

# 2020 9th International Conference on Clean and Green Energy (ICCGE 2020)

**February 10-12, 2020 | Barcelona, Spain**

**Conference venue:** Hotel Sallés Pere IV

**Add:** Carrer de Pallars, 128-130, 08018 Barcelona, España

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## Welcoming Address

We are pleased to welcome you to attend 2020 9th International Conference on Clean and Green Energy (ICCGE 2020) in Barcelona, Spain during February 10-12, 2020.

With the important efforts of the whole committee, the evaluation of all the accepted papers will be performed based on the reports from anonymous reviewers, who are qualified in the field of Clean and Green Energy. We wish to express our sincere appreciation to all the individuals who have contributed to ICCGE 2020 conference in various ways.

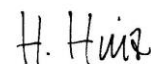
Special thanks to organizing committee and the volunteers who had dedicated their time and efforts in planning, promoting, organizing and helping the conference. We would also express our sincere gratitude to all session chairs and the technical program committee members for their great efforts.

This conference program is highlighted by four Keynote Speakers: Prof. Roberto San Jose from Technical University of Madrid (UPM), Madrid, Spain; Prof. James T. Anderson from West Virginia University, USA; Prof. Hartmut Hinz from University of Applied Sciences, Frankfurt, Germany; Prof. Hans Uwe Dahms from Kaohsiung Medical University, Taiwan.

ICCGE 2020 is dedicated to building an overarching technology platform for researchers in academics. As part of the event, the ICCGE issue means to look far out enough in time, space and across disciplines and focusing on Clean and Green Energy.

Barcelona is a city on the coast of northeastern Spain. It is one of the world's leading tourist, economic, trade fair and cultural centers, and its influence in commerce, education, entertainment, sports, media, fashion, science, and the arts all contribute to its status as one of the major global cities. Barcelona has a rich cultural heritage and is today an important cultural centre and a major tourist destination. All makes Barcelona one of the most suitable cities for investors and tourists in Spain.

At last, we wish all of you enjoy ICCGE 2020 conference and have a good experience in Barcelona!



Prof. Hartmut Hinz  
Conference Chair

# Conference Venue

## Hotel Sallés Pere IV

**Add: Carrer de Pallars, 128-130, 08018 Barcelona, España**

Tel: +34933209650 / Email: [web1@salleshotels.com](mailto:web1@salleshotels.com) / website: <https://www.hotelpereiv.com/es>



### **Hotel Introduction:**

Enjoy a charming hotel in the financial, cultural and commercial center of Barcelona.

At Hotel Pere IV our customers are the protagonists. We train our staff to give you the warmest welcome and meet all your needs, taking care of the small details to make your stay a unique experience.

The hotel is close to the city center, just 3 metro stations, and close to the Olympic Port. The Olympic Port, known for being one of the most extensive leisure areas in the city, has beaches, shopping center, restaurants, cinemas and all kinds of services.

The hotel has good communications with the CCIB (International Convention Center of Barcelona), National Theater of Catalonia and Auditorium.

The decoration of the hotel is classic style, giving a warm and elegant atmosphere. It has the necessary services for you to make your stay a perfect combination of leisure and business.

The rooms are spacious, with parquet floors and comfortable beds. Some of them have a terrace, which you can request when making your reservation.

We have double rooms, family rooms for 3 and 4 people, 6 semi-adapted rooms for the disabled and 4 Junior Suites.

### **By public transport:**

Nearest metro stations: Bogatell (L4) 200m, Marina (L1) 500m.

Nearest RENFE stations: France station. Clot-Aragó station.

Nearest bus stations: North Station (long-distance buses).

In the direction of Plaza Catalunya - Number 40.

In the direction of Port Vell - Number 42.

In the direction of Parque Güell - Number 92.

### **By private car:**

From the airport: take the Ronda del Litoral (B-20), exit 21 Port Olímpic. When leaving, turn in the volunteer square and go up Marina Street. On Pallars Street, turn right to number 128 where the hotel is located.

From the city center: On Gran Vía de les Corts Catalanes follow, pass the Tetuán square, continue on Gran Vía, and on Sancho de Ávila street turn right, follow and on Pamplona street turn right, follow and on Pallars street turn left. 900 m Olympic Port.

