



The 23rd International Conference on Nuclear Engineering

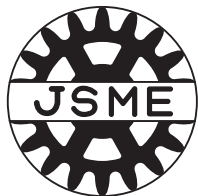
Nuclear Power – Reliable Global Energy

Program

May 17th - 21st, 2015
Makuhari Messe, Chiba, Japan



Sponsors



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On behalf of the organizers of the 23rd International Conference on Nuclear Engineering (ICONE23), I am very pleased to welcome all the participants from all over the world. ICONE is one of the greatest opportunities for professionals and students of nuclear engineering to present research results, to introduce activities and to discuss among them. I am honored to convene such an important conference in Japan.

The last ICONE in Japan was scheduled in May, 2011. However, ICONE 19 was suspended due to the Fukushima accident and held in Osaka in November. Since then, the intensive work for environmental recovery has been made in Fukushima. Also decommissioning of Fukushima Daiichi is in progress. Although all the nuclear power plants in Japan are shut down, the safety improvements based on new regulations have been approved for plants at Sendai and Takahama which are expected to resume operation in the near future. The sessions related to the Fukushima accident, nuclear safety and new regulations are scheduled to take place. I expect significant presentations and meaningful discussions will be made in these sessions.

Also the Generation-IV International Forum (GIF) Workshop is jointly held in the conference. I am sure that lively research and development activities for innovative nuclear power systems for the future will be of great interest to many participants.

Finally I would like to express my heartfelt gratitude to all the people and organizations contributed to organizing this ICONE23 including ASME, CNS and JSME, and also supporting organizations such as IAEA, GIF and many other entities as well as all the participants. Without all the help, this conference could not been realized.

I hope state of the art research and practices will be shown in this conference.

A handwritten signature in black ink, reading "松浦祥次郎" (Matsuura Shojiro).

Shojiro Matsuura
Conference Chairperson, ICONE 23
Chairman, Japan Nuclear Safety Institute

	8:00	9:00	10:00	11:00	12:00	13:00	
May, 17th Sunday			10:00-13:00 CFD Seminar			13:00-14:00 Lunch	
			10:00-13:00 Workshops				
		9:00-17:30 Registration					
May, 18th Monday		9:00-9:20 Opening	9:20-10:45 Plenary-1	10:45-11:05 Coffee Break	11:05-12:30 Plenary-2	12:30-14:00 Lunch	
						12:30-14:00 Poster Session	
						13:30-14:00 Author's Briefing	
		8:00-17:30 Registration					
May, 19th Tuesday	8:00-8:30 Author's Briefing	8:30-10:30 Panel Session -3		10:50-12:30 Panel Session -2		12:30-13:30 Lunch	
		8:30-10:30 Panel Session -6	10:30-10:50 Coffee Break	10:50-12:30 Technical Session		12:30-13:30 Poster Session	
		8:30-10:30 Technical Session				13:30-15:30 Panel Session -4	
						13:30-15:30 Panel Session-8	
						13:30-15:30 Technical Session	
		7:30-17:30 Registration					
May, 20th Wednesday	8:00-8:30 Author's Briefing	8:30-10:30 Panel Session -7		10:50-12:30 Panel Session -9		12:30-13:30 Lunch	
		8:30-10:30 Technical Session	10:30-10:50 Coffee Break	10:50-12:30 Technical Session		13:30-15:10 Technical Session	
		7:30-16:00 Registration					
May, 21st Thursday		8:00-19:00 Technical Tour					

[Note] 1. Exhibition will be held from May 18th to May 20th at the International Conference Room, 2F.

14:00	15:00	16:00	17:00	18:00	19:00	20:00
14:00-17:00 CFD Seminar			17:15-18:15 Pre-Conference Meeting		18:30-20:00 Welcome Reception @Lobby on the 2nd Floor	
14:00-17:00 Workshops						
9:00-17:30 Registration						
14:00-16:00 Panel Session -1		16:00-16:30 Coffee Break	16:30-18:30 Panel Session -5			
14:00-16:00 Technical Session			16:30-18:30 Technical Session			
8:00-17:30 Registration						
13:30-15:30 Panel Session -4		15:30-16:00 Coffee Break	16:00-17:20 Panel Session -10		18:30-20:30 Banquet (ICONE Award) @Hotel New Otani Makuhari ROOM TSURU	
13:30-15:30 Panel Session -8			16:00-18:00 Technical Session			
13:30-15:30 Technical Session			16:00-18:00 Poster Session			
7:30-17:30 Registration						
14:00-17:00 Post Conference Meeting						
13:30-15:10 Technical Session		15:10-15:40 Coffee Break	15:40-17:20 Technical Session		17:30-18:50 Students Award @Convention Hall A	
7:30-16:00 Registration						
8:00-19:00 Technical Tour						

May 17th, Sunday

	1F						2F			
	Room 101A	Room 101B	Room 102A	Room 102B	Room 103	Room 104	Room 105	Convention Hall	Convention Hall A	Convention Hall B-1
9:00										
10:00										
11:00					10:00-13:00 Workshop 2 p.28	10:00-13:00 Workshop 4 p.29	10:00-13:00 Workshop 6 p.29			
12:00										
13:00										
14:00										
15:00					14:00-17:00 Workshop 3 p.28	14:00-17:00 Workshop 5 p.29				
16:00										
17:00										
18:00										
19:00										
20:00										

May 18th, Monday

	1F						2F			
	Room 101A	Room 101B	Room 102A	Room 102B	Room 103	Room 104	Room 105	Convention Hall	Convention Hall A	Convention Hall B-1
8:00										
9:00								9:00-9:20 Opening p.23		
10:00								9:20-10:45 Plenary-1 p.23		
11:00										
12:00								11:05-12:30 Plenary-2 p.23		
13:00	12:30-14:00 Student Paper Competition Poster Session place:International Conference Room, 2F									
14:00		14:00-16:00 12-1 p.33	14:00-16:00 4-1 p.33		14:00-16:00 5-1 p.34					
15:00										
16:00										
17:00		16:30-18:30 12-2 p.33			16:30-18:30 5-2 p.34	16:30-18:30 7-1 p.35	16:30-18:30 7-7 p.35			16:30-18:30 18-1 p.36
18:00										

2F					3F					
Convention Hall B-2	Room 201 A	Room 201 B	Room 202	Room 203	Room 301 A	Room 301 B	Room 302	Room 303	Room 304	
										9:00
										10:00
	10:00-17:00 CFD Semminar p.28						10:00-17:00 Workshop 1 p.28	10:00-17:00 Workshop 8 p.29		11:00
										12:00
										13:00
										14:00
										15:00
										16:00
										17:00
										18:00
										19:00
										20:00

2F					3F					
Convention Hall B-2	Room 201 A	Room 201 B	Room 202	Room 203	Room 301 A	Room 301 B	Room 302	Room 303	Room 304	
										8:00
										9:00
										10:00
										11:00
										12:00

12:30-14:00
Student Paper Competition Poster Session
 place: International Conference Room, 2F

		14:00-16:00 11-1 p.37	14:00-16:00 15-1 p.37		14:00-16:00 10-1 p.38	14:00-16:00 10-11 p.39	14:00-16:00 2-11 p.40	14:00-16:00 Panel-1 p.24	14:00-16:00 2-1 p.40	14:00
										15:00
										16:00
16:30-18:30 18-9 p.36		16:30-18:30 11-2 p.37	16:30-18:30 15-2 p.38		16:30-18:30 10-2 p.39	16:30-18:30 10-12 p.40		16:30-18:30 Panel-5 p.25	16:30-18:30 2-2 p.41	17:00
										18:00

May 19th, Tuesday

	1F						2F			
	Room 101A	Room 101B	Room 102A	Room 102B	Room 103	Room 104	Room 105	Convention Hall	Convention Hall A	Convention Hall B-1
7:00										
8:00										
9:00	8:30-10:30 9-1 p.42	8:30-10:30 12-3 p.43			8:30-10:30 5-3 p.46	8:30-10:30 7-2 p.47	8:30-10:30 7-8 p.49		8:30-10:30 21-1 p.50	8:30-10:30 18-2 p.52
10:00										
11:00	10:50-12:30 9-2 p.42	10:50-12:30 12-4 p.43	10:50-12:30 3-1 p.44		10:50-12:30 5-4 p.46	10:50-12:30 7-3 p.48	10:50-12:30 7-9 p.49		10:50-12:30 21-2 p.51	10:50-12:30 18-3 p.52
12:00										
13:00	12:30-13:30 Student Paper Competition Poster Session place:International Conference Room, 2F									
14:00	13:30-15:30 9-3 p.42	13:30-15:30 12-5 p.44	13:30-15:30 3-2 p.45		13:30-15:30 5-5 p.46	13:30-15:30 7-4 p.48	13:30-15:30 7-10 p.50		13:30-15:30 21-3 p.51	13:30-15:30 18-4 p.52
15:00										
16:00	16:00-18:00 9-4 p.43	16:00-18:00 17-1 p.44	16:00-18:00 3-3 p.45	16:00-18:00 16-1 p.46	16:00-18:00 5-6 p.47	16:00-18:00 7-5 p.48	16:00-18:00 7-11 p.50	16:00-18:00 Student Paper Competition Poster Session place:International Conference Room, 2F		
17:00										
18:00										
19:00										
20:00										

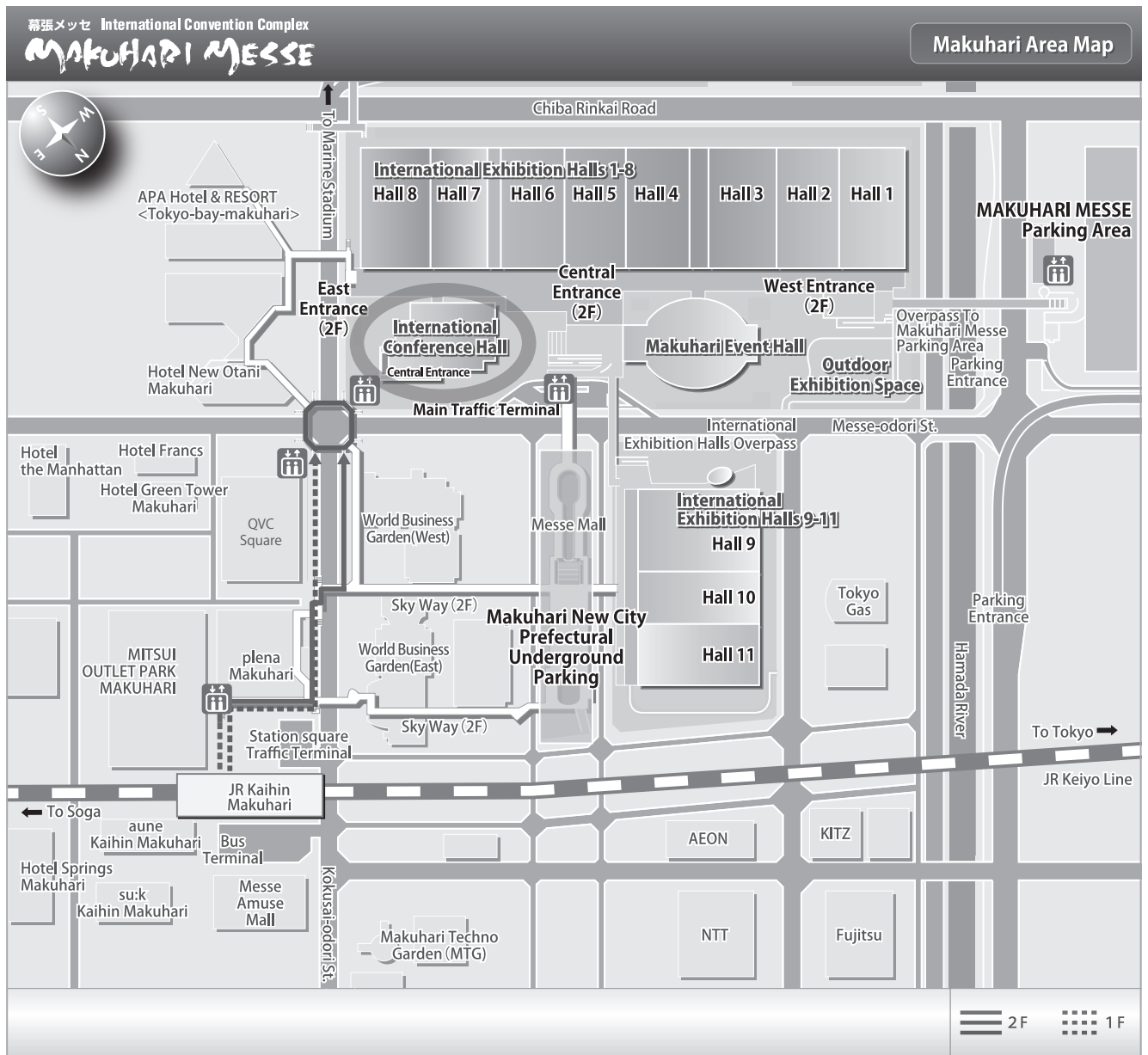
[Note]

- Poster Session will be held in the following time. (place:International Conference Room, 2F)
 May 18th : 12:30-14:00
 May 19th : 12:30-13:30 and 16:00-18:00

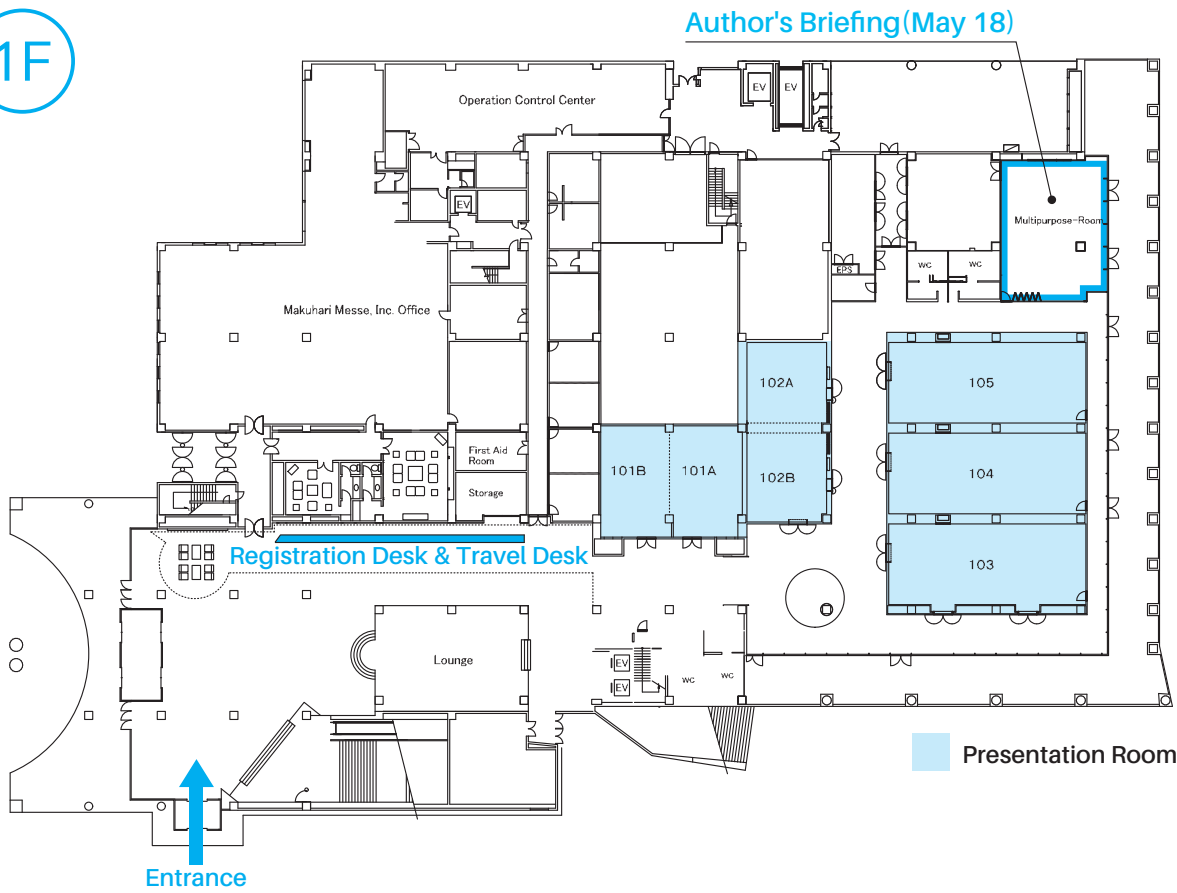
May 20th, Wednesday

	1F						2F			
	Room 101A	Room 101B	Room 102A	Room 102B	Room 103	Room 104	Room 105	Convention Hall	Convention Hall A	Convention Hall B-1
7:00										
8:00										
9:00	8:30-10:30 9-5 p.66	8:30-10:30 17-2 p.67	8:30-10:30 3-4 p.67	8:30-10:30 16-2 p.69	8:30-10:30 5-7 p.70	8:30-10:30 7-6 p.72	8:30-10:30 7-12 p.73			8:30-10:30 18-5 p.74
10:00										
11:00	10:50-12:30 9-6 p.66	10:50-12:30 17-3 p.67	10:50-12:30 3-5 p.68	10:50-12:30 16-3 p.69	10:50-12:30 5-8 p.70	10:50-12:30 16-5 p.72	10:50-12:30 7-13 p.73			10:50-12:30 18-6 p.75
12:00										
13:00										
14:00	13:30-15:10 9-7 p.66	13:30-15:10 17-4 p.67	13:30-15:10 3-6 p.68	13:30-15:10 16-4 p.69	13:30-15:10 5-9 p.71	13:30-15:10 16-6 p.72	13:30-15:10 7-14 p.74			13:30-15:10 18-7 p.75
15:00										
16:00			15:40-17:20 3-7 p.68		15:40-17:20 5-10 p.71	15:40-17:20 16-7 p.73				15:40-17:20 18-8 p.75
17:00										
18:00										

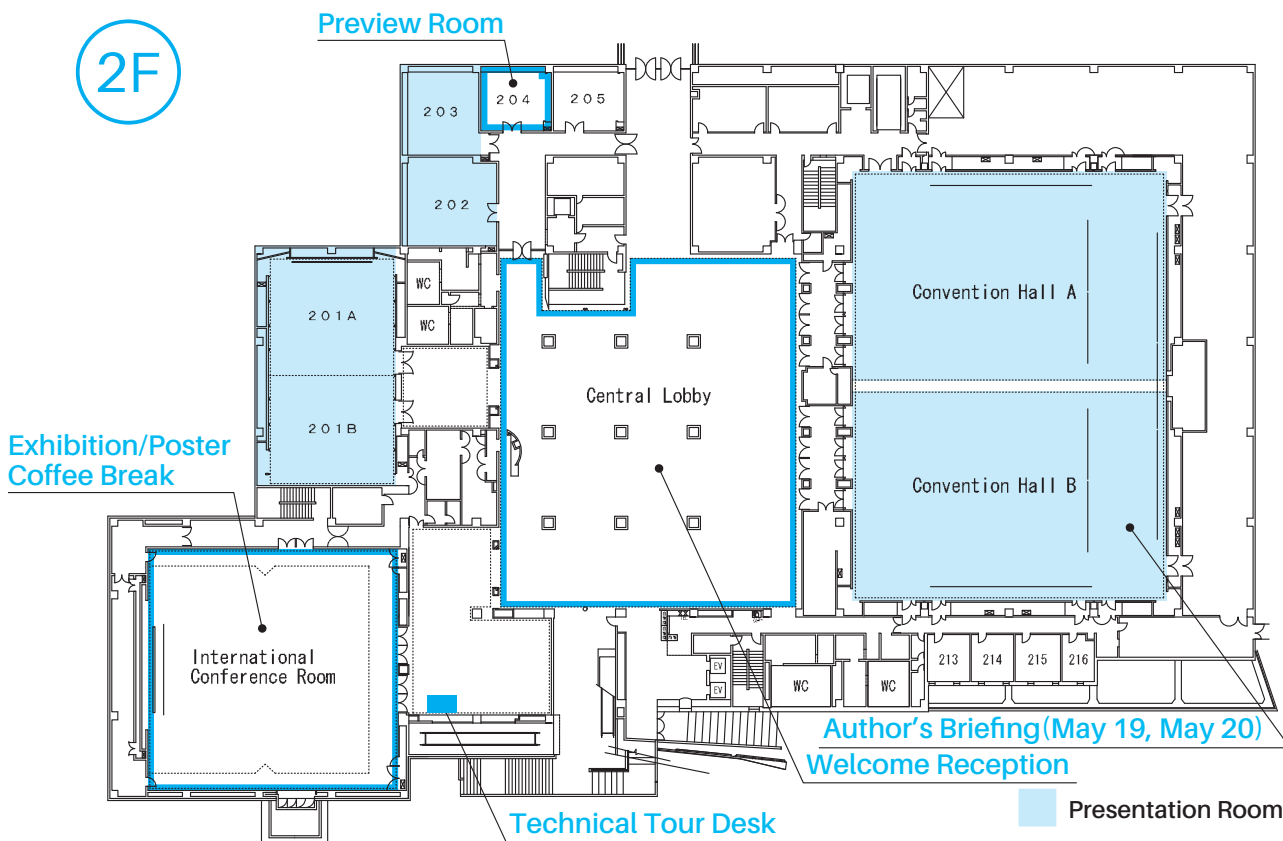
2F					3F					
Convention Hall B-2	Room 201 A	Room 201 B	Room 202	Room 203	Room 301 A	Room 301 B	Room 302	Room 303	Room 304	
										7:00
										8:00
8:30-10:30 18-13 p.76	8:30-10:30 1-4 p.77	8:30-10:30 11-7 p.78	8:30-10:30 1-8 p.79	8:30-10:30 14-5 p.80	8:30-10:30 10-7 p.81	8:30-10:30 10-17 p.83	8:30-10:30 6-2 p.84	8:30-10:30 Panel-7 p.25	8:30-10:30 2-7 p.85	9:00
										10:00
10:50-12:30 18-14 p.76	10:50-12:30 1-5 p.77	10:50-12:30 11-8 p.78		10:50-12:30 14-6 p.80	10:50-12:30 10-8 p.82	10:50-12:30 10-18 p.83	10:50-12:30 6-3 p.84	10:50-12:30 Panel-9 p.26	10:50-12:30 2-8 p.85	11:00
										12:00
										13:00
13:30-15:10 18-15 p.76	13:30-15:10 1-6 p.77	13:30-15:10 11-9 p.79	13:30-15:10 1-9 p.80	13:30-15:10 14-7 p.81	13:30-15:10 10-9 p.82	13:30-15:10 10-19 p.83	13:30-15:10 13-1 p.84		13:30-15:10 2-9 p.86	14:00
										15:00
	15:40-17:20 1-7 p.78		15:40-17:20 1-10 p.80		15:40-17:20 10-10 p.82		15:40-17:20 13-2 p.85		15:40-17:20 2-10 p.86	16:00
										17:00
										18:00



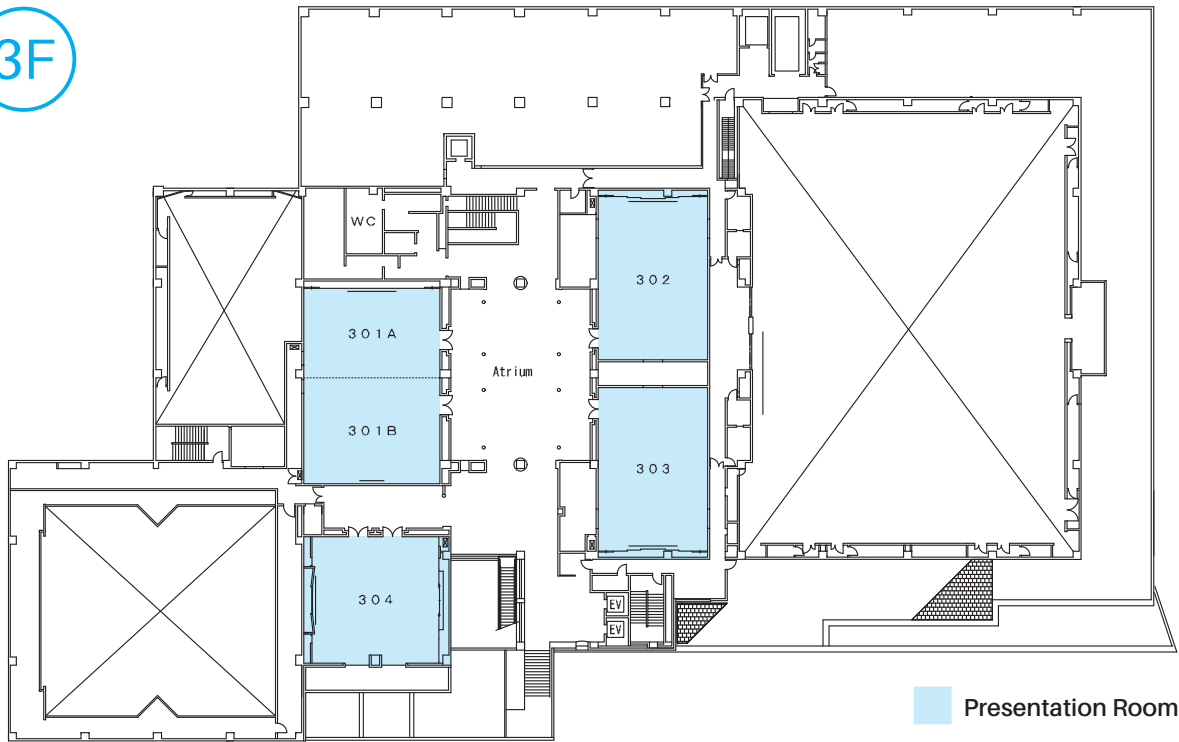
1F



2F



3F



Conference Chairpersons

Matsuura, Shojiro, Japan Nuclear Safety Institute
 Arastu, Asif, Unisont Engineering, Inc.
 Lei, Zengguan, China National Nuclear Corporation

Executive Committee Chairperson

Kugo, Akihide, Japan Nuclear Safety Institute

Technical Program Committee Chairpersons

Takeda, Tetsuaki, University of Yamanashi
 Hassan, Yassin, Texas A&M University
 Yan, Jinquan, Shanghai Nuclear Engineering Research & Design Institute

Technical Program Assistant Chairpersons

Funatani, Shumpei, University of Yamanashi
 Cizelj, Leon, Jozef Stefan Institute
 Tian, Lin, Shanghai Nuclear Engineering Research & Design Institute

Organizing Committee Chairpersons

Matsuura, Shojiro, Japan Nuclear Safety Institute
 Stakenborghs, Bob, ILD
 Lixin, Shen, Chinese Nuclear Society

Student Program Committee Chairpersons

Okawa, Tomio, The University of Electro-Communications
 Revankar, Shripad, Purdue University
 Yu, Suyuan, Tsinghua University

Steering Committee Chairpersons

Takase, Kazuyuki, Japan Atomic Energy Agency
 Riznic, Jovica, Canadian Nuclear Safety Commission
 Guanxing, Li, Chinese Nuclear Society

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(JSME)

Aritomi, Masanori, Tokyo Institute of Technology
 Hisamochi, Kohei, Hitachi-GE Nuclear Energy, Ltd.
 Hoshide, Akehiko, Toshiba Corporation
 Koizumi, Yasuo, Japan Atomic Energy Agency
 Yamamoto, Tomofumi, Mitsubishi Heavy Industries, Ltd.

(ASME)

Arastu, Asif, Unisont Engineering, Inc.
 Bendo, John, The American Society of Mechanical Engineers
 Cizelj, Leon, Jozef Stefan Institute
 Crane, Stephen R., The American Society of Mechanical Engineers
 Hassan, Yassin, Texas A&M University
 Miller, Joseph S., EDA
 Pioro, Igor, University of Ontario Institute of Technology
 Revankar, Shripad, Purdue University
 Smith, Clayton, FLUOR Nuclear Power
 Stakenborghs, Bob, ILD
 Wang, Guoqiang, Westinghouse Electric Company LLC

(CNS)

Huang, Yanping, Nuclear Power Institute of China

Liu, Changxin, China National Nuclear Corporation

Su, Guanghui, Xi'an Jiaotong University

Ye, Guoan, China Institute of Atomic Energy

Yu, Suyuan, Tsinghua University

Zhang, Zhijiang, Harbin Engineering University

Zheng, Mingguang, Shanghai Nuclear Engineering Research & Design Institute

Local Organizing Committee

Chairperson

Matsuura, Shojiro, Japan Nuclear Safety Institute

Member

Abe, Yutaka, University of Tsukuba

Aritomi, Masanori, Tokyo Institute of Technology

Fujihara, Hiroshi, Nuclear Waste Management Organization of Japan

Funatani, Shumpei, University of Yamanashi

Hisamochi, Kohei, Hitachi-GE Nuclear Energy, Ltd.

Hoshide, Akehiko, Toshiba Corporation

Iguchi, Yukihiro, Japan Atomic Energy Agency

Ikeda, Takao, JGC Corporation

Inagaki, Yusuke, Radioactive Waste Management Funding and Research Center

Kanazawa, Toru, Global Nuclear Fuel - Japan Co., Ltd.

Kasahara, Fumio, Nuclear Regulation Authority

Kawagoe, Toshiyuki, Mitsubishi Nuclear Fuel Co., Ltd.

Kikura, Hiroshige, Tokyo Institute of Technology

Kitayama, Masaaki, Nuclear Fuel Industries, Ltd.

Koikegami, Hajime, IHI Corporation

Koizumi, Yasuo, Japan Atomic Energy Agency

Kubota, Kenichi, Toshiba Corporation

Kugo, Akihide, Japan Nuclear Safety Institute

Matsui, Kazuaki, Institute of Applied Energy

Okamoto, Koji, The University of Tokyo

Okawa, Tomio, The University of Electro-Communications

Onizawa, Kunio, Japan Atomic Energy Agency

Ono, Masayuki, The Federation of Electric Power Companies of Japan

Ozaki, Hiroshi, Fuji Electric Co., Ltd.

Shiraki, Takako, Mitsubishi Heavy Industries, Ltd.

Shoji, Takashi, Chubu Electric Power Co., Inc.

Takase, Kazuyuki, Japan Atomic Energy Agency

Takeda, Tetsuaki, University of Yamanashi

Takei, Masahiro, Chiba University

Takizawa, Masayuki, Mitsubishi Research Institute, Inc.

Tone, Takayoshi, Japan Power Engineering and Inspection Corporation

Tsuru, Hisanori, Japan Atomic Industrial Forum Inc.

Tsuyama, Masaki, The Japan Electrical Manufacturers' Association

Ueda, Nobuyuki, Central Research Institute of Electric Power Industry

Yamada, Katsumi, International Atomic Energy Agency

Yamamoto, Tomofumi, Mitsubishi Heavy Industries, Ltd.

Yamamoto, Kazuhiko, Japan Science and Technology Agency

Yokozuka, Satoru, Mitsubishi Heavy Industries, Ltd.

Yoshikawa, Hidekazu, Kyoto University

Local Executive Committee

Chairperson

Kugo, Akihide Japan Nuclear Safety Institute

Member

Funatani, Shumpei, University of Yamanashi

Hisamochi, Kohei, Hitachi-GE Nuclear Energy, Ltd.

Hoshide, Akehiko, Toshiba Corporation

Koizumi, Yasuo, Japan Atomic Energy Agency

Kurata, Satoshi, Japan Nuclear Safety Institute

Okawa, Tomio, The University of Electro-Communications

Onizawa, Kunio, Japan Atomic Energy Agency

Shoji, Takashi, Chubu Electric Power Co., Inc.

Takeda, Tetsuaki, University of Yamanashi

Takei, Masahiro, Chiba University

Ueda, Nobuyuki, Central Research Institute of Electric Power Industry

Yamamoto, Kazuhiko, Japan Science and Technology Agency

Yamamoto, Tomofumi, Mitsubishi Heavy Industries, Ltd.

