

# 한중 원자력 열수력 워크숍 (WORTH) 개최 이력

- 탄생배경 및 개최이력
- 초기 KAERI 주도 진행 배경 등

2021. 8. 12 현재

## 원자력 열수력 연구부회

WORTH : Workshop on Nuclear Reactor Thermal-Hydraulics

# Birth of the WORTH

## □ A series of joint workshops in the nuclear T-H field were:

- Proposed by C.-H. Song (KAERI) to the Chinese Party on 2001,
- Accepted by Y.P. Huang (NPIC) on behalf of CNNC-NPIC, and
- Agreed between KAERI-NPIC/XJTU\* with the intention of facilitating the cooperation activities between KAERI and NPIC, and XJTU who joined later on.

✓ XJTU and KINS-CIAE also joined the workshop since 2003.

## □ The objectives of holding the workshop are:

- To bring together researchers and designers from industries, laboratories and academia, active in the area of nuclear reactor thermal-hydraulics,
- To present the state-of-the art technologies,
- To exchange their expertise and experiences, and
- To further stimulate their researcher activities.

# Background of the WORTH

- ❑ **A brief background on the history of workshops.**
- ❑ **Korea and China, among others, have rapidly developing nuclear programs, and are recognized as outstanding nuclear countries.**
- ❑ **Despite their geographic proximity, however, cooperative efforts between the two countries have not been actively pursued before 1994.**
- ❑ **History of this workshop (WORTH) goes back to 2001.**
- ❑ **In 2001, the Joint Committee on Nuclear Energy (JCNE) between the Korean Government (MOST) and the Chinese Government (CAEA) was launched.**

# Joint Comm. on Nuc. Energy (JCNE) & WORTH

## ❑ 1994 : Korea-China Agreement on Cooperation

- KAERI-CNNC Agreement for Base Cooperation : MOU
- KEPCO-CNNC Agreement for Tech. Cooperation
- KAERI-INET Agreement for Base Cooperation : MOU

## ❑ 1995 : KAERI-CNNC Agreement for Technical Cooperation

- KINS-CIRP Agreement on Nuclear Safety and Radiation Protection

## ❑ 1996 : MOST-CAEA Agreement on JCNE Install./Operation

- KINS-NNSA Agreement of Cooperation on Nuclear Safety

## ❑ 1999 : KAERI-NPIC Agreement on Technical Cooperation

## ❑ 2001 : 2nd JCNE on Oct. 25, Beijing, China

- Proposal of Co-Holding the Workshop (WORTH) between KAERI and NPIC

## ❑ 2002 : 3<sup>rd</sup> JCNE on Nov. 1~2, Seoul, Korea

- KINS-CIAE Seminar : Oct., Beijing (KAERI Joined)
- MOM on KAERI-NPIC Bilateral Cooperation Agreements (Nov. 22)

# JCNE and WORTH

- Cont'd -

## □ 2003 : 4<sup>th</sup> JCNE on Nov. 13~14, Beijing, China

- Visit to XJTU : Sept. 24~25

- ✓ Agreed to Join the Cooperation B-2 (Prof. Guo, Lie-Jin)

- 1<sup>st</sup> Joint Workshop (WORTH-1) on Oct. 27~28 in Chengdu

## □ 2004 : 5<sup>th</sup> JCNE on Dec., /Daejeon/Seoul, Korea

- MOM between KNS and CNS on Bilateral Cooperation (Sept. 13)

## □ 2005 : 6<sup>th</sup> JCNE on Oct. 12, in Shanghai, China

- Visit to NPIC : Jan. 30, 2005

- 2<sup>nd</sup> Joint Workshop (WORTH-2) : May 24~25, Jeju

## □ 2007 : 8<sup>th</sup> JCNE on Oct. 22~23, Beijing, China

- WORTH-3 : Aug. 22~24, 2007, Dujiangyan, Chengdu, China

- ✓ Celebrating the 15<sup>th</sup> Anniversary of Korea-China Cooperation

友好交流 公創未來

You hao jiao liu - Gong chuàng wei lai



# JCNE and WORTH

- Cont'd -

- ❑ **2009 :** 40<sup>th</sup> Anniversary of the Korean Nuclear Society & Spring Meeting Jeju, Korea, May 18~23, 2009
  - WORTH-4 : May 18~20, 2009, Jeju, Korea
- ❑ **2010 : 9<sup>th</sup> JCNE on Nov. 15 in Beijing**
- ❑ **2011 : 10<sup>th</sup> JCNE on Dec. 13 in Seoul**
  - WORTH-5 : Oct. 10~12 in Emei, Chengdu, China
- ❑ **2013**
  - WORTH-6 : April 11~12 in Busan, Korea
- ❑ **2015 : 12<sup>th</sup> JCNE to be Held in Korea**
  - WORTH-7 : Oct. 13~15 in Kunming, China
- ❑ **2017**
  - WORTH-8 : Oct. 22~24 in Yeosu, Korea
- ❑ **2019**
  - WORTH-9 : May 15~18 in Chongqing, China



# WORTH-1

## □ Chengdu, China on Oct. 21~24, 2003

- 10 Papers from Korea (KAERI) and
- 15 Papers from China (NPIC and 6 Other Organizations).
  - ✓ NPIC, CIAE, Tsinghua U., SJTU, XJTU, HuaZhong U. of S&T, Chongqing U.





# WORTH-2

## □ Jeju, Korea on May 24~25, 2005:

○ 28 Papers from Korea, China and Pakistan.





# WORTH-3

- **Dujiangyen (都江堰) near Chengdu on Aug. 22~24, 2007**
  - With the presentation of 75 papers from 14 organizations (including 10 Chinese organizations).





# WORTH-4

## □ Jeju on May 18~20, 2007

- With the presentation of 71 papers from 18 organizations (including 8 Chinese organizations).

