



# 9th World Congress of Chemical Engineering

Incorporating 15th Asian Pacific Confederation of Chemical Engineering Congress

August 18-23, 2013 / Coex, Seoul, Korea

*Chemical Engineering : Key to the Future*



## Congress Overview

The 9th World Congress of Chemical Engineering incorporating 15th Asian Pacific Confederation of Chemical Engineering Congress (WCCE9 & APCChE2013), the largest congress in the field of chemical engineering, will be held from August 18 to 23, 2013 in Coex, Seoul, Korea.

<b>Congress</b>	9th World Congress of Chemical Engineering incorporating 15th Asian Pacific Confederation of Chemical Engineering Congress (WCCE9 & APCChE2013)
<b>Theme</b>	Chemical Engineering: Key to the Future
<b>Dates</b>	August 18 - 23, 2013
<b>Venue</b>	Coex, Seoul, Korea
<b>Hosted by</b>	WCEC (World Chemical Engineering Council) APCChE (Asian Pacific Confederation of Chemical Engineering)
<b>Sponsored by</b>	KICHe (The Korean Institute of Chemical Engineers) KOFST (The Korean Federation of Science and Technology Societies) KPIA (Korea Petrochemical Industry Association)
<b>Organized by</b>	WCCE9 & APCChE2013 Organizing Committee
<b>Website</b>	<a href="http://www.wcce9.org">www.wcce9.org</a>

### Key Dates

Abstract Submission by	<b>January 31, 2013</b>
Abstract Acceptance Notice by	<b>February 28, 2013</b>
E-Registration Open	<b>December, 2012</b>
E-Hotel Reservation Open	<b>December, 2012</b>
Early Bird Registration by	<b>March 31, 2013</b>
Speaker Registration by	<b>March 31, 2013</b>
Extended Abstract Submission and Modification by	<b>March 31, 2013</b>
Hotel Reservation by	<b>June 24, 2013</b>
Session Schedule Notice by	<b>Middle of July 2013</b>



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## Invitation



On behalf of the Organizing Committee, we are very pleased to invite you to the 9th World Congress of Chemical Engineering (WCCE9) to be held in Seoul, Korea from August 18 to 23, 2013. The Congress, on this occasion, also serves as the 15th Asian Pacific Confederation of Chemical Engineering Congress (APCChE2013). We have decided "Chemical Engineering: Key to the Future" as the central theme of the Congress.

The scientific program will provide an opportunity for participants to exchange new ideas and information on many important issues in chemical engineering. High-standard plenary and keynote lectures will be provided by outstanding scholars invited both from academia and industry. The Congress will be an occasion for the participants to make new acquaintance and strengthen friendship.

Seoul, the capital of Korea, is one of the most dynamic and safest cities in the world and has left a shining impression on public with its successful staging of the 1988 Summer Olympic, 2002 FIFA World Cup and G20 Summit in 2010. Excellent facilities and natural beauty combined with its 5000-year historical heritage will no doubt make Seoul an attractive place to visit, where the old and new coexist in harmony.

The Organizing Committee will endeavor to put together an exciting social program for delegates and accompanying persons so that they all can carry home good memories of the occasion in Korea.

We look forward to seeing you in Seoul in August 2013.