Yoshikawa, Hidekazu, Kyoto University

Track 1

Plant Operations, Maintenance, Engineering, Modifications, Life Cycle and Balance of Plant

Track Chair	Koji Yamada , Chubu Electric Power Co., Inc.	JSME
Track Co-Chair	Motonari Haraguchi , Hitachi, Ltd	JSME
	Satoshi Kurata , Japan Nuclear Safety Institute	JSME
	Yukinori Hirose , Toshiba Corporation	JSME
	Robert Stakenborg , ILD, Inc	ASME
	Joseph Miller , EDA	ASME
	Steven Kaercher , DTE Energy	ASME
	William A. Byers , Westinghouse	ASME
	Xinrong Liu , China Nuclear Power Engineering Co., Ltd	CNS

Track 2

Nuclear Fuel and Materials

Track Chair	Yoshinori Katayama , Toshiba Corporation	JSME
Track Co-Chair	Yoshihiro Isobe , Nuclear Fuel Industries Ltd.,	JSME
	Ikuo Ioka , Japan Atomic Energy Agency	JSME
	Carsten Schroer , Karlsruhe Institute of Technology (KIT)	ASME
	Jovica Riznic , Canadian Nuclear Safety Commission	ASME
	Emmanuel Horowitz , EDF	ASME
	Paul Chan , Royal Military College of Canada	ASME
	Radek Skoda , Czech Technical University in Prague	ASME
	John Sulley , Rolls-Royce	ASME
	Robert L Oelrich , Westinghouse	ASME
	Xiaomin Wang , Nuclear Power Institute of China	CNS
	Zhangjian Zhou , University of Science and Technology Beijing	CNS
	Libin Zhu , Shanghai Nuclear Engineering Research and Design Institute	CNS

Track 3

Plant Systems, Structures, and Components

Track Chair	Takashi Wakai , Japan Atomic Energy Agency	JSME
Track Co-Chair	Asif Arastu , Unisont Engineering, Inc.	ASME
	Jovica Riznic , Canadian Nuclear Safety Commission	ASME

	Brian Fant , Bechtel Corporation	ASME
	Leon Cizelj , Jozef Stefan Institute	ASME
	Farhang Ostadan , Bechtel Corporation	ASME

	Jianfeng Yang , Westinghouse Electric Company	ASME
	Shengyao Jiang , Tsinghua University	CNS

	Qing Mao , CGNPC China Nuclear Power Engineering Co., Ltd	CNS
	Yinbiao He , Shanghai Nuclear Engineering Research and Design Institute	CNS

Track 4

Radioprotection and Nuclear Technology Applications

Track Chair	Toshiharu Muramatsu , Japan Atomic Energy Agency	JSME
Track Co-Chair	Ivo Kljenak , Jozef Stefan Institute	ASME
	Howard Chung , Korea Advanced Institute of Science & Technology (KAIST)	ASME
	Justin Byard , WECAN, AREVA / CGNPC Joint-Venture	ASME
	Tatjana Jevremovic , University of Utah	ASME
	Huating Yang , China Institute of Radiation Protection	CNS
	Ruilan Liu , Ministry of Environmental Protection, China	CNS
	Guobao Wang , Chinese Institute of Atomic Energy	CNS

Track 5

Next Generation Reactors (including GIF Symposium)

Track Chair	Yoshiyuki Inagaki , Japan Atomic Energy Agency	JSME
Track Co-Chair	Ryodai Nakai , Japan Atomic Energy Agency	JSME
	Kiyoshi Ono , Japan Atomic Energy Agency	JSME
	Matthew J Memmott , Brigham Young University	ASME
	Ivan Otic , Karlsruhe Institut of Technology (KIT)	ASME
	Howard Chung , Korea Advanced Institute of Science & Technology (KAIST)	ASME
	Jay Kunze , Idaho state University	ASME
	Dmitry Paramonov , JSC Atomenergoproekt	ASME

Chellapandi P, Indira Gandhi centre for Atomic Research **ASME**
Zhang Donghui, Chinese Institute of Atomic Energy **CNS**
Danrong Song, Nuclear Power Institute of China **CNS**
Zhiwei Zhou, Tsinghua University **CNS**
Shengyi Si, Shanghai Nuclear Engineering Research and Design Institute **CNS**

Track 6 Advanced Reactors

Track Chair **Kazuhiro Kamei**, Toshiba Corporation **JSME**
 Track Co-Chair **Jovica Riznic**, Canadian Nuclear Safety Commission **ASME**
Xian-Gang Fu, China Nuclear Power Technology Research Institute **CNS**

Track 7 Nuclear Safety and Security

Track Chair **Yoshihisa Nishi**, Central Research Institute of Electric Power Industry **JSME**
 Track Co-Chair **Takeshi Yamada**, Hitachi-GE Nuclear Energy, Ltd. **JSME**
Yoshihiko Ishii, Hitachi, Ltd. **JSME**
Martin Sattison, Idaho National Laboratory **ASME**
Jovica Riznic, Canadian Nuclear Safety Commission **ASME**
Mohammad Pourgol-Mohammad, Quality Consultings Inc. **ASME**
Alessandro Petruzzi, Nuclear Research Group of San Piero a Grado (GRNSPG) **ASME**
Ivan Vrbanic, APoSS d.o.o. **ASME**
Xian-Gang Fu, China Nuclear Power Technology Research Institute **CNS**
Hongxing Yu, Nuclear Power Institute of China **CNS**
Daming Liu, Chinese Institute of Atomic Energy **CNS**

Track 8 Codes, Standards, Licensing and Regulatory Issues

Track Chair **Kazuyuki Tsukimori**, Japan Atomic Energy Agency **JSME**
 Track Co-Chair **Clayton Smith**, Fluor **ASME**
Howard Chung, Korea Advanced Institute of Science & Technology (KAIST) **ASME**
Nik Popov, - **ASME**
Zoran Vujic, Westinghouse **ASME**

Shenjie Gu, Shanghai Nuclear Engineering Research and Design Institute **CNS**

Track 9 Fuel Cycle, Radioactive Waste Management and Decommissioning

Track Chair **Koichi Kitamura**, Japan Atomic Energy Agency **JSME**
 Track Co-Chair **Yuichi Niibori**, Tohoku University **JSME**
Brian Ikeda, UOIT **ASME**
Patricia Paviet, Department of Energy **ASME**
Dongsheng Li, China Nuclear Power Technology Research Institute **CNS**
Min Xiao, China Nuclear Power Technology Research Institute **CNS**

Track 10 Thermal Hydraulics

Track Chair **Kazuyuki Takase**, Japan Atomic Energy Agency **JSME**
 Track Co-Chair **Hiroyasu Ohtake**, Kogakuin University **JSME**
Michitsugu Mori, Hokkaido University **JSME**
Yasushi Yamamoto, Toshiba Corporation **JSME**
Shinichi Morooka, Waseda University **JSME**
Shoji Mori, Yokohama National University **JSME**
Hiroyuki Yoshida, Japan Atomic Energy Agency **JSME**
Chikako Iwaki, Toshiba Corporation **JSME**
George Mesina, Idaho National Laboratory **ASME**
Asif Arastu, Unisont Engineering, Inc. **ASME**
Richard Schultz, Idaho National Engineering Lab **ASME**
Mohammad Pourgol-Mohammad, Quality Consultings Inc. **ASME**
Alessandro Petruzzi, Nuclear and Industrial Engineering (NINE) **ASME**
Yassin Hassan, Texas A&M University **ASME**
Gonzalo Jimenez, Universidad Politécnic de Madrid (UPM) **ASME**
Agrawal Manish, Indian Institute of Technology Indore India **ASME**
Brian Fant, Bechtel Corporation **ASME**
Guanghui Su, Xi'an Jiaotong University **CNS**

HUANG Yanping, Nuclear Power Institute of China **CNS**
Peipei Chen, SNPTC **CNS**
Bao-Wen Yang, Xian Jiaotong University **CNS**

Track 11 Computational Fluid Dynamics (CFD) and Coupled Codes

Track Chair **Hiroyuki Ohshima**, Japan Atomic Energy Agency **JSME**
 Track Co-Chair **Akira Yamaguchi**, Osaka University **JSME**
Yuzuru Eguchi, Central Research Institute of Electric Power Industry **JSME**
Akira Nakamura, Institute of Nuclear Safety System, Incorporated **JSME**
Yassin Hassan, Texas A&M University **ASME**
Sofiane Benhamadouche, Electricite De France R & D **ASME**
George Mesina, Idaho National Laboratory **ASME**
Deoras Prabhudharwadkar, GE Global Research **ASME**
Shripad Revankar, Purdue University **ASME**
Elia Merzari, Argonne National Laboratory **ASME**
Yacine Addad, Khalifa University **ASME**
Emilio Baglietto, Massachusetts Inst of Tech **ASME**
Agrawal Manish, Indian Institute of Technology Indore India **ASME**
Yann Bartosiewicz, Université catholique de Louvain **ASME**
Shengyi Si, Shanghai Nuclear Engineering Research and Design Institute **CNS**
Liangzhi Cao, Xi'an Jiaotong University **CNS**

Track 12 Reactor Physics and Transport Theory

Track Chair **Akio Yamamoto**, Nagoya University **JSME**
 Track Co-Chair **Hideki Matsumoto**, Mitsubishi Heavy Industries, Ltd **JSME**
Djordje Tomasevic, South African Nuclear Energy Corporation SOC Limited (NECSA) **ASME**
Zafar ullah KORESHI, Faculty of Engineering, Air University **ASME**
Gianluca Longoni, Westinghouse **ASME**

Shouzhi Zhao, Chinese Institute of Atomic Energy **CNS**
Hongchun Wu, Xi'an Jiaotong University **CNS**

Track 13 Nuclear Education, Public Acceptance and Related Issues

Track Chair **Hiroshige Kikura**, Tokyo Institute of Technology **JSME**
 Track Co-Chair **Kazuhiko Yamamoto**, Japan Science and Technology Agency **JSME**
Yassin Hassan, Texas A&M University **ASME**
Emilio Baglietto, Massachusetts Inst of Tech **ASME**
Steve Kidd, East Cliff Consulting **ASME**
Suizheng Qiu, Xi'an Jiaotong University **CNS**
Kan Wang, Tsinghua University **CNS**

Track 14 Instrumentation & Controls (I&C)

Track Chair **Yasutake Fujishima**, Hitachi-GE Nuclear Energy, Ltd. **JSME**
 Track Co-Chair **Mauro Cappelli**, ENEA **ASME**
Robert Stakenborghs, ILD, Inc **ASME**
Li Shi, GE Hitachi **ASME**
Goran Simeunovic, Czech Technical University **ASME**
Shenjie Gu, Shanghai Nuclear Engineering Research and Design Institute **CNS**

Track 15 Fusion Engineering

Track Chair **Tomoaki Kunugi**, Kyoto University **JSME**
 Track Co-Chair **Leigh Winfrey**, Virginia Tech **ASME**
Feng Kaiming, Southwest Institute of Physic **CNS**
Yican Wu, Hefei Institutes of Physical Science **CNS**

Track 16 Beyond Design Basis Events

Track Chair **Jun Sugimoto**, Kyoto University **JSME**
 Track Co-Chair **Yu Maruyama**, Japan Atomic Energy Agency **JSME**
Romney Duffey, DSM Associates **ASME**
Howard Chung, Korea Advanced Institute of Science & Technology (KAIST) **ASME**

Randall Gauntt, Sandia National Laboratories ASME
Cao Xuewu, Shanghai Jiaotong University CNS
yu Zhang, Nuclear Power Institute of China CNS
Guobao Shi, Shanghai Nuclear Engineering Research and Design Institute CNS

Track 17 Innovative Nuclear Power Plant Design and New Technology Application

Track Chair **Minoru Takahashi**, Tokyo Institute of Technology JSME
 Track Co-Chair **Kazuhito Asano**, Toshiba Corporation JSME
Hajime Koikegami, IHI Corporation JSME
Robert Stakenborghs, ILD, Inc ASME
Guoqiang Wang, Westinghouse Electric ASME
Jovica Riznic, Canadian Nuclear Safety Commission ASME

Track 18 Student Paper Competition

Track Chair **Tomio Okawa**, The University of Electro-Communications JSME
 Track Co-Chair **Shripad Revankar**, Purdue University ASME
Igor Pioro, University of Ontario Institute of Technology ASME
Masahiro Takei, Chiba University JSME
Sama Bilbao y Leon, Virginia Commonwealth University ASME
Vladimir Stevanovic, University of Belgrade ASME
Wolfgang Hansen, Technical University Dresden, Institute of Power ASME
Suyuan Yu, Tsinghua University CNS
Liangming Pan, Chongqing University CNS

Track 19 Plenary and Panel Session

Track Chair **Akihide Kugo**, Japan Nuclear Safety Institute JSME
 Track Co-Chair **Tetsuaki Takeda**, University of Yamanashi JSME
Katsumi Yamada, International Atomic Energy Agency JSME
Asif Arastu, Unisont Engineering, Inc. ASME

Guoqiang Wang, Westinghouse Electric ASME
Jovica Riznic, Canadian Nuclear Safety Commission ASME
Leon Cizelj, Jozef Stefan Institute ASME
SHEN Linxin, Chinese Nuclear Society CNS
Jinquan Yan, Shanghai Nuclear Engineering Research and Design Institute CNS

Track 20 CFD Seminar & Workshops

Track Chair **Koji Okamoto**, The University of Tokyo JSME
Kazuyuki Takase, Japan Atomic Energy Agency JSME
Guoqiang Wang, Westinghouse Electric ASME
Clayton Smith, Fluor ASME
 Track Co-Chair **Jovica Riznic**, Canadian Nuclear Safety Commission ASME
Richard Schultz, Idaho National Engineering Lab ASME
Robert Stakenborghs, ILD, Inc ASME
Yassin Hassan, Texas A&M University ASME

Track 21 Fukushima Special Session

Track Chair **Yasuo Koizumi**, Japan Atomic Energy Agency JSME

GENERAL INFORMATION

REGISTRATION

Registration desk will be located in the entrance lobby of the International Conference Hall. The open hours are as follows:

9:00-17:30	Sunday, May 17
8:00-17:30	Monday, May 18
7:30-17:30	Tuesday, May 19
7:30-16:00	Wednesday, May 20

NAME BADGES

Please wear your name badge at all times. Admission to all conference functions will be by the badges only (unless noted otherwise). Your badge also provides a helpful introduction to other attendees.

TICKETED FUNCTIONS

All attendees will have either a code on their badge or a ticket that will allow their entrance to conference functions including the Conference Reception and Banquet. If you would like to bring guests to these functions, you must purchase tickets on their behalf (unless otherwise entitled).

REGISTRANTS WITH DISABILITIES

Whenever possible, we are pleased to make arrangements for registrants with disabilities. Advance notice may be required for certain requests. For on-site assistance, please visit the registration desk in the entrance hall of the conference hall and ask conference representatives.

INTERNET

Free Wi-Fi is available in the lobbies of 1st, 2nd and 3rd floor of the International Conference Hall. Name of Wi-Fi is "Messe". Japanese, English, Chinese and Korean language menu is available. "Messe" is available 60 minutes access at one time. Once overtime access, Wi-Fi top page will display again. If you want to continue to use, please connect again.

CONFERENCE PRESENTATIONS ON DVD

Each attendee will receive a DVD that includes all papers accepted for presentation at the conference. The official conference proceedings will be published by JSME after the conference and will not include papers that are not presented at the conference. The official proceedings will be covered in selected Elsevier products, abstracted, and indexed by EI.

ACCEPTED PAPERS

Final accepted papers are accessible at the web site of ICONE 23 during the conference, from May 17 to May 20.

QUESTIONS ABOUT THE MEETING

If you have any questions or need assistance, please contact JSME representative at the registration desk in the entrance of the conference hall.

LUNCH

There are no restaurants in the international conference hall. Please take lunch at cafeteria or restaurants around the conference hall. Lunch boxes will be sold at the lobby on 2nd Floor of the conference hall during lunch time from May 17 to 20.

PREVIEW ROOM

Preview room is open from May 18(Mon) to 20(Wed) at Room 204 on the 2nd Floor of the conference hall.

SOCIAL EVENTS

WELCOME RECEPTION

*May 17(Sun) 18:30-20:00
Lobby on the 2nd Floor*

The Welcome Reception will be held on Sunday, May 17 from 18:30 to 20:00. Take this opportunity to view and network with our corporate sponsors and exhibitors. Enjoy socializing with your fellow attendees and conference organizers. **Tickets/Badges are required.** (Included in full registration)

AUTHORS AND SESSION CHAIRS BRIEFING

*May 18(Mon) 13:30-14:00
Multi purpose Room
May 19(Tues) and 20(Wed) 8:00-8:30
Convention Hall B*

Authors and Session Chairs are strongly encouraged to meet each morning to discuss their sessions' program outline and speaker line-up. This will allow for a more streamlined program and alleviate any last minute delays. Multi purpose Room will be available on Monday, May 18 from 13:30 to 14:00 and Convention Hall B on Tuesday, May 19 and Wednesday, May 20 from 8:00 to 8:30. Coffee and snack will be provided.

CONFERENCE BANQUET

*May 19(Tue) 18:30-20:30
Hotel New Otani Makuhari, Tsuruno-ma*

This year's ICONE Banquet will be held on Tuesday, May 19 from 18:30 to 20:30. The banquet ticket is NOT included in the main registration fee. Full registrants are eligible to purchase a discounted banquet ticket. All other attendees and guests can also purchase a ticket in advance by May 18 at the registration desk. **Tickets/Badges are required.**

STUDENTS/TECHNICAL TOUR

May 21(Thur) 8:00-19:00

Technical tour will be held on Thursday, May 21. The tour itinerary covers visits to Central Research Institute of Electric Power Industry (CRIEPI) Abiko district, Japan Atomic Energy Agency (JAEA) Oarai Research and Development Center and Kashima-Jingu Shrine.

Opening Session Convention Hall
May 18 (Mon), 9:00-9:20

Session Title
Nuclear Power — Reliable Global Energy

Chair: **Akihiko Kugo**, Japan Nuclear Safety Institute
Co-Chair: **Asif Arastu**, American Society of Mechanical Engineers
Zhijian Zhang, Chinese Nuclear Society

Speaker
Shojiro Matsuura, Chairman, Japan Nuclear Safety Institute
J. Robert Sims, President, American Society of Mechanical Engineers
Georges Van Goethem, European Commission
Lixin Shen, Secretary General, Chinese Nuclear Society

Plenary Session 1 Convention Hall
May 18 (Mon), 9:20-10:45

Session Title
Nuclear Power — Reliable Global Energy

Chair: **Kazuyuki Takase**, Japan Atomic Energy Agency
Co-Chair: **Yassin Hassan**, American Society of Mechanical Engineers Professor and Head of Dept. Texas A&M University
Jinquan Yan, Shanghai Nuclear Engineering Research and Design Institute

Speaker
Ryoji Doi, Director General, Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry of Japan
John E. Kelly, Deputy Assistant Secretary, US Department of Energy (Chair, Generation IV International Forum)
Jean-Claude Bouchter, French Alternative Energies and Atomic Energy Commission
Zhongtang Wang, Chief Engineer, State Nuclear Power Technology Corporation
Chadaram Sivaji, Counsellor (Science & Technology), Embassy of India

Plenary Session 2 Convention Hall
May 18 (Mon), 11:05-12:30

Session Title
Nuclear Power — Reliable Global Energy

Chair: **Tetsuaki Takeda**, University of Yamanashi
Co-Chair: **Bob Stakenborghs**, American Society of Mechanical Engineers
Suyuan Yu, Tsinghua University

Speaker
Hideki Toyomatsu, Vice president, Kansai Electric Power Company
Danny Roderick, President/CEO, Westinghouse Electric Company
Zengguang Lei, Vice President, Chinese Nuclear Society Chief Engineer, China National Nuclear Corporation
Vačlav Bartuška, Ambassador, Czech Republic
Moon Hee Chang, President, Korean Nuclear Society

Panel Session 1 Room 303

May 18 (Mon), 14:00-16:00

Session Title

Energy Policy with Nuclear Power & Continuous Safety Improvement

Chair: Hiroshige Kikura, Tokyo Institute of Technology

Co-Chair: Leon Cizelj, Jožef Stefan Institute

Speaker

Toru Nakatsuka, Ministry of Economy, Trade and Industry of Japan

Leon Cizelj, Jožef Stefan Institute

Panel Session 2 Room 303

May 19 (Tue), 10:50-12:30

Session Title

Nuclear Regulatory Standards in International Co-Operation

Chair: Yutaka Abe, University of Tsukuba

Co-Chair: Jovica Riznic, Canadian Nuclear Safety Commission

Speaker

Toyoshi Fuketa, Nuclear Regulation Authority

Kensuke Yoshihara, Kansai Electric Power Company

Igor Pioro, University of Ontario Institute of Technology

Panel Session 3 Room 302

May 19 (Tue), 8:30-10:30

Session Title

Beyond Design Basis: Important Severe Accident R&D Issues After Fukushima Accidents

Chair: Jun Sugimoto, Kyoto University

Co-Chair: Farhang Ostadan, Bechtel Corporation

Jinquan Yan, Shanghai Nuclear Engineering Research and Design Institute

Speaker

Koji Okamoto, The University of Tokyo

Yu Maruyama, Japan Atomic Energy Agency

Farhang Ostadan, Bechtel Corporation

Victor Hugo Sanchez-Espinoza, Karlsruhe Institute of Technology

Jinquan Yan, Shanghai Nuclear Engineering Research and Design Institute

Panel Session 4 Room 302

May 19 (Tue), 13:30-15:30

Session Title

Risk-informed Decision-Making

Chair: Akira Omoto, Central Research Institute of Electric Power Industry

Co-Chair: Clayton Smith, Fluor

Jianbing Guo, China General Nuclear Power Group

Speaker

Satoshi Kurata, Japan Nuclear Safety Institute

Shinichi Kawamura, Tokyo Electric Power Company

Robert Oelrich, Westinghouse Electric Company

Jianbing Guo, China General Nuclear Power Group

Panel Session 5 Room 303

May 18 (Mon), 16:30-18:30

Session Title
Fukushima Report and Decommissioning/
Decontamination & Waste Management of NPPs

Chair: Koji Okamoto, The University of Tokyo

Co-Chair: Yasuo Koizumi, Japan Atomic Energy Agency
Akehiro Hoshide, Toshiba corporation

Speaker

Jun Matsumoto, Tokyo Electric Power Company

Toshihiko Fukuda, Nuclear Damage Compensation and
Decommissioning Facilitation Corporation

Takashi Sato, International Research Institute for Nuclear
Decommissioning

Fumihisa Nagase, Japan Atomic Energy Agency

Takao Nakagaki, Waseda University

Panel Session 6 Room 303

May 19 (Tue), 8:30-10:30

Session Title
Plant Life Management of LWR

Chair: Naoto Sekimura, The University of Tokyo

Co-Chair: Zhengcao Li, Tsinghua University

Speaker

Koji Yamada, Chubu Electric Power Company

Naoki Soneda, Central Research Institute of Electric Pow-
er Industry

Curtis Smith, US Department of Energy

Regis Nhili, Material Ageing Institute, Electricite de France

Zhengcao Li, Tsinghua University

Deping Kong, China National Nuclear Corporation

Panel Session 7 Room 303

May 20 (Wed), 8:30-10:30

Session Title
Education and Human Resources Development

Chair: Masaki Saito, Tokyo Institute of Technology

Co-Chair: Yassin Hassan/Shripad Revankar, Texas A&M/
Purdue University

Suyuan Yu, Tsinghua University

Speaker

Tomotsugu Sawai, Japan Atomic Energy Agency

Yassin Hassan, Professor, Texas A&M University

Leon Cizelj, Profesor, University of Ljubljana, ENEN
Association

Liangming Pan, Chongqing University

Panel Session 8 Room 303

May 19 (Tue), 13:30-15:30

Session Title
Advanced Reactors & Design Development

Chair: Jeff Bradfute, Westinghouse Electric Company

Co-Chair: Kazuaki Matsui, Institute of Applied Energy
Guanghui Su, Xi'an Jiaotong University of
China

Speaker

Jeff Bradfute, Westinghouse Electric Company

Jean-Claude Bouchter, French Alternative Energies and
Atomic Energy Commission

Koji Nishida, Hitachi-GE Nuclear Energy, Ltd.

Guanghui Su, Xi'an Jiaotong University of China

Shripad Revankar, Purdue University

Panel Session 9 Room 303

May 20 (Wed), 10:50-12:30

Session Title

Getting the Public to Accept Nuclear Power

Chair: Jay Kunze, Idaho state University

Co-Chair: Hidekazu Yoshikawa, Kyoto University

Guanghai Su, Xi'an Jiaotong University of China

Speaker

Steve Kidd, East Cliff Consulting

Vaughn Gilbert, Westinghouse Electric Company

Leon Cizelj, Jožef Stefan Institute

Reiko Fujita, Atomic Energy Society of Japan

Guanghai Su, Xi'an Jiaotong University of China

Panel Session 10 Room 303

May 19 (Tue), 16:00-17:20

Session Title

25-years Anniversary Session of Power & Energy System Division of JSME and International Conference on Nuclear Engineering

Chair: Tetsuaki Takeda, University of Yamanashi

Speaker

Michio Ishikawa, Former Chief Advisor, Japan Nuclear Technology Institute

Hideki Nariai, Emeritus Professor, University of Tsukuba

Saburo Toda, Emeritus Professor, Tohoku University

Masanori Aritomi, Distinguished Professor, Tokyo Institute of Technology

25-years Anniversary Session of Power & Energy System Division of JSME and International Conference on Nuclear Engineering

Date: May 19, 2015, 16:00 — 17:20

Place: Room 303, 3F

Scope:

The Power and Energy Systems Division (PESD) of the Japan Society of Mechanical Engineers (JSME) has been established in April 1990. The year 2015 is the memorial year of its 25th anniversary. In order to celebrate the 25th anniversary, PESD has organized the special session. The evolution of power and energy technology, and the results and roles of PESD activities for these 25 years are looked back at and the future scope for the coming 20 years is predicted from the viewpoints of reliable global energy.

The PESD has organized and carried out various events such as the International Conference on Nuclear Engineering (ICONE) with the American Society of Mechanical Engineers (ASME) and the Chinese Nuclear Society (CNS), the International Conference on Power Engineering (ICOPE) with ASME and the Chinese Society of Power Engineering (CSPE), the International Conference on Environmental Remediation and Radioactive Waste Management (ICEM) with ASME, the Power & Energy Technology Symposium, the Seminar & Salon and others including publication. These activities have assisted the evolution of the power and energy technology, the enlightenment of society and the information exchange among members for progress.

It is considered that this timing is a good opportunity to confirm the accomplishment in recent 25 years and to look out over the direction for us to proceed in the next 20 years. For this purpose, we have invited four distinguished Japanese lecturers who specialize in various fields of power and energy systems, Dr. Michio ISHIKAWA, Chief Advisor (Former President & CEO) of Japan Nuclear Technology Institute, Dr. Hideki NARIAI, Emeritus Professor of University of Tsukuba, Dr. Saburo TODA, Emeritus Professor of Tohoku University, and Dr. Masanori ARITOMI, Distinguished Professor of Tokyo Institute of Technology. We believe that the contents of this special session are of great use for all the attendees.



CFD (COMPUTATIONAL FLUID DYNAMICS) SEMINAR

May 17(Sun), 10:00-17:00 Room 201

Organizers:

Kazuyuki Takase, Japan Atomic Energy Agency
Yassin Hassan, Texas A&M University

Tutors:

Yassin Hassan, Texas A&M University
Sofiane Benhamadouche, EDF
Elia Merzari, Argonne National Laboratory
Thomas Höhne, Helmholtz-Zentrum Dresden-Rossendorf
Dominique Bestion, CEA
Hitoshi Sugiyama, Utsunomiya University
Marco Pellegrini, The Institute of Applied Energy

Description: The seminar will target young researchers and engineers to provide the basis and results for selection of several CFD applications for certain flow problems. The course may begin with the fundamental equations and solution methods and then continues to recent developments and some practice guidelines of CFD for nuclear engineering applications. Informal discussions and questions will be conducted.

WORKSHOP 1

THERMAL-HYDRAULIC METHODS, EXPERIMENTATION AND BENCHMARKING

May 17(Sun), 10:00-17:00 Room 302

Organizers:

Guoqiang Wang, Westinghouse Electric Company
Nikolay Ivanov Kolev, Siemens AG
Hideo Nakamura, Japan Atomic Energy Agency
Jovica Riznic, Canadian Nuclear Safety Commission
Shripad Revankar, Purdue University
Guanghui Su, Xi'an Jiao Tong University

Description: This workshop will present an overview of some of the key Thermal-Hydraulic methodologies, experimentation procedure and its application to nuclear power plants. The relevant computer code model and theory will be described and real experimental work will be presented and discussed. Meanwhile, computer code simulations of experiments and benchmarking will be both presented. For exchanging information and experience purposes, this workshop is applicable to both students/professors and engineers in the relevant industry fields

WORKSHOP 2

WATERHAMMER ANALYSIS

May 17(Sun), 10:00-13:00 Room 103

Organizers:

Asif Arastu, Unisont Engineering, Inc.
Bob Stakenborghs, ILD, Inc.

Description: This workshop will present an overview of the fluid mechanics of classical waterhammer theory and its application to nuclear power plant systems. All known waterhammer mechanisms will be discussed together with the methods of simulating these. Real plant examples will be presented and discussed. Results of computer simulation of waterhammer solutions will be presented in the form of animations showing the movement of pressure and velocity waves. These greatly help in understanding the phenomena and the associated mechanisms. Fluid Structure Interaction (FSI) aspects will also be addressed.

WORKSHOP 3

PIPING STRESS ANALYSIS FOR DYNAMIC EVENTS AND FLUID-STRUCTURE INTERACTION

May 17(Sun), 14:00-17:00 Room 103

Organizers:

Hong Ming Lee, Unisont Engineering, Inc.

Description: Fluid transient events such as waterhammer have caused severe damage to piping systems. If the loading is known, it is possible to analyze the piping system accurately to find an appropriate design that can sustain the loading. This workshop will present an overview of the structural analyses of piping systems under dynamic loadings in general, and on fluid transient loadings in particular. Basic theory and numerical methods will be presented, followed by discussions on modeling considerations in order to obtain good results. Normally the fluid transient analysis and the piping structure analysis are performed independently, but the potential impact of fluid-structure interactions will be discussed. Actual problems, including some from Workshop 2 will be used as examples. An interactive 3D graphic program will be used to demonstrate how such a tool may be used effectively for design or troubleshooting by visualizing the dynamic system response in realistic views.

WORKSHOP 4

FORTHCOMING SEISMIC PRA FOR US OPERATING PLANTS FOLLOWING FUKUSHIMA EVENT

May 17(Sun), 10:00-13:00 Room 104

Organizers:

Farhang Ostadan, Bechtel Corporation
Sanj Malushte, Bechtel Corporation

Description: The workshop covers elements of the SPRA work and recent developments in the following areas:

- Background
- USNRC
- Request
- Seismic hazard
- Soil amplification and development of GMRS Screening process
- Structural analysis including SSI and fragility evaluation
- Seismic PRA
- Plant modification

WORKSHOP 5

MICROWAVE NDE OF HDPE BUTT FUSION AND ELECTRO-FUSION JOINTS

May 17(Sun), 14:00-17:00 Room 104

Organizers:

Bob Stakenborghs, ILD Inc

Description: This workshop will provide an overview on the theory and operation of microwave NDE for HDPE pipe butt fusion and electrofusion joints. This NDE technique is currently in use on these materials in industries worldwide. The workshop will include equipment demonstrations for both applications as well as discussion on making electrofusion and butt fusion joints.

The use of High Density Polyethylene (HDPE) is growing rapidly due to its corrosion resistance characteristics and ease of construction when compared to metal piping systems. As a result of its widespread use, a method of inspecting the piping joints is becoming essential to ensure safe, sound piping systems. This is particularly true for butt fusion joints, which can contain micro-structural defects that impact long term integrity of the piping system. These defects have proven to be difficult to detect using traditional means of inspection, such as ultrasound, because these micro-structural defects do not result in an acoustic reflector or impedance difference.

This workshop presents demonstrates a microwave based inspection method that is world-wide to inspect HDPE butt-fusion joints as well as HDPE electro-fusion joints. The results of a full scale validation program of inspection of a cross section of defect types that comprise geometric type defects, such as back and side

drilled holes, and butt fusion inclusions will be presented. It also includes defects of types commonly found in field applications, such as grass, oil, fine particulate and other contaminants and procedural deviations, such as low and high pressure and longer than typical dwell times (wait time between heating the pipe ends and fusing them).

The equipment will be demonstrated on both HDPE butt fusions and HDPE electro-fusion joints, as well as other dielectric materials. The workshop will include hands on demonstration of the equipment.

WORKSHOP 6

HOT ISOSTATIC PRESSING (HIP) OF NUCLEAR COMPONENTS

May 17(Sun), 10:00-13:00 Room 105

Organizers:

J. Sulley, Rolls-Royce
B. Borradaile, Rolls-Royce
D. Stewart, Rolls-Royce

Description: This workshop presents details of the HIP process, including the benefits that can be achieved such as improved structural integrity, and also the project benefits of cost and lead-time reductions. Examples are provided of Rolls-Royce applications to nuclear components such as: valves, pumps and piping. Results of material testing conducted by Rolls-Royce to demonstrate equivalence to the forged form are presented. An overview is given of the quality assurance steps Rolls-Royce apply to ensure the quality of the final HIPed component. Finally the ASME Section III code case covering HIP 316 material and the status of the case is presented.

WORKSHOP 7

Cancelled

WORKSHOP 8

NUCLEAR CODES AND STANDARDS

May 17(Sun), 10:00-17:00 Room 303

Organizers:

Masaki Morishita, Japan Atomic Energy Agency
Osamu Oyamada, Japan Nuclear Safety Institute
Clayton Smith, Fluor
John Bendo, ASME

Description: This workshop will promulgate an open technical exchange of information and sharing of lessons learned in response to current codes and standards needs. All interested stakeholders will contribute toward the development and modification of codes, standards, and conformity assessment activities and help identify

international collaboration efforts.

Topics to be included:

ASME Section III, Division 5 - ASME

Global Quality Assurance - ASME

Impact of Severe Accidents on Codes and Standards

- JSME

Nuclear Repair - NBBI

Piping Seismic Analysis and Experiments - JSME

Risk Informed Application - ASME

Strain Based Criteria - ASME

System Based Code - JSME

Track 1

Plant Operations, Maintenance, Engineering, Modifications, Life Cycle and Balance of Plant

- 1-1 Support for Maintenance
- 1-2 Plant Performance
- 1-3 Testing and Research I
- 1-4 Support for Operations
- 1-5 Power Plant Piping
- 1-6 Sever Accident Management I
- 1-7 Sever Accident Management II
- 1-8 Testing and Research II
- 1-9 Welding related Technology I
- 1-10 Welding related Technology II

Track 2

Nuclear Fuel and Materials

- 2-1 Fuel Modeling
- 2-2 Material Challenges for GEN IV Fast Reactors and HTGR - I
- 2-3 Material Challenges for GEN IV Fast Reactors and HTGR - II
- 2-4 Irradiation Damage and Stress Corrosion Cracking
- 2-5 Corrosion in LWR Environment and Tritium Breeding and Hydrogen Isotope Separation
- 2-6 Corrosion in Nitric Acid, FP Environment
- 2-7 Fuel Cladding Behavior in Accidents and Corrosion Product Release
- 2-8 Fuel Design and Inspection
- 2-9 Fuel Safety and Performance
- 2-10 Actinide and MOX Fuel Development
- 2-11 Advanced Material Evaluation

Track 3

Plant Systems, Structures, and Components

- 3-1 Severe accidents
- 3-2 Simulation of thermo-hydraulic components
- 3-3 Structural mechanics
- 3-4 Simulation of structures
- 3-5 Components and design
- 3-6 Mathematical approaches and other topics
- 3-7 Seismic analyses

Track 4

Radioprotection and Nuclear Technology Application

- 4-1 Radioprotection and Nuclear Technology Application

Track 5

Next Generation Reactors (including GIF Symposium)

- 5-1 HTGR-1
- 5-2 HTGR-2
- 5-3 GIF Session I-1
- 5-4 GIF Session I-2
- 5-5 GIF Session II-1
- 5-6 GIF Session II-2

- 5-7 SFR
- 5-8 SFR & LFR
- 5-9 MSR & LFR
- 5-10 Advanced WR

Track 6

Advanced Reactors

- 6-1 Advanced Light Water Reactors 1
- 6-2 Advanced Light Water Reactors 2
- 6-3 Advanced Light Water Reactors 3

Track 7

Nuclear Safety and Security

- 7-1 Probabilistic Risk Assessment
- 7-2 Reactor safety measures and effectiveness assessment - I
- 7-3 Hydrogen and Containment Safety Issues - I
- 7-4 LMR Safety issues
- 7-5 Reactor safety measures and effectiveness assessment - II
- 7-6 Hydrogen and Containment Safety Issues - II
- 7-7 Safety principles, standards, risk management and source team
- 7-8 Deterministic Safety Analysis and related experiments - I
- 7-9 Experimental Studies in Nuclear Safety - I
- 7-10 Deterministic Safety Analysis and related experiments - II
- 7-11 Deterministic Safety Analysis and related experiments - III
- 7-12 Safety and Risk Assessment Tools and Methods
- 7-13 Nuclear safety fundamental technology
- 7-14 Experimental Studies in Nuclear Safety - II

Track 8

Codes, Standards, Licensing, and Regulatory Issues

- 8-1 Development of Codes, Standards and Guidelines
- 8-2 Safety Related Topics
- 8-3 Licensing, Quality and Regulatory Related Topics

Track 9

Fuel Cycle, Radioactive Waste Management and Decommissioning

- 9-1 Radionuclide Migration, and Detection
- 9-2 Waste Generation, Treatment, and Isolation
- 9-3 Reprocessing Waste
- 9-4 Waste disposal
- 9-5 Waste Management - Regulation, Inventory estimation, and Classification
- 9-6 Decommissioning - Dismantling and Decontamination
- 9-7 Decommissioning - Engineering and Management Systems

Track 10

Thermal-Hydraulics

- 10-1 Natural Circulation & Convection
- 10-2 Passive Cooling Systems
- 10-3 Single-Phase Flow & Turbulence
- 10-4 Single & Multi-Phase Flow CFD
- 10-5 Multi-Phase Flow I
- 10-6 Multi-Phase Flow II
- 10-7 Supercritical Fluids & Gas-Cooled Reactors
- 10-8 Liquid Metal Thermal-Hydraulics
- 10-9 Containment Thermal-Hydraulics
- 10-10 Steam Generator & Heat Exchanger
- 10-11 Boiling Heat Transfer
- 10-12 LOCA & Transient Analyses I
- 10-13 LOCA & Transient Analyses II
- 10-14 Bubbly Flow Dynamics
- 10-15 Severe Accidents I
- 10-16 Severe Accidents II
- 10-17 Droplet Behavior
- 10-18 Critical Heat Flux
- 10-19 Flow Instability & Oscillation

Track 11

Computational Fluid Dynamics (CFD) and Coupled Codes

- 11-1 Fuel Assemblies Simulations and Related Issues
- 11-2 Natural Convection Heat Transfer
- 11-3 General CFD Applications
- 11-4 Turbulence, Heat and Mass Transfer
- 11-5 Multi-Scale, Multi-Physics Thermal-Hydraulics
- 11-6 Thermal Mixing, Stratification
- 11-7 Free Surface/Interface Behaviors
- 11-8 Codes, Models, Numerical Methods, V&V (I)
- 11-9 Codes, Models, Numerical Methods, V&V (II)

Track 12

Reactor Physics and Transport Theory

- 12-1 Experiment & Cross Section
- 12-2 New Method
- 12-3 Depletion method & Design calculation
- 12-4 Transient and Kinetic calculation
- 12-5 Reactor analysis method

Track 13

Nuclear Education, Public Acceptance and Related Issues

- 13-1 Nuclear Education, Public Acceptance and Related Issues I
- 13-2 Nuclear Education, Public Acceptance and Related Issues II

Track 14

Instrumentation and Controls (I&C)

- 14-1 Advanced Sensors, Measurement and Monitoring Techniques
- 14-2 Application of Technology to Enhance Design, Test and Maintenance I

- 14-3 Application of Technology to Enhance Design, Test and Maintenance II
- 14-4 Development of Instrumentation Systems for Severe Accidents
- 14-5 Software Dependability and Analysis
- 14-6 Digital System Reliability and Analysis
- 14-7 Advanced C&I Systems Design and Management

Track 15

Fusion Engineering

- 15-1 Fusion Engineering
- 15-2 Fusion Reactor Safety
- 15-3 Plasma and Nuclear Analysis

Track 16

Beyond Design Basis Events

- 16-1 Fukushima accident and emergency issues
- 16-2 Severe accident management and analysis
- 16-3 In and ex-vessel melt behavior
- 16-4 Structural integrity
- 16-5 Hydrogen and spent fuel pool
- 16-6 Risk, external events and others
- 16-7 Fission product behavior

Track 17

Innovative Nuclear Power Plant Design and New Technology Application

- 17-1 Gas Cooled Systems
- 17-2 Water Cooled Systems
- 17-3 Liquid Metal Systems
- 17-4 Space Applications

Track 18

Student Paper Competition

- 18-1 Thermalhydraulics 1
- 18-2 Thermalhydraulics 2
- 18-3 Thermalhydraulics 3
- 18-4 Thermalhydraulics 4
- 18-5 Thermalhydraulics 5
- 18-6 Nuclear Safety and Accident Analysis 1
- 18-7 Nuclear Safety and Accident Analysis 2
- 18-8 Nuclear Safety and Accident Analysis 3
- 18-9 Computational Fluid Dynamics
- 18-10 Measurement Methods
- 18-11 Advanced Reactors 1
- 18-12 Advanced Reactors 2
- 18-13 Nuclear Materials and Components
- 18-14 Nuclear Fuel and Reactor Physics 1
- 18-15 Nuclear Fuel and Reactor Physics 2

Track 21

Fukushima Special Session

- 21-1 Special Technical Track Fukushima Session I
- 21-2 Special Technical Track Fukushima Session II
- 21-3 Special Technical Track Fukushima Session III

May 18 (Mon.)