**The organizer doesn't provide accommodation, and we suggest you make an early**

**reservation. (10% discount on the name of HKCBEEES conference group ICESD 2020 at check-in)**

## **Safety Precautions**

**For the safety of your and others' personal and property, please pay attention to notes below:**

- 1-Please take care of your belongings all the time in case of any loss.**
- 2-Participants are required to wear the conference representative card near the conference venue, please do not lend the representative card to the irrelevant people and not "carry" irrelevant people into the venue. The onsite staff or Committee members has the right to stop those without the name card from entering the meeting room.**
- 3-Please note that the organizer will not accept liability for any kind of damage, losses or injuries occurring to persons or personal belongings during the conference.**



# Conference Committees

## Conference General Co-Chairs

**Prof. Roberto San Jose, Technical University of Madrid (UPM), Madrid, Spain**  
**Prof. Hartmut Hinz, University of Applied Sciences, Frankfurt, Germany**

## Program Co-Chairs

**Prof. Marco Casini, Sapienza University of Rome, Italy**  
**Assoc. Prof. Valentina Busini, Politecnico di Milano, Italy**

## Guest Editors

**Prof. Hartmut Hinz, University of Applied Sciences, Germany**  
**Assoc. Prof. Juan Carlos Ramos, University of Navarra, España**

## Contact Chair

**Ms Shell Xiao, Hong Kong Chemical, Biological & Environmental Engineering Society, Hong Kong**

## Technical Committee

**Prof. Poul Alberg Østergaard, Department of Planning, Aalborg University, Denmark**  
**Prof. María José Cocero, Valladolid University, Spain**  
**Prof. Riad Chedid, American University of Beirut, Lebanon**  
**Prof. Yusuf Ali Kara, Bursa Technical University, Turkey**  
**Prof. Xin Li, Zhejiang University, China**  
**Prof. Qiu Nansheng, China University of Petroleum at Beijing, China**  
**Prof. Hee-hyol Lee, Waseda University, Japan**  
**Prof. Michela Inghino, Politecnico Di Milano, Italy**  
**Prof. Yun Seng Lim, Universiti Tunku Abdul Rahman, Malaysia**  
**Prof. Saad A. EL-Syaed Hamad, Zagazig University, AlSharkia, Egypt**  
**Prof. Ahmed A. Hossam-Eldin, Alexandria University, Egypt**  
**Prof. El Oualdi Jalal, University Mohammed V of Rabat (Institut Scientifique), Rabat, Morocco**  
**Prof. Dilip Kumar De, Covenant University, Nigeria**  
**Prof. Benatiallah Ali, Adtat University, Algeria**  
**Prof. Benatiallah Ali, Africane university of Adrar, Algeria**

**Prof. Ali Cheknane, Amar Telidji University of Laghouat, Algeria**  
**Prof. Makarand Madhao Ghangrekar, Indian Institute of Technology Kharagpur, India**  
**Assoc. Prof. Juan Carlos Ramos, University of Navarra, España**  
**Assoc. Prof. Chao-Tsung Ma, National United University, Taiwan**  
**Assoc. Prof. Eid M. Al-Mutairi, King Fahd University of Petroleum & Minerals, Saudi Arabia**  
**Assoc. Prof. Hasan Aydogan, Selcuk University, Konya Turkey**  
**Assoc. Prof. Thitiphan Chimsook, Maejo University, Thailand**  
**Dr. Dureem Munir, Sheridan College, Brampton, Canada**  
**Dr. Nada Alrikabi, University of Baghdad**  
**Dr. Sreekanth K. J., Kuwait Institute for Scientific Research (KISR), Kuwait**  
**Dr. Yang Du, Illinois State Geological Survey, USA**  
**Dr. Shibani Chaudhury, Department of Environmental Studies, India**  
**Dr. Nurcan Kilinc Ata, Osmaniye Korkut Ata University, Turkey**  
**Dr. Rizwan Muhammad, University of Haripur, Pakistan**  
**Dr. Suaad Jaber Laffta, Baghdad University, Iraq**  
**Dr. Naila Rozi, Sindh Madressatul Islam University, Karachi, Pakistan**  
**Dr. Ashwin Gaikwad, Visvesvaraya National Institute of Technology, India**  
**Dr. Cesar Martín-Gómez, Universidad de Navarra, Spain**  
**Dr. Norbert Miskolczi, University of Pannonia, Hungary**  
**Dr. Di Song, R&D ASU Distillation Technology, USA**  
**Dr. Qing Zhu, Lawrence Berkeley National Lab, USA**  
**Dr. Dorota Anna Krawczyk, Bialystok University of Technology, Poland**  
**Dr. Siddharth Suman, Independent Researcher, India**  
**Dr. Sathish Kumar Palaniappan, Indian Institute of Technology Kharagpur, India**

# Presentation Instructions

## Instructions for Oral Presentations

### **Devices Provided by the Conference Organizer:**

Laptop Computer (MS Windows Operating System with MS PowerPoint and Adobe Acrobat Reader)

Digital Projectors and Screen

Laser Sticks

### **Materials Provided by the Presenters:**

PowerPoint or PDF Files (Files should be copied to the Conference laptop at the beginning of each Session.)