**Hyun-Ku RHEE**

Congress President  
WCCE9 & APCChE2013

## Organizations

### Organizing Committee

#### President

RHEE Hyun-Ku  
*The Korean Academy of Science and Technology (KAST)*

#### Chair

MOON Sang Heup  
*Seoul National University*

#### Co-chair

KIM Hwayong  
*Seoul National University*

### Program Committee

#### Chair

LEE Young Moo  
*Hanyang University*

#### Vice-Chair

LEE Kwan-Young  
*Korea University*

### Scientific Committee

#### Chair

PARK Seung Bin  
*KAIST*

#### Vice-Chair

LEE Chang-Ha  
*Yonsei University*

### Finance Committee

#### Chair

NAM In-Sik  
*POSTECH*

#### Vice-Chair

PARK Chinho  
*Yeungnam University*

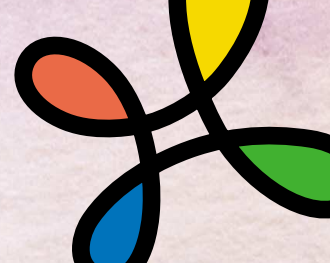
### Public Relations Committee

#### Chair

LIM Gio-bin  
*The University of Suwon*

#### Vice-Chair

JUNG Jae Hak  
*Yeungnam University*



## International Advisory Committee

As of July, 2012  
Alphabetically ordered by last name

### **ANDERSSON, Roland**

*Executive Director, Canadian Society for Chemical Engineering, Canada*

### **ARLT, Wolfgang**

*Professor, University of Erlangen, Germany*

### **BURKA, Maria K.**

*2011 President, AIChE, USA*

### **CHOI, Kyu Yong**

*Professor, University of Maryland, USA*

### **DAL PONT, Jean-Pierre**

*President, The French Chemical Engineering Society (SFGP), France*

### **DRIOLI, Enrico**

*ITM-CNR, Istituto per la Tecnologia delle Membrane, Italy*

### **FOO, Swee Cheng**

*Chairman, 14th APCCChE Congress, Singapore*

### **GANI, Rafiqul**

*Professor, Technical University of Denmark - DTU, Denmark*

### **HLATSHWAYO, Beki**

*President, South African Institute of Chemical Engineering (SAIChE), South Africa*

### **KHEW, Edwin**

*President, 14th APCCChE (2011-2012), Vice President, Institution of Engrs, S'pore., Singapore*

### **LI, Bo-Geng**

*Dean, Faculty of Engineering, Zhejiang University, China*

### **LI, Jinghai**

*Vice President, Chinese Academy of Sciences, China*

### **LIN, Ho-Mu**

*Chair Professor, National Taiwan University of Science and Technology, Chinese Taipei*

### **MAZZOTTI, Marco**

*ETH Zurich, Switzerland*

### **MEIER, Willi**

*DECHEMA e.V., Germany*

### **MIURA, Kouichi**

*Professor, Kyoto University, Japan*

### **NAKAO, Shin-ichi**

*President, SCEJ 2010-2011, Japan*

### **NEGRO, Carlos**

*Professor, University Complutense of Madrid (UCM), President, Spanish Association of Chemist (ANQUE), Spain*

### **PRASERTHDAM, Piyasan**

*Professor, Chulalongkorn University, Thailand*

### **SCOTT, Russell**

*Engineers Australia/President of IChemE (Aust) RACI (Aust), Australia*

### **STEINBACH, J.rg**

*President, TU Berlin, Germany*

### **TANGUY, Philippe A.**

*Vice-President, International R&D programs, TOTAL S.A, France*

### **VARMA, Arvind**

*Professor, Purdue University, USA*

### **VIJAYARAGHAVAN, P.**

*President, Indian Institute of Chemical Engineering (IChE), India*

### **WAKEHAM, William**

*Immediate Past President, IChemE, UK*

### **WANG, Wenchuan**

*Professor, Beijing University of Chemical Technology, China*

### **WESTMORELAND, Phillip**

*2013 AIChE President, USA*

### **WOOD, David**

*Professorial Fellow, University of Melbourne, President of the Royal Australian Chemical Institute, Australia*

## Program at a Glance (Tentative)

	Aug. 18 (Sun.)	Aug. 19 (Mon.)	Aug. 20 (Tue.)	Aug. 21 (Wed.)	Aug. 22 (Thu.)	Aug. 23 (Fri.)
08:00		Opening Ceremony				
09:00		Plenary Lecture 2	Plenary Lecture 4	Plenary Lecture 6	Plenary Lecture 8	Plenary Lecture 10
10:00		Plenary Lecture 3	Plenary Lecture 5	Plenary Lecture 7	Plenary Lecture 9	Plenary Lecture 11
11:00		Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
12:00		Sessions	Sessions	Sessions	Sessions	Sessions
13:00		Lunch	Lunch	Lunch	Lunch	
14:00		Sessions	Sessions	Sessions	Sessions	
15:00		Sessions	Sessions	Sessions	Sessions	
16:00		Coffee Break	Coffee Break	Coffee Break	Coffee Break	
17:00		Sessions	Sessions	Sessions	Sessions	
18:00	Plenary Lecture 1	Poster Session	Poster Session		Poster Session	
19:00	Welcome Reception			Gala Dinner		
20:00						

### Registration Operating Hours

- August 18, 2013                      12:00 - 20:00
- August 19 - 22, 2013                08:00 - 18:00
- August 23, 2013                        08:00 - 12:00

### Exhibitions (Hall D2)

- August 19 - 22, 2013                09:00 - 19:00
- August 23, 2013                        09:00 - 12:00

- The exhibition hall is located in the room where poster sessions, coffee breaks are concurrently held.

