



Proceedings of
**13th International Conference on
Combustion & Energy Utilization**

Oct. 2-5, 2016

**GIS NTU Convention Center
National Taiwan University**



CONFERENCE ORGANISERS



科技廳

Ministry of Science and Technology

NEP II 第二期能源國家型科技計畫
National Energy Program-Phase II

 減碳淨煤主軸中心 
Carbon Reduction and Clean Coal Focus Center

 中華民國燃燒學會會刊
The Combustion Institute of R.O.C.

About ICCEU

The International Conference on Combustion & Energy Utilization (ICCEU) is the continuation of the formerly Asia-Pacific International Symposium on Combustion and Energy Utilization. The 1st (1990), 2nd (1993) and the 9th (2008) conferences were held in Beijing, the 3rd (1995) and the 7th (2004) were held in Hong Kong, the 4th (1997) was in Bangkok, the 5th (1999) was in Shanghai, the 6th (2002) was in Kuala Lumpur, the 8th (2006) was in Sochi, Russia, the 10th (2010) in Turkey, the 11th ICCEU, (2012) in Portugal and the 12th (2014) was hosted by in Lancaster, UK. As a consequence of the global preoccupations in more efficient and cleaner energy utilization, the ICCEU is becoming a global event for scientists working in the area of energy utilization. After the previous successful conference in Lancaster, UK (The 12th ICCEU, 2012), the 13th ICCEU (2016 ICCEU) will be held in Taipei, Taiwan in 2016. It provides a forum on exchange of information on innovation, research, development and demonstration in the areas of combustion and energy utilization.

Conference Topic

- Combustion fundamentals
- Alternative fuels
- Solid fuels and biomass
- Atomization and sprays
- Clean fuel technologies
- Internal combustion engines
- Propulsion and power
- Design of combustion systems
- Computational combustion
- Energy efficiency improvement
- Carbon Utilization Capture and Storage
- Fire protection

Welcome Remarks



Dr. Hsiao-Kang Ma
Chairman of the Organizing Committee
The 13th ICCEU (2016 ICCEU)
Professor, National Taiwan University

On behalf of the organizing Committee, I would like to extend our warmest welcome to all of you for attending the 13th International Conference on Combustion & Energy Utilization (2016 ICCEU) in Taipei. ICCEU is the continuation of the formerly Asia-Pacific International Symposium on Combustion and Energy Utilization. Following the first successful conference held in Beijing in 1990, the subsequent conferences held in Hong Kong, Bangkok, Shanghai, Kuala Lumpur, Sochi, Turkey, Portugal and Lancaster further expanded the remarkable progress on innovation, research, development and demonstration in the areas of combustion and energy utilization.

In 2016, from October 2-5, 2016 ICCEU brings scientists and engineers together to provides a congenial occasion to observe and acknowledge the accomplishments and challenges of modern energy science and technology, as well as to examine our role to face the impacts of global climate change and the green energy in the coming year.

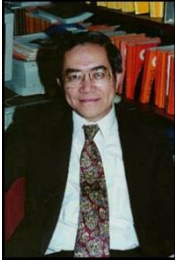
I would like to express my sincere thanks to Prof. Chung K. Law, Chairman of International Organizing Committee, and members of the International/Local Organizing committee for their support in the planning and organization of this conference. Finally, I recognize and honor the contributions of all the authors, plenary and invited speakers who have helped to make 2016 ICCEU a great success.

Hope you enjoy the 2016 ICCEU conference and the days you spend in Taipei!

Hsiao-kang Ma
Chairman of the Local Organizing Committee

Plenary Lectures

Lecture #1 : October 3, 2016 (Monday)



On low-temperature flames

**Prof. Chung K. Law
Princeton University, USA**

Honoric Memberships in Professional Societies

Fellow, American Society of Mechanical Engineers (ASME), 1989

Fellow, American Institute of Aeronautics and Astronautics (AIAA), 1992

Member, National Academy of Engineering (NAE), 2002

Awards and Recognitions

Ralph R. Teetor Award of the Society of Automotive Engineers, 1979

Curtis W. McGraw Research Award, ASEE, 1984

Propellants and Combustion Award, AIAA, 1994

Heat Transfer Memorial Award - Science, ASME, 1997

Energy Systems Award, AIAA. "For outstanding contributions to the science and technology of combustion in chemical energy systems," 1999

Outstanding Alumnus Award, University of California- San Diego. 2000

Highly Cited Author, in Engineering; in the inaugural year (2002) of establishing the Highly Cited Researchers database

Pendray Aerospace Literature Award, AIAA. 2004

Lecture #2 : October 3, 2016 (Monday)



Electric field effects on flame behavior

Prof. Suk-Ho Chung
KAUST, Saudi Arabia

Professor Chung's research interest is in fundamental combustion related to energy, environment and fuel issues. This includes studies on premixed and diffusion flame structure, combustion instability, flame stabilization, laser ignition, microgravity experiments, soot and NOx formation, and alternative fuels. This research is directed toward the applications to internal combustion engines, gas turbines, burners, rocket propulsion, and fire and explosion safety.

Lecture #3 : October 3, 2016 (Monday)



**Fine particulate matters from coal combustion:
formation and control**

Prof. Qiang Yao
Tsinghua University, China

Prof. Qiang Yao is now a "Chang Jiang" scholar in Tsinghua and and co-author of over 200 journal papers and held more than 20 Chinese Patents in the clean coal Technology.