1F Room 101B

Track12

Reactor Physics and Transport Theory

Session12-1

Experiment & Cross Section
1F Room 101B

14:00-16:00

Session Chair: **Junxia Wei**, *Institute of Applied Physics and Computational Mathematics* China
Session Co-Chair: **Yoshihiko Ishii**, *Hitachi, Ltd.* Japan

DIFFERENCE OF GRAPHITE CAPTURE CROSS SECTIONS IN ENDF/B LIBRARIES

Technical Publication. ICONE23-1340

Li Dong Wang, Jiong Guo, Fu Li, *Institute Of Nuclear And New Energy Technology, Tsinghua University*

Burn-up dependency of control rod position at zero power criticality in the High Temperature Engineering Test Reactor

Technical Publication. ICONE23-1130

Yuki Honda, Nozomu Fujimoto, Hiroaki Sawahata, Kazuhiro Sawa, *Japan Atomic Energy Agency*

Improvement of cell model for control rod in reflector region of High Temperature Engineering Test Reactor

Technical Publication. ICONE23-1138

Yuki Honda, Nozomu Fujimoto, Hiroaki Sawahata, Kazuhiro Sawa, *Japan Atomic Energy Agency*

Analysis of critical experiment for SiC reactivity measurement

Technical Publication. ICONE23-1489

Hiroshi Matsumiya, Kenichi Yoshioka, Tsukasa Kikuchi, Yuta Shindo, Shinichi Higuchi, Yamato Hayashi, *Toshiba Corporation*

239Pu Evaluation Comparison Study

Technical Presentation Only. ICONE23-1954

Mohammad A.ra'of a.ghani Alrwashdeh, *Jordan Atomic Energy Comission*
Aniseh Abdalla, *Tsinghua University*

Session12-2

New Method
1F Room 101B

16:30-18:30

Session Chair: **Toru Obara**, *Tokyo Institute of Technology* Japan
Session Co-Chair: **Yohei Kamiyama**, *Mitsubishi Heavy Industries, Ltd.* Japan

Application of the odd-even method for time-dependent 3D neutron diffusion calculation

Technical Publication. ICONE23-1475

Yoshihiko Ishii, Kenichi Katono, Tadaaki Ishikawa, *Hitachi, Ltd.*

AUTOMATIC OPTIMIZED WIELANDT'S ACCELERATION METHOD OF SOURCE CONVERGENCE FOR MONTE CARLO CRITICALITY CALCULATION

Technical Publication. ICONE23-1814

Yawen Yan, *Chinese Academy of Sciences*
Jing Song, *Chinese Academy of Sciences; USTC*
Huaqing Zheng, Lijuan Hao, *Chinese Academy of Sciences*
Liqin Hu, *Chinese Academy of Sciences; USTC*

Resonance Interference Method in Lattice Physics Code STREAM

Technical Publication. ICONE23-1905

Sooyoung Choi, Azamat Khassenov, Deokjung Lee, *Ulsan National Institute of Science and Technology*

Analysis of improved Arnoldi algorithm for solving high order harmonic of multi group neutron diffusion equation

Technical Publication. ICONE23-2184

Gaoxin Zhou, *State Nuclear Power Technology Corporation*

APPLICATION OF WIELANDT METHOD IN CONTINUOUS-ENERGY NUCLEAR DATA SENSITIVITY ANALYSIS WITH RMC CODE

Technical Publication. ICONE23-1215

Yishu Qiu, Ding She, Kan Wang, *Tsinghua University*

Technical Publication. ICONE23-2181

Cancelled

1F Room 102A

Track4

Radioprotection and Nuclear Technology Application

Session4-1

Radioprotection and Nuclear Technology Application
1F Room 102A

14:00-16:00

Session Chair: **Toshiharu Muramatsu**, *Japan Atomic Energy Agency* Japan
Session Co-Chair: **Ivo Kljenak**, *Jozef Stefan Institute* Slovenia

Total-Ionizing-dose effects in Pixel Performance Degradation of CMOS Image Sensors under Low dose rate

Technical Publication. ICONE23-1155

Shoulong Xu, Shuliang Zou, *University of South China*

The Research Progress on the Radioactive Graphite Dust in HTR-10

Technical Publication. ICONE23-1479

Feng Xie, Jianzhu Cao, Jiejuan Tong, Liqiang Wei,

Xuegang Liu, Yujie Dong, *Institute of Nuclear and New Energy Technology, Tsinghua University*
Suyuan Yu, *Center for Combustion Energy, Tsinghua University*

Application of LaBr₃ Detector in Prompt Gamma Neutron Activation Analysis

Technical Publication. ICONE23-2087

Yi Lu, *Northwest Institution of Nuclear Technology*

Irradiated Rendang as Indonesian Traditional Food to Overcome the Challenge of ASEAN Economic Community 2015

Technical Presentation Only. ICONE23-1402

Ganjar Putro Indratoro, Primastuti Vidyaningrum, Anis Iffa Majid, Fadhil Yassar, Wiratri Hari Rahmawerdani, *Universitas Gadjah Mada*

AES-2006 (VVER-1200) design: Radiation Safety of Population

Technical Presentation Only. ICONE23-1478

Andrei Frolov, *JSC Scientific Research and Design Institute for Energy Technologies ATOMPROEKT*

A GPU-Based Real-time Parallel Rendering Method For Interactive Simulation of Large-scale Radiation Scene

Technical Presentation Only. ICONE23-1823

Zihui Yang, *Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences; USTC*
Liqin Hu, *Chinese Academy of Sciences; USTC*
Xiang Cheng, Tao He, Pengcheng Long, *Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences*

Technical Publication. ICONE23-1514

Cancelled

Technical Publication. ICONE23-1776

Cancelled

Technical Publication. ICONE23-2097

Cancelled

1F Room 103

Track5

Next Generation Reactors (including GIF Symposium)

Session5-1

HTGR-1

1F Room 103

14:00-16:00

Session Chair: **Akira T Tokuhiko**, *Purdue University*
 United States

Session Co-Chair: **Kazutaka Ohashi**, *Fuji Electric* Japan

Influence of Artificial Roughness on Heat Transfer Enhancement to Intermediate Heat Exchanger of High Temperature Reactor

Technical Publication. ICONE23-1032

Yannan Wu, Yujie Dong, *Tsinghua University*

Investigation of Characteristics of Natural Circulation of Water in Vessel Cooling System in Loss of Core Cooling Test without Nuclear Heating

Technical Publication. ICONE23-1636

Shoji Takada, Atsushi Shimizu, Makoto Kondo, Masato Ono, Yosuke Shimazaki, Masanori Shinohara, Tomokazu Seki, Daisuke Tochio, Kazuhiko Iigaki, Shigeaki Nakagawa, Kazuhiro Sawa, *Japan Atomic Energy Agency*

Nuclear Heat Supply Fluctuation Test by Non-Nuclear Heating Using HTTR

Technical Publication. ICONE23-1662

Shoji Takada, Kenji Sekita, Takahiro Nemoto, Yuki Honda, Daisuke Tochio, Yoshitomo Inaba, Hiroyuki Sato, Shigeaki Nakagawa, Kazuhiro Sawa, *Japan Atomic Energy Agency*

Development of the prediction technology of cable disconnection of the in-core neutron detector for the future high-temperature gas cooled reactors

Technical Publication. ICONE23-1670

Yosuke Shimazaki, Hiroaki Sawahata, Taiki Kawamoto, Hisashi Suzuki, Masanori Shinohara, Yuki Honda, Kozo Katsuyama, Shoji Takada, Kazuhiro Sawa, *Japan Atomic Energy Agency*

HTTR Demonstration Program for Nuclear Cogeneration of Hydrogen and Electricity

Technical Publication. ICONE23-1459

Hiroyuki Sato, Junya Sumita, Atsuhiko Terada, Hirofumi Ohashi, Xing L. Yan, Tetsuo Nishihara, Yukio Tachibana, Yoshiyuki Inagaki, *Japan Atomic Energy Agency*

A preliminary research for the operating characteristics of the multi-module nuclear reactor system

Technical Publication. ICONE23-1336

Dan Liu, Jun Sun, Yuliang Sun, Xiaolin Xu, Zhe Sui, Yuanle Ma, *Institute of Nuclear and New Energy Technology, Tsinghua University*

Session5-2

HTGR-2

1F Room 103

16:30-18:30

Session Chair: **Hiroyuki Sato**, *Japan Atomic Energy Agency* Japan

Preliminary analysis of combined cycle of modular high-temperature gas cooled reactor

Technical Publication. ICONE23-1990

Baogang Zhao, Xiaoyong Yang, Jie Wang, Gang Zhao, Qian Shi, *institute of nuclear and new energy, Tsinghua University*

Utilization of GTHTTR300 waste heat for district heating and snow melting

Technical Publication. ICONE23-1589

Seiji Kasahara, *Japan Atomic Energy Agency*
 Tetsuya Murata, *Hokkaido University*
 Yu Kamiji, Atsuhiko Terada, Xing Yan, Yoshiyuki
 Inagaki, *Japan Atomic Energy Agency*
 Michitsugu Mori, *Hokkaido University*

Development of seismic analysis model for HTGR
 core on commercial FEM code

Technical Publication. ICONE23-1203

Nobumasa Tsuji, *Fuji Electric Co., Ltd.*

Improvement of HTGR core dynamics analysis
 method during reactivity accident

Technical Presentation Only. ICONE23-1518

Kazutaka Ohashi, Masaaki Nakano, *Fuji Electric*

Characterizing Single- to Two-Phase Flow Behavior
 in a Cross-cutting RCCS Design with Decay Heat
 Variation

Technical Publication. ICONE23-1966

Akira T Tokuhiro, *Purdue University*

Olumuyiwa Omotowa, *North Carolina State University*

Status and Prospective of Lead-bismuth Technology
 Development in KILIN Series Loops for CLEAR

Technical Presentation Only. ICONE23-2046

Qunying Huang, *INEST*

Sheng Gao, *Institute of Nuclear Energy Safety
 Technology, CAS-FDS Team*

Zhizhong Jiang, Liuli Chen, Rongyuan Sa, Zhiqiang
 Zhu, Yican Wu, *INEST*

1F Room 104

Track7

Nuclear Safety and Security

Session7-1

Probabilistic Risk Assessment

1F Room 104

16:30-18:30

Session Chair: **Atsushi Ui**, *Central Research Institute of
 Electric Power Industry* Japan

Development of Risk Assessment Methodology of
 Decay Heat Removal Function against External
 Hazards for Sodium-cooled Fast Reactors (1) Project
 Overview and Margin Assessment Methodology
 Against Snow

Technical Publication. ICONE23-1003

Hidemasa Yamano, Hiroyuki Nishino, Kennichi
 Kurisaka, Yasushi Okano, Takaaki Sakai, *Japan Atomic
 Energy Agency*

Takahiro Yamamoto, Yoshihiro Ishizuka, Nobuo
 Geshi, Ryuta Furukawa, Futoshi Nanayama, *National
 Institute of Advanced Industrial Science and Technology*
 Takashi Takata, Emiko Azuma, *Osaka University*

Development of Risk Assessment Methodology of
 Decay Heat Removal Function against External
 Hazards for Sodium-Cooled Fast Reactors (2)
 Probabilistic Risk Assessment Methodology Against

Strong Wind

Technical Publication. ICONE23-1112

Hiroyuki Nishino, Kenichi Kurisaka, Hidemasa
 Yamano, *Japan Atomic Energy Agency*

Development of Risk Assessment Methodology of
 Decay Heat Removal Function against External
 Hazards for Sodium-Cooled Fast Reactors (3)
 Numerical Simulations of Forest Fire Spread and
 Smoke Transport as an External Hazard Assessment
 Methodology Development

Technical Publication. ICONE23-1009

Yasushi Okano, Hidemasa Yamano, *Japan Atomic
 Energy Agency*

Application of Subset Simulation Method to Dynamic
 Fault Tree Analysis

Technical Publication. ICONE23-1293

Meng-yun Liu, Ding She, Jing-quan Liu, *Tsinghua
 University*

Current experience of PRA parameter estimation in
 Japan

Technical Publication. ICONE23-1394

Kazunori Hashimoto, Atsushi Nishikimi, Shinya
 Kamata, Tadahiko Kawai, *Japan Nuclear Safety
 Institute*

Shota Soga, Tomoaki Yoshida, Yukihiko Kirimoto,
Central Research Institute of Electric Power Industry

The development of seismic Level-2 PRA model for a
 NPP

Technical Presentation Only. ICONE23-1681

Tsuyoshi Uchida, Hideaki Tsutsumi, Hiroyuki
 Yamada, Koichi Nakamura, Katsunori Ogura,
 Masahiro Yamashita, Hiromichi Miura, Atsushi Ui,
 Motomu Suzuki, Hiroshi Endo, Yukihiko Kirimoto,
 Yomoaki Yoshida, Katsumi Ebisawa, Mitsumasa
 Hirano, *Central Research Institute of Electric Power
 Industry*

1F Room 105

Session7-7

Safety principles, standards, risk management and
 source term

1F Room 105

16:30-18:30

Session Chair: **Takeshi Yamada**, *Hitachi-GE Nuclear
 Energy, Ltd.* Japan

A method of dynamic radiation dose evaluation
 based on emergency evacuation model

Technical Publication. ICONE23-1539

Xin Wei, Ke Li, Tao Chen, Manchun Liang, *Tsinghua
 University*

Influence of Adsorption of Molecular Iodine onto
 Aerosols on Iodine Source Term in Severe Accident

Technical Publication. ICONE23-2084

Jun Ishikawa, Hiroto Itoh, Yu Maruyama, *Japan*

Atomic Energy Agency

Some Considerations on Severe Accident Countermeasures

Technical Publication. ICONE23-1097
Kenji Tominaga, Masanori Otani, Japan Nuclear Safety Institute

Historical Perspectives and Insights on ACRS Review of ABWR Design Certification

Technical Publication. ICONE23-1160
Hossein P. Nourbakhsh, US Nuclear Regulatory Commission
Maitri Banerjee, Nuclear Regulatory Commission

Development of RAMISES (Radiation Monitoring Information Sharing Emergency Support)

Technical Presentation Only. ICONE23-1196
Satoru Hagiwara, Nuclear Safety Technology Center

Explication of the conception of plant defense-in-depth risk monitor to deal with versatile aspect of risk surrounding nuclear power operation

Technical Presentation Only. ICONE23-2022
Hidekazu Yoshikawa, Symbio Community Forum

2F Convention Hall B-1

Track 18

Student Paper Competition

Session 18-1

Thermalhydraulics 1
 2F Convention Hall B-1 **16:30-18:30**

Session Chair: **Jan Stepanek, Czech Technical University in Prague** Czech Republic
 Session Co-Chair: **Congmin Zhang, Harbin Engineering University** China

Experimental investigation of critical mass flow rate of steam through orifices

Technical Publication. ICONE23-1817
Congmin Zhang, Changqi Yan, Haifeng Gu, Jiguo Tang, Xiangcheng Wu, Harbin Engineering University

STUDY ON HEAT TRANSFER CHARACTERISTICS OF ONE SIDE HEATED VERTICAL CHANNEL FOR THE VESSEL COOLING SYSTEM OF VHTR

Technical Publication. ICONE23-1506
Shinji Kuriyama, Tetsuaki Takeda, Shumpei Funatani, University of Yamanashi

EXPERIMENTAL MEASUREMENT OF TWO-PHASE FLOW PARAMETERS IN LARGE CHANNEL

Technical Publication. ICONE23-1406
Hung Thanh Nguyen, Ki Won Song, Shripad T Revankar, Hyun Sun Park, Pohang University of Science and Technology

The Effect of Spacer Grid's Elements on the Rewetting Velocity

Technical Publication. ICONE23-1333
Jan Stepanek, Petr Burda, Vaclav Blaha, Vaclav Dostal, Czech Technical University in Prague

Effect of Microfabricated Surface by MEMS Technology on Condensation Heat Transfer

Technical Publication. ICONE23-1707
Yuki Mikoshiba, Hiroyasu Ohtake, Koji Hasegawa, Tomohiro Yabe, Kogakuin University

2F Convention Hall B-2

Session 18-9

Computational Fluid Dynamics
 2F Convention Hall B-2 **16:30-18:30**

Session Chair: **Tomas Romsy, Czech Technical University in Prague** Czech Republic
 Session Co-Chair: **Rui Guo, Waseda University** Japan

CFD analysis of coolant channel geometries in a tightly packed fuel rods assembly

Technical Publication. ICONE23-1646
Rui Guo, Waseda University
Yoshiaki Oka, The University of Tokyo

CFD PREDICTION OF MIXED-CONVECTION HEAT TRANSFER IN SUPERCRITICAL WATER IN A BARE TUBE

Technical Publication. ICONE23-1108
Rand Abdullah, University of Ontario Institute of Technology (UOIT)
Vladimir Agranat, Applied Computational Fluid Dynamics Analysis
Michael Malin, Concentration, Heat & Momentum Limited
Igor Pioro, University of Ontario Institute of Technology (UOIT)

CFD Simulation of Water Evaporation in Cold Trap Cooler for Cooling Eutectic Pb-Li17

Technical Publication. ICONE23-1334
Tomas Romsy, Pavel Zacha, Czech Technical University in Prague

CFD Methodology And Validation For IVR-ERVC Under Severe Conditions

Technical Publication. ICONE23-1847
Feipeng Huo, Tsinghua University
Jie Wang, Xiaoyong Yang, Tsinghua University
Gang Zhao, Tsinghua University

Development and validation of STAF: A steam generator 3D thermohydraulics analysis code based on Fluent

Technical Publication. ICONE23-1345
Tenglong Cong, Rui Zhang, Wenxi Tian, Suizheng Qiu, Guanghui Su, Xi'an Jiaotong University

2F Room 201B

Track11

Computational Fluid Dynamics (CFD) and Coupled Codes

Session11-1

Fuel Assemblies Simulations and Related Issues
2F Room 201B 14:00-16:00

Session Chair: **Sofiane Benhamadouche**, *Electricite De France R & D* France

Session Co-Chair: **Yacine Addad**, *Khalifa University* United Arab Emirates

RANS based CFD methodology and Challenge in modeling real scale 217-pin wire-wrapped fuel assembly of KAERI PGSFR

Technical Publication. ICONE23-1331

Jae-ho Jeong, Jin Yoo, Kwi-lim Lee, Kwi-seok Ha, *Korea Atomic Energy Research Institute*
Hae-yong Jeong, *Sejong university*

Investigating thermal hydraulics of BCC and FCC structured pebble bed water-cooled reactor core

Technical Publication. ICONE23-1599

Chengqi Wang, Minjun Peng, *Harbin Engineering University*

Numerical Study on Friction Factor for CANDU Fuel Channel

Technical Publication. ICONE23-1754

Zhanfei Qi, *Shanghai Nuclear Engineering Research and Design Institute*
Ximing You, *Shanghai Jiao Tong University*

Computational fluid dynamics simulations of fluid flow in random packed bed with spheres

Technical Publication. ICONE23-1895

Nan Zhang, Zhongning Sun, Ming Ding, *Harbin Engineering University*

Development of Thermal-hydraulic Analysis Program for Wire-wrapped Fuel Pin Bundle of Sodium-cooled Fast Reactor

Technical Presentation Only. ICONE23-1988

Hiroyuki Ohshima, *Japan Atomic Energy Agency*
Yasutomo Imai, *NDD Inc.*

Session11-2

Natural Convection Heat Transfer
2F Room 201B 16:30-18:30

Session Chair: **Elia Merzari,** *Argonne National Laboratory* United States

Session Co-Chair: **Akihiro Uchibori,** *Japan Atomic Energy Agency* Japan

Simplified model for highest cladding temperature evaluation in wire-wrapped fuel rod bundle under natural circulation decay heat removal

Technical Presentation Only. ICONE23-1494

Norihiro Doda, Hiroyuki Ohshima, Hideki Kamide, *Japan Atomic Energy Agency*
Osamu Watanabe, *Mitsubishi FBR Systems, Inc.*

CFD Analysis of a Concept of Hybrid Control Rod with Heat Pipe

Technical Publication. ICONE23-1587

Yeong Shin Jeong, Kyung Mo Kim, *Ulsan National Institute of Science and Technology*
In Guk Kim, *Ulsan National Institute of Science and Technology*

In Cheol Bang, *Ulsan National Institute of Science and Technology*

Operational Characteristics of Passive Residual Heat Removal System under Ocean Condition

Technical Publication. ICONE23-1838

Jing Wen, Sichao Tan, Hongsheng Yuan, Nailiang Zhuang, Zhiting Yu, *Harbin Engineering University*

Technical Publication. ICONE23-1857

Cancelled

2F Room 202

Track15

Fusion Engineering

Session15-1

Fusion Engineering
2F Room 202 14:00-16:00

Session Chair: **Yican Wu,** *Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences* China

Session Co-Chair: **Eiji Hoashi,** *Osaka University* Japan

Accomplishment of JT-60U disassembly work dealing with radioactive components

Technical Publication. ICONE23-1525

Yoshitaka Ikeda, *Japan Atomic Energy Agency*

Welding Joint Design of ITER Toroidal Field Coil Structure under cryogenic environment

Technical Publication. ICONE23-1713

Masahide Iguchi, Takeru Sakurai, Masataka Nakahira, Norikiyo Koizumi, Hideo Nakajima, *Japan Atomic Energy Agency*

Mechanical Properties on Closure Welding for JT-60SA Cryostat

Technical Publication. ICONE23-1809

Yusuke Shibama, Shigetoshi Nakamura, Kei Masaki, Akira Sakasai, *Japan Atomic Energy Agency*

Recent Progress of JT-60SA Project for the Promotion of Fusion Research and Development

Technical Publication. ICONE23-1617

Hiroshi Shirai, *Japan Atomic Energy Agency*

Reliability Performance Index System for ITER HCCB-TBS

Technical Presentation Only. ICONE23-1813
Jiawen Xu, *Chinese Academy of Sciences; USTC*
Jin Wang, Dagui Wang, Run Yuan, *Chinese Academy of Sciences*
Liqin Hu, *Chinese Academy of Sciences; USTC*

EXPERIMENTAL INVESTIGATION ON HEAT TRANSFER OF HEMJ TYPE DIVERTOR WITH NARROW GAP BETWEEN NOZZLE AND IMPINGEMENT SURFACE

Technical Presentation Only. ICONE23-1679
Takehiko Yokomine, Ken Ohara, Tomoaki Kunugi, *Kyoto University*

Session 15-2

Fusion Reactor Safety
 2F Room 202

16:30-18:30

Session Chair: **Tomoaki Kunugi**, *Kyoto University* Japan
 Session Co-Chair: **Leigh Winfrey**, *Virginia Tech* United States

Experimental study of dust resuspension in vacuum for representative conditions of the ITER tokamak

Technical Publication. ICONE23-1620
Emmanuel Porcheron, *Institute for Radiological Protection and Nuclear safety*

Seismic Analysis of ITER Blanket Remote Handling System

Technical Publication. ICONE23-1674
Yuto Noguchi, Takahito Maruyama, Nobukazu Takeda, Satoshi Kakudate, *Japan Atomic Energy Agency*

Prediction model of explosion strength of liquid lithium water interaction based on a BP neural network

Technical Publication. ICONE23-1354
Ximing You, Lili Tong, Xuewu Cao, *Shanghai Jiao Tong University*

Simulation of a Single Molten Metal Droplet Penetrating into Sodium Pool Using Moving Particle Semi-Implicit Method

Technical Publication. ICONE23-1572
Zhi Yang, Zhi-gang Zhang, Ming Guo, Fang Wang, *Harbin Engineering University*

Thermal hydraulic analysis of water cooled breeder blanket designed for CFETR

Technical Publication. ICONE23-1841
Yangli Chen, Changhong Peng, Yun Guo, Guanghui Wang, *University of Science and Technology of China*

Measurement of cavitation in downstream pipe of liquid Li target for IFMIF

Technical Publication. ICONE23-1110
Hiroo Kondo, Takuji Kanemura, Tomohiro Furukawa, Yasushi Hirakawa, Eiichi Wakai, *Japan Atomic Energy Agency*

3F Room 301A

Track10

Thermal-Hydraulics

Session10-1

Natural Circulation & Convection
 3F Room 301A

14:00-16:00

Session Chair: **Chikako Iwaki**, *Toshiba Corporation* Japan

Session Co-Chair: **Asif H Arastu**, *Unisont Engineering, Inc.* United States

Natural Convection Heat Transfer from Vertical Rod Bundles in Liquid Sodium

Technical Publication. ICONE23-1072
Koichi Hata, *Kyoto University*
Katsuya Fukuda, *Kobe Univ.*
Tohru Mizuuchi, *Kyoto Univ.*

SCALING OF THE STEADY STATE BEHAVIOUR OF RECTANGULAR SINGLE-PHASE NATURAL CIRCULATION WITH INCLINING HEAT SOURCE

Technical Publication. ICONE23-1410
Shengjun Zhang, Feng Shen, *state nuclear power research institute*

EXPERIMENTAL INVESTIGATION ON CONVECTION HEAT TRANSFER IN A HEATING TUBE IN NATURAL CIRCULATION CONDITION

Technical Publication. ICONE23-1025
Xiaofan Hou, Qiunan Sun, Zhongning Sun, Huiqiang Xu, Jiguo Tang, Hanying Chen, Xiangcheng Wu, *Harbin Engineering University*

Study on heat transfer deterioration of natural circulation in narrow rectangular channel

Technical Publication. ICONE23-1100
Mingqiang Song, Tao Zhou, Baixu Chen, Xiaolu Fang, Jingjing Li, *North China Electric Power University*
Yanping Huang, *CNNC Key Laboratory on Nuclear Reactor Thermal Hydraulics Technology*

Numerical analysis of mixing process of two component gases in vertical fluid layer

Technical Publication. ICONE23-1529
Hirofumi Hatori, Tetsuaki Takeda, Shumpei Funatani, *University of Yamanashi*

Study on the One-dimensional Natural Circulation Phenomenon on the Mixing Process of Two Component Gases in a Vertical Fluid Layer

Technical Publication. ICONE23-1930
Shumpei Funatani, Tetsuaki Takeda, *University of Yamanashi*

3F Room 301B

Session10-2

Passive Cooling Systems
3F Room 301A

16:30-18:30

Session Chair: **Asif H Arastu**, *Unisont Engineering, Inc.*
United States
Session Co-Chair: **Chikako Iwaki**, *Toshiba Corporation*
Japan

A passive decay heat removal system for LWRs based on air cooling

Technical Publication. ICONE23-1092
Takahiro Yano, Hiroyasu Mochizuki, *University of Fukui*

Effects of the PCCS outside Channel Width on the Residual Heat Removal

Technical Publication. ICONE23-1119
Cheng Li, Cheng Pu Fan, Ran Huan Fan, *State Nuclear Power Technology Research and Development Centre*

Stability of IRWST injection for core cooling in a passive safety PWR

Technical Publication. ICONE23-1415
Yuquan Li, *State Nuclear Power Technology Corporation*
Dai Li, *State Nuclear Power Research Institute*

An Analysis of the Factors Affecting Long Term Core Cooling in the Large Advanced Passive PWR Nuclear Power Plant

Technical Publication. ICONE23-1828
Zhanfei Qi, *Shanghai Nuclear Engineering Research and Design Institute*

A BRIEF OF THE ISCOE EXPERIMENT PLATFORM RESEARCH OBJECTIVES AND FACILITY CONSTRUCTION REQUIREMENTS

Technical Publication. ICONE23-1327
Cheng Li, *State Nuclear Power Technology Research and Development Centre*
Ruichang Zhao, *State Nuclear Power Technology Corporation Research & Development Centre*
Huajian Zhao, *Chinese State Nuclear Power Technology Research & Development Centre*

FACILITY DESIGN OF THE EXPERIMENTAL TEST ON INNER STEAM CONDENSATION COUPLED OUTER EVAPORATION

Technical Publication. ICONE23-1254
Lin Yang, Cheng Li, Wei Zhao, Fang Wang Du, Shan Zhou, Lai Chun Tian, Zhan Gao, Sen Hong Li, Hui Hui Li, *State Nuclear Power Technology R&D Centre*

Session10-11

Boiling Heat Transfer
3F Room 301B

14:00-16:00

Session Chair: **Hiroyasu Ohtake**, *Kogakuin University*
Japan
Session Co-Chair: **Manish Kumar Agrawal**, *Indian Institute of Technology Indore*
India

Visual Experimental Investigation on the Effect of Vapor Bubble Behavior and Liquid Film on Boiling Heat Transfer in Vertical Channel

Technical Publication. ICONE23-1385
Qi Lu, Deqi Chen, Lian Hu, Lin Wang, *Chongqing University*

Experiment of pool subcooled heat transfer with and without ultrasonic vibration

Technical Publication. ICONE23-1407
Fang-chin Liu, Shao-wen Chen, Jong-rong Wang, Wei-keng Lin, Chunkuan Shih, Jin-der Lee, Jinn-ger Peir, *National Tsing Hua University*

The thermal-hydraulic behavior of seawater in an internally heated annulus

Technical Publication. ICONE23-1367
Shinichiro Uesawa, Taku Nagatake, Lifang Jiao, Kazuyuki Takase, Hiroyuki Yoshida, *Japan Atomic Energy Agency*

An investigation on microbubble emission boiling phenomenon

Technical Publication. ICONE23-1458
Zhengyu Mo, *Sichuan University*
Lilan Shen, *Wuxi institute of communication technology*
Licheng Sun, Hongtao Liu, Guo Xie, Yiqi Lei, *Sichuan University*

AN EXPERIMENTAL STUDY ON BUBBLE BEHAVIORS OF FORCED CONVECTIVE SUBCOOLED BOILING AT HIGH SUBCOOLINGS

Technical Publication. ICONE23-1761
Yang Cao, *Kyoto Univeristy*

An experimental investigation on heat transfer analysis of hot horizontal surface by impinging liquid jet

Technical Presentation Only. ICONE23-1800
Manish Kumar Agrawal, Santosh Kumar Sahu, *Indian Institute of Technology Indore India*

Session 10-12

LOCA & Transient Analyses I
3F Room 301B

16:30-18:30

Session Chair: **Manish Kumar Agrawal**, *Indian Institute of Technology Indore* India
Session Co-Chair: **Hiroyasu Ohtake**, *Kogakuin University* Japan

LPSD Condition MBLOCA Success Criterion Analysis For Typical Three Loop NPP

Technical Publication. ICONE23-1073
Jing Sun, Liang Shu Huang, Jiang Chang Yang, *China Nuclear Power Engineering Co., LTD*

Simulation of the System Dynamics for the Molten Salt Reactor Experiment Using Modified TRACE

Technical Publication. ICONE23-1700
Xun He, Rafael Macián-Juan, *Technische Universität München*
Marcus Seidl, *E.ON Kernkraft GmbH*

Uncertainty Quantification of Physical Models using CIRCÉ Method

Technical Publication. ICONE23-1466
Deog Yeon Oh, Young Seok Bang, Kwang Won Seul, Sweng Woong Woo, *Korea Institute of Nuclear Safety*