### **Duration of each Presentation (Tentatively):**

Keynote Speech: about **35** Minutes of Presentation and **5** Minutes of Question and Answer

Regular Oral Presentation: about **10** Minutes of Presentation and **3** Minutes of Question and Answer

## Instructions for Poster Presentation

### **Materials Provided by the Conference Organizer:**

The place to put poster

### **Materials Provided by the Presenters:**

Home-made Posters

Maximum poster size is A1 (841mm high and 594mm wide)

Poster must be in the “Portrait” orientation not “Landscape”

Load Capacity: Holds up to 0.5 kg

## Best Presentation Award

One Best Presentation will be selected from each presentation session, and the Certificate for Best Presentation will be awarded at the end of each session on February 11, 2020.

## Dress code

Please wear formal clothes or national representative of clothing.

## Brief Schedule for Conference

### Registration

10 February, 2020

[Time]	[Event]	[Location]
10:00-17:00	Participants check-in & Materials Collection	Hotel Sallés Pere IV (Lobby)

### Morning Meeting

11 February, 2020

**Venue: Mare Nostrum-First Floor**

[Time]	[Event]
8:55-9:00	<b>Opening Remarks</b> Prof. Roberto San Jose, Technical University of Madrid (UPM), Madrid, Spain

### Keynote Presentations (Chair: Prof. Roberto San Jose)

9:00-9:40	<b>Keynote Speech I</b> <b>Prof. James T. Anderson, West Virginia University, USA</b> Topic: “Creating Wetlands for Biodiversity and Ecosystem Services”
9:40-10:20	<b>Keynote Speech II</b> <b>Prof. Hartmut Hinz, University of Applied Sciences, Frankfurt, Germany</b> Topic: “Fuel Cell Electric Vehicles - An Option for Future Sustainable Mobility”
10:20-10:50	<b>Coffee Break (in the bar of the hotel) &amp; Group Photo Taking &amp; Poster Session</b>

### Parallel Sessions & Presentations

**Venue: Mare Nostrum 1+2-First Floor**

[Time]	[Parallel Sessions & Presentations]	[Venue]
10:50-13:13	Session 1: Electric Energy and Sustainable Development	Room 1



Presentations: F0009, F0013, F0030, F8011, F5055,  
F5048, F8007, F8008, F8002, F5035, F0035

10:50-13:00      Session 2: Natural Resources      Room 2  
Presentations: F5050, F5034, F5019, F5029, F5044,  
F5010, F5068, F5032, F8003, F8019

13:13-14:30      **Lunch in the hotel**

## Afternoon Meeting

11 February, 2020

**Venue: Mare Nostrum-First Floor**

### Keynote Presentations (Chair: Prof. Hartmut Hinz)

14:30-15:10      **Keynote Speech III**  
**Prof. Roberto San Jose, Technical University of Madrid (UPM),  
Madrid, Spain**  
Topic: “Air Quality Modelling and 3D Visualization”

15:10-15:50      **Keynote Speech IV**  
**Prof. Hans Uwe Dahms, Kaohsiung Medical University, Taiwan**  
Topic: “Hydrothermal Vents as Natural Laboratories for research on  
Early Earth Evolution, Global Change, and Medical Innovations”

15:50-16:20      **Coffee Break (in the bar of the hotel) & Poster Session**

### Parallel Sessions & Presentations

**Venue: Mare Nostrum 1+2-First Floor**

[Time]	[Parallel Sessions & Presentations]	[Venue]
16:20-18:17	Session 3: Wastewater Treatment Presentations: F5016, F8006, F5061, F5017, F5062, F5003, F5051, F5064, F5052	Room 1
16:20-18:30	Session 4: Renewable Energy Presentations: F0008, F0012, F0027, F1002, F0014, F0017, F0019, F0010, F5069, F5006	Room 2

19:25-20:30

Dinner in the hotel

## Listeners

Chalermchart Wongleecharoen

Kasetsart University, Bangkok, Thailand

Daojarus Ketrot

Kasetsart University, Bangkok, Thailand

Saowanuch Tawornpruek

Kasetsart University, Bangkok, Thailand

Worachart Wisawapipat

Kasetsart University, Bangkok, Thailand

Kittipon Chittanukul

PTT Public Company Limited, Bangkok, Thailand

Rachit Sattapun

PTT Public Company Limited, Bangkok, Thailand

Teerawuth Suwannasri

PTT Public Company Limited, Bangkok, Thailand