Dean of the Graduate School of Tsinghua University
Deputy Director, Tsinghua University Low Carbon Energy Laboratory
Chief Scientist, Project 973 "燃烧源可吸入颗粒物形成与控制技术的基础研究"

Lecture #4 : October 4, 2016 (Monday)



Toward comprehensive combustion limit theory

**Prof. Kaoru Maruta
Tohoku University, Japan**

Research Fields

- Thermal engineering (Combustion engineering)
- Energy studies (Energy Dynamics)
- Thermal engineering (Transport phenomena, Rate processes)

Honours, Awards and Prizes

Ichimura Academic Award(2013)

平成 25 年度粉生熱技術振興賞(2013)

日本燃焼学会「論文賞」(2011)

Lecture #5 : October 4, 2016 (Monday)



**Development of Torrefaction for Upgrading
Biomass into Solid Fuel**

**Prof. Wei Hsin Chen
National Chung Keng University, Taiwan**

Expertise and research areas

Hydrogen (hydrogen production , separation and purification) , Biomass (torrefaction, gasification, pyrolysis , biomass alcohol fiber) , clean energy (clean coal technology , pulverized coal technology , carbon dioxide capture, the thermoelectric system , ironmaking process)

Honours, Awards and Prizes

科技部傑出研究獎 (2015-2018)

國立成功大學工學院研究優良教師 (2016)

國立成功大學工學院撰寫中文專書獎勵 (2016)

INTERNATIONAL ORGANISING COMMITTEE

LAW, C.K., Chairman (USA)	LIPANOV Alexey M. (Russia)
ZHANG Xiaoqian, Co-Chair (China)	LIM, Kah Bin (Singapore)
BAEK, Seung Wook (Korea)	LIU, Shi (China)
BARATA Jorge M.M. (Portugal)	LIU, Xin (China)
BASTOS-NETTO D. (Brazil)	MA, Hsiao-Kang (Taiwan)
CAVALIERE Antonio (Italy)	MASRI Assaad Rachid (Australia)
CHAO, Yei-Chin (Taiwan)	NIKAZAR M. (Iran)
CHAMPION M. (France)	NIIOKA T. (Japan)
CHEN, Dezhen (China)	SMITH David B. (UK)
CHEUNG, Chun Shun (Hong Kong)	SHU, Xinqian (China)
CHUNG, Suk-Ho (Korea)	XIA, Dehong (China)
CUKIERMAN A.L. (Argentina)	YAO, Qiang (China)
GÖKALP Iskender (France)	YANG, Lijun (China)
GUPTA Ashwani K. (USA)	YANG, Jing-Tang (Taiwan)
ISHIZUKA Satoru (Japan)	YANG, Weihong (Sweden)
Jerzy Merkisz (Poland)	WALL Terry F. (Australia)
KADOTA Toshikaz (Japan)	WEBER Roman (Germany)
KOBAYASHI Hideaki (Japan)	WERLE Sebastian (Poland)
LAKSHMISHA K.N. (India)	WU, Daohong (China)
LEE, John H.S. (Canada)	

LOCAL ORGANISING COMMITTEE

MA Hsiao-Kang, Chairman, National Taiwan University
YANG Jing-Tang, Co-Chair, National Taiwan University
CHAO Yei-Chin, National Cheng Kung University
CHEN Wei-Hsin, National Cheng Kung University
LIN Ta-Hui, National Cheng Kung University
LIN Cherng-Yuan, National Taiwan Ocean University
PAN Kuo-Long, National Taiwan University
SHY Sheng yang, National Central University
TAN Chung-Sung, National Tsing Hua University
YEH Chun-Liang, Fung Chia University

Venue

[GIS NTU Convention](#) Center is a “communication matrix”, a peaceful forum where conference-goers can interact closely. Located at Gongguan, a transportation hub, GIS NTU Convention Center is a multifunctional convention center that National Taiwan University has commissioned GIS Group to operate and manage. The center is conveniently situated (two minutes walk from the metro station) and is amply supplied with public parking and first-rate food services. The center has ten medium and small conference spaces all located on the same floor, which facilitates the planning and running of events.

HOSTING CITY

Taipei, is the capital city of Taiwan ROC, is situated in the north of the island in the so-called Taipei Basin; mountain ranges filled with hot springs surround the city. The city’s appropriate name literally means “north of Taiwan”. Central Taipei is home to nearly 2.7 million people. The metropolitan area that includes the city center, nearby New Taipei, and the port city of Keelung has almost 7 million inhabitants, making it the 40th most populated city on the planet. The 13th ICCEU will be held in National Taiwan University. As of the 2009 academic year, the University has a total of eleven colleges, 54 departments, 100 graduate institutes (which offer 100 Master's programs and 91 doctoral programs), and 25 research centers: the Division of Population and Gender Studies, the Center for Condensed Matter Sciences, the Center for Biotechnology, Japanese Research Center, and the Biodiversity Center, etc. The number of students reached 33,000 in 2009.

MRT STATION

The closest MRT station near the College of Management building is the MRT Gongguan station. Take the Songshan-Xindian (Green) line to Gongguan station. Go out at Exit no. 2 and then enter to the side gate of NTU and walk to the college of management building. It is a 5-minute walk from the MRT Gongguan station to NTU College of Management.

LOCATION