Analysis Stabilization Technique of Nuclear Power Plant Simulation System

Technical Publication. ICONE23-1601
Kenichi Katono, Yoshihiko Ishii, *Hitachi, Ltd., Hitachi Research Laboratory*

ROSA/LSTF Experiment on AM Measures during a PWR Station Blackout Transient with Pump Seal Leakage and RELAP5 Post-test Analysis

Technical Publication. ICONE23-1491
Takeshi Takeda, Iwao Ohtsu, *Japan Atomic Energy Agency*

Technical Publication. ICONE23-1740
Cancelled

3F Room 302

Track 2

Nuclear Fuel and Materials

Session 2-11

Advanced Material Evaluation
3F Room 302

14:00-16:00

Session Chair: **John Sulley**, *Rolls-Royce* United Kingdom
Session Co-Chair: **Masahiko Osaka**, *Japan Atomic Energy Agency* Japan

Development of SiC/SiC composite for nuclear reactor core with enhanced safety

Technical Publication. ICONE23-1387
Masayuki Uchihashi, Masaru Ukai, Shoko Suyama, *Toshiba Corporation*
Suichi Kubo, Takashi Takagi, *Ibiden Co., Ltd*

Atomistic simulations of yield process and plastic deformation in bulk nanostructured metals

Technical Publication. ICONE23-1582
Tomohito Tsuru, *Japan Atomic Energy Agency*
Yoshiteru Aoyagi, *Tohoku University*
Yoshiyuki Kaji, *Japan Atomic Energy Agency*
Tomotsugu Shimokawa, *Kanazawa University*

Development research of corrosion-resistant structural material using Fe-Si alloy lining centrifugal cast-iron for thermochemical water-splitting iodine-sulfur process

Technical Publication. ICONE23-1649
Ikuo Ioka, *Japan Atomic Energy Agency*
Yoshiro Kuriki, *Japan Gasoline Company Corporation*
Jin Iwatsuki, Shinji Kubo, Yoshiyuki Inagaki, *Japan Atomic Energy Agency*

Oxygen doping effect on the tensile strength of SiC

Technical Publication. ICONE23-1678
Xiaochao Du, Fenglei Niu, *North China Electric Power University*
Yingying Li, Wei Xiao, *State Nuclear Power Research Institute*

Thermal Aging Effect for Creep Properties on Ni Base Refractory Alloys

Technical Publication. ICONE23-2026
Yasuhiro Ishijima, Fujiyoshi Ueno, *Japan Atomic Energy Agency*

3F Room 304

Session 2-1

Fuel Modeling
3F Room 304

14:00-16:00

Session Chair: **Soosung Kim**, *Korea Atomic Energy Research Institute* Korea
Session Co-Chair: **Uddharan Basak**, *IAEA* India
Session Co-Chair: **Yoshihiro Isobe**, *Nuclear Fuel Industries, Ltd.* Japan

A SELF-ORGANIZING NEURAL NETWORK FOR PCI FAILURE PREDICTION

Technical Publication. ICONE23-1029
Xinyu Wei, Jiashuang Wan, Fuyu Zhao, *Xi'an Jiaotong University*

Experimental and finite element analysis of the compression properties of spacer grid of NHR200-II fuel assembly

Technical Publication. ICONE23-1721
Xianyang Wu, Yueyuan Jiang, Dingqu Wang, *INET of Tsinghua University of China*
Wenli Guo, *Institute of Nuclear and New Energy*

Technology

Teng Shen, *INET of Tsinghua University of China*
Manqiong Xu, *Tsinghua University*

Analysis for the Brazing Deformation of AFA3G Spider

Technical Publication. ICONE23-1173

Feng Lin, *CNNC JianZhong Nuclear Fuel Co., Ltd.*

Mechanistic Modeling of UO₂ Oxidation in the Dry Storage Condition

Technical Presentation Only. ICONE23-1643

Jihye Park, *Kwangheon Park, Hyungju Yun, Kyunghee University*

Technical Publication. ICONE23-1985

Cancelled

550°C

Technical Presentation Only. ICONE23-1386

Carsten Schroer, *Karlsruhe Institute of Technology (KIT)*

Verena Koch, *Robert Bosch GmbH*

Olaf Wedemeyer, Aleksandr Skrypnik, Jürgen Konys, *Karlsruhe Institute of Technology (KIT)*

Long-term corrosion tests of Ti₃SiC₂ and Ti₂AlC in oxygen containing PbBi up to 700°C

Technical Presentation Only. ICONE23-2164

Annette Heinzl, Alfons Weisenburger, *Karlsruhe Institute of Technology*

Georg Müller, *Karlsruhe Institute of Technology*

Session2-2

Material Challenges for GEN IV Fast Reactors and HTGR - I

3F Room 304

16:30-18:30

Session Chair: **Emmanuel Horowitz**, *EDF* France

Session Co-Chair: **Carsten Schroer**, *Karlsruhe Institute of Technology (KIT)* Germany

Session Co-Chair: **Yoshinori Katayama**, *Toshiba Corporation* Japan

Influence of cold work on solution-based attack on 1.4970 austenitic steel in static liquid lead-bismuth eutectic at 550°C and < 1E-8 mass % dissolved oxygen

Technical Publication. ICONE23-1045

Valentyn Tsisar, Carsten Schroer, Olaf Wedemeyer, Aleksandr Skrypnik, Jürgen Konys, *Karlsruhe Institute of Technology*

Developing procedures for fracture toughness tests in lead-bismuth eutectic for Gen IV reactors

Technical Presentation Only. ICONE23-1487

Feyzan Ozgun Ersoy, *Belgian Nuclear research Center*

Effect of Liquid Metal Embrittlement for selection and qualification of candidate materials for reactor systems with heavy liquid metal coolants

Technical Presentation Only. ICONE23-2070

Serguei Gavrilov, *Belgian Nuclear Research Centre*

Feyzan Ozgun Ersoy, *Ghent University*

Xing Gong, *KU Leuven*

Pierre Marmy, Erich Stergar, *Belgian Nuclear Research Centre*

An assessment of the most critical parameters leading to liquid Lead-Bismuth embrittlement of T91 steel

Technical Presentation Only. ICONE23-1675

Jean Bernard Vogt, Changqing Ye, Ingrid Proriot Serre, *Université Lille*

Characterization of silicon-containing ferritic/martensitic steel after exposure to oxygen-containing flowing lead-bismuth eutectic at 450 and

May 19 (Tue.)

1F Room 101A

Track9

Fuel Cycle, Radioactive Waste Management and Decommissioning

Session9-1

Radionuclide Migration, and Detection
1F Room 101A

8:30-10:30

Session Chair: **Min Xiao**, *China Nuclear Power Technology Research Institute* China
Session Co-Chair: **Koji Tamura**, *Japan Atomic Energy Agency* Japan

Effects of Supersaturated Silicic Acid Concentration on Deposition Rate around Geological Disposal System

Technical Publication. ICONE23-1223
Tsuyoshi Sasagawa, Taiji Chida, Yuichi Niibori, Hitoshi Mimura, *Tohoku University*

Dipole tracer migration and diffusion tests in fractured sedimentary rock at Horonobe URL

Technical Publication. ICONE23-1860
Shingo Tanaka, *Hokkaido University*
Hideharu Yokota, Hirokazu Ohno, Masashi Nakayama, Tomoo Fujita, *Japan Atomic Energy Agency*
Hiroaki Takiya, Naoko Watanabe, Tamotsu Kozaki, *Hokkaido University*

Migration Behavior of Particulate Radioactive Cesium Species Generated at Ground Surface

Technical Publication. ICONE23-1547
Tadao Tanaka, *Japan Atomic Energy Agency*

Attenuation of Radioactive Aerosol Releases from Containment with MEMS Inertial Impactor Filters

Technical Publication. ICONE23-1606
Houbo Qi, Fenglei Niu, *North China Electric Power University*
Mingqiang Yi, *Microfluidic Foundry*
Xu Yang, Yu Yu, *North China Electric Power University*

Remote Detection of Alpha Radiation Using UV photons Emitted by Nitrogen

Technical Publication. ICONE23-1087
Naoto Kume, Hidehiko Kuroda, Yukio Yoshimura, *Toshiba Corporation*

Session9-2

Waste Generation, Treatment, and Isolation
1F Room 101A

10:50-12:30

Session Chair: **Dongsheng Li**, *China Nuclear Power Technology Research Institute* China
Session Co-Chair: **Kazuya Idemitsu**, *Kyushu University*

Session Co-Chair: **Eisuke John Minehara**, *The Wakasa Wan Energy Research Center* Japan

Study on the Production Mechanism of Co-60 in the Primary Loop of HTR-10

Technical Publication. ICONE23-1697
Shouang Wang, Feng Xie, Hong Li, Jianzhu Cao, Fu Li, Liqiang Wei, *Institute of Nuclear and New Energy Technology, Tsinghua University*

The R&D and Commercial Experience on KHNP's Vitrification Technology

Technical Publication. ICONE23-1602
Hyun-jun Jo, Cheon-woo Kim, *Korea Hydro and Nuclear Power co.*

Hot Cell Design in the Vitrification Plant China

Technical Publication. ICONE23-1261
Yubo Jiang, Guangkai Wang, Wei Zhang, Runan Liang, Yuan Dou, *China Nuclear Power Engineering Co., Ltd.*

Electrochemical extraction of lutetium and magnesium by co-reduction in molten LiCl-KCl

Technical Presentation Only. ICONE23-1342
Tao Jiang, *China Academy of Engineering Physics*

Session9-3

Reprocessing Waste
1F Room 101A

13:30-15:30

Session Chair: **Patricia Paviet**, *Department of Energy* United States

Session Co-Chair: **Noritake Sugitsue**, *Japan Atomic Energy Agency* Japan

Session Co-Chair: **Atsushi Mukunoki**, *JGC Corporation* Japan

Development of Safety Basis for Pyroprocessing Facility

Technical Publication. ICONE23-1111
Seongin Moon, Gilsung You, Seokjun Seo, Wonmyung Choung, Jeonghoe Ku, Hodong Kim, *Korea Atomic Energy Research Institute*

Sludge behavior in centrifugal contactor operation for nuclear fuel reprocessing

Technical Publication. ICONE23-1165
Atsushi Sakamoto, Yuichi Sano, Masayuki Takeuchi, Nobuo Okamura, Kenji Koizumi, *Japan Atomic Energy Agency*

The achievement of the stable K-melter operations in active tests at Rokkasyo Reprocessing Plant

Technical Publication. ICONE23-1419
Mirai Kuramata, Takaaki Oba, Tetsuro Okubo, Masahiro Yoshioka, Takashi Hamada, *Japan Nuclear Fuel Limited*

Experiment on release inhibition of ruthenium in dry out situation of high level liquid waste

Technical Publication. ICONE23-2180
Takahiro Ishio, Yuki Shibata, Takashi Kodama, *Japan Nuclear Fuel Limited*
Tetsuya Kato, Takeshi Tsukada, *Central Research Institute of Electric Power Industry*
Daniel Serrano-Purroy, Jean-paul Glatz, *European Commission, Joint Research Centre, Institute for Transuranium Elements*

Hot-corrosion behavior of Ti₃SiC₂ exposed to molten lithium chloride-potassium chloride salt
Technical Presentation Only. ICONE23-1461
Ning Wang, *China Academy of Engineering Physics*

Numerical study on a highly viscous slurry flow in a glass melter
Technical Presentation Only. ICONE23-2049
Masatoshi Sakai, *The University of Tokyo*

Session9-4

Waste disposal
 1F Room 101A 16:00-18:00

Session Chair: **Yuichi Niibori,** *Tohoku University* Japan
 Session Co-Chair: **Shingo Tanaka,** *Hokkaido University* Japan

Identifying research issues on dissolution behavior of radionuclides from the vitrified high-level radioactive waste in Japan
Technical Publication. ICONE23-1463
Keisuke Ishida, Susumu Kurosawa, Takahiro Goto, Manabu Inagaki, Katsuhiko Ishiguro, *Nuclear Waste Management Organization of Japan*

The long-term safety assessment of the PEM method
Technical Publication. ICONE23-1677
Takahiro Goto, Susumu Kurosawa, Satoru Suzuki, Yoshito Kitagawa, Shigeru Kubota, *Nuclear Waste Management Organization of Japan*

Study of selecting the borehole drilling mud for brittle sedimentary rocks
Technical Publication. ICONE23-2081
Hikaru Nishio, *Nuclear Waste Management Organization of Japan*
Yuichi Tomioka, Takanori Kunimaru, Kimitaka Yoshimura, *Nuclear Waste Management Organization of Japan*
Hirofumi Kondo, *Central Research Institute of Electric Power Industry*
Tomoyuki Shimura, *Obayashi Corporation*

DOPAS EPSP Experiment
Technical Publication. ICONE23-1637
Jiri Svoboda, *Czech Technical University in Prague*

Power Distribution, Reactivity Coefficient and Spent Fuel Composition Calculation of Plutonium- and Uranium-Rock Like Oxide Fuels Partial Loading PWR Core
Technical Publication. ICONE23-1909

Hiroshi Akie, *Japan Atomic Energy Agency*
Takamichi Iwamura, *University of Fukui*

1F Room 101B

Track12

Reactor Physics and Transport Theory

Session12-3

Depletion method & Design calculation
 1F Room 101B 8:30-10:30

Session Chair: **Mohamed A Elswawi,** *Khalifa University of Science, Technology, and Research* United Arab Emirates
 Session Co-Chair: **Yuki Takemoto,** *Mitsubishi Heavy Industries, Ltd.* Japan

Evaluation Method of Nuclide Inventories in Fuel Assemblies for Severe Accident

Technical Publication. ICONE23-1568
Yohei Kamiyama, Kazuki Kirimura, Kazuya Yamaji, Shinya Kosaka, Hideki Matsumoto, *Mitsubishi Heavy Industries, Ltd.*

Analysis of BWR spent Fuel Isotopic Compositions Benchmarking using CASMO-4

Technical Publication. ICONE23-2145
Michael Anderson, Grummer Ralph, *AREVA*
Shigeaki Aoki, *Mitsubishi Nuclear Fuel Co., Ltd.*

Advanced Method for Fission Reactor Core's Visualization in SuperMC/MCAM

Technical Presentation Only. ICONE23-1829
Quan Gan, *University of Science and Technology of China*
Shengpeng Yu, Bin Wu, *Chinese Academy of Sciences*
Liqin Hu, *Chinese Academy of Sciences; University of Science and Technology of China*
Yican Wu, *Chinese Academy of Sciences University of Science and Technology of China*

Technical Publication. ICONE23-2167
Cancelled

Session12-4

Transient and Kinetic calculation
 1F Room 101B 10:50-12:30

Session Chair: **Liqin Hu,** *Chinese Academy of Sciences; USTC* China
 Session Co-Chair: **Yohei Kamiyama,** *Mitsubishi Heavy Industries, Ltd.* Japan

Low dimensional equivalence of core neutronics model and its application to transient analysis

Technical Publication. ICONE23-1094
Hongbing Song, Fuyu Zhao, *Xi'an Jiaotong University*

Fission Probability Density Functions for Super

Prompt Criticality Accident Analysis in Weakly Coupled Systems by Integral Kinetic Model

Technical Publication. ICONE23-1618

Toru Obara, *Tokyo Institute of Technology*
Haruka Kikuchi, *Tokyo Institute of Technology*
Delgersaikhan Tuya, *Tokyo Institute of Technology*

Application of Integral Kinetic Model to Transient Analysis of Different Types of Weakly Coupled Systems

Technical Publication. ICONE23-1626

Delgersaikhan Tuya, Haruka Kikuchi, Toru Obara, *Tokyo Institute of Technology*

Parallel Computing of Tally-Data Decomposition for Full-Core Power Distribution Calculation

Technical Presentation Only. ICONE23-1824

Hongfei Liu, Shu Zhang, Jing Song, Pengcheng Long, *Chinese Academy of Sciences*
Liqin Hu, *Chinese Academy of Sciences; USTC*

Preliminary Application of SuperMC in Neutronics Analysis of Reactor Core of China LEAd-based Reactor CLEAR-I

Technical Presentation Only. ICONE23-1812

Binhang Zhang, Jing Song, Peng Ge, Guangyao Sun, *Institute of Nuclear Energy Safety Technology, CAS-FDS Team*
Liqin Hu, *Chinese Academy of Sciences; USTC*

Session 12-5

Reactor analysis method

1F Room 101B

13:30-15:30

Session Chair: **Shigeaki Aoki**, *Mitsubishi Nuclear Fuel Co., Ltd.* Japan
Session Co-Chair: **Hiroshi Matsumiya**, *Toshiba Corporation* Japan

Analysis of neutronics parameters of AP1000 core for 18 month and 16/20 month cycle schemes using CASMO4E and SIMULATE3 codes

Technical Publication. ICONE23-1018

Amjad Nawaz, Hidekazu Yoshikawa, Ming Yang, *Harbin Engineering University, Harbin, China*

Comparison of Serpent and Triton Generated Few Group Constants for a Modern Pressurized Water Reactor

Technical Publication. ICONE23-1292

Mohamed A Elsawi, *Khalifa University of Science, Technology, and Research*
Zainab S. Alnoamani, *Khalifa University of Science, Technology and Research*

The Axial Reaction Rate Distribution Interpolation method for FID signals in MHI's Core Monitoring System VISION

Technical Publication. ICONE23-1585

Yuki Takemoto, Kazuki Kirimura, Tadakatsu Yodo, Naoko Iida, Shinya Kosaka, Hideki Matsumoto, *Mitsubishi Heavy Industries, Ltd.*

Recent results from Daya Bay reactor neutrino Experiment

Technical Presentation Only. ICONE23-2031

Dongmei Xia, *Chongqing University*

Technical Publication. ICONE23-2095

Cancelled

Track 17

Innovative Nuclear Power Plant Design and New Technology Application

Session 17-1

Gas Cooled Systems

1F Room 101B

16:00-18:00

Session Chair: **Hajime Koikegami**, *IHI Corporation*

Japan

Session Co-Chair: **Robert Stakenborghs**, *ILD, Inc*

United States

Use of Pa-231 for Axial Power Distribution Flattening of Thorium Fuel CANDLE High Temperature Gas-Cooled Reactors

Technical Publication. ICONE23-1561

Peng Hong Liem, *Nippon Advanced Information Service Co., Inc.*

Hoai Nam Tran, *Duy Tan University*

Hiroshi Sekimoto, *Tokyo City University*

Core temperature coefficient of small long-life HTGR for passive decay-heat removal

Technical Publication. ICONE23-1625

Odmaa Sambuu, Toru Obara, *Tokyo Institute of Technology*

Improvement of burnup analysis for pebble bed reactors with an accumulative fuel loading scheme

Technical Publication. ICONE23-1627

Irwan Liapto Simanullang, Toru Obara, *Tokyo Institute of Technology*

Impact on burnup performance of coated particle fuel design in Pebble Bed Reactor with ROX fuel

Technical Publication. ICONE23-1651

Hai Quan Ho, Toru Obara, *Tokyo Institute of Technology*

Technical Publication. ICONE23-2063

Cancelled

1F Room 102A

Track 3

Plant Systems, Structures, and Components

Session 3-1

Severe accidents

1F Room 102A

10:50-12:30

Session Chair: **Janusz Edward Kowalski**, *Canadian*

Nuclear Safety Commission Canada
 Session Co-Chair: **Naoto Kasahara**, *The University of Tokyo* Japan

Study of Ex-Vessel Steam Explosion Risk of Reactor Pit Flooding System and Structural Response of Containment for CPR1000+ Unit
Technical Publication. ICONE23-1043
Juanhua Zhang, *China Nuclear Power Technology Research Institute*

Development on Applying Phase Diagram to Evaluation Method of Refractory Layer Erosion for Passive Debris Cooling System
Technical Publication. ICONE23-1329
Yuya Takahashi, Akira Yamada, Koji Mizuguchi, Tomohisa Kurita, Isao Sakaki, Fumiyo Sasaki, *Toshiba corporation*
Tadashi Fujii, *Hitachi-GE Nuclear Energy, Ltd.*
Tsuji Takafumi, *Chubu electric power Co., Inc.*

Influence of Calculation Conditions on Reactor Building Vibration due to Aircraft Impact Load
Technical Publication. ICONE23-1511
Yoshihiko Iga, *Hitachi, Ltd., Hitachi Research Laboratory*
Shohei Onitsuka, Hirokuni Ishigaki, *Hitachi-GE Nuclear Energy, Ltd.*
Ayumu Miyajima, *Hitachi, Ltd., Hitachi Research Laboratory*

Buckling failure of tube columns under external pressure at severe accidents
Technical Publication. ICONE23-1605
Byeongnam Jo, Wataru Sagawa, Koji Okamoto, *The University of Tokyo*

Session3-2

Simulation of thermo-hydraulic components
 1F Room 102A 13:30-15:30

Session Chair: **Asif H Arastu**, *Unison Engineering, Inc.* United States
 Session Co-Chair: **Lin Tian**, *Shanghai nuclear engineering research and design institute* China

Parametric Studies on Thermal Cycle of HTGR with He-CO2 Mixed Working Medium
Technical Publication. ICONE23-1057
Ersheng You, Lei Shi, Zuoyi Zhang, *Tsinghua University*

Numerical research on the rotation speed influence and flow state distribution of water-lubricated thrust bearing
Technical Publication. ICONE23-1706
Xiao Deng, *Nuclear Power Institute of China*

SIMULATING FLUID-STRUCTURE INTERACTION UTILIZING THREE-DIMENSIONAL ACOUSTIC FLUID ELEMENTS FOR REACTOR EQUIPMENT SYSTEM MODEL
Technical Publication. ICONE23-1732

Jianfeng Yang, Ramin M Rafatpanah, *Westinghouse Electric Company*

On the modelling of gas flow through porous compression packings used in valve stuffing-boxes
Technical Publication. ICONE23-2168
Hakim A Bouzid, Mehdi Kazemnia, *Ecole de Technologie Superieure*

Numerical Simulation of Pressure Fluctuation in a Heavy Liquid Metal Pump
Technical Presentation Only. ICONE23-1764
Xudan Ma, Xiaolong Li, Yong Song, Yunqing Bai, *Institute of Nuclear Energy Safety Technology, CAS*

Session3-3

Structural mechanics
 1F Room 102A 16:00-18:00

Session Chair: **Brian Fant**, *Bechtel Corporation* United States
 Session Co-Chair: **Satoshi Okajima**, *Japan Atomic Energy Agency* Japan

A study on plastic strain accumulation caused by traveling of temperature distribution synchronizing with temperature rise
Technical Publication. ICONE23-1183
Satoshi Okajima, *Japan Atomic Energy Agency*

Creep-Fatigue Crack Growth Assessments of Austenitic 316H Welds
Technical Publication. ICONE23-1356
Jinhua Shi, *AMEC*

Effects of Number of Bead Weld Passes on Residual Stress Profiles of Low Alloy Steel Plates
Technical Publication. ICONE23-1554
Nobuyoshi Yanagida, *Hitachi, Ltd.*
Koichi Saito, *Hitachi-GE Nuclear Energy, Ltd.*

Creep-fatigue tests of double-end notched bar made of Mod.9Cr-1Mo steel
Technical Publication. ICONE23-1559
Kenta Shimomura, Masanori Ando, Shoichi Kato, Takashi Wakai, *Japan Atomic Energy Agency*
Yuichi Hirose, *Mitsubishi Heavy Industries, Ltd.*
Kenichiro Sato, *Mitsubishi FBR Systems, Inc.*

Mixed mode cracking and its fracture failure assessment of mechanical components in nuclear power facilities
Technical Publication. ICONE23-2032
Lingfu Zeng, *ÅF-Industry AB*
C Luo, *EDRMEDESO AB*
Lennart Jansson, *ÅF-Industry AB*

1F Room 102B

Track 16

Beyond Design Basis Events

Session 16-1

Fukushima accident and emergency issues
1F Room 102B 16:00-18:00

Session Chair: **Hyun Sun Park**, *Pohang University of Science and Technology* Korea
Session Co-Chair: **Yu Maruyama**, *Japan Atomic Energy Agency* Japan

Validation of behavior of isolation condenser (IC) during accident at Fukushima Daiichi Nuclear Power Plant, Unit 1 (And yet, the IC was working after the tsunami arrival)

Technical Publication. ICONE23-1316
Shigenao Maruyama, *Tohoku University*

Analysis of common system capability for two units on one site under Fukushima situation

Technical Publication. ICONE23-1457
Dong Yu He, Chun Rong Liu, Wang Liu, Ji Ming Lin, *China Nuclear Power Technology Research Institute*

Update on the Fukushima Accident and Technical Lessons Learned for Water-Cooled Reactor Technology Development

Technical Publication. ICONE23-1686
Katsumi Yamada, *International Atomic Energy Agency*

A New Decision Support System for Nuclear Emergency Response Based on Emergency Plans

Technical Publication. ICONE23-1434
Xuesong Geng, Manchun Liang, Ying Zhang, Jie Yang, *Tsinghua University*
Longqing Li, *Beijing Chen'an Company*
Ke Li, Hongyong Yuan, Guofeng Su, *Tsinghua University*

Preliminary development of a severe accident support system

Technical Publication. ICONE23-1846
Chengjie Duan, Fangqing Yang, *China Nuclear Power Technology Research Institute*

CAE, the Spanish Emergency Support Center, a centralized and shared emergency support service for Beyond Design Basis Events.

Technical Presentation Only. ICONE23-1738
Rafael J. Caro, *TECNATOM*

1F Room 103

Track 5

Next Generation Reactors (including GIF Symposium)

Session 5-3

GIF Session I-1
1F Room 103 8:30-10:30

Session Chair: **John Kelly**, *United States Department of Energy* United States

International Perspective on the Future of Nuclear Power

Technical Presentation Only. ICONE23-1999
John Kelly, *United States Department of Energy*

The Generation IV International Forum: Achievements

Technical Presentation Only. ICONE23-2148
Kazumi Aoto, *Japan Atomic Energy Agency*

The Generation IV International Forum: Path Forward

Technical Presentation Only. ICONE23-2112
Christophe Behar, Jean-claude Bouchter, *Commissariat à l'Énergie Atomique et aux Énergies Alternatives*

Session 5-4

GIF Session I-2
1F Room 103 10:50-12:30

Session Chair: **Jean-claude Bouchter**, *Commissariat à l'Énergie Atomique et aux Énergies Alternatives* France

Accomplishments and Future Plans of the GIF Methodology Working Groups

Technical Presentation Only. ICONE23-2122
Keiichiro Hori, *Japan Atomic Energy Agency*
Luca Ammirabile, *European Commission*
Ramesh Sadhankar, *Canadian Nuclear Laboratories Limited*

Safety Design Criteria Development for Generation-IV Sodium-cooled Fast Reactor System

Technical Presentation Only. ICONE23-1470
Ryodai Nakai, *Japan Atomic Energy Agency*

Session 5-5

GIF Session II-1
1F Room 103 13:30-15:30

Session Chair: **Dohee Hahn**, *Korea Atomic Energy Research Institute* Korea

Sodium Fast Reactor (SFR)

Technical Presentation Only. ICONE23-2012
Philippe Dufour, *Commissariat à l'énergie atomique et*

aux énergies alternatives

Very High Temperature Reactor (VHTR)

Technical Presentation Only. ICONE23-1592

Fu Li, INET, Tsinghua University

Supercritical Water Cooled Reactors (SCWR)

Technical Presentation Only. ICONE23-2130

Yanping Huang, Nuclear Power Institute of China

The Gas Cooled Fast Reactor(GFR)

Technical Presentation Only. ICONE23-2213

Richard Stainsby, National Nuclear Laboratory

Session5-6

GIF Session II-2

1F Room 103

16:00-17:15

Session Chair: **Dohee Hahn, Korea Atomic Energy Research Institute**

Korea

Lead Fast Reactor (LFR)

Technical Presentation Only. ICONE23-1395

Minoru Takahashi, Tokyo Institute of Technology

The molten salt reactor (MSR) in generation IV

Technical Presentation Only. ICONE23-2065

Jerome Serp, CEA

The 2015 Generation IV International Forum Symposium - Dedicated to Jacques Bouchard



The friends and colleagues of Jacques Bouchard from around the globe were deeply saddened to learn of his passing in January 2015. He was a giant in the field of nuclear energy and will be fondly remembered and genuinely missed.

In 1964, Jacques Bouchard joined the Commissariat à l'énergie atomique (CEA) as an engineer. During his illustrious career at CEA, he progressed through the management steps and became Director of CEA's Nuclear Reactor Division in 1990. In 2000, he became Director of the entire nuclear energy sector of CEA and was an important voice in France, advocating for renewed confidence in nuclear energy after a decade of growing European criticism. Jacques finished his career at CEA as the Special Adviser to the Chairman of CEA. Jacques also served as the President of the French Nuclear Energy Society from 2001 to 2003. Jacques was a firm believer in the power of international cooperation and was one of most influential international statesmen in the world. A key example of his statesmanship was his influence on the formation of what we know today as The Generation IV International Forum (GIF). Working with William Magwood IV, who at the time was Director of Nuclear Energy with the U.S. Department of Energy, Jacques was instrumental in establishing this international endeavor to carry out the

research and development needed to establish the feasibility and performance characteristics of the next generation of nuclear energy systems. These collaborative efforts have the potential to provide immense benefits to future generations and we can thank Jacques for its origin. His strategic vision and his experience in international collaboration were central to laying GIF on a sound technical and organizational foundation. Jacques also promoted the idea of the GIF Symposium, and under his leadership, France hosted the first GIF Symposium in 2009. Additionally, we were honored to have Jacques serve as the second Chair of GIF, following William Magwood IV, where he led the organization with decisiveness and humor - Jacques' signature style!

His vision, sense of strategy, leadership and statesmanlike contributions to nuclear energy globally will not be forgotten. On behalf of all of his friends and colleagues, we dedicate this symposium to Jacques Bouchard!

1F Room 104

Track7

Nuclear Safety and Security

Session7-2

Reactor safety measures and effectiveness assessment - I

1F Room 104

8:30-10:30

Session Chair: **Yoshihiko Ishii, Hitachi, Ltd.**

Japan

Forecasting of Flowrate under Rolling Motion Flow Instability Condition Based on On-Line Sequential Extreme Learning Machine

Technical Publication. ICONE23-1013

Hanying Chen, Puzhen Gao, Sichao Tan, Jiguo Tang, Xiaofan Hou, Huiqiang Xu, Xiangcheng Wu, Harbin Engineering University

Development of New Type Passive Autocatalytic Recombiner Part1 Experimental study on degradation of catalyst

Technical Publication. ICONE23-1648

Yu Kamiji, Daiju Matsumura, Japan Atomic Energy Agency

Masashi Taniguchi, Daihatsu Motor Co., Ltd.

Yasuo Nishihata, Japan Atomic Energy Agency

Hirohisa Tanaka, Daihatsu Motor Co., Ltd.

Shingo Hirata, Kawasaki Heavy Industries, Ltd.

Mikiya Hara, Ryutaro Hino, Japan Atomic Energy Agency

Sensitivity analysis of the BWR passive depressurization system under severe accident conditions

Technical Publication. ICONE23-1712

Maolong Liu, Nejdjet Erkan, Koji Okamoto, Naoto Kasahara, The University of Tokyo

Effectiveness of In-vessel Retention Strategy based

on ROAM Methodology and Three-layer Core Melt Configuration for CPR1000

Technical Publication. ICONE23-1767

Huiyong Zhang, *China Nuclear Power Technology Research Institute*

Zongrui Feng, Lei Zhang, Yehong Liao, Jiliang Sun, *China Nuclear Power Technology Research Institute*

Preliminary Experimental Study on Lead bismuth-Water interaction in KYLIN-II Safety Loop

Technical Presentation Only. ICONE23-1456

Na Dan Zhou, Rong Yuan Sa, *Institute of Nuclear Energy Safety Technology Chinese Academy of Science*

Technical Publication. ICONE23-1274

Cancelled

Session7-3

Hydrogen and Containment Safety Issues - I

1F Room 104

10:50-12:30

Session Chair: **Yoshihisa Nishi**, *Central Research Institute of Electric Power Industry*

Japan

Review on Experiments relating to Primary Containment Vessel Failure

Technical Publication. ICONE23-1787

Hiroyuki Suzuki, *Institute of Applied Energy*

Hidetoshi Okada, Shunsuke Uchida, Masanori

Naitoh, *The Institute of Applied Energy*

Simulation of Passive Containment Cooling with an Advanced Water Film Model in a Lumped Parameter Code

Technical Publication. ICONE23-1917

Xi Huang, Xu Cheng, *Karlsruhe Institute of Technology*

Radiolytic hydrogen generation from water with oxidation products of nuclear-grade zirconium metal

Technical Presentation Only. ICONE23-1265

Yoshinobu Matsumoto, *Nagaoka University of Technology*

Takuma Heshikiri, *Saigataekkousho Co., Ltd.*

Thi-mai-dung Do, *Nagaoka University of Technology*

Masao Inoue, Ryuji Nagaishi, *Japan Atomic Energy Agency*

Toru Ogawa, *Nagaoka University of Technology*

Influence of Water Adsorbate on the Start-up Behaviour of Passive Autocatalytic Recombiners - First Experimental Investigations

Technical Presentation Only. ICONE23-1736

Daniel Heidelberg, *RWTH Aachen University*

Ernst-ardt Reinecke, *Forschungszentrum Jülich*

Hans-josef Allelein, *RWTH Aachen University*

A study of the quantification method of the containment event tree -Application of the PRD method on re-criticality events of LWRs-

Technical Presentation Only. ICONE23-1749

Hiroshi Endo, Motomu Suzuki, Koichi Nakamura,

Atsushi Ui, *Central Research Institute of Electric Power*

Industry

Session7-4

LMR Safety issues

1F Room 104

13:30-15:30

Session Chair: **Tomohiko Ikegawa**, *Hitachi Ltd., Hitachi Research Laboratory*

Japan

Development of Fast Reactor Containment Safety Analysis Code, CONTAIN-LMR (1) Outline of Development Project

Technical Publication. ICONE23-1586

Shinya Miyahara, Hiroshi Seino, Shuji Ohno, Kensuke Konishi, *Japan Atomic Energy Agency*

Development of Fast Reactor Containment Safety Analysis Code, CONTAIN-LMR (2) Validation Study of Sodium Fire Model in CONTAIN-LMR

Technical Publication. ICONE23-1560

Shuji Ohno, Tohru Makino, *Japan Atomic Energy Agency*

Isao Ono, *NESI*

Hiroshi Seino, *Japan Atomic Energy Agency*

Development of Fast Reactor Containment Safety Analysis Code, CONTAIN-LMR (3) Improvement of Sodium-Concrete Reaction Model

Technical Publication. ICONE23-1588

Kawaguchi Munemichi, Daisuke Doi, Hiroshi Seino, Shinya Miyahara, *Japan Atomic Energy Agency*

Development of Fast Reactor Containment Safety Analysis Code, CONTAIN-LMR (4) Applicability study of Hydrogen Combustion model

Technical Publication. ICONE23-1885

Daisuke Doi, *Japan Atomic Energy Agency*

Isao Ono, *NESI Inc.*

Hiroshi Seino, *Japan Atomic Energy Agency*

Development of Fast Reactor Containment Safety Analysis Code, CONTAIN-LMR (5) Improvement of Debris-Concrete Interaction Model

Technical Publication. ICONE23-1683

Hiroshi Seino, Munemichi Kawaguchi, *Japan Atomic Energy Agency*

Analysis of the E7 CABRI experiment, a structured TOP transient in restrained conditions, with SAS-SFR code

Technical Publication. ICONE23-2040

Sara Perez-Martin, Werner Pfrang, *Karlsruhe Institute of Technology*

Session7-5

Reactor safety measures and effectiveness assessment - II

1F Room 104

16:00-18:00

Session Chair: **Takeshi Yamada**, *Hitachi-GE Nuclear*

Energy, Ltd.