### The Fourth Korea-China Workshop on Nuclear Reactor Thermal-Hydraulics (WORTH-4)



May 18 ~ 20, 2009  
Jeju, Korea



Organized by  
Korea Atomic Energy Research Institute (KAERI)  
and  
Nuclear Power Institute of China (NPIC)

in Cooperation with  
Korea Institute of Nuclear Safety (KINS), Xi'an Jiaotong University (XJTU) and  
China Institute of Atomic Energy (CIAE)

#### MEETING ORGANIZATION

##### Honorary Chairs:

##### General Chairs:

##### Advisory Committee Chairs:

Members

Prof. Goon Cheri PARK (SNU)	Prof. Qi LUO (NPIC)
Dr. Won-Pil BAEK (KAERI)	Prof. Bing-De CHEN (NPIC)
Dr. Hho Jung KIM (KINS)	Dr. Ze-Jun XIAO (NPIC)
Prof. Gyu-Dong JEON (HYU)	Prof. Yu-Zhou CHEN (CIAE)
Dr. Eun-Ki KIM (KOPEC)	Prof. Lai-Sheng YANG (NPIC)
Dr. Hee-Dong KIM (KAERI)	Prof. Lie-Jin GUO (XJTU)
Prof. Moo-Hwan KIM (POSTECH)	Prof. Chang-Qi YAN (HEU)
Dr. Jong-Ryul PARK (KNF)	Prof. Guang-Hui SU (XJTU)
Dr. Yong-Ho RYU (KINS)	Prof. Xue-Wu CAO (SJTU)
Dr. Chul-Hwa SONG (KAERI)	Dr. YanPing HUANG (NPIC)
Dr. Seung-Hun AHN (KINS)	Prof. Pu-Zhen GAO (HEU)
Prof. Kwang-Hyun BANG (KMU)	Prof. Wen-Bin ZHUO (NPIC)
Dr. Cheol-Jin CHOI (KOPEC)	Prof. Sui-Zheng QIU (XJTU)
Prof. Bum-Jin CHUNG (CNU)	Prof. Qiu-Wang WANG (XJTU)
Dr. Sang-Joon HA (KEPRI)	Prof. Tao ZHOU (NCEPU)
Dr. Seong-Wan HONG (KAERI)	Prof. Liang-Ming PAN (CQU)
Dr. Jae-Jun JEONG (KAERI)	
Prof. Jae-Young LEE (HGU)	
Dr. Sang-Jong LEE (KNF)	

##### Technical Program Committee Chairs:

Members

Dr. Kyoung Ho KANG (KAERI)	Dr. XiaoJun WANG (NPIC)
Mr. In-Cheol CHU (KAERI)	Mr. Jie LENG (NPIC)
Dr. Byoung-Uhn BAE (KAERI)	Mr. Zu-Mao YANG (NPIC)

##### Organizing Committee Chairs:

Members



**Celebrating the 50<sup>th</sup> KNS Anniversary Together !!**

# WORTH-4





# WORTH-5

## □ Emei, Sichuan, China on Oct. 10~12, 2011

- With the presentation of 95 papers from 21 organizations (including 9 Korean organizations).

### The Fifth China-Korea Workshop on Nuclear Reactor Thermal-Hydraulics (WORTH-5)



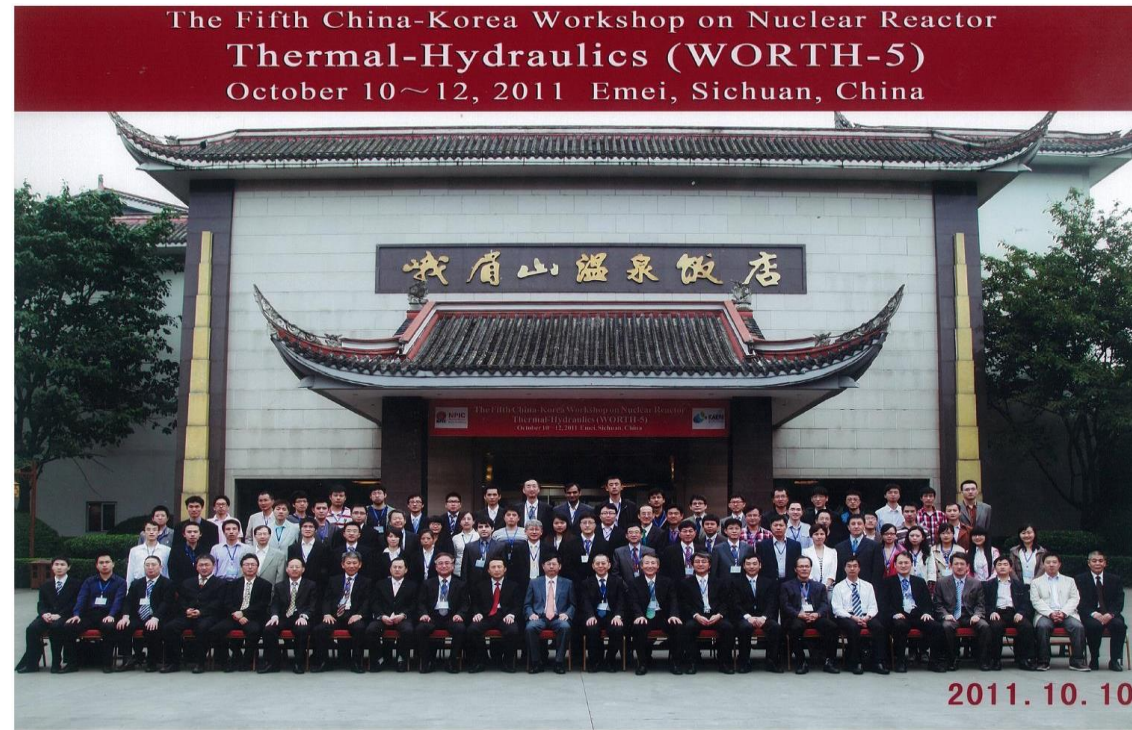
Oct. 10 ~ 12, 2011  
Chengdu, China



*Organized by*  
Nuclear Power Institute of China (NPIC) and Korea Atomic Energy Research Institute (KAERI)  
*In Cooperation with*  
China Institute of Atomic Energy (CIAE) and Korea Institute of Nuclear Safety (KINS)  
*Sponsored by*  
Chinese Nuclear Society (CNS) and Korean Nuclear Society (KNS)

