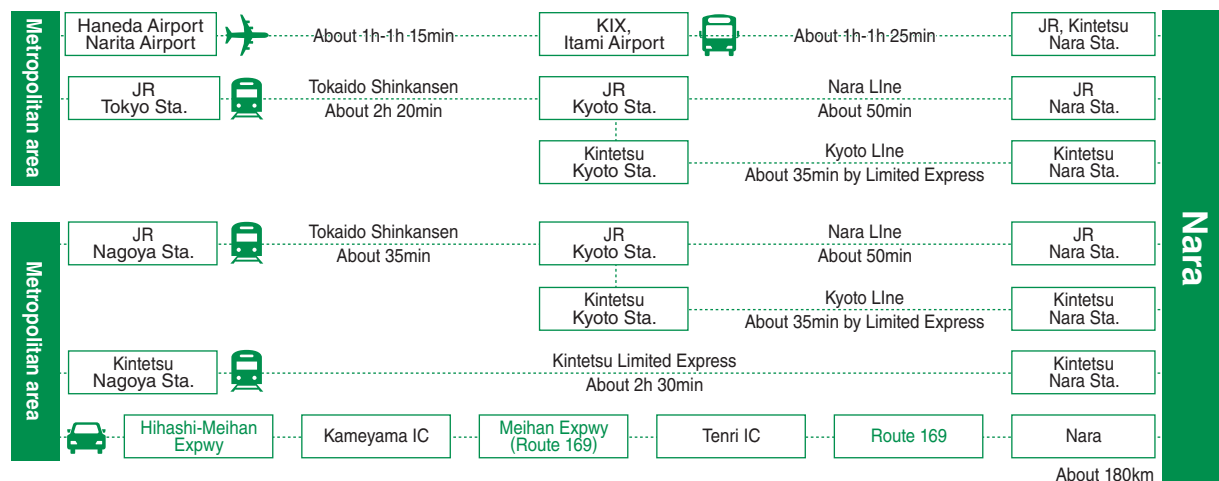
# Conference Venue / Access to Nara

## 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.



## Access from TOKYO/NAGOYA







## General Information (Travel Tips)

### Nara's Weather:

Average high (C/F): 11/52

Average low (C/F): 3/37

In December, winter starts and it tends to be cool or cold. Skies tend to be sunny, but it may rain or snow a few times.

### 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.

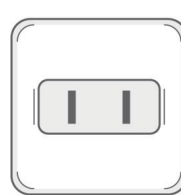
### How to pay the bill at restaurants?

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.

100 Volts / 50 or 60 Hz



### 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.