Japan

Simulations on the Feasibility of Using a PWR's Ex-core Neutron Instrumentation for Reactor State Diagnosis

Technical Publication. ICONE23-1944

Carsten Brachem, Technische Universität Dresden
Jörg Konheiser, Helmholtz-Zentrum Dresden Rossendorf

Uwe Hampel, Technische Universität Dresden

Co-Simulation for Real Time Safety Verification of Nuclear Power Plants

Technical Publication. ICONE23-1952

Emmanuel Boafu, Luping Zhang, Elnara Nasimi,
Hossam A.Gabbar, University of Ontario Institute of Technology

An Accident Diagnosis System of Nuclear Power Plant

Technical Publication. ICONE23-2001

Fangqing Yang, Chengjie Duan, Peng Chen, Zhifei Yang, Yehong Liao, China Nuclear Power Technology Research Institute

Safety Mechanisms of a Nuclear Power Reactor :Challenges and Alternatives

Technical Publication. ICONE23-2058

Md.tahsin Ishtiaque, Bangladesh University of Engineering and technology

Md.faiyaz Ahsan, MD.asif Raihan, Dr. M.A.R. Sarkar, Bangladesh University of Engineering and Technology

Program Design for CSR1000 Passive Residual Heat Removal System

Technical Publication. ICONE23-1297

Yu Li, Tao Zhou, Liang Liu, Juan Chen, North China Electric Power University

Bang Yang Xia, Nuclear Power Institute of China

Technical Publication. ICONE23-2008

Cancelled

1F Room 105

Session7-8

Deterministic Safety Analysis and related experiments - I

1F Room 105

8:30-10:30

Session Chair: **Tomohiko Ikegawa**, Hitachi, Ltd., Hitachi Research Laboratory Japan

PRELIMINARY RESEARCH ON FLOW REVERSAL PHENOMENON OF SCWR

Technical Publication. ICONE23-1148

Liang Liu, Tao Zhou, Yu Li, Juan Chen, Xiaoyan Wei, North China Electric Power University

Bangyang Xia, National Key Laboratory of nuclear reactor system design technology

Thermal hydraulic analysis on the success criteria of SGTR

Technical Publication. ICONE23-1192

Ran Fu, Nuclear Power Institute of China

RESEARCH AND DEVELOPMENT OF VALIDATION AND DRILL SYSTEM FOR FULL SCOPE OF SEVERE ACCIDENT MANAGEMENT GUIDELINE

Technical Publication. ICONE23-1271

Zhifei Yang, China Nuclear Power Technology Research Institute

Yali Chen, CGN Power Co., Ltd.

Hu Luo, GSE Systems, Inc.

Severe Accident Analysis on Fukushima Dai-ichi Unit 2 with MAAP Code and MELCOR Code

Technical Presentation Only. ICONE23-1622

Koichi Nakamura, Atsushi Ui, Yoshihisa Nishi, Satoshi Nishimura, Central Research Institute of Electric Power Industry

Technical Publication. ICONE23-1049

Cancelled

Session7-9

Experimental Studies in Nuclear Safety -I

1F Room 105

10:50-12:30

Session Chair: **Takeshi Yamada**, Hitachi-GE Nuclear Energy, Ltd. Japan

Experimental study on the influence of carbon monoxide on the operational behaviour of passive autocatalytic recombiners in LWR containments

Technical Publication. ICONE23-1477

Michael Klauck, RWTH Aachen University

Ernst-arnndt Reinecke, Forschungszentrum Juelich GmbH

Hans-josef Allelein, RWTH Aachen University

Coolability height of 5 / 5 heated rod bundle in reference to collapsed level and boiling two-phase flow dynamics

Technical Publication. ICONE23-1551

Takahiro Arai, Masahiro Furuya, Taizo Kanai, Kenetsu Shirakawa, Yoshihisa Nishi, Central Research Institute of Electric Power Industry

Fukushima Daiichi muon imaging

Technical Publication. ICONE23-1569

Haruo Miyadera, Kume Naoto, Kohichi Nakayama, Tsukasa Sugita, Kei Takakura, Kenichi Yoshioka, Toshiba Corporation

HEAT TRANSFER TESTS FOR PASSIVE WATER-COOLING SYSTEM (1) TEST PLANS USING A TUBE BUNDLE

Technical Publication. ICONE23-2212

Naoyuki Ishida, Naohisa Watahiki, Hideaki Hosoi, Kazuaki Kitou, Hitachi, Ltd.

Heat Transfer Tests for Passive Water-Cooling

System (2) Steam Flow Distribution and Heat Transfer in Tube Bundle

Technical Publication. ICONE23-1630

Hideaki Hosoi, Naoyuki Ishida, Naohisa Watahiki, Kazuaki Kitou, *Hitachi, Ltd.*

Session7-10

Deterministic Safety Analysis and related experiments - II

1F Room 105

13:30-15:30

Session Chair: **Masahiro Furuya**, *Central Research Institute of Electric Power Industry* Japan

Phenomenological analyses of melt progression in LWRs: Proposal of an in-vessel corium progression scenario in the Unit 1 of Fukushima Dai-ichi nuclear power plant

Technical Publication. ICONE23-1476

Frederic Payot, Jean-marie Seiler, *French Alternative Energies and Atomic Energy Commission*

FIRST ANALYSIS OF LOCAL FUEL-COOLANT INTERACTIONS IN A MOLTEN POOL BY SIMMER-III USING REACTOR MATERIALS

Technical Publication. ICONE23-1497

Songbai Cheng, Ken-ichi Matsuba, Mikio Isozaki, Kenji Kamiyama, Tohru Suzuki, Yoshiharu Tobita, *Japan Atomic Energy Agency*

Coupling of MELCOR with the PECM for improved modelling of the lower head

Technical Publication. ICONE23-1593

Philipp Dietrich, Frank Kretzschmar, Alexei Miassoedov, Andreas Class, *Karlsruhe Institute of Technology*
Walter Villanueva, Sevostian Bechta, *Royal Institute of Technology*

A METHODOLOGY TO ANALYZE THE SAFETY OF A COASTAL NUCLEAR POWER PLANT AGAINST THE TYPHOON EXTERNAL FLOODING RISKS

Technical Publication. ICONE23-1702

Tian Chen, Antoine Joly, *Electricité de France*
Rong Pan, *China Nuclear and Radiation Safety Center*
Ping Ji, *China Institute of Water Resources & Hydropower Research*
Mi He, Guofei Chen, *Electricité de France*

UNCERTAINTY ON FEEDBACK COEFFICIENTS AND KEY CORE PARAMETERS FOR A PRESSURIZED WATER REACTOR DUE TO NUCLEAR DATA UNCERTAINTIES

Technical Presentation Only. ICONE23-1685

Dirceu F. da Cruz, Dimitri Rochman, Arjan J. Koning, *Nuclear Research and Consultancy Group*

Session7-11

Deterministic Safety Analysis and related experiments - III

1F Room 105

16:00-18:00

Session Chair: **Yoshihiko Ishii**, *Hitachi, Ltd.* Japan

Analysis of Time Window to Start the Reactor Pit Flooding System for CPR1000 Plus

Technical Publication. ICONE23-1927

Huiyong Zhang, *China Nuclear Power Technology Research Institute*

Hongyu Yun, *China Nuclear Power Technology Research Institute*

Xiaxin Cao, *Harbin Engineering University*

Yehong Liao, Jiliang Sun, *China Nuclear Power Technology Research Institute*

First analyses of AGS0, LT2 and E9 CABRI tests with the new SFR safety code ASTEC-Na

Technical Publication. ICONE23-2041

Sara Perez-Martin, *Karlsruhe Institute of Technology*
Vaidas Matuzas, *Joint Research Centre*
Giacomino Bandini, *ENEA*

The flow and heat transfer characteristics of a passive residual heat removal system under ocean conditions

Technical Publication. ICONE23-1570

Mengmeng Xi, Yingwei Wu, *Xi'an Jiaotong University*
Wenxi Tian, Guanghui Su, Suizheng Qiu, *Xi'an Jiaotong University*

A new determination approach on critical heat flux with inverse heat conduction problem

Technical Presentation Only. ICONE23-1573

Xiang Zhang, *State Nuclear Power Technology Research and Development Center*
Fangxin Hou, *Tsinghua University*
Teng Hu, Huajian Chang, *State Nuclear Power Technology Research and Development Center*

Safety Analyses of Natural Circulation LBE-Cooled Accelerator Driven Sub-critical System under Unprotected Transients

Technical Presentation Only. ICONE23-1253

Gang Wang, Zhen Wang, Zhixing Gu, Ming Jin, *Institute of Nuclear Energy Safety Technology*

Technical Publication. ICONE23-1968

Cancelled

2F Convention Hall A

Track21

Special Technical Track Fukushima Session

Session21-1

Special Technical Track Fukushima Session I

2F Convention Hall A

8:30-10:30

Session Chair: **Hiroshi Kurikami**, *Japan Atomic Energy Agency* Japan
 Session Co-Chair: **Jun Saegusa**, *Japan Atomic Energy Agency* Japan

Spatial distribution and temporal changes of air dose rate around the Fukushima Dai-ichi Nuclear Power Plant

Technical Presentation Only. ICONE23-2127
Hideaki Yamamoto, Kimiaki Saito, Shin'ichiro Matsumoto, Satoshi Mikami, Norihiro Matsuda, Masaki Andoh, Shuichi Tsuda, Tadayoshi Yoshida, *Japan Atomic Energy Agency*

Deposition of Radioactive Caesium in the Fukushima Mountain Forests by the Fukushima Nuclear Power Plant Accident

Technical Publication. ICONE23-1595
Yasuo Ishii, Hironou Abe, Tadafumi Niizato, *Japan Atomic Energy Agency*

Characteristic mineral composition of sediment transporting radiocaesium within a Fukushima river catchment

Technical Presentation Only. ICONE23-2153
Hiroki Hagiwara, *Japan Atomic Energy Agency*
Hiromi Konishi, *Niigata University*
Hironori Funaki, Takahiro Nakanishi, Kazuki Iijima, *Japan Atomic Energy Agency*

Development of equipment for migration control of radioactive cesium absorbed in suspended solid in the river water

Technical Publication. ICONE23-2152
Takuya Ohyama, Hiroyasu Ishikawa, *Japan Atomic Energy Agency*

Modeling Approach to Various Time and Spatial Scale Environmental Issues in Fukushima - Related to Radioactive Cesium Migration in Aquatic Systems -

Technical Publication. ICONE23-2125
Hiroshi Kurikami, Akihiro Kitamura, Susumu Yamada, Masahiko Machida, *Japan Atomic Energy Agency*

JAEA's Development on a new Water Monitoring Car

Technical Presentation Only. ICONE23-2108
Katsuhiko Umezawa, Masashi Haginoya, Mitsugu Kato, Shinichiro Asazuma, *Japan Atomic Energy Agency*

Session21-2

Special Technical Track Fukushima Session II
 2F Convention Hall A **10:50-12:30**

Session Chair: **Jun Saegusa**, *Japan Atomic Energy Agency* Japan
 Session Co-Chair: **Hiroshi Kurikami**, *Japan Atomic Energy Agency* Japan

In-situ measurement of radiation distribution in bottom of water using plastic scintillation fiber

Technical Publication. ICONE23-2120

Yukihisa Sanada, Tadashi Orita, Yoshimi Urabe, Yoshihide Takamura, Tatsuo Torii, *Japan Atomic Energy Agency*

JAEA's R&D on Volume Reduction of Contaminated Soil Generated by Decontamination in Fukushima

Technical Presentation Only. ICONE23-2100
Seichiro Mitsui, Tomio Sekiyama, Mitsugu Kato, Shinichiro Asazuma, *Japan Atomic Energy Agency*
Hiroyasu Kato, Shinzo Ueta, *Mitsubishi Materials Corporation*

Radioactivity decontamination in and around school facilities in Fukushima

Technical Publication. ICONE23-2051
Jun Saegusa, Akihiro Tagawa, Hiroshi Kurikami, Kazuki Iijima, Hideki Yoshikawa, Takayuki Tokizawa, Shinichi Nakayama, Junichiro Ishida, *Japan Atomic Energy Agency*

Communication activity for residents to understand radiation after the accident of Fukushima Daiichi Nuclear Power Station

Technical Publication. ICONE23-2131
Kiyoshi Itabashi, Akihiro Tagawa, Kenji Sugiyama, Tomoyo Yamamoto, *Japan Atomic Energy Agency*

Session21-3

Special Technical Track Fukushima Session III
 2F Convention Hall A **13:30-15:30**

Session Chair: **Jun Saegusa**, *Japan Atomic Energy Agency* Japan
 Session Co-Chair: **Hiroshi Kurikami**, *Japan Atomic Energy Agency* Japan

Cs Sorption-Desorption Behavior on Clay Minerals by Synchrotron Based X-ray Analysis and Theoretical Calculation Methods

Technical Presentation Only. ICONE23-2149
Tsuyoshi Yaita, Shinichi Suzuki, *Japan Atomic Energy Agency*

Groundwater flow modeling focused on the Fukushima Daiichi nuclear power plant site

Technical Publication. ICONE23-2064
Hiromitsu Saegusa, Hironori Onoe, Akio Kohashi, Masahisa Watanabe, *Japan Atomic Energy Agency*

Study of Treatment Scenario for Fuel Debris Removed from Fukushima Daiichi NPS

Technical Publication. ICONE23-1953
Tadahiro Washiya, Seiya Yamada, Kimihiko Yano, Naoya Kaji, Masatoshi Kamiya, *Japan Atomic Energy Agency*

Mechanical properties of fuel debris for defueling toward decommissioning

Technical Publication. ICONE23-2111
Takanori Hoshino, Toru Kitagaki, Kimihiko Yano, Nobuo Okamura, *Japan Atomic Energy Agency*
Hiroshi Ohara, *Nippon Nuclear Fuel Development Co.,*

Ltd.
Tetsuo Fukasawa, Hitachi-GE Nuclear Energy, Ltd.
Kenji Koizumi, Japan Atomic Energy Agency

2F Convention Hall B-1

Track 18

Student Paper Competition

Session 18-2

Thermalhydraulics 2
 2F Convention Hall B-1 8:30-10:30

Session Chair: **Cheng Peng**, Shanghai Jiao Tong University China
 Session Co-Chair: **Eugene Saltanov**, University of Ontario Institute of Technology Canada

INNOVATIVE APPROACH TO CORRELATE HEAT TRANSFER DATA TO SC CO₂ FLOWING UPWARD IN A BARE TUBE IN FORCED CONVECTION REGIME

Technical Publication. ICONE23-2018
Eugene Saltanov, Igor Pioro, Glenn Harvel, University of Ontario Institute of Technology

Study on Specifics of Thermophysical Properties of Supercritical Fluids in Power Engineering Applications

Technical Publication. ICONE23-1730
David John Mann, Igor Pioro, University of Ontario Institute of Technology

Numerical Study on Two-phase Natural Circulation Flow Oscillation in Nuclear Power Simulation System

Technical Publication. ICONE23-1445
Xianbing Chen, Puzhen Gao, Hanying Chen, Zhiting Yu, Harbin Engineering University

INVESTIGATION OF CONVECTION HEAT TRANSFER OF SUPERCRITICAL WATER USING ATHLET SYSTEM CODE

Technical Publication. ICONE23-1797
Jeffrey Samuel, Glenn D. Harvel, Igor L. Pioro, University of Ontario Institute of Technology

STUDY ON THE THERMAL FRAGMENTATION MODEL UNDER UNSTABLE FILM BOILING CONDITION

Technical Publication. ICONE23-1490
Cheng Peng, Shanghai Jiao Tong University
Jianqing Liu, ShanDong Electric Power Engineering Consulting Institute Corp., LTD
Xiao Yan, Nuclear Power Institute of China
Xuewu Cao, Shanghai Jiao Tong University

Session 18-3

Thermalhydraulics 3
 2F Convention Hall B-1 10:50-12:30

Session Chair: **Juan Carlos Jouvin**, University of Ontario Institute of Technology Canada

Session Co-Chair: **Kazuhiro Kaiho**, The University of Electro-Communications Japan

Visualization of bubble nucleation process during water subcooled flow boiling using a transparent heated surface

Technical Publication. ICONE23-1121
Kazuhiro Kaiho, Tomoyuki Kajihara, Tomio Okawa, The University of Electro-Communications

EXPERIMENTAL STUDY ON LOCAL FORCED CONVECTION CONDENSATION HEAT TRANSFER CHARACTERISTICS OF STEAM/AIR MIXTURES IN A HORIZONTAL TUBE

Technical Publication. ICONE23-1089
Huiqiang Xu, Qiunan Sun, Jiguo Tang, Xiaofan Hou, Hanying Chen, Zhongning Sun, Harbin Engineering University

Heat Transfer Analysis of an Intermediate Heat Exchanger for an SCWR Hydrogen Cogeneration Plant

Technical Publication. ICONE23-1747
Juan Carlos Jouvin, Igor Pioro, University of Ontario Institute of Technology

Behavior of Entrainment Droplet formed by High Velocity Air Jet Flow in Stagnant Water

Technical Publication. ICONE23-1467
Masaaki Akabane, Tokyo University of Marine Science and Technology
Sachiyo Horiki, Masahiro Osakabe, Tokyo University of Marine Science and Technology
Yasuo Koizumi, Akihiro Uchibori, Shuji Ohno, Hiroyuki Ohshima, Japan Atomic Energy Agency

Experimental study on jet instability and breakup behavior in liquid-liquid system

Technical Publication. ICONE23-1886
Shimpei Saito, Yutaka Abe, Akiko Kaneko, Tetsuya Kanagawa, Yuzuru Iwasawa, University of Tsukuba
Eiji Matsuo, Mitsubishi Heavy Industries, Ltd.
Ken-ichi Ebihara, Japan Atomic Energy Agency
Hiroshi Sakaba, Mitsubishi Heavy Industries, Ltd.
Kazuya Koyama, Mitsubishi FBR Systems, Inc.
Hideki Nariai, University of Tsukuba

Session 18-4

Thermalhydraulics 4
 2F Convention Hall B-1 13:30-15:30

Session Chair: **Naoki Miyano**, The University of Electro-Communications Japan
 Session Co-Chair: **Wei Bao**, Nuclear Power Institute of China China

Experimental study on the local interfacial characteristics of subcooled boiling flow under inclined condition

Technical Publication. ICONE23-1710
Wei Bao, Bingde Chen, Jianjun Xu, Tianzhou Xie, Nuclear Power Institute of China

Numerical Assessment and Comparison of Heat Transfer Characteristics of Supercritical Water in Bare Tubes and Tubes with Heat Transfer Enhancing Appendages

Technical Publication. ICONE23-1731
Amjad Farah, Glenn Harvel, Igor Pioro, *University of Ontario Institute of Technology*

Development of Numerical Simulation for Jet Break up Behavior in Complicated Structure of BWR Lower Plenum - (5) Flow Field Measurement around Falling Jet by PIV and LIF

Technical Publication. ICONE23-1257
Yuki Narushima, Yutaka Abe, Akiko Kaneko, Tetsuya Kanagawa, *University of Tsukuba*
Hiroyuki Yoshida, Takayuki Suzuki, *Japan Atomic Energy Agency*

Study of bubble lift-off from a vertical heated surface in pool boiling

Technical Publication. ICONE23-1123
Naoki Miyano, Tomio Okawa, *The University of Electro-Communications*
Takafumi Suginaka, *AdvanceSoft Corporation*

TRANSITION PHENOMENA FROM NON-BOILING REGIME TO FILM BOILING ON RIBBON HEATER WITH DIFFERENT SURFACE CONDITIONS IN POOL OF WATER DUE TO INCREASING HEAT INPUTS

Technical Publication. ICONE23-1306
Sakamoto Rie, Fukuda Katsuya, Liu Qiusheng, *Kobe University*

2F Convention Hall B-2

Session18-10

Measurement Methods
2F Convention Hall B-2 **8:30-10:30**

Session Chair: **Sebastian Schmidt**, *Institute of Process Technology, Process Automation and Measuring Technology* Germany
Session Co-Chair: **Naoki Shiibara**, *National Defense Academy* Japan

Quantitative Measurement of Heat Transfer Fluctuation in a Pipe Flow Having an Orifice Plate Using High-Speed Infrared Thermography

Technical Publication. ICONE23-1102
Naoki Shiibara, Hajime Nakamura, Shunsuke Yamada, *National Defense Academy*

Parametric Study on Electromotive Force of Oxygen Sensor in Lead-Bismuth Eutectic

Technical Publication. ICONE23-1951
Pribadi Mumpuni Adhi, *Tokyo Institute of Technology*
Minoru Takahashi, *Research Laboratory for Nuclear Reactor*

Design of a Tritium-In-Air Monitor Using Field Programmable Gate Arrays

Technical Publication. ICONE23-1171
Phillip Charles McNelles, Lixuan Lu, *University of Ontario Institute of Technology*

3D PWR power distribution on-line monitoring based on harmonics expansion

Technical Publication. ICONE23-1692
Zhuo Li, *Xi'an Jiaotong University*
Hongchun Wu, *Xi'an Jiaotong University*
Liangzhi Cao, Youqi Zheng, Yunzhao Li, *Xi'an Jiaotong University*
Kunpeng Wang, *Nuclear and Radiation Safety Center*

Validation of a Innovative Core State Diagnosis System for Severe Accidents in PWR by using an Experimental Rig

Technical Publication. ICONE23-2113
Sebastian Schmidt, *Institute of Process Technology, Process Automation and Measuring Technology*
Daniel Fiß, Alexander Kratzsch, Stefen Härtelt, *Institute of Process Technology, Process Automation and Measurement Technology*

Real-time particle volume fraction measurement in centrifuges by wireless electrical detector

Technical Publication. ICONE23-1436
Fumiya Nagae, *Chiba university*
Tong Zhao, *Xi'an University of Technology*
Okawa Kazuya, *Chiba university*
Shinsuke Matsuno, Noriaki Ichijo, *IHI corporation*
Masahiro Takei, *Chiba university*

Session18-11

Advanced Reactors 1
2F Convention Hall B-2 **10:50-12:30**

Session Chair: **Hassan Mohamed**, *University of Cambridge* United Kingdom
Session Co-Chair: **David Kowalczyk**, *University of Ontario Institute of Technology* Canada

Pressure drop analysis across SuperCritical water-cooled reactor for a re-entrant fuel channel design

Technical Publication. ICONE23-1375
David Kowalczyk, Miral Chauhan, Fatimah Rafat, Wargha Peiman, Igor Pioro, *University of Ontario Institute of Technology*

Heat Loss From Re-Entrant Fuel Channel in a 1200 MWel Pressure Channel SCWR

Technical Publication. ICONE23-1377
Fatimah Rafat, Jeffrey Samuel, Miral Chauhan, David Kowalczyk, Igor Pioro, *University of Ontario Institute of Technology*

An investigation into the feasibility of utilizing thorium-based fuel cycles in a small fluoride-salt-cooled high-temperature reactor.

Technical Publication. ICONE23-1659
Hassan Mohamed, Dan Kotlyar, Geoffrey T Parks, Eugene Shwageraus, *University of Cambridge*

ADVANCED LOW-POWERED AND MEDIUM-POWERED HLMC REACTOR PLANTS WITH HORIZONTAL STEAM GENERATORS CONTAINING THE EMERGENCY "INTERLOOP LEAKINESS OF STEAM GENERATOR" AT ANY SIZE OF LEAKINESS

Technical Publication. ICONE23-1956

Gennadiy Sergeevich Prikazchikov, Aleksandr V. Beznosov, Tatiana A. Bokova, Oksana I. Buzina, Tatiana M. Semayeva, NNSTU n.a. R.E.Alekseyev

Session 18-12

Advanced Reactors 2
2F Convention Hall B-2

13:30-15:30

Session Chair: **Miral Chauhan**, *University of Ontario Institute of Technology* Canada
Session Co-Chair: **Takahito Ogura**, *Hokkaido University* Japan

Design Considerations for Insulation System for Fluoride Salt Cooled High Temperature Reactor under Beyond Design Basis Accident Conditions

Technical Publication. ICONE23-2171

Takahito Ogura, Michitsugu Mori, *Hokkaido University*
Charles W. Forsberg, *Massachusetts Institute Technology*
Shuichiro Miwa, Hiroto Sakashita, *Hokkaido University*

Design and Study of Engineering Test Facility - Helium Circulator

Technical Publication. ICONE23-1913

Huijing Jiang, Ping Ye, Gang Zhao, Yanan Geng, Jie Wang, *Tsinghua University*

THERMAL-HYDRAULICS ANALYSIS OF A RE-ENTRANT FUEL CHANNEL WITH UN FUEL FOR PRESSURE-CHANNEL SCWR

Technical Publication. ICONE23-1374

Miral Chauhan, Igor Pioro, Sahil Gupta, Wargha Peiman, *University of Ontario Institute of Technology*

Thermal-hydraulic and Neutronic Analysis of a Re-entrant Pressure-Channel Supercritical Water-cooled Reactor

Technical Publication. ICONE23-1727

Wargha Peiman, Igor Pioro, Kamiel Gabriel, *University of Ontario Institute of Technology*

2F Room 201A

Track 1

Plant Operations, Maintenance, Engineering, Modifications, Life Cycle and Balance of Plant

Session 1-1

Support for Maintenance
2F Room 201A

10:50-12:30

Session Chair: **Koji Yamada**, *Chubu Electric Power Co., Inc.*, Japan

Session Co-Chair: **William A. Byers**, *Westinghouse* United States

Quadruped Robot for Improving Workability at Hazardous Environment: Development of Load Carriage Function

Technical Publication. ICONE23-1232

Kenji Matsuzaki, Koji Ueda, Yusuke Mitsuya, Naotaka Suganuma, Takuya Uehara, Norihito Nakamura, *Toshiba Corp.*

Radiation Dose Monitoring and Protection during the Maintaining of HTR-10 Helium Circulator

Technical Publication. ICONE23-1450

Liqiang Wei, Ling Liu, Xiaoming Chen, *Institute of Nuclear and New Energy Technology, Tsinghua University*

Application of the Predictive Maintenance assessment method on the AP1000 nuclear plant

Technical Publication. ICONE23-1480

Zhao-xi Wang, *CPI Nuclear Power Institute*

Application of Dr. Mainte, Integrated Simulator of Maintenance Optimization, to LWRs.

Technical Publication. ICONE23-1644

Yoshihiro Isobe, *Nuclear Fuel Industries, Ltd.*
Mitsuyuki Sagisaka, Junji Etoh, Takashi Matsunaga, *Nuclear Fuel Industries Ltd.*
Toru Kosaka, Satoshi Matsumoto, *Atree, Inc.*
Shinobu Yoshimura, *The University of Tokyo*

Research of Nuclear Power Plant In-Service Maintenance Based on Virtual Reality

Technical Publication. ICONE23-2010

Yong Wang, Weijun Kuang, *Shanghai Nuclear Engineering Research & Design Institute*

Session 1-2

Plant Performance
2F Room 201A

13:30-15:30

Session Chair: **William A. Byers**, *Westinghouse* United States

Session Co-Chair: **Shigetoshi Ono**, *Tokyo Electric Power Company* Japan

Session Co-Chair: **Thibaud Mercier**, *EDF R&D* France

Advanced Condition Monitoring Program for Turbine System

Technical Publication. ICONE23-1169

Shigetoshi Ono, *Tokyo Electric Power Company*

Simulation on Reactor Boron and Water Makeup System based on GSE

Technical Publication. ICONE23-1216

Erbing Shi, Chengyue Fang, Guanhui Zhao, Chang Wang, *China Ship Development and Design Center*

Data Assimilation and PWR Primary Parameters Estimation: Enhancement of a OD Model and Calibration of Random Parameter Generator for

Background Terms Evaluation

Technical Publication. ICONE23-1442

Thibaud Mercier, Jean-méline Favennec, Alexandre Girard, EDF R&D

Designs and Performance Evaluation of Heat Exchanger Networks for a Co-generation SMR to Various Thermal Utilization Applications

Technical Publication. ICONE23-2109

Gaoming Ge, Carey J. Simonson, University of Saskatchewan

HITACHI - GE - SMALL MODULAR REACTOR BALANCE OF PLANT THERMAL UTILIZATION STUDY

Technical Publication. ICONE23-1734

Kalyana Venkatraman, Ajay Dalai, University of Saskatchewan

Roger Humphries, Amec NSS Limited

Session1-3

Testing and Research I

2F Room 201A

16:00-18:00

Session Chair: **William A. Byers**, Westinghouse
United States

Session Co-Chair: **Koji Yamada**, Chubu Electric Power Co., Inc.,
Japan

Endurance test report of rubber sealing materials for the containment vessel.

Technical Publication. ICONE23-1610

Risa Yamamoto, Katsumi Watanabe, Kanji Hanashima, NICHIAS Corporation

Fracture tests of steel pipes by internal detonaion of hydrogen-oxygen gas

Technical Publication. ICONE23-2174

Yasuyuki Ishida, Hitachi-GE Nuclear Energy, Ltd.
Akira Nebu, Hitachi, Ltd., Hitachi Research Laboratory
Kouji Dozaki, The Japan Atomic Company
Koji Yamada, Chubu Electric Power Co., Inc.
Masahiro Uchida, IHI Corporation
Takahiro Sone, Toshiba Corporation
Akitaka Hidaka, Hitachi-GE Nuclear Energy, Ltd.

Core monitoring and surveillance of the Russian VVER-440 type of reactors in Czech Republic and Slovak Republic

Technical Publication. ICONE23-1945

Jozef Molnar, Radim Vocka, UJV Rez, a. s.