### ● MEETING ORGANIZATIONS

■ Honorary Chairs:	Prof. Qi LUO (NPIC)	Prof. Moon-Ki CHUNG (PNU)
■ General Chairs:	Prof. Bing-de CHEN (NPIC)	Dr. Won-Pil BAEK (KAERI)
■ Advisory Committee Chairs:	Dr. Zejun XIAO (NPIC)	Dr. Yong-Ho RYU (KINS)
■ Technical Program Committee Chairs:	Dr. Yan Ping HUANG (NPIC)	Dr. Chul-Hwa SONG (KAERI)
■ Organizing Committee Chairs:	Dr. Xiao YAN (NPIC)	Dr. Tae-Soon KWON (KAERI)
	Dr. Yanlin WANG (NPIC)	Dr. Hyun-Sik PARK (KAERI)
	Ms. Li XU (NPIC)	Dr. Dong-Jin EUH (KAERI)



# WORTH-6

## □ Busan, Korea on April 11~13, 2013

○ With the presentation of 88 papers from 25 organizations (including 10 Chinese org.)

<b>Honorary Chairs:</b>	Dr. Won-Pil BAEK (KAERI)	Prof. QI LUO (NPIC)
<b>General Chairs:</b>	Dr. Chul-Hwa SONG (KAERI)	Dr. Yan-Ping HUANG (NPIC)
<b>Steering Committee:</b>		
Chairs:	Dr. Yong-Ho RYU (KINS)	Dr. Bing-De CHEN (NPIC)
Members:	Dr. Jin-Ho SONG (KAERI)	Prof. Yu-Zhou CHEN (CIAE)
	Prof. Kwang-Hyun BANG (KMU)	Dr. Lie-Jin GUO (XJTU)
	Dr. Sang-Jong LEE (KEPCO_NF)	Dr. Sui-Zheng QIU (XJTU)
<b>Technical Program Committee:</b>		
Chairs:	Prof. Jae Jun JEONG (PNU)	Dr. Ze-Jun XIAO (NPIC)
Members:	Dr. Young-Seok BANG (KINS)	Dr. Guang-Hui SU (XJTU)
	Dr. Ki-Yong CHOI (KAERI)	Dr. Bo-Feng BAI (XJTU)
	Dr. Han-Gon KIM (KHNP)	Prof. Kai-Wen DU (CIAE)
	Prof. Byong-Jo YUN (PNU)	Dr. Liang-Ming PAN (CQU)
<b>Organizing Committee:</b>		
Chairs:	Dr. Tae-Soon KWON (KAERI)	Dr. Xiao YAN (NPIC)
Members:	Dr. Sung-Won BAE (KAERI)	Dr. Wen-Xi TIAN (XJTU)
	Dr. Hyoung-Kyu CHO (KAERI)	Dr. Yan-Lin WANG (NPIC)
	Dr. Seok KIM (KAERI)	Mr. Hai-Yan ZHU (NPIC)
	Dr. Jae-Ryong LEE (KAERI)	





# WORTH-7

## □ Kunming, China on Oct. 14~17, 2015

- With the presentation of 110 papers by 137 Participants from 33 organizations (incl. 15 Korean org.)

Honorary Chairs

Prof. Qi LUO (NPIC)

Prof. Hee-Cheon NO (KAIST)

General Chairs

Dr. Yan Ping HUANG (NPIC)

Dr. Chul-Hwa SONG (KAERI)

Steering Committee Chairs

Dr. Bing-De CHEN (NPIC)

Dr. Yong-Ho RYU (KINS)

Technical Program Committee Chairs

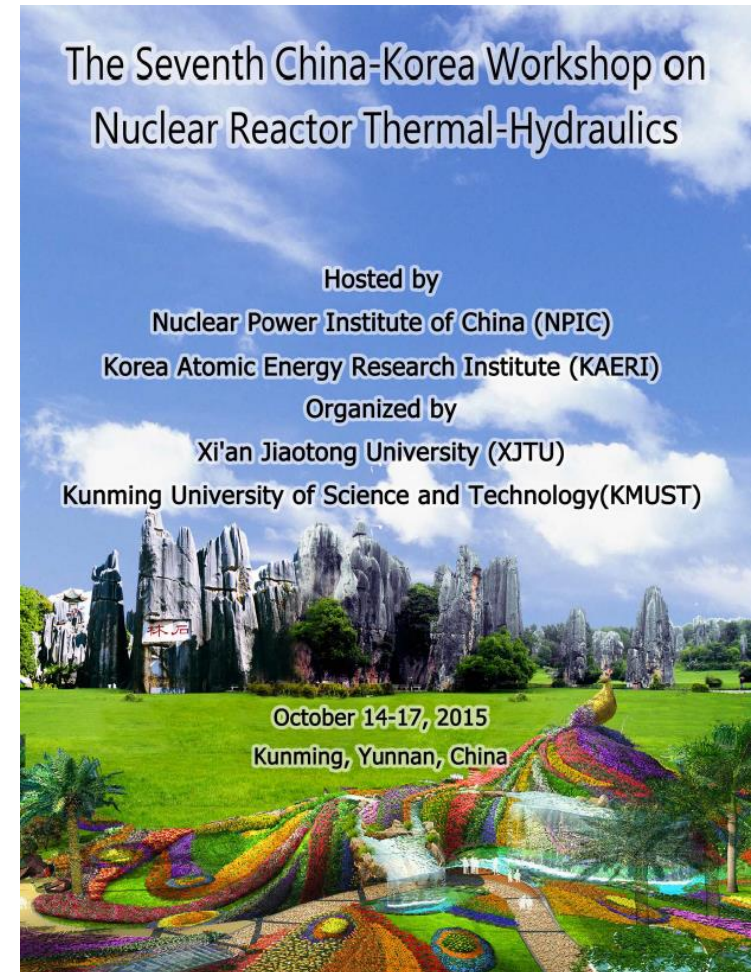
[Dr. Guang-Hui SU \(XJTU\)](#)