## Plenary Lectures

\* Alphabetically ordered by last name

\* 1 more speakers to be announced



### **Sustainable Chemical Engineering: Opportunities and Challenges**

**AZAPAGIC, Adisa**

Professor  
School of Chemical Engineering and Analytical Science  
The University of Manchester  
UK



### **Chemical Engineering in Energy Efficiency for a Sustainable Energy**

**HUR, Dong-Soo**

Chairman and CEO of GS Caltex  
Korea



### **Advanced Fuels from Advanced Plants**

**KEASLING, Jay D**

Professor, University of California, Berkeley  
Joint BioEnergy Institute (JBEI)  
Synthetic Biology Engineering Research Center (SynBERC)  
Lawrence Berkeley National Laboratory  
USA



### **Chemical Engineering as a Bridge between Knowledge and Humanity**

**KOMIYAMA, Hiroshi**

Chairman of the Institute  
Mitsubishi Research Institute, Inc. (MRI)  
President Emeritus, The University of Tokyo  
Japan



### **Bioeconomy Science - A Chemical Engineering Perspective**

**MARQUARDT, Wolfgang**

Professor  
AVT-Process Systems Engineering  
RWTH Aachen University  
Chairman, German Council of Science and Humanities  
Germany



### **Game Changing Chemical Engineering for Our Sustainable Future**

**MASHELKAR, R.A.**

President, Global Research Alliance &  
National Research Professor, National Chemical Laboratory Pune  
India



### **The Pivotal Role of Chemical Engineering Innovations in the Successful and Sustainable Development of Alberta's Oil Sands and Bio-resources**

**PLESSIS, Duke du**

Senior Advisor  
Alberta Innovates: Energy and Environment Solutions  
Canada



### **Systems Engineering at the Nanoscale: Towards Molecular Factories, Synthetic Cells, and Adaptive Devices**

**STEPHANOPOULOS, George**

Professor  
Department of Chemical Engineering  
MIT  
USA



### **Co-opetition, Co-innovation and the Role of Academic Research**

**TANGUY, Philippe A.**

Vice President, International R&D Programs  
TOTAL S.A  
France



### **China's Petrochemical Industry: Seeking Opportunities Amidst Challenges**

**TIANPU WANG**

President of Sinopec Group  
Vice Chairman & President of Sinopec Corp.  
China





## Call for Abstracts

### Academic / Industrial Program

The scientific committee of WCCE9 & APCCHE2013 welcomes abstract submission for oral and poster sessions. All abstracts presented at the congress will be published in the abstract book.

Abstract must be submitted to the official website by January 31, 2013. All authors accepted for presentation must register for the congress through the website before **March 31, 2013** in order to confirm their participation.

### Important Dates

Abstract Submission by	<b>January 31, 2013</b>
Abstract Acceptance Notice by	<b>February 28, 2013</b>
Speaker Registration by	<b>March 31, 2013</b>
Extended Abstract Submission and Modification by	<b>March 31, 2013</b>
Session Schedule Notice by	<b>Middle of July 2013</b>

### Submission Confirmation

An acknowledgement of an abstract(s) will automatically be sent to the presenting author and corresponding author by email upon online abstract submission. It is the responsibility of each individual to verify the acknowledgement and carefully review the abstract(s).

### Abstract Acceptance Notice

Applicants who submitted abstract early will be notified of the outcome by e-mail, no later than **February 28, 2013**.

All author presenting either oral or poster session must complete early-registration online and remit the required registration fee by **March 31, 2013** in order to remain on the final program. No exceptions will be made.

Further details for accepted presentations will be sent by **Middle of July 2013**, indicating the time, session and location of the presentation.

### Modification

You can review, modify or update your abstract(s) on My page on the website by **March 31, 2013**.

### CV Submission

All speakers and moderators attending the session are required to submit their brief Curriculum Vitae. Please select 'CV Submission' menu on 'My page' and fill out your academic profile.

### Guidelines for Abstract Submission

#### Step 1: Prepare abstract(s)

The title should be a maximum of 150 characters in lower case with a leading capital letter.

Authors' information: Presenting & corresponding authors' information including valid email addresses are required.

There can be no more than ten (10) authors per abstract.

Each abstract should be no more than 250 words.

Abstract should be written and presented in English.

Table, diagram and picture are not allowed.