Diagnostics and Life-Cycle Assessment of Medium-Voltage Cables in Nuclear Power Plants during Regular Overhaul Process

Technical Publication. ICONE23-1982

Simon Podkoritnik, Milan Vidmar Electric Power Research Institute

Stanko Manojlovic, Nuclear Power Plant Krsko
Marko Jansa, Milan Vidmar Electric Power Research Institute

INPLANE FLUIDELASTIC INSTABILITY ANALYSIS FOR

LARGE STEAM GENERATORS

Technical Publication. ICONE23-2110

Njuki Mureithi, Stephen Olala, Abdallah Hadji, Ecole Polytechnique Montreal

Development of remote inspection technology using microcapsules and observation system

Technical Presentation Only. ICONE23-1040

Fuyumi Ito, The wakasa wan energy research center
Akihiko Nishimura, Japan Atomic Energy Agency
Kyo Kume, The Wakasa Wan Energy Reseach Center
Hirokazu Tsuji, The Wakasa Wan Energy Research Center

2F Room 201B

Track11

Computational Fluid Dynamics (CFD) and Coupled Codes

Session11-3

General CFD Applications

2F Room 201B

8:30-10:30

Session Chair: **Hiroyuki Ohshima**, Japan Atomic Energy Agency
Japan

Session Co-Chair: **Akira T Tokuhiro**, Purdue University
United States

Modeling and Analysis of Integral Test Facility for Passive Containment Cooling System

Technical Publication. ICONE23-1010

Lei Chang, Zhou Mingzheng, State Nuclear Power Research Institute

The Study of Factors Effecting Gravity Separation Efficiency of AP1000 Steam Generator

Technical Publication. ICONE23-1237

Ying Liu, Ruifeng Tian, Lanxin Sun, Meng Zhu, Yixuan Chen, Yimeng Liu, Harbin Engineering University

The steam manifold system optimization research based on the 1D and 3D coupled flow field model

Technical Publication. ICONE23-1147

Guanhui Zhao, China Ship Development and Design Center

Erbing Shi, China Ship and Development and Design Center

Cuina Zhao, Chengyue Fang, China Ship Development and Design Center

Ruojun Xue, Harbin Engineering University

Simulation analysis of inlet flow field for air flow path of passive containment cooling system

Technical Publication. ICONE23-1352

Mingzheng Zhou, Ruichang Zhao, State Nuclear Power Research Institute

Modification of boron transport model of coupled neutronic and thermal-hydraulic system dynamics code for fuel debris recriticality analysis

Technical Publication. ICONE23-2004

Taishi Yoshida, Norio Sakai, Yutaka Takeuchi, Yamato Hayashi, *Toshiba Corporation*

Session 11-4

Turbulence, Heat and Mass Transfer
2F Room 201B 10:50-12:30

Session Chair: **Yacine Addad**, *Khalifa University*
United Arab Emirates

Session Co-Chair: **Sofiane Benhamadouche**, *Electricite De France R & D*
France

Numerical Analysis for Turbulent Flow Structure in Two Rectangular Channels Connected by a Narrow Gap

Technical Publication. ICONE23-1069
Naoto Kato, Takaya Saito, Hitoshi Sugiyama, *Utsunomiya University*
Atsuhiko Terada, Yu Kamiji, Ryutaro Hino, *Japan Atomic Energy Agency*

CFD Modeling of Supercritical Water Heat Transfer in a Vertical Bare Tube Upward Flow

Technical Publication. ICONE23-1163
Vladimir Agranat, *Applied Computational Fluid Dynamics Analysis*
Michael Malin, *Concentration, Heat & Momentum Limited*
Igor Pioro, Rand Abdullah, *University of Ontario Institute of Technology*
Valery A. Perminov, *National Research Tomsk Polytechnic University*

Numerical Investigation of Supercritical Flow in a Vertical Tube under Non-Uniform Heat Flux

Technical Publication. ICONE23-1611
Marcin Karol Rowinski, Timothy John White, *Nanyang Technological University*
Jiyun Zhao, *City University of Hong Kong*

Simulating flow transition in a mini-rectangular channel under rolling motion

Technical Publication. ICONE23-1834
Hongsheng Yuan, Sichao Tan, Nailiang Zhuang, Zhiting Yu, Shaodan Li, *Harbin Engineering University*

Technical Publication. ICONE23-1970
Cancelled

Session 11-5

Multi-Scale, Multi-Physics Thermal-Hydraulics
2F Room 201B 13:30-15:30

Session Chair: **Michio Murase**, *Institute of Nuclear Safety System, Inc.*
Japan

A droplet entrainment model for horizontal gas/liquid flows

Technical Publication. ICONE23-1413
Thomas Hoehne, *Helmholtz-Zentrum Dresden*

- *Rossendorf*

Applicability of a Mechanistic Numerical Method for Sodium-water Reaction Phenomena in Steam Generators of Sodium-cooled Fast Reactors

Technical Publication. ICONE23-1502
Akihiro Uchibori, Hiroyuki Ohshima, *Japan Atomic Energy Agency*

Numerical Analysis of Liquid Droplet Impingement Erosion Considering Fluid/Material Factors

Technical Publication. ICONE23-1629
Hirotsoshi Sasaki, Naoya Ochiai, Yuka Iga, *Tohoku University*

Development of a CFD model for condensation of steam-air mixture at the exterior surface of a circular tube

Technical Publication. ICONE23-1842
Minseok Ko, Dong Wook Jerng, *Chungang Univ.*

Particle Method Simulation of Metal Droplets Solidification in a Coolant Liquid

Technical Presentation Only. ICONE23-1565
Kenta Inagaki, *Central Research Institute of Electric Power Industry*

Session 11-6

Thermal Mixing, Stratification
2F Room 201B 16:00-18:00

Session Chair: **Akira Nakamura**, *Institute of Nuclear Safety System, Inc.*
Japan

Session Co-Chair: **Yann Bartosiewicz**, *Université catholique de Louvain*
Belgium

Numerical Investigation of Thermal Striping on Core Instrumentation Plate in Upper Plenum of JSFR with Spatial Connection Method

Technical Presentation Only. ICONE23-1453
Masaaki Tanaka, *Japan Atomic Energy Agency*
Satoshi Murakami, *NDD Corporation*

Numerical Simulation of Hot Gas Mixing with Leakage Flow at HTR-PM reactor outlet

Technical Publication. ICONE23-1865
Yangping Zhou, *Tsinghua University*

CFD SIMULATIONS OF THERMAL MIXING AT ECC SAFETY INJECTION FOR SINGLE PHASE AND AIR-WATER BUBBLY PHASE FLOW

Technical Publication. ICONE23-1996
Kai Wang, Wuyue Ren, Guanghui Su, Suizheng Qiu, Wenxi Tian, Junmei Wu, *Xi'an Jiaotong University*

Technical Publication. ICONE23-2098
Cancelled

Technical Publication. ICONE23-2005
Cancelled

2F Room 202

Track15

Fusion Engineering

Session15-3

Plasma and Nuclear Analysis
2F Room 202

8:30-10:30

Session Chair: **Kenji Tobita**, *jaea* Japan
Session Co-Chair: **Feng Kaiming**, *Southwest Institute of Physics* China

Design and Nuclear Analysis of the Equatorial Launcher for EC Heating and Current Drive of ITER Plasma

Technical Publication. ICONE23-1536

Koji Takahashi, Ganji Abe, Masami Isozaki, Noriyuki Kobayashi, Teruo Abe, *Japan Atomic Energy Agency*
Hiromasa Iida, *Nippon Advanced Technology Co.*
Manabu Komatsuzaki, *MHK Co.*
Yasuhisa Oda, Keishi Sakamoto, *Japan Atomic Energy Agency*

Neutronics analysis for fusion DEMO reactor design

Technical Publication. ICONE23-1820

Youji Someya, Kenji Tobita, Hisashi Tanigawa, Hiroyasu Utoh, Nobuyuki Asakura, Yoshiteru Sakamoto, Kazuo Hoshino, Makoto Nakamura, Shinji Tokunaga, *Japan Atomic Energy Agency*

SOLPS Modelling of Detachment in Lower Single-Null Divertor for China Fusion Engineering Testing Reactor

Technical Publication. ICONE23-1882

Bin Chen, Shifeng Mao, *University of Science and Technology of China*

New Nuclear Data Group Constant Sets for Fusion Reactor Nuclear Analyses based on JENDL-4.0 and FENDL-3.0

Technical Publication. ICONE23-1521

Chikara Konno, Masayuki Ohta, Saerom Kwon, Kentaro Ochiai, Satoshi Sato, *Japan Atomic Energy Agency*

Research and Development of rotating Tritium Target system for High Intensity D-T Fusion Neutron Generator

Technical Presentation Only. ICONE23-2088

Gang Wang, Qianfeng Yu, Wen Wang, Gang Song, Yong Song, *Institute of Nuclear Energy Safety Technology*

Track8

Codes, Standards, Licensing, and Regulatory Issues

Session8-1

Development of Codes, Standards and Guidelines
2F Room 202

10:50-12:30

Session Chair: **Shenjie Gu**, *Shanghai Nuclear Engineering Research and Design Institute* China
Session Co-Chair: **Ralph Hill**, *Westinghouse Electric Company LLC* United States

Development of Structural Integrity Evaluation Guideline for PWR Containment under Severe Accident Condition

Technical Publication. ICONE23-1346

Takehiko Sera, *THE KANSAI ELECTRIC POWER CO., INC*

Kazuki Kobayashi, *Mitsubishi Heavy Industries, Ltd.*
Yasukazu Takada, *THE KANSAI ELECTRIC POWER CO., INC*

Analytical Study on Structural Integrity of Reinforced Concrete Containment Vessel under Severe Accident Conditions

Technical Presentation Only. ICONE23-2116

Yoshinori Mihara, *Kajima Corporation*

Takuya Miyagawa, Masashi Tanabe, *Toshiba Corporation*

Minoru Kanechika, *Kajima Corporation*

Analytical Study on Past Test Result of Reinforced Concrete Containment Vessel Liner

Technical Presentation Only. ICONE23-2121

Masashi Tanabe, Takuya Miyagawa, *Toshiba Corporation*

Yasuhiko Kumagai, Ryosuke Shionaga, *IHI Corporation*

The National Board of Boiler and Pressure Vessel Inspectors NR Accreditation Program

Technical Presentation Only. ICONE23-2195

Clayton Taylor Smith, *Fluor Nuclear Power*
Charles Withers, *The National Board of Boiler and Pressure Vessel Inspectors*

Development of Guideline for Containment structure integrity evaluation at the severe accident condition

Technical Presentation Only. ICONE23-1389

Tatsuhiko Yamazaki, *Japan Nuclear Safety Institute*

Technical Publication. ICONE23-1544

Cancelled

Session8-2

Safety Related Topics
2F Room 202

13:30-15:30

Session Chair: **Kazuyuki Tsukimori**, *Japan Atomic Energy Agency* Japan
Session Co-Chair: **Clayton Taylor Smith**, *Fluor Nuclear Power* United States

Technical Insight of the High Level Safety Goal for the NPP Built in China's Thirteenth Five-Year (2016-2020)

Technical Publication. ICONE23-2023

Guobao Shi, *Shanghai Nuclear Engineering Research and Design Institute*

DEMAND ORIENTED NUCLEAR POWER STANDARD SYSTEM RESEARCH

Technical Publication. ICONE23-1891

Shenjie Gu, *Shanghai nuclear engineering research and design institute*

SAFETY FACTORS AND RADIATION DAMAGE IN RPV

Technical Presentation Only. ICONE23-2196

Milan Brumovsky, *UJV Rez*

Briefly Talking about the Chinese Nuclear Power Standards Management and Approval Related to Nuclear Safety

Technical Presentation Only. ICONE23-1871

Yuelan Yan, *State Nuclear Power Engineering Company Limited, Shanghai, China*

Fengxiang Qiu, *Company: State Nuclear Power Engineering Company Limited, Shanghai, China*

2013 EDITION ASME SECTION III, QUALITY ASSURANCE PROGRAM AND MANUAL REQUIREMENTS

Technical Presentation Only. ICONE23-2192

Clayton Taylor Smith, *Fluor Nuclear Power*

Session8-3

Licensing, Quality and Regulatory Related Topics

2F Room 202

16:00-18:00

Session Chair: **Howard Ho Chung**, *Korea Advanced Institute of Science & Technology* Korea

Session Co-Chair: **Kazuyuki Tsukimori**, *Japan Atomic Energy Agency* Japan

Development of JSME codes for fast reactors

Technical Publication. ICONE23-1409

Tai Asayama, *Japan Atomic Energy Agency*

Koji Dozaki, *The Japan Atomic Power Company*

Tomomi Otani, *Mitsubishi FBR Systems, Inc.*

The Development of RELAP5/SCDAPSIM/MOD4.0 for Advanced Fluid Systems Design and Analysis

Technical Publication. ICONE23-1623

Marina Perez Ferragut, **Richard J Wagner**, **Zheng Fu**,

Innovative Systems Software

Agustin Abarca, *Universitat Politecnica de Valencia*

(Polytechnic University of Valencia)

Chris M Allison, **Judy K Hohorst**, *Innovative Systems*

Software

Evaluation of reactor internals integrity and lifetime according to the IAEA VERLIFE Guidelines

Technical Presentation Only. ICONE23-2197

Milan Brumovsky, *UJV Rez*

Integrated Nuclear Quality Program Management

Technical Presentation Only. ICONE23-2191

Clayton Taylor Smith, *Fluor Nuclear Power*

Steven White, *Fluor*

Technical Publication. ICONE23-2124

Cancelled

2F Room 203

Track14

Instrumentation and Controls (I&C)

Session14-1

Advanced Sensors, Measurement and Monitoring Techniques

2F Room 203

8:30-10:30

Session Chair: **Hirohisa Satomi**,

Hitachi, Ltd., Infrastructure Systems Company

Japan

Session Co-Chair: **Daisuke Tan**, *Hitachi, Ltd.*

Japan

On the Measurement of Incore Neutron Flux in Accelerator Driven Sub-critical Systems

Technical Publication. ICONE23-1172

Qiang Zhao, *Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou, China, 730000*

Zhiyong He, *Institute of Modern Physics, Chinese Academy of Sciences*

Xueyin Zhang, **Wenjuan Cui**, **Hushan Xu**, **Zhiqiang**

Chen, **Yuxi Luo**, *Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou, China, 730000*

EVALUATION OF THE CURRENT FAST NEUTRON FLUX MONITORING INSTRUMENTATION APPLIED TO LFR DEMONSTRATOR ALFRED: CAPABILITIES AND LIMITATIONS

Technical Publication. ICONE23-1447

Luigi Lepore, **Romolo Remetti**, *SAPIENZA, University of Rome*

Mauro Cappelli, *ENEA Casaccia Research Center*

LEVEL DYNAMICS MONITORING USING A COAXIAL REFLECTOMETRIC SENSOR AND A LOW-PULSATILITY PUMP: PRELIMINARY EXPERIMENTAL RESULTS

Technical Publication. ICONE23-1486

Francesco Cordella, **Mauro Cappelli**, **Massimo**

Sepielli, *ENEA*

Development of method of drift suppression for pressure transmitters containing palladium

Technical Publication. ICONE23-1424

Ryo Kuwana, **Daisuke Shinma**, **Atsushi Fushimi**,

Hideki Hanami, **Isao Hara**, *Hitachi, Ltd.*

Hiroyuki Sugimoto, *Hitachi High-Tech Solutions*

Corporation

Compact and mini Raman lidars for hydrogen gas detection

Technical Publication. ICONE23-1640

Tatsuo Shiina, *Chiba University*

Kazuo Noguchi, *Chiiba Institute of Technology*

Kenji Tsuji, *Chubu Electric Power Co., Inc.*

Multifunctional optical probe for the investigation in radiation harsh conditions

Technical Presentation Only. ICONE23-1286

Akihiko Nishimura, *Japan Atomic Energy Agency*

Takehiro Furuyama, *A-Teck*

Fuyumi Ito, *The Wakasa Wan Energy Research Center*

Cikara Ito, Hiroyuki Naito, Hironori Ohba, Syunya Yamamoto, Ikuo Wakaida, Akira Sugiyama, Japan
Atomic Energy Agency

Session 14-2

Application of Technology to Enhance Design, Test and Maintenance I
2F Room 203 10:50-12:30

Session Chair: **Goran Simeunovic, Czech Technical University** Czech Republic
Session Co-Chair: **Mauro Cappelli, Italian National Agency for New Technologies, Energy and Sustainable Economic Development** Italy

Application of FPGA in the Radiation Environment of Accelerator Driven Sub-critical System

Technical Publication. ICONE23-1174
Wenjuan Cui, Zhiyong He, Qiang Zhao, Hushan Xu, Yuxi Luo, Yuhui Guo, Institute of Modern Physics, Chinese Academy of Sciences

Multi-Fault Injection Testing: Cases for FPGA-Based NPP I&C Systems

Technical Publication. ICONE23-1742
Vyacheslav Kharchenko, Research and Production Corporation Radly

DYNAMIC PROPERTIES AND GEOMETRIC OPTIMIZATION OF DOUBLE HEAT EXCHANGERS BASED ON CONTROLLABILITY CONDITION NUMBER

Technical Publication. ICONE23-1849
Goran Simeunovic, Czech Technical University in Prague
Dragutin Debeljkovic, University in Belgrade
D Stevic, Univeristy in Belgrade

Development of China Lead-based Research Reactor ADS-CLEAR Simulator

Technical Presentation Only. ICONE23-2092
Peng Xu, Jianye Wang, Minghan Yang, Guangyu Zhang, Yong Song, Yunqing Bai, Yican Wu, Institute of Nuclear Energy Safety Technology

Session 14-3

Application of Technology to Enhance Design, Test and Maintenance II
2F Room 203 13:30-15:30

Session Chair: **Goran Simeunovic, Czech Technical University** Czech Republic
Session Co-Chair: **Mauro Cappelli, Italian National Agency for New Technologies, Energy and Sustainable Economic Development** Italy

Wearable gestural interface for support systems at work site

Technical Presentation Only. ICONE23-1771
Musashi Shigeyama, Toshiba Corporation

Guided Wave Technology for In-Service Inspection and Online Monitoring for Long Term Operation of Nuclear Power Plants

Technical Publication. ICONE23-2117
Francesco Bertoncini, University of Pisa
Mauro Cappelli, Italian National Agency for New Technologies, Energy and Sustainable Economic Development
Francesco Cordella, ENEA
Davide Mazzini, ACTA
Marco Raugi, University of Pisa

Nonlinearities analysis and self-scheduled Hinf-norm control of steam temperature in a Canadian SCWR

Technical Presentation Only. ICONE23-1012
Peiwei Sun, Xi'an Jiaotong University
Jianmin Zhang, Xi'an Jiaotong University

Research and Development Strategy of In-Vessel Fuel Handling System for China Lead-based Research Reactor (CLEAR-I)

Technical Presentation Only. ICONE23-2099
Meihua Zeng, Xiaolei Ding, Yong Song, Yunqing Bai, Yican Wu, Institute of Nuclear Energy Safety Technology

Session 14-4

Development of Instrumentation Systems for Severe Accidents
2F Room 203 16:00-18:00

Session Chair: **Yasutake Fujishima, Hitachi-GE Nuclear Energy, Ltd.** Japan
Session Co-Chair: **Atsushi Fushimi, Hitachi, Ltd.** Japan

Development of Instrumentation Systems for Severe Accidents -R&D in Hitachi-GE

Technical Publication. ICONE23-1180
Daisuke Shinma, Kazuo Tominaga, Takahiro Tadokoro, Setsuo Arita, Akira Murata, Tetsuya Matsui, Hitachi-GE Nuclear Energy, Ltd.

DEVELOPMENT OF INSTRUMENTATION SYSTEMS FOR SEVERE ACCIDENTS - 2. ACCIDENT TOLERANT INSTRUMENTATION FOR REACTOR-WATER LEVEL, HYDROGEN CONCENTRATION, PCV WATER LEVEL AND CONTAINMENT ATMOSPHERIC

Technical Publication. ICONE23-1179
Makoto Takemura, Kei Takakura, Koki Okazaki, Hidehiko Kuroda, Fujio Shiraishi, Shin Kato, Hiroaki Kenjyo, Kisato Habu, Koichiro Isoda, TOSHIBA CORPORATION

Development of Instrumentation System for Severe Accidents 3. Solid Oxides Electrolyte Type Hydrogen Sensor

Technical Publication. ICONE23-1142
Toshiro Nishi, Ikumasa Koshiro, Kaoru Tanigawa, Makoto Yoshitsugu, Masato Oba, Takeshi Ikeuchi, Mitsubishi Heavy Industries, Ltd.

Development of Instrumentation System for Severe Accidents - New Accident Tolerant In-Containment

Pressure Transducer for Containment Pressure Monitoring System

Technical Publication. ICONE23-1213

Masato Oba, Kuniyuki Teruya, Makoto Yoshitsugu, Takeshi Ikeuchi, *Mitsubishi Heavy Industries, Ltd.*

Development of Instrumentation Systems for Severe Accidents "Basic Properties of Hydrogen Sensor with Proton Conductor for Safety Measures of LWRs"

Technical Publication. ICONE23-1228

Noriaki Otsuka, Yosinori Matsui, Kunihiko Tsuchiya, *Japan Atomic Energy Agency*
Tetsuya Matsui, Setsuo Arita, Shohei Wada, *Hitachi-GE Nuclear Energy, Ltd.*

Development of Instrumentation Systems for Severe Accidents - 6. Advanced Hydrogen Concentration Monitoring System

Technical Publication. ICONE23-1239

James Gleason, Patrick Gleason, *GLSEQ, LLC*
Tetsuya Matsui, Setsuo Arita, Hirosugu Suzuki, *Hitachi-GE Nuclear Energy, Ltd.*
Hiroaki Kenjyo, Koichiro Isoda, *TOSHIBA CORPORATION*

3F Room 301A

Track 10

Thermal-Hydraulics

Session 10-3

Single-Phase Flow & Turbulence
3F Room 301A

8:30-10:30

Session Chair: **Yassin Hassan**, *Texas A&M University*
United States

Session Co-Chair: **Yasushi Yamamoto**, *Toshiba Corporation*
Japan

Water Experiments on Thermal Striping in Reactor Vessel of Japan Sodium-cooled Fast Reactor - Countermeasure for Significant Temperature Fluctuation Generation -

Technical Publication. ICONE23-1577

Jun Kobayashi, Toshiki Ezure, Hideki Kamide, *Japan Atomic Energy Agency*
Kazuhiro Ohyama, Osamu Watanabe, *Mitsubishi FBR Systems, Inc.*

Analysis of Stagnation Region Heat Transfer of Normally Impinging Axisymmetric Jets on Solid Surfaces Using Integral Method

Technical Publication. ICONE23-2062

Mayank Modak, Krati Garg, Santosh K Sahu, *Indian Institute of Technology Indore*

INVESTIGATION OF THE INFLUENCE OF TURBULENCE MODELS ON THE SIMULATION OF THE GAS DISTRIBUTION

Technical Publication. ICONE23-1277

Aniseh Ahmed Atef Abdalla, Jiyang Yu, C.H. Zhang,

B.X. Hou, M. Saeed, *Tsinghua University*

Experimental investigation on heat transfer enhancement of a laminar oil flow in an annular tube with extruded fins

Technical Publication. ICONE23-1036

Xiangcheng Wu, Changqi Yan, Xiaofan Hou, Jiguo Tang, Hanying Chen, Huiqiang Xu, *Harbin Engineering University*

Effect of Cold Cap Boundary Conditions on Joule-heating flow in the Sloping Bottom Cavity

Technical Publication. ICONE23-1907

Jiaju Zhou, *Tokyo Institute of Technology*
Hiromasa Tanaka, *htanaka@us.nr.titech.ac.jp*
Nobuyoshi Tsuzuki, Hiroshige Kikura, *Tokyo Institute of Technology*

Test trends and related phenomena from the full-height ERVC strategy validation test facility for a large advanced PWR

Technical Presentation Only. ICONE23-1307

Bo Kuang, Pengfei Liu, Yunliang Fan, Chen Zhu, Chaoli Tang, Fan Wang, *Shanghai Jiao Tong University*

Session 10-4

Single & Multi-Phase Flow CFD
3F Room 301A

10:50-12:30

Session Chair: **Yasushi Yamamoto**, *Toshiba Corporation*
Japan

Session Co-Chair: **Yassin Hassan**, *Texas A&M University*
United States

Transient Flow Resistance Analysis of Integrated Valve

Technical Publication. ICONE23-1366

Xinming Sun, Benke Qin, *Tsinghua University*
Xingxing Xu, *China General Nuclear Power Group*
Hanliang Bo, *tsinghua university*

Experimentally-Validated Forced and Mixed Convection Computational Simulations of the Rotatable Buoyancy Tunnel (RoBuT)

Technical Publication. ICONE23-2016

Mark Kimber, Corey Clifford, *University of Pittsburgh*

IMPROVING CONFIDENCE FOR CFD RESULTS IN NUCLEAR SAFETY DEMONSTRATION - EXAMPLE OF HETEROGENEOUS INHERENT BORON DILUTION

Technical Publication. ICONE23-1745

Cedric Terrier, *EDF*
Herve Cordier, *Electricite de France*

Large eddy simulation of turbulent flow in the rod bundle with different spacer grids

Technical Publication. ICONE23-1150

Zonglan Wei, Yu Zhang, Songtao Liu, *Nuclear Power Institute of China*

CFD Simulation of Single-phase Flow in a 5x5 Rod Bundle with Spacer Grid

Technical Publication. ICONE23-1723

Quan Li, *Tsinghua University*

Yongjun Jiao, Jie Chen, Junchong Yu, *Nuclear Power Institute of China*

Session10-5

Multi-Phase Flow I

3F Room 301A

13:30-15:30

Session Chair: **Akira Ohnuki**, *Mitsubishi Heavy Industries, Ltd.*

Japan

Session Co-Chair: **Xuewu Cao**, *Shanghai Jiaotong University*

China

Two-group interfacial area concentration correlations of two-phase flows in large diameter pipes

Technical Publication. ICONE23-1795

Xiuzhong Shen, *Kyoto University*

Takashi Hibiki, *Purdue University*

Experimental Investigation on the water film behavior with counter-current air flow

Technical Publication. ICONE23-1135

Le Li, *Tsinghua University*

Cheng Li, *Chinese State Nuclear Power Technology R&D Center*

Experimental Research on Steam Condensation on Cold Surface: Preliminary Results I

Technical Publication. ICONE23-1222

Shan Zhou, Liyong Han, Chunlai Tian, Wei Zhao,

Wangfang Du, Lin Yang, Zhan Gao, Cheng Li, *State Nuclear Power Technology R&D Center*

The principle and preliminary evaluation of a multiwave ultrasonic method for the measurement of the condensation rate in subcooled flow boiling

Technical Publication. ICONE23-1868

Thang Tat Nguyen, Hiroshige Kikura, *Tokyo Institute of Technology*

Hai Ngoc Duong, *Vietnam Academy of Science and Technology*

Hideki Murakawa, *Kobe University*

Nobuyoshi Tsuzuki, Povolny Antonin, *Tokyo Institute of Technology*

Numerical Investigation of Tube Bundle Pool Boiling in a Passive Cooling System

Technical Publication. ICONE23-1991

Gang Yang, Rong Liu, Wenzhong Zhou, *City University of Hong Kong*

Prediction of Two-phase Flow Induced Vibration using Artificial Void Signal

Technical Presentation Only. ICONE23-2165

Shuichiro Miwa, *Hokkaido University*

Takashi Hibiki, *Purdue University*

Michitsugu Mori, *Hokkaido University*

Session10-6

Multi-Phase Flow II

3F Room 301A

16:00-18:00

Session Chair: **Michio Murase**, *Institute of Nuclear Safety System, Inc.*

Japan

Session Co-Chair: **Licheng Sun**, *Sichuan University*

China

Operating Criteria and Mechanisms of Supersonic Steam Injector

Technical Publication. ICONE23-1650

Kyosuke Sato, Yutaka Abe, Akiko Kaneko, Tetsuya

Kanagawa, *University of Tsukuba*

Michitsugu Mori, *Hokkaido University*

Research on the Flow Behavior of Liquid Film in the Corrugated-plate Separator

Technical Publication. ICONE23-1235

Xiaoyi Liu, Yixuan Chen, *Harbin Engineering University*

Chengxin Cui, *State Nuclear Power Technology*

Research & Development Centre

Changqi Yan, *Harbin Engineering University*

Experimental research on flow resistance characteristic of wire mesh demister

Technical Publication. ICONE23-1211

Meng Zhu, Ruifeng Tian, Lanxin Sun, Zhihui Xing,

Yixuan Chen, *Harbin Engineering University*

Development of a bubble generator for the gas remove system of a small experimental TMSR

Technical Publication. ICONE23-1454

Licheng Sun, Zhengyu Mo, *Sichuan University*

Lilan Shen, *Wuxi institute of communication technology*

Hongtao Liu, Guo Xie, *Sichuan University*

Specific features of strongly superheated steam condensation on the surface of highly subcooled water jets applied to new design of high pressure reheater

Technical Publication. ICONE23-1011

Mikhail Gotovsky, Vladimir Mikhailov, Yuri

Sukhorukov, Nikolai Trifonov, *Polzunov Institute*

3F Room 301B

Session10-13

LOCA & Transient Analyses II

3F Room 301B

8:30-10:30

Session Chair: **Shuichiro Miwa**, *Hokkaido University*

Japan

Session Co-Chair: **Mohammad Pourgol-Mohammad,**

Quality Consultings Inc.

United States

Validation of RELAP5 Code for Simulating Nucleate Pool Boiling Heat Transfer outside Vertical Tube Bundle

Technical Publication. ICONE23-1007

Wenjing Lei, Xiabin Cao, Ya Li, Ming Ding, Xiaofan

Hou, Huiqiang Xu, Harbin Engineering University

Modelling of low-pressure subcooled flow boiling using the ATHLET code

Technical Publication. ICONE23-1046

Fei Li, Zhao Can Meng, State Nuclear Power Research Institute

Xiaojing Liu, ShangHai Jiao Tong University

Linsen Li, Feng Shen, Xu Cheng, State Nuclear Power Research Institute

Development of a transient thermal-hydraulic code for analysis of TOPAZ space reactor

Technical Publication. ICONE23-1792

Wenwen Zhang, Wenxi Tian, Suizheng Qiu, Guanghui Su, Dalin Zhang, Xi'an Jiaotong University

An overview of the thermal-hydraulic code, Ginkgo - The assessment of accumulator model

Technical Publication. ICONE23-1428

Chiung-wen Tsai, Zhi-hao Ren, Xiang-ying Kong, Zhong-yiing Ma, Jia-rei Ruan, Jing-gang Li, Yin-xiang Ma, Jian-xing Yan, China Nuclear Power Technology Research Institute

Introduction to a Fuel-rod Temperature Analysis Code - BIRCH

Technical Publication. ICONE23-1770

Jialei Ruan, Yuanbing Zhu, Jianxing Yan, Zhihao Ren, Jinggang Li, China Guangdong Nuclear Power Corp

Analysis on Natural Circulation Phenomenon in a Lead Bismuth Eutectic Rectangular Loop

Technical Presentation Only. ICONE23-1516

Chen Chong Yue, Liu Li Chen, Ke Feng Lv, Sheng Gao, Qun Ying Huang, Institute of Nuclear Energy Safety Technology

Session 10-14

Bubbly Flow Dynamics

3F Room 301B

10:50-12:30

Session Chair: **Mohammad Pourgol-Mohammad**, Quality Consultings Inc. United States

Session Co-Chair: **Shuichiro Miwa**, Hokkaido University Japan

Numerical simulation of bubble sliding on the wall

Technical Publication. ICONE23-1311

Dongqiang He, Puzhen Gao, Yu Liu, Hanying Chen, Xianbing Chen, Zhongyi Wang, Harbin Engineering University

Predication of bubble sliding velocity under rolling motion condition

Technical Publication. ICONE23-1858

Shaodan Li, Sichao Tan, Yimeng Liu, Harbin Engineering University

DEVELOPMENT OF PREDICTION TECHNOLOGY OF TWO-PHASE FLOW DYNAMICS UNDER EARTHQUAKE ACCELERATION -(15) BEHAVIOR OF

GAS-LIQUID INTERFACE IN BUBBLY / PLUG FLOW UNDER FLOW RATE FLUCTUATION-

Technical Publication. ICONE23-1236

Ryotaro Yokoyama, Yuki Kato, Hideaki Monji, Tetsuya Kanagawa, Akiko Kaneko, Yutaka Abe, University of Tsukuba

Hiroyuki Yoshida, Kazuyuki Takase, Japan Atomic Energy Agency

Development of Prediction Technology of Two-Phase Flow Dynamics under Earthquake

Acceleration (16) -Experimental and numerical study of pressure fluctuation effects on bubble motion -

Technical Publication. ICONE23-1852

Yuki Kato, University of Tsukuba

Hiroyuki Yoshida, Japan Atomic Energy Agency

Ryotaro Yokoyama, Tetsuya Kanagawa, Akiko Kaneko, Hideaki Monji, Yutaka Abe, University of Tsukuba

An Experimental Study on the Bubble Dynamic Behavior in Microbubble Emission Boiling

Technical Publication. ICONE23-1062

Jiguo Tang, Changqi Yan, Harbin Engineering University

Licheng Sun, Sichuan University

Xiaofan Hou, Huiqiang Xu, Hanying Chen, Xiangcheng Wu, Harbin Engineering University

Session 10-15

Severe Accidents I

3F Room 301B

13:30-15:30

Session Chair: **Hiroyuki Yoshida**, Japan Atomic Energy Agency Japan

Session Co-Chair: **Guanghui Su**, Xi'an Jiaotong University China

Accident Analysis of Fukushima Daiichi Nuclear Power Plant Unit 1 by the SAMPSON Severe Accident Code

Technical Publication. ICONE23-1794

Yoshihiro Morita, Hideo Mizouchi, Marco Pellegini, Hiroaki Suzuki, Masanori Naitoh, The Institute of Applied Energy

SIMULATION ANALYSIS ON ACCIDENT AT FUKUSHIMA DAIICHI NUCLEAR POWER PLANT UNIT 2 BY SAMPSON CODE

Technical Publication. ICONE23-1517

Atsuo Takahashi, Marco Pellegrini, Hideo Mizouchi, Hiroaki Suzuki, Masanori Naitoh, The Institute of Applied Energy

Validation of the SAMPSON/MCRA code against CORA-18 experiment

Technical Publication. ICONE23-2082

Alessandro Costa, Marco Pellegrini, Hideo Mizouchi, Hiroaki Suzuki, Masanori Naitoh, The Institute of Applied Energy

Hisashi Ninokata, Marco Enrico Ricotti, Politecnico di

Milano

From Experiment to Reactor: A MCCI Scaling Issue
Technical Presentation Only. ICONE23-1335
Jerzy Jan Foit, Karlsruhe Institut für Technologie

Session10-16

Severe Accidents II
 3F Room 301B 16:00-18:00

Session Chair: **Guanghui Su, Xi'an Jiaotong University**
 China

Session Co-Chair: **Hiroyuki Yoshida, Japan Atomic Energy Agency**
 Japan

A Study on Characteristics of Molten Pool Sloshing in Core Disruptive Accidents of Fast Reactors

Technical Publication. ICONE23-1948

Isao Tatewaki, Kyushu University

Koji Morita, Kyusyu University

Hiroshi Endo, Central Research Institute of Electric Power Industry

Molten core concrete interaction at containment sump pit under severe accident condition

Technical Publication. ICONE23-2188

Kazuya Shimamura, Hokkaido University

Development of Numerical Simulation Method for Relocation Behavior of Molten Materials in Nuclear Reactors : Relocation behavior in a simplified core structures

Technical Publication. ICONE23-1581

Susumu Yamashita, Kazuyuki Takase, Hiroyuki Yoshida, Japan Atomic Energy Agency

Development of POPCORN for Simulating Melting Behavior of Fuel Elements : Fundamental Code Validation and Melting Analysis

Technical Publication. ICONE23-1914

Taku Nagatake, Hiroyuki Yoshida, Kazuyuki Takase, Japan Atomic Energy Agency

Simulation of melt jet breakup and cooling in a water pool with an empirical correlation for melt particle size distribution

Technical Publication. ICONE23-1672

Kiyofumi Moriyama, Hyun Sun Park, Pohang University of Science and Technology

Moo Hwan Kim, Korea Institute of Nuclear Safety

Preliminary study on the effect of accident tolerant fuels on PWR severe SBO

Technical Publication. ICONE23-1836

Xiaoli Wu, Xi'an Jiaotong University

Yapei Zhang, Wenxi Tian, Guanghui Su, Suizheng Qiu, Xi'an Jiaotong University

3F Room 302

Track6

Advanced Reactors

Session6-1

Advanced Light Water Reactors 1
 3F Room 302 16:00-18:00

Session Chair: **Kazuhiro Kamei, Toshiba Corporation**
 Japan

Session Co-Chair: **Jovica Riznic, Canadian Nuclear Safety Commission**
 Canada

The European Utility Requirements for Advanced Light Water Reactors (EUR): recent achievements and new challenges

Technical Publication. ICONE23-1133

Antoine Guelfi, Guillaume Jacquart, Xavier Pouget-abadie, Electricité de France

Luc Vanhoenacker, GDF Suez - Tractebel Engineering

Johan Engstrom, Vattenfall

Evolution of the EU-APWR design in order to satisfy the EUR

Technical Publication. ICONE23-1120

Andrew Ballard, Shigemitsu Otsuka, Michitaka Kikuta, Mitsubishi Heavy Industries Ltd.

The EUR compliance analysis of the EU-APWR standard design: assessment process, methodology and main results.