[Dr. Tae-Soon KWON \(KAERI\)](#)

Organizing Committee Chairs

Dr. Wen-Xi TIAN (XJTU)

[Dr. Hyun-Sik PARK \(KAERI\)](#)





# WORTH-8

## □ Yeosu, Korea on Oct. 22~24, 2017

- With the presentation of 81 papers by 103 registered participants from 28 organizations (incl. 13 Chinese org.)

Honorary Chairs:

Prof. Goon-Cherl PARK (SNU)

Prof. Qi LUO (NPIC)

General Chairs:

Dr. Chul-Hwa SONG (KAERI)

Dr. Yan-Ping HUANG (NPIC)

Steering Committee Chairs:

Dr. In-Goo KIM (KINS)

Dr. Bing-De CHEN (NPIC)

Technical Program Committee Chairs:

Dr. Ki-Yong CHOI (KAERI)

Dr. Jian-Jun XU (NPIC)

Organizing Committee Chairs:

Prof. Sung Joong KIM (HYU)

Dr. Yan-Lin WANG (NPIC)

Date  
Venue

October 22-24, 2017  
The MVL, Yeosu, Korea

*Organized by*

Korea Atomic Energy Research Institute (KAERI)  
Nuclear Power Institute of China (NPIC)  
Xi'an Jiaotong University (XJTU)

*Sponsored by*

Korean Nuclear Society (KNS)  
Chinese Nuclear Society (CNS)





# WORTH-9



## □ Chongqing, China on May 15~18, 2019

- With the presentation of 108 papers (incl. 32 from Korean org.).

**Honorary Chairs:** Prof. Qi LUO (NPIC)

Dr. Hee-Cheon NO (KAIST)

**General Chairs:** Dr. Yan-Ping HUANG (NPIC)

Dr. Chul-Hwa SONG (KAERI)

**Steering Committee:**

Chairs: Dr. Bing-De CHEN (NPIC)

Prof. Kwang-Hyun BANG (KMU)

**Technical Program Committee:**

Chairs: Prof. Liang-Ming PAN (CQU)

Dr. Ki-Yong CHOI (KAERI)

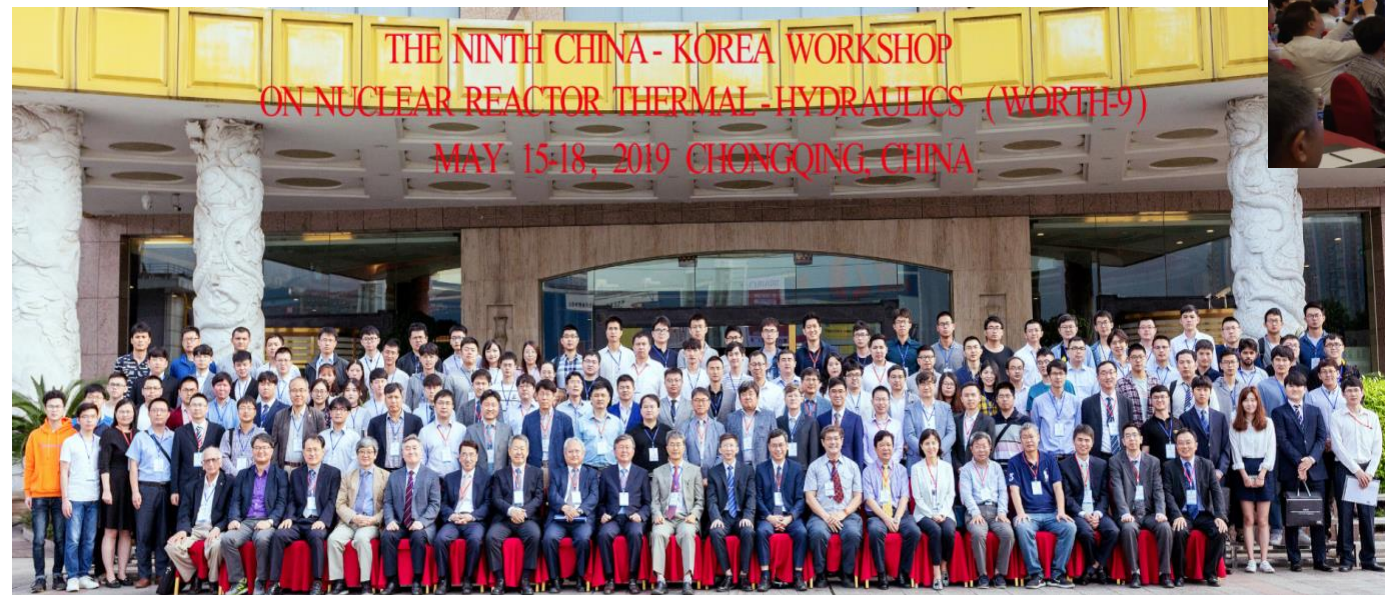
**Organizing Committee:**

Chairs: Dr. Yan-Lin WANG (NPIC)

Dr. Jae-Ryong LEE (KAERI)