**Step 2: Log in to the official website ([www.wcce9.org](http://www.wcce9.org)).**

**Step 3: Select the E-Submission tab from the Scientific / Industrial Program menu.**

**Step 4: Complete the author information.**

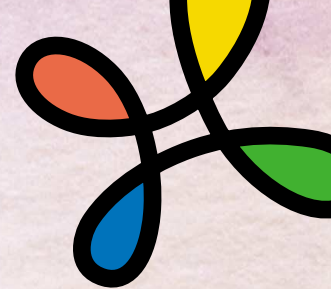
**Step 5: Complete the abstract details.**

**Step 6: Save or modify after review your abstract.**

**Step 7: Abstract submission acknowledgement will be automatically sent to you upon completed of E-submission.**

**Step 8: After the acceptance notice, upload the extended abstract (PDF format) by March 31, 2013.**





## **Suggested Topics**

### **Topic 1. Fundamentals in chemical engineering**

This topical area is mostly on the principles of chemical and biological processes including thermodynamics, transport phenomena, kinetics, reaction engineering, process control and separation.

It also includes the papers dealing on chemical and biological engineering principles applied to other disciplines such as electronic materials processing. Theories on newly- introduced processes can be introduced as well as new interpretations on the theory of conventional chemical and biological engineering processes.

### **Topic 2. Sustainable development for the future society**

This topical area covers papers that discuss significant research results in areas of energy and environmental technologies for our future society. Discussed topics can include major improvements in traditional fossil fuels such as heavy oil upgrading, utilization of bitumen and oilsand and coal. Renewable energy as well as green house gas prevention technologies is also included in the area as a major topic, which have the potentials of replacing the current ones for better economics and sustainability. In addition, the area can include the advanced environmental technologies that can bring higher energy efficiencies compared to the existing ones.

### **Topic 3. Research based on emerging technologies**

This topical area is seeking papers related to emerging technologies in the realm of chemical engineering to solve critical future chemical problems. Such emerging technologies range from energy materials and processing, water treatment, biomaterials and biotechnology, nanotechnology, electronic materials and processing, and also fusion or interdisciplinary technologies combining all the existing chemical engineering principles.

### **Topic 4. Progress in current chemical technologies**

This topical area seeks papers discussing advances in chemical technologies for traditional chemical industries like refining, petrochemicals, fine chemicals, steel, minerals, and foods. Discussed topics can include major improvements in traditional processing technologies as well as novel ones that can bring higher energy efficiencies and better environmentally friendliness in chemicals manufacturing compared to the existing ones. They also can include new materials and product formulations that have the potentials of replacing the current ones for better economics and sustainability.

### **Topic 5. Promotion of university-industry cooperation**

This topical area is to provide a platform for the promotion of the cooperation between the academia and industry on their current interest and research experiences. The contributions of topics in industrial break-through technologies including not only emerging fields of nano, bio, energy, materials but also traditional ones of separation, reaction/catalysis, particulates would be welcome.

### **Topic 6. Chemical Engineering Education**

The education session invites papers on all topics related to chemical engineering education. This includes enhanced teaching methods, curriculum developments, laboratory developments, tools, accreditation, assessment methods, and student and faculty developments.

## Registration

Online registration at the official website [www.wcce9.org](http://www.wcce9.org) will be available from **December 2012**. To receive an early bird discounted fees, please register no later than **March 31, 2013**.

Categories	Early Bird Registration by March 31, 2013	Advance Registration by June 30, 2013	Late Registration from July 1, 2013
Regular	US\$ 900	US\$ 1,000	US\$ 1,100
Student	US\$ 400	US\$ 450	US\$ 500

### Group Registration Fee Discount

5~30 persons: 10% discount	31~50 persons: 20% discount	Over 51 persons: 30% discount
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### Registration Fee Covers:

- Regular: Access to all sessions, welcome reception, gala dinner, lunches, coffee breaks and a congress kit
- Student: Access to all sessions, welcome reception, lunches, coffee breaks and congress kit.

### Cancellation and Refund Policy

Cancellation must be notified in writing to the Secretariat. Please refer to the following cut-off date for cancellation. All refunds will be made after congress for administrative reasons and bank charges will be deducted from the refund amount.

By June 30, 2013	US\$ 50.00 of processing fee will be deducted from the full amount
From July 1, 2013	No Refund

\* For more details, please contact the Secretariat of WCCE9 & APCChE2013 at [registration@wcce9.org](mailto:registration@wcce9.org).

## Accommodation

The Organizing Committee of WCCE9 & APCChE2013 offers various accommodation options nearby the venue with the discounted rates. In order to take advantage of such special rates, participants should make reservation through the On-line Hotel Reservation. Since rooms will be reserved on a first-come, first-served basis, we may be unable to provide rooms with the special rates quoted when rooms get fully booked. Therefore, early booking is highly recommended. On-line registration will be available from December 2012.