Technical Publication. ICONE23-1131

Luca Facciolo, Vattenfall AB

Pekka Nuutinen, Fortum

Daniel Welander, Vattenfall AB

ATMEA1 Nuclear Power Plant - Overview of the Human Factors Engineering Program

Technical Publication. ICONE23-1654

Cyril Rivere, AREVA

Kenji Mashio, MHI

Diego Martinez-pellegrini, ATMEA

3F Room 304

Track2

Nuclear Fuel and Materials

Session2-3

Material Challenges for GEN IV Fast Reactors and HTGR - II
 3F Room 304 8:30-10:30

Session Chair: **Emmanuel Horowitz, EDF**
 France

Session Co-Chair: **Carsten Schroer, Karlsruhe Institute of Technology (KIT)**
 Germany

Session Co-Chair: **Yoshinori Katayama, Toshiba Corporation**
 Japan

Quantum Chemical Evaluation for the Stability of

Liquid Sodium Containing Titanium Nanoparticles

Technical Publication. ICONE23-1005
Ai Suzuki, Kenji Inaba, Yukie Ishizawa, Ryuji Miura, Nozomu Hatakeyama, Akira Miyamoto, *Tohoku University*
Jun-ichi Saito, Kuniaki Ara, *Japan Atomic Energy Agency*

Applicability study of nuclear graphite material IG-430 to VHTR

Technical Publication. ICONE23-1669
Hirota Osaki, Yosuke Shimazaki, Junya Sumita, Taiju Shibata, Takashi Konishi, Masahiro Ishihara, *Japan Atomic Energy Agency*

First-Principles Study on Thermal Neutron Cross sections of Electron-doped Lithium Hydride

Technical Publication. ICONE23-1349
Lipeng Wang, *Northwest Institute of Nuclear Technology*

Thermophoresis research of Nanoparticles in Liquid Lead-Bismuth Eutectic Alloy

Technical Publication. ICONE23-1779
Xu Yang, Tao Zhou, Liang Liu, Xiaolu Fang, Daping Lin, *North China Electric Power University*

Development of surface treatments and coating techniques in order to enhance metallic components of sodium cooled fast reactors

Technical Presentation Only. ICONE23-1242
Emmanuel Horowitz, *EDF*

Validation Strategy and Progress of CLEAR-I Materials

Technical Presentation Only. ICONE23-2039
Qunying Huang, Chunjing Li, *Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences*

Session2-4

Irradiation Damage and Stress Corrosion Cracking
 3F Room 304 10:50-12:30

Session Chair: **Radek Skoda,** *Czech Technical University in Prague* Czech Republic
 Session Co-Chair: **Ikuo Ioka,** *Japan Atomic Energy Agency* Japan

Effect of oxidation chemistry of SCW on stress corrosion cracking of austenitic steels

Technical Publication. ICONE23-1158
Bin Gong, Yanping Huang, Yongfu Zhao, E Jiang, Weiwei Liu, *Nuclear Power Institute of China*

Innovative approach of semi-destructive mechanical testing techniques for quantification of irradiated NPP structural materials degradation

Technical Publication. ICONE23-1682
Radim Kopriva, *UJV Rez, a. s.*

Polycrystalline Simulations of Local Stress

Distributions in Neutron Irradiated Austenitic Stainless Steels

Technical Publication. ICONE23-1741
Samir El Shawish, Leon Cizelj, Jozef Stefan Institute Benoit Tanguy, Chao Ling, Jeremy Hure, *French Alternative Energies and Atomic Energy Commission*

Rate theory analysis of irradiation damage in metal: Neutron energy dependence

Technical Publication. ICONE23-1859
Toshiki Nakasuji, Kazunori Morishita, Yasunori Yamamoto, *Kyoto university*
Yoshiyuki Watanabe, *Japan Atomic Energy Agency*

Irradiation assisted stress corrosion cracking and the Jules Horowitz material test Reactor

Technical Publication. ICONE23-2044
Vivekanand Kain, *Bhabha Atomic Research Centre*
Damien François Féron, Benoit Tanguy, *Commissariat à l'énergie atomique et aux énergies alternatives*
Sunil B. Chafle, *Bhabha Atomic Research Centre*
Christian Colin, Christain Gonnier, *Commissariat à l'énergie atomique et aux énergies alternatives*

Session2-5

Corrosion in LWR Environment and Tritium Breeding and Hydrogen Isotope Separation
 3F Room 304 13:30-15:30

Session Chair: **Jovica Riznic,** *Canadian Nuclear Safety Commission* Canada
 Session Co-Chair: **Xiaomin Wang,** *Nuclear Power Institute of China* China
 Session Co-Chair: **Masahiko Osaka,** *Japan Atomic Energy Agency* Japan

AOA AND RADIATION-INDUCED ANOMALOUS CRUD DEPOSITION ON LWR FUELS

Technical Publication. ICONE23-1091
Genn Saji, *Independent Research and Consulting*

Intergranular oxidation within crevice of austenitic stainless steel in high temperature water

Technical Publication. ICONE23-2021
Yasutaka Soma, Fumiyoshi Ueno, Chiaki Kato, *Japan Atomic Energy Agency*

Study of corrosion rate of carbon steel in diluted artificial seawater under simulated irradiation condition

Technical Publication. ICONE23-2028
Atsushi Komatsu, Takashi Tsukada, Fumiyoshi Ueno, Masahiro Yamamoto, *Japan Atomic Energy Agency*

SINGLE STEP FABRICATION OF NANO-SIZED Li₄SiO₄ BREEDER BY MICROWAVE-INDUCED SOLUTION COMBUSTION SYNTHESIS

Technical Publication. ICONE23-1090
Qilai Zhou, Lihong Xue, Heping Li, Youwei Yan, *Huazhong University of Science and Technology*

The fast removal techniques of a small amount of

protium from hydrogen isotopes gas
Technical Publication. ICONE23-2157
Xiong Yifu, *China Accdemy of Engineering Physics*
Li Rong, *China Academy of Engineering Physics*

Radiolysis of Polyacrylic Acid Solution at 320 °C
Technical Presentation Only. ICONE23-1465
Masafumi Domae, Kenji Kako, *Central Research Institute of Electric Power Industry*
Yutaka Ueyama, *The Japan Atomic Power Company*

Takanori Tanigaki, Ryota Fujimura, *university of Fukui*
Ken-ichi Fukumoto, *Univ. of Fukui*
Masayoshi Uno, *University of Fukui*

Influence of seawater-component on corrosion of steel in nitric acid solution containing vanadium and ruthenium
Technical Publication. ICONE23-2025
Eriko Irisawa, Fumiyoshi Ueno, Naoki Uchida, Katsuya Taguchi, *Japan Atomic Energy Agency*

Session2-6

Corrosion in Nitric Acid, FP Environment
 3F Room 304 16:00-18:00

Session Chair: **Tatjana Jevremovic**, *University of Utah United States*
 Session Co-Chair: **Zhangjian Zhou**, *University of Science and Technology Beijing* China
 Session Co-Chair: **Ikuo Ioka**, *Japan Atomic Energy Agency* Japan

Research on fission product chemistry for FP release and transport behavior
Technical Presentation Only. ICONE23-1362
Masahiko Osaka, Shuhei Miwa, Shinichiro Yamashita, Toshihide Takai, Kuniyoshi Nakajima, Tomohiro Furukawa, Fumihisa Nagase, *Japan Atomic Energy Agency*

Methodology for Detection of Trace Amounts of Cobalt and Europium in Neutron Shielding Structural Concrete
Technical Publication. ICONE23-1390
Tatjana Jevremovic, Steven Burnham, *The University of Utah*

Effect of boiling phenomena on the corrosion of austenitic stainless steel (R-SUS304ULC) in nitric acid solution containing chromium ions
Technical Publication. ICONE23-1530
Satoshi Hasegawa, *Tohoku University*
Tetsunari Ebina, Haruaki Tokuda, *Japan Nuclear Fuel Limited*
Keitaro Hitomi, Keizo Ishii, Seong Yun Kim, *Tohoku University*

Study of the corrosion resistance and the mechanical properties of R-SUS310ULC EHP(R)
Technical Publication. ICONE23-1656
Hiroto Imaruoka, Kiyotaka Okada, Hiroshi Sugiyama, Tetsunari Ebina, Yoichi Kano, *JAPAN NUCLEAR FUEL LIMITED*
Yasutaka Soma, Chiaki Kato, Fumiyoshi Ueno, Masahiro Yamamoto, *Japan Atomic Energy Agency*
Osamu Kato, Junpei Nakayama, *KOBE STEEL, LTD*

FP corrosion dependance on carbon content in Fe-Cr steel
Technical Publication. ICONE23-1919
Koei Sasaki, *University of fukui, Japan Atomic Energy Agency*

May 20 (Wed.)

1F Room 101A

Track9

Fuel Cycle, Radioactive Waste Management and Decommissioning

Session9-5

Waste Management - Regulation, Inventory estimation, and Classification
1F Room 101A

8:30-10:30

Session Chair: **Yukihiro Iguchi**, *University of Fukui* Japan
Session Co-Chair: **Tadao Tanaka**, *Japan Atomic Energy Agency* Japan

The improvement of Non Radioactive Waste (NR) boundary estimation procedure

Technical Publication. ICONE23-1070
Ken-ichi Tanaka, *The Institute of Applied Energy*

Application of measurement and evaluation method on the clearance system of the Fugen NPP for dismantled equipment of turbine system

Technical Publication. ICONE23-1488
Hirokazu Hayashi, **Goro Soejima**, **Hiroyuki Mizui**, **Kazuya Sano**, *Japan Atomic Energy Agency*

Operational results of clearance system in the uranium using facility

Technical Presentation Only. ICONE23-2187
Noritake Sugitsue, **Yutaka Mita**, **Hiroaki Ogura**, **Masaki Daiten**, **Akira Ema**, **Yuu Ishimori**, *Japan Atomic Energy Agency*

Nuclear Separation Technologies at the U.S. Department of Energy

Technical Publication. ICONE23-1451
Patricia Paviet, **Kimberly Gray**, *Department of Energy*

Examination of Radioactivity Determination Method for Radioactive Waste Generated from the Rokkasho Reprocessing Plant

Technical Publication. ICONE23-1403
Atsushi Mukunoki, **Hiroaki Kaneki**, *JGC Corporation*
Hiroshi Noda, **Soushi Ishiya**, *Japan Nuclear Fuel Limited*

Session9-6

Decommissioning - Dismantling and Decontamination
1F Room 101A

10:50-12:30

Session Chair: **Seungkook Park**, *Korea Atomic Energy Research Institute* Korea
Session Co-Chair: **Ken-ichi Tanaka**, *The Institute of Applied Energy* Japan

Decontamination and concrete core sampling by teleoperated robot at Fukushima daiichi reactor buildings

Technical Publication. ICONE23-1631
Masaru Watanabe, **Hironori Onitsuka**, **Noriaki Shimonabe**, **Jun Fujita**, **Masahiro Yano**, **Takumi Matsumura**, **Atsushi Okumura**, *Mitsubishi Heavy Industries, Ltd.*

Evaluation of dismantling data in Fugen's decommissioning

Technical Publication. ICONE23-1555
Yuya Koda, *Japan Atomic Energy Agency*

In-situ Dismantling of the Liquid Waste Storage Tank in the Decommissioning Program of the JRTF

Technical Publication. ICONE23-1616
Ryuji Mimura, **Yoshinori Muraguchi**, **Nobuyuki Nakashio**, **Koichi Nemoto**, **Kunio Shiraishi**, *Japan Atomic Energy Agency*

Development of Remote Handling Technology for Nuclear Fuel Cycle Facilities in Japan

Technical Publication. ICONE23-1113
Hiromichi Maekawa, **Akira Sakai**, *IHI Corporation*
Tetsuo Kozaka, *Japan Atomic Energy Agency*
Takashi Hamada, *Japan Nuclear Fuel Limited*

Laser Cutting of Thick Steel with 30 kW Fiber Laser for Nuclear Decommissioning

Technical Publication. ICONE23-1639
Koji Tamura, *The Wakasa Wan Energy Research Center*

Session9-7

Decommissioning - Engineering and Management Systems
1F Room 101A

13:30-15:10

Session Chair: **Brian M Ikeda**, *University of Ontario Institute of Technology* Canada
Session Co-Chair: **Koichi Kitamura**, *Japan Atomic Energy Agency* Japan

Integration of Knowledge Management System for the Decommissioning of Nuclear Facilities

Technical Publication. ICONE23-1004
Yukihiro Iguchi, **Satoshi Yanagihara**, *University of Fukui*

3D Simulation Technologies for Reactor Decommissioning

Technical Publication. ICONE23-1076
Yongling Zhang, **Yifei Hu**, **Meng Liu**, **Kaiyun Zhang**, **Bo Dai**, **Jing Yan**, *Nuclear Power Institute of China*

The Decommissioning Information Management System

Technical Publication. ICONE23-1552
Seungkook Park, *Korea Atomic Energy Research Institute*

Estimation and Visualization of Decommissioning

Wastes based on Plant 3D Model
Technical Presentation Only. ICONE23-1015
 Hiroshi Seki, *Hitachi, Ltd.*
 Mitsutaka Imamura, Takayuki Hirashige, Hiroshi Nagase, Shin Tamata, *Hitachi-GE Nuclear Energy Ltd.*
 Atsuko Enomoto, *Hitachi, Ltd.*

1F Room 101B

Track17

Innovative Nuclear Power Plant Design and New Technology Application

Session17-2

Water Cooled Systems
 1F Room 101B 8:30-10:30

Session Chair: **Mie Azuma**, *Westinghouse Electric*
 United States
 Session Co-Chair: **Guoqiang Wang**, *Westinghouse Electric*
 United States

Comparison of Innovative Direct Contact Type LFR with Conventional LFR and SFR
Technical Presentation Only. ICONE23-1862
 Minoru Takahashi, *Tokyo Institute of Technology*

The Research For The Design Verification Of Nuclear Power Plant Based On VR Dynamic Plant
Technical Publication. ICONE23-2003
 Yong Wang, Xiao Yu, *Shanghai Nuclear Engineering Research and Design Institute*

Effect of Different Pump Shell Throat Arc on CAP1400 Reactor Coolant Pump Performance
Technical Presentation Only. ICONE23-1725
 Yun Long, Dezhong Wang, *Shanghai Jiao Tong University*
 Rongsheng Zhu, *Jiangsu University*
 Junlian Yin, Hui Cheng, *Shanghai Jiao Tong University*

Session17-3

Liquid Metal Systems
 1F Room 101B 10:50-12:30

Session Chair: **Kazuhito Asano**, *Toshiba Corporation*
 Japan

Design Status of Small Modular Reactor Cooled by Lead-bismuth Eutectic Natural Circulation: URANUS
Technical Publication. ICONE23-2135
 Yong-hoon Shin, Sungyeol Choi, Jaehyun Cho, Sangrok Park, Il Soon Hwang, *Seoul National University*

Fast Reactor Core Concept for Preventing Re-criticality Accidents by Employing Duplex Pellets with Absorber
Technical Publication. ICONE23-1008
 Tsugio Yokoyama, *Toshiba Nuclear Engineering*

Services Corporation
Toshio Wakabayashi, *Tohoku University*

Technical Publication. ICONE23-1876
 Cancelled

Technical Publication. ICONE23-2200
 Cancelled

Session17-4

Space Applications
 1F Room 101B 13:30-15:10

Session Chair: **Jovica Riznic**, *Canadian Nuclear Safety Commission*
 Canada

INNOVATIVE NUCLEAR THERMAL ROCKET CONCEPT UTILIZING LEU FUEL FOR SPACE APPLICATION

Technical Publication. ICONE23-1124
Seung Hyun Nam, *Korea Advanced Institute of Science and Technology*
Paolo Francesco Venneri, Jae Young Choi, *Korea Advanced Institute of Science & Technology*
Yong Hoon Jeong, Soon Heung Chang, *Korea Advanced Institute of Science and Technology*

OPTIMIZATION OF ADVANCED SPACE NUCLEAR REACTOR

Technical Publication. ICONE23-1423
San Bing Wang, Chao hui He, *Xi'an Jiaotong University*

1F Room 102A

Track3

Plant Systems, Structures, and Components

Session3-4

Simulation of structures
 1F Room 102A 8:30-10:30

Session Chair: **Jianfeng Yang**, *Westinghouse Electric Company*
 United States
 Session Co-Chair: **Chuanrong Jin**, *ITOCHU Techno-Solutions Corporation*
 Japan

Numerical modeling assistance system in finite element analysis for the structure of an assembly

Technical Publication. ICONE23-1136
Norihiro Nakajima, Akemi Nishida, Yoshiaki Kawakami, Yoshio Suzuki, *Japan Atomic Energy Agency*

EVALUATION METHOD BY COMPLEX MODAL ANALYSIS FOR STRUCTURES WITH VISCOUS DAMPERS

Technical Publication. ICONE23-1168
Ryo Ito, Hiroshi Katayama, *TOSHIBA Corporation*
Jun Nakajima, *TOHSIBA Corporation*
Tomokazu Higuchi, *TOSHIBA Corporation*

Calculation and Analysis of Concrete Containment with High Reinforcement Ratio under High Temperature and High Pressure

Technical Publication. ICONE23-1285
Hui Yu, Di Jiang, Jia Yang, China Nuclear Power Engineering Company

Validation of Nonlinear Finite Element Analysis Models of a Thin-walled Elbow under Extreme Loading Conditions for Sodium-cooled Fast Reactors

Technical Publication. ICONE23-1380
Tomoyoshi Watakabe, Japan Atomic Energy Agency
Chuanrong Jin, Yoshiya Usui, Shinkichi Sakai, ITOCHU Techno-Solutions Corporation
Takashi Wakai, Japan Atomic Energy Agency
Junji Ooshika, ITOCHU Techno-Solutions Corporation
Kazuyuki Tsukimori, Japan Atomic Energy Agency

Session3-5

Components and design
 1F Room 102A

10:50-12:30

Session Chair: **Jovica Riznic, Canadian Nuclear Safety Commission** Canada

Session Co-Chair: **Qing Mao, CGNPC China Nuclear Power Engineering Co.,Ltd** China

Experiment Study on the Thermal Characteristics of the head of the Direct Action Solenoid Valve

Technical Publication. ICONE23-1262
Qianfeng Liu, Yuzhang Li, Huang Zhang, Hanliang Bo, Tsinghua University

Optimization for Steam Turbine Cold End System of a Nuclear Power Plant and its Sensitivity Analysis

Technical Publication. ICONE23-1294
Jia Yang, Rongyong Zhang, Haizhu Li, China Nuclear Power Engineering Company

Numerical Simulation of Sealing Behavior of C-ring for Reactor Pressure Vessel

Technical Publication. ICONE23-1353
Yuanyuan Dong, Nuclear Power Institute of China

Design of the Ground Crane and Shielding Cask for the Spent Fuel Canister of HTR-PM

Technical Publication. ICONE23-1444
Jinhua Wang, Tsinghua University

Session3-6

Mathematical approaches and other topics
 1F Room 102A

13:30-15:10

Session Chair: **Leon Cizelj, Jozef Stefan Institute** Slovenia

Session Co-Chair: **Chikashi Suzuki, Japan Atomic Energy Agency** Japan

Equivalent Non-Gaussian Excitation Method for Response Moment Calculation of Systems Under

Non-Gaussian Random Excitation

Technical Publication. ICONE23-1591
Takahiro Tsuchida, Koji Kimura, Tokyo Institute of Technology

NEXAFS analysis and electronic state of cesium in clay minerals

Technical Publication. ICONE23-1642
Chikashi Suzuki, Hiroyuki Yoshida, Japan Atomic Energy Agency

Beyond design considerations for bonded and un-bonded tendons in nuclear containments

Technical Publication. ICONE23-2078
Pentti Varpasuo, Fortum

Researches of Similitude Laws Obtained by Differential Equations for Axial Flow Helium Compressor

Technical Publication. ICONE23-1977
Liang Ming, Youjie Zhang, Jie Wang, Xiaoyong Yang, Tsinghua University

A Method for Multi-view Point-clouds Registration and Its Application to 3D NPP Modeling

Technical Presentation Only. ICONE23-1984
Ting Li, Chinese Academy of Sciences
Jinbo Zhao, Chinese Academy of Sciences; USTC
Tao He, Pengcheng Long, Chinese Academy of Sciences
Liqin Hu, Chinese Academy of Sciences; USTC

Session3-7

Seismic analyses
 1F Room 102A

15:40-17:20

Session Chair: **Akemi Nishida, Japan Atomic Energy Agency** Japan

Session Co-Chair: **Tomoyoshi Watakabe, Japan Atomic Energy Agency** Japan

INVESTIGATION ON ULTIMATE STRENGTH OF THIN WALL TEE PIPE FOR SODIUM COOLED FAST REACTOR UNDER SEISMIC LOADING

Technical Publication. ICONE23-1359
Tomoyoshi Watakabe, Kazuyuki Tsukimori, Japan Atomic Energy Agency
Akihito Otani, IHI Corporation
Makoto Moriizumi, Japan Atomic Energy Agency
Naoaki Kaneko, IHI Corporation

Structural Response by Ground Motions from Sources with Stochastic Characteristics

Technical Publication. ICONE23-1548
Sayaka Igarashi, Shigehiro Sakamoto, Taisei Corporation
Akemi Nishida, Ken Muramatsu, Japan Atomic Energy Agency
Tsuyoshi Takada, The University of Tokyo

SEISMIC RESPONSE SIMULATION OF HIGH-TEMPERATURE ENGINEERING TEST REACTOR

BUILDING AGAINST 2011 TOHOKU EARTHQUAKE

Technical Publication. ICONE23-1574

Akemi Nishida, Norihiro Nakajima, Yoshiaki Kawakami, Kazuhiko Iigaki, Kazuhiro Sawa, *Japan Atomic Energy Agency*

The Comparison of Seismic Responses between Each Interaction Method of Soil-Structure

Technical Presentation Only. ICONE23-1799

Young Sun Jang, *Korea Power Engineering Company Ltd.*

1F Room 102B

Track 16

Beyond Design Basis Events

Session 16-2

Severe accident management and analysis

1F Room 102B

8:30-10:30

Session Chair: Jun Sugiyama, *Kyoto University* Japan
Session Co-Chair: Guobao Shi, *Shanghai Nuclear Engineering Research and Design Institute* China

Mitigation Strategy Effectiveness of Emergency Water Injection using Fire Truck in Typical PWR

Technical Publication. ICONE23-1096

Sooyong Park, Kwang-il Ahn, *Korea Atomic Energy Research Institute*

ATHLET-CD Analysis of Water Injection into a partly-damaged BWR Core for Accident Management improvement

Technical Publication. ICONE23-1244

Valentino Di Marcello, Uwe Imke, Victor Sanchez, *Karlsruhe Institute of Technology*

ENHANCING AP1000 REACTOR ACCIDENT MANAGEMENT CAPABILITIES FOR LONG TERM ACCIDENTS

Technical Publication. ICONE23-1370

Pingting Jiang, Mengying Liu, *China Nuclear Power Technology Research Institute*

Chengjie Duan, Hong Ye Liao, *China Nuclear Power Technology Research Institute*

Effectiveness Analysis of Severe Accident Management Strategies in LOCA Scenarios for AP1000

Technical Publication. ICONE23-1537

Yongzheng Chen, Wenxi Tian, Yapei Zhang, Suizheng Qiu, Guanghui Su, Ronghua Chen, *Xi'an Jiaotong University*

Analyses of SBO Sequence of VVER1000 Reactor using TRACE and MELCOR Codes

Technical Publication. ICONE23-2093

Guido Mazzini, Milos Kyncl, Vit Kopecek, Bruno Miglierini, *Centrum výzkumu Řež s. r. o.*

Technical Publication. ICONE23-1053

Cancelled

Session 16-3

In and ex-vessel melt behavior

1F Room 102B

10:50-12:30

Session Chair: Yu Maruyama, *Japan Atomic Energy Agency* Japan

Session Co-Chair: Guobao Shi, *Shanghai Nuclear Engineering Research and Design Institute* China

Development of Numerical Simulation for Jet Breakup Behavior in Complicated Structure of BWR Lower Plenum (6) Influence of the Simulant Molten Fuel Properties on Jet Breakup Phenomenon in Multi-Channels

Technical Publication. ICONE23-1549

Takayuki Suzuki, Hiroyuki Yoshida, *Japan Atomic Energy Agency*

Yutaka Abe, Akiko Kaneko, *University of Tsukuba*

Numerical study on influence of Ohnesorge number and Reynolds number using the lattice Boltzmann method

Technical Publication. ICONE23-1950

Yuzuru Iwasawa, Yutaka Abe, Akiko Kaneko, Tetsuya Kanagawa, Smppei Saito, *University of Tsukuba*

Eiji Matsuo, *Mitsubishi FBR Systems, Inc.*

Ken-ichi Ebihara, *Japan Atomic Energy Agency*

Hiroshi Sakaba, *Mitsubishi Heavy Industries, Ltd.*

Kazuya Koyama, *Mitsubishi FBR Systems, Inc.*

Hideki Nariai, *University of Tsukuba*

Study of overall heat transfer coefficient from upper crust to overlaying water during MCCI

Technical Publication. ICONE23-2178

Masaya Kondo, *Netsusuiriki Laboratory*

Technical Publication. ICONE23-1482

Cancelled

Session 16-4

Structural integrity

1F Room 102B

13:30-15:10

Session Chair: Farhang Ostadan, *Bechtel Corporation* United States

Session Co-Chair: Kiyofumi Moriyama, *Pohang University of Science and Technology* Korea

Development of Failure Evaluation Method for BWR Lower Head in Severe Accident; (1) High Temperature Creep Test and Creep Damage Model

Technical Publication. ICONE23-1533

Yoshihito Yamaguchi, Jinya Katsuyama, Hiroyuki Yoshida, Yoshiyuki Kaji, Yinsheng Li, *Japan Atomic Energy Agency*

Development of Failure Evaluation Method for BWR Lower Head in Severe Accident; (2) Applicability

evaluation of the FEM using uni-axial material data for multi-axial deformation analysis

Technical Publication. ICONE23-1633

Yoshiyuki Nemoto, Hitoshi Kato, Yoshiyuki Kaji, Hiroyuki Yoshida, *Japan Atomic Energy Agency*

Development of Failure Evaluation Method for BWR Lower Head in Severe Accident; (3) Creep Damage Evaluation Based on Thermal-Hydraulics and Structural Analyses

Technical Publication. ICONE23-1534

Jinya Katsuyama, Yoshihito Yamaguchi, Yoshiyuki Kaji, Hiroyuki Yoshida, *Japan Atomic Energy Agency*

Ultimate pressure capacity analysis of CPR1000 containment under severe accident loading condition

Technical Publication. ICONE23-1861

Peng Chen, *China Nuclear Power Technology Research institute*

safety design criteria for generation IV sodium-cooled fast reactors (4) Balance of Plant

Technical Publication. ICONE23-1498

Yoshitaka Chikazawa, Atsushi Kato, Kunihiko Nabeshima, Masahiko Ohtaka, *Japan Atomic Energy Agency*

Masayuki Uzawa, Risako Ikari, Mikinori Iwasaki, *Mitsubishi FBR Systems, Inc.*

Improvement of transient analysis method of a sodium-cooled fast reactor with FAIDUS fuel sub-assemblies

Technical Publication. ICONE23-1473

Kazuya Ohgama, *Japan Atomic Energy Agency*

Katsuyuki Kawashima, *Hitachi, Ltd.*

Shigeo Ohki, *Japan Atomic Energy Agency*

Conceptual Design of Nonnuclear Integrated Test Platform for China Lead-based Reactor

Technical Presentation Only. ICONE23-2037

Yunqing Bai, Shuyong Liu, Tao Zhou, Yong Song,

Yican Wu, *Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences*

1F Room 103

Track5

Next Generation Reactors (including GIF Symposium)

Session5-7

SFR

1F Room 103

8:30-10:30

Session Chair: **Philippe Dufour**, *Commissariat à l'énergie atomique et aux énergies alternatives* France

Session Co-Chair: **Hiroshi Endo**, *Central Research Institute of Electric Power Industry* Japan

JSFR Design Progress Related to Development of Safety Design Criteria for Generation IV Sodium-Cooled Fast Reactors (1) Overview

Technical Publication. ICONE23-1666

Hideki Kamide, *Japan Atomic Energy Agency*

Takaya Ito, *Mitsubishi FBR Systems, Inc.*

Masato Ando, *Japan Atomic Power Company*

JSFR design progress related to development of safety design criteria for generation IV sodium-cooled fast reactors (2) Progress of safety design

Technical Publication. ICONE23-1748

Shigenobu Kubo, *Japan Atomic Energy Agency*

Yoshio Shimakawa, *Mitsubishi FBR Systems, Inc.*

JSFR design progress related to development of safety design criteria for generation IV sodium-cooled fast reactors (3) Progress of component design

Technical Publication. ICONE23-1492

Yasuhiro Enuma, Nobuchika Kawasaki, *Japan Atomic Energy Agency*

Junichi Orita, Masao Eto, *Mitsubishi FBR Systems, Inc.*

Takayuki Miyagawa, *Japan Atomic Power Company*

SFR design progress related to development of

Session5-8

SFR & LFR

1F Room 103

10:50-12:30

Session Chair: **Shigenobu Kubo**, *Japan Atomic Energy Agency* Japan

Validation of Core Cooling Capability Analysis in Monju during Large Pipe Break in Primary Heat Transfer System

Technical Publication. ICONE23-1205

Fumiaki Yamada, *Japan Atomic Energy Agency*

Mitsuhiro Arikawa, *NESI*

Yoshitaka Fukano, *Japan Atomic Energy Agency*

Safety Requirements Expected for the Prototype Fast Breeder Reactor "Monju"

Technical Publication. ICONE23-1505

Shinzo Saito, *Japan Atomic Energy Agency*

Koji Okamoto, *The University of Tokyo*

Isao Kataoka, *Osaka University*

Ken-ichiro Sugiyama, *Hokkaido University*

Ken Muramatsu, *Tokyo City University*

Masakazu Ichimiya, *University of Fukui*

Satoru Kondo, Taisuke Yonomoto, Takaaki Sakai, *Japan Atomic Energy Agency*

Visualization Study on Molten Metal Jet Breakup Phenomena in Horizontal and Vertical Injections for SFR with Metallic Fuel

Technical Publication. ICONE23-1843

Hyo Heo, Seong Dae Park, *Ulsan National Institute of Science and Technology*

Dong Wook Jerng, *Chung-Ang University*

In Cheol Bang, *Ulsan National Institute of Science and Technology*

Post-test of the SGTR experimental tests carried out

in the LIFUS facility

Technical Publication. ICONE23-1980

Rosa Lo Frano, Giovanni Pugliese, *University of Pisa*
Alessandro Del Nevo, Giacomino Bandini, *ENEA*

Technical Publication. ICONE23-1983

Cancelled

Session5-9

MSR & LFR
1F Room 103

13:30-15:10

Session Chair: **Shinya Miyahara**, *Japan Atomic Energy Agency* Japan
Session Co-Chair: **Jerome Serp**, *CEA* France

Characters of Coupled Dynamics in Molten Salt Reactor with Perturbation Theory

Technical Publication. ICONE23-1028

Jiangmeng Wang, Xinrong Cao, Xiaohui Sun, *Harbin Engineering University*

Fundamental Study of Source Term for Severe Accident Analysis of Molten Salt Reactors

Technical Publication. ICONE23-1566

Michio Yamawaki, Yuji Arita, *University of Fukui*
Takayuki Terai, *University of Tokyo*

Effects of Cs and Cs-Te for corrosion behavior of Hastelloy-N in molten salt fluoride FLiNaK

Technical Publication. ICONE23-1657

Ryota Fujimura, Ken-ichi FUKUMOTO, Yuji Arita, Michio Yamawaki, *University of Fukui*

New concept of static-fuel-type molten salt reactor

Technical Publication. ICONE23-1694

Yuji Arita, Michio Yamawaki, *University of Fukui*

Investigation of Thermal Conductivity and Viscosity of In-Bi-Sn Eutectic for use in a Natural Circulation Experimental Loop

Technical Publication. ICONE23-1936

Adam Lipchitz, Glenn Harvel, *University of Ontario Institute of Technology*
Takeyoshi Sunagawa, *Fukui University of Technology*

Session5-10

Advanced WR
1F Room 103

15:40-17:20

Session Chair: **Yanping Huang**, *Nuclear Power Institute of China* China
Session Co-Chair: **Yoshiyuki Inagaki**, *Japan Atomic Energy Agency* Japan

Development and Verification of SNTA Code System for SCWR Core Steady State Analysis

Technical Publication. ICONE23-1019

Lianjie Wang, Wenbo Zhao, Ping Yang, Yongqiang Ma, Di Lu, *Science and Technology on Reactor System*

Design Technology Laboratory, Nuclear Power Institute of China

Development of Reactor Internals in RBWR (Resource-renewable BWR) for Recycling and Transmutation of Transuranium Elements

Technical Publication. ICONE23-1827

Shiro Takahashi, Yuuichi Koide, Kiyoshi Fujimoto, Hideaki Hosoi, *Hitachi, Ltd.*,
Sadakatsu Sawahata, Hidenori Tanaka, Masaaki Tsubaki, Takehiro Seto, *Hitachi-GE, Ltd.*,
Tetsushi Hino, Masaya Ootsuka, *Hitachi, Ltd.*,

Development of "Intermediate Heat Exchange" Simulator of the DMS for Co-Generation

Technical Publication. ICONE23-2024

Tomohiko Ikegawa, Kazuaki Kito, *Hitachi Ltd., Hitachi Research Laboratory*
Koji Nishida, *Hitachi-GE Nuclear Energy Ltd.*

Development Strategy and Research Progress of China Lead-based Reactor

Technical Presentation Only. ICONE23-2048

Yican Wu, *Institute of Nuclear Energy Safety Technology, Chinese Academy of Sciences*

1F Room 104

Track7

Nuclear Safety and Security

Session7-6

Hydrogen and Containment Safety Issues - II
1F Room 104 8:30-10:30

Session Chair: **Satoshi Nishimura**, *Central Research Institute of Electric Power Industry* Japan

Containment Simulation and Analysis of TRACE in Kuosheng (BWR/6) Nuclear Power Plant

Technical Publication. ICONE23-1219
Jong-rong Wang, *National Tsing Hua University; Nuclear and New Energy Education and Research Foundation*
Hsiung-chih Chen, Fei-hao Huang, *National Tsing Hua University*
Hao-tzu Lin, *Atomic Energy Council*
Shao-wen Chen, *National Tsing Hua University*
Chunkuan Shih, *National Tsing Hua University; Nuclear and New Energy Education and Research Foundation*

DECONTAMINATION PROCESS OF ELEMENTAL IODINE WITH FILTERED CONTAINMENT VENTING SYSTEM

Technical Publication. ICONE23-1653
Taizo Kanai, Mashahiro Furuya, Takahiro Arai, Nobuyuki Tanaka, Yoshihisa Nishi, Kenetsu Shirakawa, Satoshi Nishimura, Masaaki Satake, *Central Research Institute of Electric Power Industry*

Experiment/Analysis of Deflagration and Establishment of Acceleration Model in Flame Propagation

Technical Publication. ICONE23-1030
Toshiyuki Katsumi, Satoshi Kadowaki, *Nagaoka University of Technology*

Development of Hydrogen Treatment System in Severe Accident (1) Study of the Chemical Reaction in Hydrogen Treatment with Metal Oxide

Technical Publication. ICONE23-1044
Motoshige Yagyu, Toshihiro Yoshii, Daigo Kittaka, Mika Tahara, Takuya Miyagawa, Masato Okamura, *Toshiba Corporation*

The Application of GASFLOW and COM3D to the Hydrogen Safety of Nuclear Reactor

Technical Publication. ICONE23-2158
Ruidong Zhang, Ximing Sun, Yujie Dong, *Tsinghua University*

Development of Tracer Detection Method for Leak Area Detection

Technical Presentation Only. ICONE23-1609
Ryo Morita, *Central Research Institute of Electric Power Industry*
Shuichi Umezawa, Katsuhiko Tanaka, *Tokyo Electric Power Company*

Track16

Beyond Design Basis Events

Session16-5

Hydrogen and spent fuel pool
1F Room 104 10:50-12:30

Session Chair: **Jinquan Yan**, *Shanghai Nuclear Engineering Research & Design Institute* China
Session Co-Chair: **Kiyofumi Moriyama**, *Pohang University of Science and Technology* Korea

Study on hydrogen flame acceleration and DDT properties at elevated temperatures and pressures

Technical Publication. ICONE23-1263
Huanhuan Peng, *Nuclear Power Institute of China*

Axial decay heat profile effect analysis for boil-off scenario of spent fuel pools

Technical Publication. ICONE23-1420
Chang Jiang Yang, *China Nuclear Power Engineering CO.,LTD*

Severe accident analysis of a PWR spent fuel pool in case of loss of pool coolant

Technical Publication. ICONE23-2163
Xiaoli Wu, *Xi'an Jiaotong University*
Yapei Zhang, Wenxi Tian, Guanghui Su, Suizheng Qiu, *Xi'an Jiaotong University*

Technical Publication. ICONE23-1132
Cancelled

Session16-6

Risk, external events and others
1F Room 104 13:30-15:10

Session Chair: **Koji Okamoto**, *The University of Tokyo* Japan

Session Co-Chair: **Jinquan Yan**, *Shanghai Nuclear Engineering Research & Design Institute* China

ROSHNI - A NEW INTEGRATED SEVERE ACCIDENT SIMULATIONS CODE FOR PHWR LEVEL 2 PSA APPLICATIONS AND SEVERE ACCIDENT SIMULATOR DEVELOPMENT

Technical Publication. ICONE23-1054
Sunil Nijhawan, *Prolet Inc.*

Status of Japan's industry-wide R&D roadmap development at the Nuclear Risk Research Center (NRR): Natural External Event R&D program

Technical Publication. ICONE23-1513
Toshiaki Sakai, Atsushi Onouchi, Yasuki Ohtori, *Central Research Institute of Electric Power Industry*

Numerical impact simulation of aircraft and engine into concrete wall

Technical Publication. ICONE23-1870
Kazuma Hirosaka, *Hitachi, Ltd*
Motoki Nakane, Satoshi Saigo, Norihide Tohyama,

Hitachi-GE Nuclear Energy, Ltd.