THE NINTH CHINA - KOREA WORKSHOP  
ON NUCLEAR REACTOR THERMAL-HYDRAULICS (WORTH-9)  
MAY 15-18, 2019 CHONGQING, CHINA



# Summary (1/2)

	Location & Period	Participating Organization	# of Participants	# of Papers	Remarks
<b>WORTH-1</b>	Chengdu (Oct. 2003)	8 (1+7)	> 30 (5+25)	25 (10+15)	
<b>WORTH-2</b>	Jeju (May 2005)	10 (6+4)	60 (~50+9)	28	
<b>WORTH-3</b>	Dujiangyen (Aug. 2007)	14 (4+10)	95 (25+70)	75	15 <sup>th</sup> Anniversary of Korea-China
<b>WORTH-4</b>	Jeju (May 2009)	18 (10+8)	92 (62+30)	71 (40+31)	40 <sup>th</sup> Anniversary of KNS
<b>WORTH-5</b>	Emei, Chengdu (Oct. 2011)	21 (9+12)	(38+ .. )	95 (40+55)	
<b>WORTH-6</b>	Busan (April 2013)	25 (15+10)	105 (65+ 40)	88	
<b>WORTH-7</b>	Kunming (Oct. 2015)	33 (15+18)	137 (50+87)	124 (45+79)	

# Summary (2/2)

	Location & Period	Participating Organization	# of Participants	# of Papers	Remarks
<b>WORTH-8</b>	Yeosu (Oct. 2017)	28 (15+13)	103 (78+25)	81 (50+31)	15 presentations in embedded WS
<b>WORTH-9</b>	Chongqing (May 2019)			108 (32+76)	
<b>WORTH-10</b>	<b>한국</b> <b>(2021, 당초)</b>				<b>코로나로 2022년</b> <b>개최로 연기됨</b>

# WORTH 추진조직 이력

	Location & (Period)	Local Org. Chair	TPC Chair	Advisory / Steering Chair	General Chair	Honorary Chair
WORTH-1	Chengdu (2003.8)		송철화			
WORTH-2	Jeju (2005.5)		송철화			
WORTH-3	Dujiangyen (2007.8)		송철화			
WORTH-4	Jeju (2009.5)	강경호	송철화	김호정	백원필	박군철
WORTH-5	Chengdu (2011.10)	권태순	송철화	류용호	백원필	정문기
WORTH-6	Busan (2013.4)	권태순	정재준	류용호	송철화	백원필
WORTH-7	Kunming (2015.10)	박현식	권태순	류용호	송철화	노희천
WORTH-8	Yeosu (2017.10)	김성중	최기용	김인구	송철화	박군철
WORTH-9	Chongqing (2019.5)	이재룡	최기용	방광현	송철화	노희천
WORTH-10	한국 (2021, 당초) 코로나로 2022년으로 연기됨					

# Registration Fee

□ ....

## □ WORTH-7 (중국 개최)

- CNS/KNS members : ₩360,000 (2000 CNY)
- Students : ₩180,000 (1000 CNY)

## □ WORTH-8 (한국 개최)

- CNS/KNS members : ₩500,000 (3000 CNY)
- Students : ₩250,000 (1500 CNY)

## □ WORTH-9 (중국 개최)

- CNS/KNS members : ₩360,000 (2000 CNY)
- Students : ₩180,000 (1000 CNY)



- **본 자료를 취합해 주신 김종록 회원님과**
- **핵심자료를 제공해 주신 송철화 회원님께 감사드립니다.**

## **Call for Papers**

### **The Seventh China-Korea Workshop on Nuclear Reactor Thermal-Hydraulics (WORTH-7)**

**October 14-17, 2015  
Kunming, Yunnan, China**

*Organized by*  
**Nuclear Power Institute of China (NPIC),  
Xi'an Jiaotong University (XJTU)  
and  
Korea Atomic Energy Research Institute (KAERI)**

*Sponsored by*  
**Chinese Nuclear Society (CNS) and Korean Nuclear Society (KNS)**



#### ***ABOUT THE WORKSHOP***

China and Korea, among others, have rapidly developing nuclear programs, and are recognized as outstanding nuclear countries. Despite their geographic proximity, however, cooperative efforts between the two countries have not been actively pursued. In 2001, the Joint Committee on Nuclear Energy (JCNE) between the Chinese government (CAEA) and the Korean Government (MEST) was launched. A series of joint workshops in the nuclear thermal-hydraulic field were agreed with the intention of facilitating the cooperation activities between NPIC and KAERI, and XJTU who joined later on. Separately, another cooperation activity has been in progress between CIAE and KINS under the JCNE umbrella agreement. The objectives are to bring together researchers and designers from industries, laboratories and academia, active in the area of nuclear reactor thermal-hydraulics, to present the state-of-the-art technologies, to exchange their expertise and experiences, and to further stimulate their researcher activities. Since 2006, the thermal-hydraulic committees of both the CNS and the KNS have expressed a deep interest in the workshop and they have agreed to support this series of joint workshops. The official language of

the workshop is English.

### **TECHNICAL SESSION TOPICS**

- Track 1 Thermal Hydraulic Experiments
- Track 2 Computational Fluid Dynamics Technologies and Applications
- Track 3 Safety Analysis and Code Development
- Track 4 Severe Accident Analysis and Experiment
- Track 5 Instrumentation and Measurement Techniques
- Track 6 Advanced Water Reactor Technology
- Track 7 Next Generation Reactors Technology
- Track 8 Advanced Thermo-fluid System Design

### **WORKSHOP SCHEDULE**

- October 14(Wednesday) : Registration, and Welcome Reception
- October 15(Thursday) : Registration, Opening and Plenary Sessions, and Technical Session (I)
- October 16(Friday) : Technical Session (II) and Closing Session
- October 17(Saturday) : Technical Tour (Optional)

### **IMPORTANT DATES**

- Abstract due : May 31, 2015
- Pre-Registration form : August 15, 2015
- Final manuscripts due : August 31, 2015
- Final announcement : September 30, 2015

### **SUBMISSION OF THE ABSTRACT**

Submit your abstract to the website : <http://www.worth7.org>. The due date of the abstract submission is **May 31, 2015**.