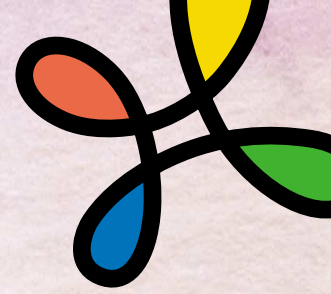
### Hotel List

No.	Class	Hotel	Room Type	Room Rate (KRW)	VAT&SVC	Breakfast (KRW)	Distance to Venue
1	Super Deluxe	Intercontinental Seoul COEX	Superior Single	280,000	Excl. (10%, 11%)	Excl. 30,000 (10%, 11%)	venue
			Elite Single	315,000			
2	★★★★★	Imperial Palace Seoul	Superior	187,000	Excl. (10%, 11%)	Excl. 22,000 (10%, 11%)	15 min. by car
			Business	198,000			
			Deluxe	214,000			
3	Deluxe	Hotel Riviera Seoul	Superior	154,000	Excl. (10%, 11%)	Excl. 21,000 (10%, 11%)	6 min. by car
4		Ramada Seoul	Superior	187,000	Excl. (10%, 11%)	Excl. 22,000 (10%, 11%)	6 min. by car
5		Hotel Ellui	Deluxe	130,000	Excl. (10%, 11%)	Excl. 15,000	10 min. by car
6		Mercure Seoul	Standard	160,000	Excl. (10%, 11%)	Excl. 18,000 (10%, 11%)	10 min. by car
			Superior	170,000			
7		First ★★★	IBIS Ambassador Seoul	Double/Twin	160,000	Excl. (10%)	Excl. 19,000 (10%)
8	<b>Serviced Residence</b>	Casaville Residence Samsung	Studio	87,000	Incl.	N/A	10 min. by car

### Cancellation Policy

Any cancellations should be notified in writing to the Secretariat of **WCCE9 & APCChE 2013 Congress** at [hotel@wcce9.org](mailto:hotel@wcce9.org).

Cancellation received by June 24, 2013	No Penalty
Cancellation received from June 25 till July 17, 2013	50% of one night room rate will be charged to your credit card as a penalty
Cancellation received from July 18, 2013 or No show	One night room rate will be charged to your credit card as a penalty



## Travel Information

### International Access

Incheon International Airport, the primary gateway for most travellers from and to the Republic of Korea, which is located 52km west of downtown Seoul. The airport has been acknowledged as the "Best Airport World Wide" by the Airports Council International (ACI) in 2009. Incheon International Airport connects Seoul to 170 cities in 53 countries with 84 international airlines, providing more than 1,938 regular flights per week.

### Estimated Travel Time

Asia	Tokyo 2hrs, Beijing 2hrs, Bangkok 6hrs, Singapore 6hrs, Delhi 9hrs
Europe	London 12hrs, Paris 12hrs, Rome 12hrs
North America	LA 12hrs, Vancouver 11hrs, New York 14hrs
Oceania	Sydney 10hrs, Auckland 11hrs



### The Host City, Seoul

#### Modern Seoul

Seoul is modern. The city is fast-paced, wired, and tech-efficient to the teeth. It's also endowed with a dizzying wealth of cultural facilities where visitors can take in the creativity of Seoul's artists, learn about its history, or acquaint themselves with new cultural experiences.

#### Traditional Seoul

In 1392, Seoul was designated the capital of a new dynasty, Joseon, a period in Korean history that lasted until 1910. The traditional epicenter of Seoul was found in the Gwangwhamun district where palaces, shrines, and temples abound, along with traditional markets that are open 24h. Traditional Seoul is a fulfilling visit bringing visitors one step closer to the history of Korea.

#### Outdoor Seoul

Mountains. Parks. Rivers. Streams. Seoul is one of the world's largest cities but urbanization of Korea's capital has never meant abandonment of special areas dedicated to preservation of wildlife. For avid hikers and bikers, an excursion is never too far away. Because the following places such as Olympic Park, Seoul Land, Citizens' Forest will have visitors reconnect with nature.

### Coex



Coex is a business and cultural hub located in the heart of Gangnam, Seoul's business district. It is a popular entertainment destination in Seoul for both domestic and foreign visitors, and welcomes an average of 150,000 people a day.

[www.coex.co.kr](http://www.coex.co.kr)