### **SUBMISSION OF THE PRE-REGISTRATION FORM**

All *potential* participants are recommended to submit a *Pre-registration form*, not later than **August 15, 2015**, to the website : <http://www.worth7.org>.

In the pre-registration form, the name of the participants should be included along with the mailing address, phone, fax, and E-mail information. The pre-registration form is attached to this Call for Papers and also its electronic file can be obtained upon request by the website.

### **REGISTRATION FEES**

- Registration fee for CNS/KNS members 2000 CNY (~~¥~~360,000)
- Registration fee for students 1000 CNY (~~¥~~180,000)

Registration fees should be sent to our bank account via a bank transfer\* by **September 30, 2015**. However, we can accept cash (*China Yuan* only) at the registration desk. Registration fees include a set of Workshop Proceedings, banquet and technical tour.

\*Account of CNS for the bank transfer: *To be informed later*.

## **WORKSHOP VENUE**

*To be informed later.*

## **FURTHER INFORMATION**

Participants are encouraged to contact, for further information, the persons indicated below:

### ***for authors in China:***

Dr. SU, GuangHui (苏光辉)  
Xi'an Jiaotong University (XJTU)  
School of Nuclear Science and Technology  
Xi'an, Shaanxi, 710049, China

Tel: +86-29-8266-3401

Fax: +86-29-8266-3401

E-mail: ghsu@mail.xjtu.edu.cn

### ***for authors in Korea:***

Dr. Kwon, Tae-Soon (權泰純)  
Korea Atomic Energy Research Institute (KAERI)  
Thermal Hydraulics Safety Research Division  
Daedeok-daero 989-111, Yuseong-gu, Daejeon,  
305-353, Korea

Tel: +82-42-868-8717

Fax: +82-42-868-8362

E-mail: tskwon@kaeri.re.kr

## **REMARKS**

This series of bi-annual workshops is being organized by the bilateral cooperation item (Item B-2) in cooperation with B-7 under the umbrella agreements between Chinese and Korean governments for the JCNE (Joint Committee on Nuclear Energy) since 2001. Cooperation item B-2 is coordinated by KAERI, NPIC and XJTU and item B-7 by KAERI, KINS and CIAE. The WORTH-7 will be held in Kunming, Yunnan, China, October 14~17, 2015.

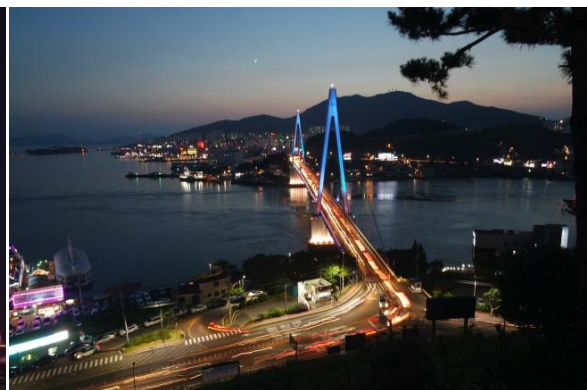
## **HISTORY OF THE WORTH WORKSHOP**

The first workshop was held in Chengdu, China on Oct. 21 to 24, 2003 with the presentation of 10 papers from Korea (KAERI) and 15 papers from China (NPIC and 6 other Chinese organizations). The second workshop was held in Jeju, Korea on May 24 to 25, 2005 with the presentation of 28 papers from Korea, China and Pakistan. The third workshop was held in Dujiangyan near Chengdu, China on Aug. 22~24, 2007 with the presentation of 75 papers from 14 organizations (including 10 Chinese organizations). The fourth workshop (WORTH-4) was held in Jeju, Korea on May 18~20, 2009 with the presentation of 71 papers from 18 organizations (including 8 Chinese organizations). The fifth workshop (WORTH-5) was held in Emei near Chengdu, China on Oct. 10~12, 2011 with the presentation of 95 papers from 21 organizations (including 9 Korean organizations). And the sixth workshop (WORTH-6) was held in Busan, Korea on April 11~13, 2013 with the presentation of 86 papers from 19 organizations (including 10 Chinese organizations).

First Call for Papers

# The 8<sup>th</sup> Korea-China **W**orkshop **o**n Nuclear **R**eactor **T**hermal-**H**ydraulics (**WORTH-8**)

<b>Date</b>	October 22-24, 2017
<b>Venue</b>	The MVL, Yeosu, Korea
<b>Organized by</b>	Korea Atomic Energy Research Institute (KAERI) Nuclear Power Institute of China (NPIC) Xi'an Jiaotong University (XJTU)
<b>Sponsored by</b>	Korean Nuclear Society (KNS) Chinese Nuclear Society (CNS)



## ABOUT THE WORKSHOP

Korea and China, among others, have rapidly developing nuclear programs, and are recognized as outstanding nuclear countries. Despite their geographic proximity, however, cooperative efforts between the two countries have not been actively pursued. In 2001, the Joint Committee on Nuclear Energy (JCNE) between the Chinese government (CAEA) and the Korean Government (MEST) was launched. A series of joint workshops in the nuclear thermal-hydraulic field were agreed with the intention of facilitating the cooperation activities between NPIC and KAERI, and XJTU who joined later on. Separately, another cooperation activity has been in progress between CIAE and KINS under the JCNE umbrella agreement. The objectives are to bring together researchers and designers from industries, laboratories and academia, active in the area of nuclear reactor thermal-hydraulics as well as in the field of severe accident, to present the state-of-the-art technologies, to exchange their expertise and experiences, and to further stimulate their researcher activities. Since 2006, the thermal-hydraulic committees of both the CNS and the KNS have expressed a deep interest in the workshop and they have agreed to support this series of joint workshops. The official language of the workshop is English.

## TECHNICAL SESSION TOPICS

- Track 1. Thermal Hydraulic Experiments
- Track 2. Computational Fluid Dynamics Technologies and Applications
- Track 3. Safety Analysis and Code Development
- Track 4. Severe Accident Analysis and Experiment
- Track 5. Instrumentation and Measurement Techniques
- Track 6. Advanced Water Reactor Technology
- Track 7. Next Generation Reactors Technology
- Track 8. Advanced Thermo-fluid System Design

## ORGANIZATION COMMITTEE CHAIRS

Honorary Chairs:	Prof. Goon-Cherl PARK (SNU)	Prof. Qi LUO (NPIC)
General Chairs:	Dr. Chul-Hwa SONG (KAERI)	Dr. Yan-Ping HUANG (NPIC)
Steering Committee Chairs:	Dr. In-Goo KIM (KINS)	Dr. Bing-De CHEN (NPIC)
Technical Program Committee Chairs:	Dr. Ki-Yong CHOI (KAERI)	Dr. Jian-Jun XU (NPIC)
Organizing Committee Chairs:	Prof. Sung Joong KIM (HYU)	Dr. Yan-Lin WANG (NPIC)

## WORKSHOP SCHEDULE

- October 22 (Sunday) : Registration and Welcome Reception
- October 23 (Monday) : Registration, Opening, Plenary Session 4 (TH & SA, Korea and China)  
Keynote 3, Technical Session I, Banquet
- October 24 (Tuesday) : Technical Session II, Keynote 3, Closing Session
- \* Embedded Session : SNPSDC-KAERI Workshop (October 24~25)



## IMPORTANT DATES

Abstract due : April 30, 2017  
Pre-Registration form : August 15, 2017  
Final manuscripts due : August 31, 2017  
Final announcement : September 30, 2017

## SUBMISSION OF THE ABSTRACT

Submit your abstract to the website: <http://www.worth8.org>. The due date of the abstract submission is April 30, 2017. (The website will be open soon)

## SUBMISSION OF THE PRE-REGISTRATION FORM

All *potential* participants are recommended to submit a *Pre-registration form*, not later than **August 15, 2017**, to the website: <http://www.worth8.org>.

In the pre-registration form, the name of the participants should be included along with the mailing address, phone, fax, and E-mail information. The pre-registration form is attached to this Call for Papers and also its electronic file can be obtained upon request by the website. If participants need an individual invitation letter from WORTH-8 for Visa, it will be issued by Secretariat ([registration@worth8.org](mailto:registration@worth8.org)). The notary service fee must be paid by you. However, the invitation from the WORTH-8 implies no obligation for visa.

## REGISTRATION FEES

Registration fee for KNS/CNS members : 500,000KRW (3,000CNY)  
Registration fee for Students : 250,000KRW (1,500CNY)

Registration fees should be sent to our bank account via a bank transfer\* by **September 30, 2017**. However, we can accept cash (*Korea Won* only) at the registration desk. Registration fees include a set of Workshop Proceedings, banquet.

\*Account of KNS for the bank transfer: *To be informed later*.

## WORKSHOP VENUE

The MVL, Yeosu, KOREA



Address : 111, Odongdo-ro, Yeosu-si, Jeollanam-do (332-15, Sujeong-dong)

Tel : +82-61-660-5800

Website : <http://www.mvlhotel.com/daemyung.mvl.yeosu.eng.main.ds/dmparse.dm>

### How to get to the Venue

**AIRPLANE** Yeosu Airport → The MVL Hotel Yeosu

Taxi: take about 30 minutes (Taxi fare about 21,000KRW)

Bus: take about 60 minutes

- ① Take city bus No. 32, 33, 35 > Take off at 'Bus Terminal'
- ② Transfer to city bus No. 333 > Take off at 'MVL Hotel'

Airport Bus: take about 60 minutes

- ① Take airport bus > Take off at 'Yisunsin-gwangjang'
- ② Transfer to city bus No. 2 > Take off at 'MVL Hotel'

**TRAIN** Yeosu EXPO Station → The MVL Hotel Yeosu

Taxi: take about 5 minutes (Taxi fare about 3,000KRW)

Bus: take about 10 minutes (Take city bus No.2 > Take off at 'MVL Hotel')

**EXPRESS BUS** Yeosu Bus Terminal → The MVL Hotel Yeosu

Taxi: take about 10 minutes (Taxi fare about 5,000KRW)

Bus: take about 10 minutes (Take city bus No.333 > Take off at 'MVL Hotel')

## FURTHER INFORMATION

Participants are encouraged to contact, for further information, the persons indicated below:

for author in China:

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305-353, Korea

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## REMARKS

This series of bi-annual workshops is being organized by the bilateral cooperation item (Item B-2) under the umbrella agreements between Chinese and Korean governments for the JCNE (Joint Committee on Nuclear Energy) since 2001. Cooperation item B-2 is coordinated by KAERI, KINS, NPIC and XJTU, and CIAE. The WORTH-8 will be held in Yeosu, Korea, October 22~24, 2017.

## HISTORY OF THE WORTH WORKSHOP

The first workshop was held in Chengdu, China on Oct. 21 to 24, 2003 with the presentation of 10 papers from Korea (KAERI) and 15 papers from China (NPIC and 6 other Chinese organizations). The second workshop was held in Jeju, Korea on May 24 to 25, 2005 with the presentation of 28 papers from Korea, China and Pakistan. The third workshop was held in Dujiangyan near Chengdu, China on Aug. 22~24, 2007 with the presentation of 75 papers from 14 organizations (including 10 Chinese organizations). The fourth workshop (WORTH-4) was held in Jeju, Korea on May 18~20, 2009 with the presentation of 71 papers from 18 organizations (including 8 Chinese organizations). The fifth workshop (WORTH-5) was held in Emei near Chengdu, China on Oct. 10~12, 2011 with the presentation of 95 papers from 21 organizations (including 9 Korean organizations). The sixth workshop (WORTH-6) was held in Busan, Korea on April 11~13, 2013 with the presentation of 86 papers from 19 organizations (including 10 Chinese organizations). And the seventh workshop (WORTH-7) was held in Kunming, China on Oct. 14~17, 2015 with the presentation of 116 papers from more than 130 researchers from both countries.

# **Call for Papers**

## **The Ninth China-Korea Workshop on Nuclear Reactor Thermal-Hydraulics (WORTH-9)**

**May 15~18, 2019**

**Chongqing, China**



*Organized by*

**Nuclear Power Institute of China (NPIC),**

**Chongqing University (CQU)**

*and*

**Korea Atomic Energy Research Institute (KAERI)**

*Sponsored by*

**Chinese Nuclear Society (CNS) and Korean Nuclear Society (KNS)**

### ***ABOUT THE WORKSHOP***

China and Korea are recognized as outstanding nuclear countries, both equipped with rapidly developing nuclear programs. Despite their geographic proximity, however, cooperative efforts between the two countries have not been actively pursued. In 2001, the Joint Committee on Nuclear Energy (JCNE) between the Chinese government (CAEA) and the Korean Government (MEST) was launched. A series of joint workshops in the nuclear thermal-hydraulic field were agreed with the intention of facilitating the cooperation activities between NPIC and KAERI, and XJTU who joined later on. Separately, another cooperation activity has been in progress between CIAE and KINS under the JCNE umbrella agreement. The objectives are to bring together researchers and designers from industries, laboratories and academia, active in the area of nuclear reactor thermal-hydraulics, to present the state-of-the-art technologies, to exchange their expertise and experiences, and to further stimulate their researcher activities. Since 2006, the thermal-hydraulic committees of both the CNS and the KNS have expressed a deep interest in the workshop and they have agreed to support this series of joint workshops. The official language of the workshop is English.

## **REMARKS**

This series of bi-annual workshops is being organized by the bilateral cooperation item (Item B-2) in cooperation with B-7 under the umbrella agreements between Chinese and Korean governments for the JCNE (Joint Committee on Nuclear Energy) since 2001. Cooperation item B-2 is coordinated by KAERI, NPIC and XJTU and item B-7 by KAERI, KINS and CIAE. The WORTH-9 will be held in Chongqing, China, May 15~18, 2019.

## **HISTORY OF THE WORTH WORKSHOP**

The first workshop was held in Chengdu, China on October 21-24, 2003 with the presentation of 10 papers from Korea (KAERI) and 15 papers from China (NPIC and 6 other Chinese organizations). The second workshop was held in Jeju, Korea on May 24-25, 2005 with the presentation of 28 papers from Korea, China and Pakistan. The third workshop was held in Dujiangyan near Chengdu, China on August 22-24, 2007 with the presentation of 75 papers from 14 organizations (including 10 Chinese organizations). The fourth workshop (WORTH-4) was held in Jeju, Korea on May 18-20, 2009 with the presentation of 71 papers from 18 organizations (including 8 Chinese organizations). The fifth workshop (WORTH-5) was held in Emei near Chengdu, China on October 10-12, 2011 with the presentation of 95 papers from 21 organizations (including 9 Korean organizations). And the sixth workshop (WORTH-6) was held in Busan, Korea on April 11-13, 2013 with the presentation of 86 papers from 19 organizations (including 10 Chinese organizations). The seventh workshop (WORTH-7) was held in Kunming, China on October 14-17, 2015 with the presentation of 110 papers from 33 organizations (including 15 Korean organizations). And the eighth workshop (WORTH-8) was held in Yeosu, Korea on October 25-26, 2017 with the presentation of 81 papers from 28 organizations (including 13 Chinese organizations).

## **TECHNICAL SESSION TOPICS**

- Track 1 Thermal Hydraulic Experiments
- Track 2 Computational Fluid Dynamics Technologies and Applications
- Track 3 Safety Analysis and Code Development
- Track 4 Severe Accident Analysis and Experiments
- Track 5 Instrumentation and Measurement Techniques
- Track 6 Advanced Water Reactor Technology
- Track 7 Next Generation Reactors Technology
- Track 8 Advanced Thermo-fluid System Design

## **PANEL TOPICS**

- Panel 1 Digital Nuclear Reactor
- Panel 2 Supercritical-CO<sub>2</sub>

## **WORKSHOP SCHEDULE**

- May 15, 2019 (Wednesday):** Registration, and Welcome Reception
- May 16, 2019 (Thursday):** Registration, Opening and Plenary Sessions, and Technical Session
- May 17, 2019 (Friday):** Technical Session and Closing Session

**May 18, 2019 (Saturday):**      Technical Tour (Korean Optional)

### **IMPORTANT DATES**

Deadline of One-page Abstract:           **January 15, 2019**  
Deadline of final full paper:               **March 15, 2019**  
Deadline of pre-registration form:       **March 31, 2019**

### **SUBMISSION OF THE PRE-REGISTRATION FORM**

Colleagues who are interested in participating in WORTH-9 are cordially requested to submit this form to: [ltzhang@cqu.edu.cn](mailto:ltzhang@cqu.edu.cn) as early as possible, but not later than **March 31, 2019**.

In the pre-registration form, the name of the participants should be included along with the mailing address, phone, fax, and E-mail information. The pre-registration form is attached to this Call for Papers and also its electronic file can be obtained upon request by the website.

### **REGISTRATION FEES**

Registration fee for CNS/KNS members           **1500 CNY**  
Registration fee for students                       **1000 CNY**

You can pay online: <http://worth-9.csp.escience.cn>. However, we can accept cash (*Chinese Yuan* only) at the registration desk. Registration fees include a set of Workshop Proceedings, banquet and technical tour.

### **FURTHER INFORMATION**

Participants are encouraged to contact, for further information, the persons indicated below:

<b><i>For authors in China:</i></b>	<b><i>For authors in Korea:</i></b>
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