The application of a simple data assimilation method of atmospheric dispersion based on image registration

Technical Publication. ICONE23-1503

Ke Li, Guofeng Su, Manchun Liang, Xuesong Geng, Jie Yang, Tsinghua University
Yehong Liao, Zhifei Yang, China Nuclear Power Technology Research Institute

Technical Publication. ICONE23-2017
Cancelled

Session16-7

Fission product behavior
 1F Room 104

15:40-17:20

Session Chair: **Jun Sugimoto, Kyoto University** Japan
 Session Co-Chair: **Farhang Ostadan, Bechtel Corporation** United States

Transport behavior of radionuclides into the accumulated water at the Fukushima Daiichi NPS

Technical Publication. ICONE23-2141

Yoshikazu Koma, Atsuhiko Shibata, Japan Atomic Energy Agency

Applicability of 100 TBq Cs-137 Release into Environment as a Safety Criterion

Technical Publication. ICONE23-1194

Kampanart Silva, Thailand Institute of Nuclear Technology
Koji Okamoto, The University of Tokyo

Parametric Study for Impact of In-Vessel Chemical Forms of Cesium and Iodine on Source Term and pH of Aqueous Phase

Technical Publication. ICONE23-2085

Hiroyuki Shiotsu, Jun Ishikawa, Yu Maruyama, Japan Atomic Energy Agency

Numerical Simulation of Self-Priming Phenomena in Venturi Scrubber by Two-Phase Flow Simulation Code TPFIT

Technical Publication. ICONE23-1803

Naoki Horiguchi, University of Tsukuba
Hiroyuki Yoshida, Japan Atomic Energy Agency
Tetsuya Kanagawa, Akiko Kaneko, Yutaka Abe, University of Tsukuba

Wet resuspension of insoluble material from a boiling sump

Technical Publication. ICONE23-2060

Eike Wolfgang Schmidt, Sanjeev Gupta, Martin Freitag, Gerhard Poss, Benjamin Von Laufenberg, Becker Technologies GmbH

1F Room 105

Track7

Nuclear Safety and Security

Session7-12

Safety and Risk Assessment Tools and Methods
 1F Room 105

8:30-10:30

Session Chair: **Kohei Hisamochi, Hitachi-GE Nuclear Energy, Ltd.** Japan

Analysis of Safety Impacts from External Flooding Using the RISM Tool

Technical Publication. ICONE23-1324

Curtis L Smith, Diego Mandelli, Steven Prescott, Idaho National Laboratory

Research on Sever Accident Emergency Simulation System for CPR1000

Technical Publication. ICONE23-1709

Zhifei Yang, China Nuclear Power Technology Research Institute

Manchun Liang, Tsinghua University, Ministry of Education

Yehong Liao, China Nuclear Power Technology Research Institute

Ke Li, Tsinghua University

Yali Chen, CGN Power Co., Ltd.

Jie Yang, Tsinghua University

Weibull Distribution in Reliability Data Analysis in Nuclear Power Plants

Technical Publication. ICONE23-1778

Yingfei Ma, Zhijian Zhang, Min Zhang, Harbin Engineering University

An improved threshold shift-invariant wavelet de-noising of the Segmented Gamma Scanner

Technical Presentation Only. ICONE23-1496

Jinzhao Zhang, Chengdu University of technology

The Method Study of Initiating Event Frequency Estimation in Risk Monitoring

Technical Presentation Only. ICONE23-1807

Biao Guo, Harbin Engineering University

Technical Publication. ICONE23-1315

Cancelled

Session7-13

Nuclear safety fundamental technology
 1F Room 105

10:50-12:30

Session Chair: **Yoshihiko Ishii, Hitachi, Ltd.** Japan

Analysis of the Sloshing of In-containment Refueling Water Storage Tank with Seismic Excitations

Technical Publication. ICONE23-1098

Sergei Buruchenko, South Ural State University

Secondary Waste Reduction in the Electrokinetic Remediation of Uranium Contaminated Soil

Technical Publication. ICONE23-2143
Zhang Hong Shi, *China Academy of Engineering Physics*

Study on the structured representation of failure mechanism in Rokkasho Reprocessing Plant

Technical Publication. ICONE23-1783
Makoto Takahashi, *Tohoku University*
Yuuya Yasuda, *Japan Nuclear Fuel Limited*

Mitigation Measure of Oxidation and Hydrogen-Pickup of Fuel Cladding in High-Temperature Steam Environment by Surface Modification Technology, Fresh Green

Technical Presentation Only. ICONE23-1881
Masahiro Furuya, *Central Research Institute of Electric Power Industry*

Session7-14

Experimental Studies in Nuclear Safety -II
1F Room 105 13:30-15:10

Session Chair: **Taizo Kanai**, *Central research institute of electric power industry* Japan

Experimental discussion on fragmentation mechanism of molten oxide discharged into a sodium pool

Technical Publication. ICONE23-1603
Ken-ichi Matsuba, Kenji Kamiyama, Jun-ichi Toyooka, Yoshiharu Tobita, *Japan Atomic Energy Agency*
Vladimir A Zuev, Alexander A Kolodeshnikov, Yuri S Vasilyev, *National Nuclear Center of the Republic of Kazakhstan*

Controlling Additives to Promote and Suppress Steam Explosion

Technical Presentation Only. ICONE23-1875
Masahiro Furuya, Takahiro Arai, *Central Research Institute of Electric Power Industry*

Ablation and Melting Relocation of Hemisphere Vessel due to Natural Convection

Technical Publication. ICONE23-1789
Masahiro Furuya, *Central Research Institute of Electric Power Industry*
Yoshiaki Oka, *Waseda University*

The SAFEST Project: towards a pan-European laboratory on corium experimental R&D

Technical Presentation Only. ICONE23-1421
Alexei Miassoedov, Beatrix Fluhrer, *Karlsruhe Institute of Technology*
Christophe Journeau, *Commissariat à l'Energie Atomique et aux Energies Alternatives*
Sevostian Bechta, *Royal Institute of Technology*
Zoltán Hózer, *Centre for Energy Research*
Dario Manara, Paul David William Bottomley, *JRC - Institute for Transuranium Elements*
Monika Kiselová, *ÚJV Rež*

Gert Langrock, *AREVA*
Marc Schyns, *Belgian Nuclear Research Centre*

Experimental Studies on Effects of Liquid Flow and Inhomogeneous Irradiation on Hydrogen Generation by Water Radiolysis

Technical Presentation Only. ICONE23-1348
Ryuji Nagaishi, Masao Inoue, Ryutaro Hino, *Japan Atomic Energy Agency*
Toru Ogawa, *Nagaoka University of Technology*

2F Convention Hall B-1

Track18

Student Paper Competition

Session18-5

Thermalhydraulics 5
2F Convention Hall B-1 8:30-10:30

Session Chair: **Min Han Htet**, *Kobe University* Japan
Session Co-Chair: **Khalil Sidawi**, *University of Ontario Institute of Technology* Canada

Unsteady Flow in a Sudden Expansion Rectangular Channel

Technical Publication. ICONE23-1815
Nailiang Zhuang, Sichao Tan, Hongsheng Yuan, Huiqiang Xu, Jiguo Tang, Xiangcheng Wu, Hanying Chen, *Harbin Engineering University*

HTC CORRELATION APPLICATIONS TO SUPERCRITICAL WATER FLOWING UPWARD IN A VERTICAL ANNULAR CHANNEL AND 3-ROD BUNDLE

Technical Publication. ICONE23-1743
Khalil Sidawi, Igot Piro, *University of Ontario Institute of Technology*
V G Razumovskiy, *National Technological University of Ukraine*

Experimental and Numerical Study on Transient Heat Transfer for Helium Gas Flowing over a Twisted Plate with Different Length

Technical Publication. ICONE23-1035
Li Wang, Qiusheng Liu, Katsuya Fukuda, *Kobe University*

Transient Boiling Critical Heat Flux on Horizontal Vertically-Oriented Ribbon Heater with Treated Surface Condition in Pool of Water

Technical Publication. ICONE23-1301
Min Han Htet, Katsuya Fukuda, Qiusheng Liu, *Kobe University*

CHF Behavior of Heater Pin with Wire Spacer in Boiling Two-phase Flow

Technical Publication. ICONE23-1728
Dan Tri Le, Noriaki Inaba, Minoru Takahashi, *Tokyo Institute of Technology*

Session18-6

Nuclear Safety and Accident Analysis 1
2F Convention Hall B-1

10:50-12:30

Session Chair: **Vladyslav Soloviov**, *National Technical University of Ukraine "Kyiv Polytechnic Institute"* Ukraine
Session Co-Chair: **Takaaki Goi**, *University of Tsukuba* Japan

Aerosol behavior in two-phase flow during a pool scrubbing

Technical Publication. ICONE23-1699

Takaaki Goi, Naoki Horiguchi, Tetsuya Kanagawa, Akiko Kaneko, Yutaka Abe, Yuki Kato, Tomohisa Yuasa, *University of Tsukuba*

Severe accident analysis of LWR equipped with Isolation Condensers employing RETRAN/MOD4

Technical Publication. ICONE23-2177

Hiroki Kokami, *Hokkaido University*

Probability Estimation of Potential Harm to Human Health and Life Caused by a Hypothetical Nuclear Accident at the Nuclear Power Plant

Technical Publication. ICONE23-1014

Vladyslav Soloviov, Yevgen Pysmennyi, *National Technical University of Ukraine "Kyiv Polytechnic Institute"*

Modeling Critical Flow in Crack Geometries using TRACE

Technical Publication. ICONE23-2115

Andrew Oussoren, *Royal Military College of Canada*

Inclined drop test of a CC-440 packaging system

Technical Publication. ICONE23-1687

Rosa Lo Frano, Antonio Sanfiorenzo, Giovanni Pugliese, *University of Pisa*

Session18-7

Nuclear Safety and Accident Analysis 2
2F Convention Hall B-1

13:30-15:10

Session Chair: **Lorenzo Stefanini**, *University of Pisa* Italy
Session Co-Chair: **Jiageng Su**, *Tsinghua University* China

VIBRATION FEATURES OF AN 180KW MAGLEV CIRCULATOR TEST RIG

Technical Publication. ICONE23-1786

Jiageng Su, *Tsinghua University*
Hongwei Li, *Shandong University*
Qian Shi, *State Intellectual Property Office of P.R.China*
Honglei Sha, *Tianjin EMAGING Technology Co.,Ltd*
Suyuan Yu, *Tsinghua University*

Safety performance of a near surface repository subject to a fuel burning

Technical Publication. ICONE23-1440

Lorenzo Stefanini, Rosa Lo Frano, *University of Pisa*

EXPERIMENTAL STUDIES ON FUEL COOLANT INTERACTIONS-- PRIMARY RESULTS ANALYSIS

Technical Publication. ICONE23-1140

Yankai Li, Meng Lin, Zefeng Wang, *Shanghai Jiao Tong University*

Radioactive strontium removal from seawater and groundwater with adsorptive fibers prepared by radiation-induced graft polymerization

Technical Publication. ICONE23-1873

Shun-ichi Goto, Michitaka Kono, *Chiba University*
Kunio Fujiwara, Takanobu Sugo, *KJK Co.*
Shigeko Kawai-Noma, Daisuke Umeno, Kyoichi Saito, *Chiba University*
Takahiro Kikuchi, Yasutomi Morimoto, Takahito Miki, *JGC Corporation*

Radioactive cesium removal from seawater using adsorptive fibers prepared by radiation-induced graft polymerization

Technical Publication. ICONE23-1872

Shota Goto, *Chiba University*
Kunio Fujiwara, Takanobu Sugo, *KJK Co., Ltd.*
Shigeko Kawai-Noma, Daisuke Umeno, Kyoichi Saito, *Chiba University*
Takahiro Kikuchi, Yasutomi Morimoto, *JGC Corporation*

Session18-8

Nuclear Safety and Accident Analysis 3
2F Convention Hall B-1

15:40-17:20

Session Chair: **Yuta Okuyama**, *Hokkaido University* Japan
Session Co-Chair: **Weiqian Zhuo**, *North China Electric Power University* China

Fuel Assemblies Blockage Analysis During Loss of Coolant Accidents in PWR

Technical Publication. ICONE23-1604

Weiqian Zhuo, Fenglei Niu, Tengfei Ma, Yungan Zhao, *North China Electric Power University*

CFD Study on Inlet Flow Blockage Accidents in Multi-layer Annular Flow Channels

Technical Publication. ICONE23-1845

Wenyuan Fan, Changhong Peng, Guanghuai Wang, Yun Guo, *University of Science and Technology of China*

Atmospheric diffusion numerical simulation analysis of cesium that takes into account the wet deposition

Technical Publication. ICONE23-1854

Yuta Okuyama, Shuichiro Miwa, Hiroto Sakashita, Michitsugu Mori, *Hokkaido University*

Metric-Based Approach and Tool for Modeling the I&C System Using Markovs Chains

Technical Publication. ICONE23-1590

Valentyna Butenko, *National Aerospace University "KhAI"*
Vyacheslav Kharchenko, *Research and Production Corporation Radiy*

Dmitriy Butenko, *Software R&D Engineering Company "AltexSoft"*
Oleg Odarushchenko, *Research and Production Corporation Radiy*

EXPERIMENTAL STUDY ON SODIUM FIRE COMBUSTION IN A COLUMNAR FLOW

Technical Publication. ICONE23-1888
Jin-ke Li, *Harbin Engineering University*
Zhi-gang Zhang, Yan Huo, *Harbin Engineering University*
Xu-cong Tang, *Harbin Engineer University*

2F Convention Hall B-2

Session 18-13

Nuclear Materials and Components
 2F Convention Hall B-2 **8:30-10:30**

Session Chair: **Barbora Benešová**, *Czech Technical University in Prague, Czech Republic* Czech Republic
 Session Co-Chair: **Kosuke Mori**, *University of Fukui* Japan

Study of Failure Criterion Applicable to Elastic-Plastic Finite Element Analyses of Wall-Thinned Pipes Subjected to Multi-Axial Loading (Case for Groove Type Flaw under Combined Internal Pressure and Bending Loading)

Technical Publication. ICONE23-1532
Kosuke Mori, Toshiyuki Meshii, *University of Fukui*

The Component Operational Experience Degradation and Ageing Program (CODAP): Review and Lessons Learned From the First Phase

Technical Publication. ICONE23-1001
Tudor Dragea, *University of Ontario Institute of Technology*
Jovica R. Riznic, *Canadian Nuclear Safety Commission*

Yttrium stabilized zirconia as a hot corrosion protection of fuel cladding

Technical Publication. ICONE23-1047
Barbora Benešová, *Czech Technical University*

CREEP-FATIGUE DAMAGE EVALUATION OF NI-BASED SUPERALLOY INCONEL 617 BASED ON FINITE ELEMENT ANALYSIS

Technical Publication. ICONE23-1538
Xi Zhao, Yu Zhou, Kun Yuan, *Tsinghua University*

Experimental research and development of main circulation pump bearings in reactor plants using heavy liquid-metal coolants

Technical Publication. ICONE23-1955
Artem Zudin, Aleksei Chernysh, Aleksander Beznosov, Gennadiy Prikazchikov, *Nizhny Novgorod State Technical University n.a. R.E. Alekseev*

The Impacts of Irradiation on Mechanical Characters of Resin Cementation Matrix

Technical Publication. ICONE23-2144
Yu Qiu, Junfeng Li, *Tsinghua University*

Session 18-14

Nuclear Fuel and Reactor Physics 1
 2F Convention Hall B-2 **10:50-12:30**

Session Chair: **Bruno Miglierini**, *Research Centre Rez* Czech Republic
 Session Co-Chair: **Jason Song**, *Royal Military College of Canada* Canada

Mitigating Fuelling Transients and Improving Power Compliance Margin During Refuelling for CANDU Reactors

Technical Publication. ICONE23-1198
Jason Song, Paul Chan, Hugues Bonin, *Royal Military College of Canada*

Development and Validation of the Fast Doppler Broadening Module Coupled Within RMC code

Technical Publication. ICONE23-1418
Jiankai Yu, Jingang Liang, Ganglin Yu, Kan Wang, *Tsinghua University*

Modeling of fuel kernel surface profile based on results of functional electrophysical diagnostics

Technical Publication. ICONE23-2068
Ekaterina Ryabikovskaya, Svetlana Arefinkina, Vitaly Surin, *National Research Nuclear University Moscow Engineering Physics Institute*

Comparison between PARCS/MCNP6 codes and some reference data on VVER1000/V320

Technical Publication. ICONE23-2096
Bruno Miglierini, Guido Mazzini, *Research Centre Rez*

Session 18-15

Nuclear Fuel and Reactor Physics 2
 2F Convention Hall B-2 **13:30-15:10**

Session Chair: **Martin Lovecky**, *University of West Bohemia* Czech Republic
 Session Co-Chair: **Timothy A.V. Teatro**, *University of Ontario Institute of Technology* Canada

A Formulation of Rod Based Nonlinear Model Predictive Control of Nuclear Reaction with Temperature Effects and Xenon Poisoning

Technical Publication. ICONE23-1934
Tim A.V. Teatro, Philip McNelles, Mikael Eklund, *University of Ontario Institute of Technology*

Experimental study on the clustering of 17C

Technical Publication. ICONE23-2056
Jiren Zhou, Jiaxing Li, *Chongqing University*

The design of test platform for study on abrasion of graphite spheres in the fuel handling system of pebble-bed high temperature gas-cooled reactor

Technical Publication. ICONE23-1782
Hongbo Zhou, Ke Shen, Tsinghua University
Zhipeng Chen, Institute of Nuclear and New Energy Technology
Suyuan Yu, Tsinghua University

Monte Carlo Solver for UWB1 Fast Depletion Code
Technical Publication. ICONE23-1855
Martin Lovecky, University of West Bohemia
Jan Prehradny, Czech Technical University
Radek Skoda, Texas A&M University

Rare Earth Oxides as Burnable Absorber for VVER Nuclear Fuel
Technical Publication. ICONE23-1856
Jan Prehradny, Czech Technical University
Martin Lovecky, University of West Bohemia
Radek Skoda, Texas A&M University

2F Room 201A

Track1

Plant Operations, Maintenance, Engineering, Modifications, Life Cycle and Balance of Plant

Session1-4
 Support for Operations
 2F Room 201A **8:30-10:30**

Session Chair: **Xinrong Liu, CNNC China Nuclear Power Engineering Co., Ltd** China
 Session Co-Chair: **Satoshi Kurata, Japan Nuclear Safety Institute** Japan

Improvement of the Certification System for Shift Supervisors Taking into account Lessons Learned from the Fukushima Daiichi NPP Accident
Technical Presentation Only. ICONE23-1109
Yuzo Kogure, Akihide Kugo, Yuji Sakamoto, Japan Nuclear Safety Institute

OE Information Analysis Activities with NUCIA
Technical Presentation Only. ICONE23-1126
Masuhiko Nakano, Japan Nuclear Safety Institute

Evaluation of gamma ray durability and its application of RF tag with shield
Technical Publication. ICONE23-1793
Nobuyuki Teraura, Terrara Code Research Institute
Kunio Ito, Japan NUS
Daisuke Kobayashi, Japan Atomic Energy Agency
Kouichi Sakurai, Kyushu University

Strengthening and Integrating of Emergency Response Procedures and Guidelines for CPR1000 NPP
Technical Presentation Only. ICONE23-1230
Xi Hua, Hong Ye Liao, China Nuclear Power Technology Research Institute

Commissioning and Startup Technical Documents System of Nuclear Power Plant in China

Technical Presentation Only. ICONE23-1777
Fengxiang Qiu, Yuelan Yan, Jingyi Sun, Zhongjie Ma, State Nuclear Power Engineering Company
Xipeng Ma, Shandong Nuclear Power Company LTD

Session1-5
 Power Plant Piping
 2F Room 201A **10:50-12:30**

Session Chair: **Yukinori Hirose, Toshiba Corporation** Japan
 Session Co-Chair: **Xinrong Liu, CNNC China Nuclear Power Engineering Co., Ltd** China

DEVELOPMENT OF A QUICK AND EASY-TO-INSTALL STRAIN MEASUREMENT TOOL FOR PIPING STRESS EVALUATION

Technical Publication. ICONE23-1397
Tsunemichi Takahama, Kazuma Nishimura, Seiichiro Ninomiya, Yoshihiro Matsumoto, Yutaka Harada, Nuclear Engineering, Ltd.

Transition of oxide layer of flow accelerated corrosion under water-steam two-phase flow
Technical Presentation Only. ICONE23-1608
Masaaki Satake, Kimitoshi Yoneda, Ryo Morita, Kazutoshi Fujiwara, Fumio Inada, Central Research Institute of Electric Power Industry

Development of check valve inspection system
Technical Publication. ICONE23-1896
Takasi Matsunaga, Junji Etoh, Satoshi Inagawa, Yoshihiro Isobe, Nuclear Fuel Industries, Ltd

Technical Publication. ICONE23-1056
 Cancelled

Technical Publication. ICONE23-1281
 Cancelled

Session1-6
 Sever Accident Management I
 2F Room 201A **13:30-15:10**

Session Chair: **Satoshi Kurata, Japan Nuclear Safety Institute** Japan
 Session Co-Chair: **Yukinori Hirose, Toshiba Corporation** Japan

"MAKING IT WORK"-THE VITAL ROLE OF COMMISSIONING IN NUCLEAR POWER PROGRAMMES

Technical Publication. ICONE23-2205
John Henry Moore, International Atomic Energy Agency

"Consortium Integrated Electronic Corrective Action Program" - Help or Hindrance?
Technical Presentation Only. ICONE23-2193
Clayton Taylor Smith, Fluor Nuclear Power

Development of sever accident related new operators training programs for BWR plants
Technical Presentation Only. ICONE23-1546
 Jun Ikeda, Shinya Kato, Kazuyuki Watabe, Hitoshi Shiyama, *BWR Operator Training Center*

Overview of Severe accident training for PWR Plant operators at NTC
Technical Presentation Only. ICONE23-1576
 Yoshio Matsumoto, *Nuclear Power Training Center, Ltd.*

Session 1-7

Sever Accident Management II
 2F Room 201A 15:40-17:20

Session Chair: **Xinrong Liu**, *CNNC China Nuclear Power Engineering Co., Ltd* China
 Session Co-Chair: **Robert Stakenborghs**, *ILD, Inc* United States

THE STUDY AND DEVELOPMENT OF SMART SUPPORT SYSTEM FOR FULL SCOPE SEVERE ACCIDENT MANAGEMENT GUIDELINES

Technical Publication. ICONE23-1266
Zhifei Yang, *China Nuclear Power Technology Research Institute*
Yali Chen, *CGN Power Co., Ltd.*
Hu Luo, *GSE Systems, Inc.*
Zhenxun Peng, *China Nuclear Power Technology Research Institute*
Zen Wang, *GSE Systems, Inc.*

Design of an Integral Missile Shield in Integrated Head Assembly for Pressurized Water Reactor at Commercial Nuclear Plants

Technical Publication. ICONE23-1350
Ravi Baliga, *ADVENT Engineering Services, Inc.*

Development of the Guideline of Japanese Safety Assessment Report (JSAR)

Technical Publication. ICONE23-1393
Yuichi Shimada, Satoshi Kurata, Katsuyuki Kumasaka, Masayuki Tabata, Goro Imada, Yoshiaki Suzuki, *Japan Nuclear Safety Institute*
Hideo Soneda, *Hitachi-GE Nuclear Energy*
Mitshiro Kano, *Mitsubishi Heavy Industries, Ltd.*
Yosuke Isobe, *Toshiba Corporation*

Implementation of Additional Safety Measures for Hamaoka Nuclear Power Station Units 3 and 4 in accordance with New Regulatory Requirements (Part 2)

Technical Presentation Only. ICONE23-1398
Kohji Yamada, *Chubu Electric Power Co., Inc.*,
Hotaka Kubota, *Chubu Electric Power Co., Inc.*

An Overview- Probabilistic Safety Assessment for Research Reactors

Technical Publication. ICONE23-1839
Jinlin Liu, Changhong Peng, *University of Science and Technology of China*

2F Room 201B

Track 11

Computational Fluid Dynamics (CFD) and Coupled Codes

Session 11-7

Free Surface/Interface Behaviors
 2F Room 201B 8:30-10:30

Session Chair: **Yann Bartosiewicz**, *Université catholique de Louvain* Belgium
 Session Co-Chair: **Yuzuru Eguchi**, *Central Research Institute of Electric Power Industry* Japan

Numerical Simulations for Effects of Pressure and Temperature on Counter-current Flow Limitation at Lower End of a Vertical Pipe

Technical Publication. ICONE23-1066
Takayoshi Kusunoki, Michio Murase, *Institute of Nuclear Safety System, Incorporated*
Takashi Takata, *Osaka University*
Akio Tomiyama, *Kobe University*

Effects of Inclination Angles on Counter-current Flow Limitation in Slightly Inclined Pipes

Technical Publication. ICONE23-1182
Michio Murase, *Institute of Nuclear Safety System, Inc.*
Yoichi Utanohara, Takayoshi Kusunoki, *INSS*
Dirk Lucas, *Helmholtz-Zentrum Dresden-Rossendorf*
Akio Tomiyama, *Kobe University*

Physics-basis Simulation of Bubble Pinch-off

Technical Publication. ICONE23-2007
Kei Ito, *Japan Atomic Energy Agency*

Simulation of sloshing loads inside a lead-cooled nuclear reactor

Technical Publication. ICONE23-1300
Sergei Buruchenko, *South Ural State University*

A numerical simulation of hydrodynamic behavior of molten jet in fuel coolant interaction

Technical Publication. ICONE23-1075
Mingjun Zhong, Meng Lin, Yanhua Yang, *Shanghai Jiaotong University*

Numerical Simulation of Liquid Sloshing with Smoothed Particle Hydrodynamics (SPH) Method in Nuclear Power Plant Facilities

Technical Presentation Only. ICONE23-2151
Mathias Reichert, Benedykt Pacharzina, *Westinghouse Electric Germany GmbH*

Session 11-8

Codes, Models, Numerical Methods, V&V (I)
 2F Room 201B 10:50-12:30

Session Chair: **Masaaki Tanaka**, *Japan Atomic Energy Agency* Japan

Implicit temperature-correction-based immersed-boundary thermal lattice-Boltzmann method with two relaxation times

Technical Publication. ICONE23-1039

Takeshi Seta, *University of Toyama*
Kosuke Hayashi, Akio Tomiyama, *Kobe University*

An overview of the transient thermal-hydraulic analysis code, GINKGO - fluid model, numerical solution and phenomenal tests

Technical Publication. ICONE23-1323

Zhi Hao Ren, Xiangyin Kong, Chiung-wen Tsai, Jialei Ruan, Jinggang Li, *China Nuclear Power Technology Research Institute Co., Ltd.*
Jianxin Yan, Yinxiang Ma, *China General Nuclear Power Corporation*
Zhongyin Ma, *China Nuclear Power Technology Research Institute Co., Ltd.*

Reactor Dynamics Models for Safety Analysis in AERB

Technical Presentation Only. ICONE23-2128

Obaidurrahman Khalilurrahman, A J Gaikwad, *Atomic Energy Regulatory Board*

Technical Publication. ICONE23-1085

Cancelled

Technical Publication. ICONE23-2154

Cancelled

Session11-9

Codes, Models, Numerical Methods, V&V (II)
2F Room 201B

13:30-15:10

Session Chair: Kei Ito, *Japan Atomic Energy Agency*
Japan

CFD Simulation with Code_Saturne of the Light Gas Stratification Erosion by a Vertical Air Gas Injection Using a Low Mach Number Algorithm

Technical Publication. ICONE23-1227

Bingxu Hou, Jiyang Yu, *Tsinghua University*
Dorothee Sénéchal, Jiasheng Min, Namane Méchitoua, Guofei Chen, *Electricité De France*

Development of Hydrogen Behavior Simulation Code System Outline of code system and validation using existing data-

Technical Publication. ICONE23-1655

Terada Atsuhiko, Kamiji Yu, Hino Ryutaro, *Japan Atomic Energy Agency*
Matsumoto Masaaki, *Mitsubishi Research Institute, Inc.*
Sugiyama Hirotshi, *Utsunomiya University*
Kadowaki Satoshi, *Nagaoka University of Technology*

USING THE PIRT TO REPRESENT APPLICATION AND VALIDATION DOMAIN FOR CFD STUDIES

Technical Publication. ICONE23-1744

Bruno Gaudron, *EDF*
Herve Cordier, *Electricite de France*

Development of Hydrogen Behavior Simulation Code System - Code System with Open Source Code and its Validation -

Technical Presentation Only. ICONE23-2090

Masaaki Matsumoto, Takaki Ashida, Masaki Kawai, *Mitsubishi Research Institute, Inc.*
Atsuhiko Terada, Ryutaro Hino, *Japan Atomic Energy Agency*

Validation of CFD models for hydrogen safety application

Technical Publication. ICONE23-2123

Anna Nikolaeva, *OKB GIDROPRESS*
Alexander Skibin, Alexey Krutikov, Luka Golibrodo, Vasilii Volkov, Artem Nechaev, *OKB "GIDROPRESS"*

2F Room 202

Track1

Plant Operations, Maintenance, Engineering, Modifications, Life Cycle and Balance of Plant

Session1-8

Testing and Research II
2F Room 202

8:30-10:30

Session Chair: Robert Stakenborghs, *ILD, Inc*
United States
Session Co-Chair: Mitsuyuki Sagisaka, *Nuclear Fuel Industries, Ltd.*
Japan

CSNS target station water cooling system design

Technical Publication. ICONE23-1338

Ning He, *China Spallation Neutron Source (CSNS), Institute of High Energy Physics (IHEP), Chinese Academy of Sciences (CAS)*

Application and Development of Nuclear Power Plant Modular Construction

Technical Publication. ICONE23-1752

Xiaopeng Fang, *State Nuclear Power Engineering Company*

Development of non-destructive inspection technique for adhesive anchor bolts using AE sensor (2) Theoretical approach

Technical Publication. ICONE23-1884

Ryota Ogawa, Junji Etoh, Takashi Matsunaga, Mitsuyuki Sagisaka, Yoshihiro Isobe, *Nuclear Fuel Industries, Ltd*

Development of non-destructive inspection technique for adhesive anchor bolts using AE sensor (1) Experimental approach

Technical Publication. ICONE23-1899

Junji Etoh, Ryota Ogawa, Takashi Matunaga, Sagisaka Mituyuki, Yoshihiro Isobe, *Nuclear Fuel Industries*

Development of non-destructive inspection technique for wedge anchor bolts using AE sensor

Technical Publication. ICONE23-1900

Mitsuyuki Sagisaka, Junji Etoh, Ryota Ogawa, Takashi Matsunaga, Yoshihiro Isoe, Nuclear Fuel Industries, Ltd.

Experiment and analysis of tritium in primary-loop of HTR-10

Technical Publication. ICONE23-2137

Ling Liu, Xiaoming Chen, Liqiang Wei, Yucheng Wang, Institute of Nuclear and New Energy Technology of Tsinghua University

Session 1-9

Welding related Technology I
2F Room 202

13:30-15:10

Session Chair: **Robert Stakenborghs**, ILD, Inc
United States

Session Co-Chair: **Koji Yamada**, Chubu Electric Power Co., Inc.,
Japan

Calculating stress in texture under multi-axis stress state for X-ray stress measurement on welds

Technical Publication. ICONE23-1890

Akihiro Tsuji, Shigetaka Okano, Masahito Mochizuki, Osaka University

Development of fuel debris cutting technique by laser gouging

Technical Publication. ICONE23-1600

Kota Nomura, Katsunori Shiihara, Itaru Chida, Wataru Kono, Jun Suzuki, Toshiba Corporation Power Systems Company

The welding QA requirements during the construction of nuclear power station in China And analyse for typical problems during QA inspection

Technical Presentation Only. ICONE23-1033

Yong Wang, Yu-xin Wang, Zhe Li, China Nuclear Power Engineering Co., Ltd

Session 1-10

Welding related Technology II
2F Room 202

15:40-17:20

Session Chair: **Koji Yamada**, Chubu Electric Power Co., Inc.,
Japan

Session Co-Chair: **Ryoji Mizuno**, Japan Power Engineering and Inspection Corporation
Japan

Development of deformation analysis method in laser welding for nuclear plant structures

Technical Publication. ICONE23-2045

Yohei Ono, TOSHIBA
Yujiro Nakatani, Toshiwo Oonawa, Satoshi Tadano, Koichi Oosemochi, Toshiba Corporation Power Systems Company

Evaluation of cold cracking and mechanical properties of temper bead weld using welding material of Ni-based alloy for low alloy steel

Technical Publication. ICONE23-1166

Ryoji Mizuno, Japan Power Engineering and Inspection Corporation

Cladding in RPV Integrity and Lifetime Evaluation

Technical Publication. ICONE23-1309

Milan Brumovsky, Milos Kytka, Radim Kopriva, UJV Rez

2F Room 203

Track14

Instrumentation and Controls (I&C)

Session 14-5

Software Dependability and Analysis
2F Room 203

8:30-10:30

Session Chair: **Martin Kropik**, Czech Technical University
Czech Republic

Session Co-Chair: **Goran Simeunovic**, Czech Technical University
Czech Republic

Software system development of NPP plant Did risk monitor -Basic design of software configuration-

Technical Publication. ICONE23-1312

Hidekazu Yoshikawa, Symbio Community Forum
Takashi Nakagawa, Prime Systems Laboratory, Co.

RAVONSICS - Challenging for assuring software reliability of nuclear I & C systems

Technical Publication. ICONE23-1579

Hai Zeng, State Nuclear Power Automation System Engineering Company

Ming Yang, Hidekazu Yoshikawa, Harbin Engineering University

THE SOFTWARE SAFETY ANALYSIS BASED ON SFTA FOR REACTOR POWER REGULATING SYSTEM IN NUCLEAR POWER PLANT

Technical Publication. ICONE23-1137

Zhaohui Liu, University of SouthChina, HN, China
Longtao Liao, Zhiqiang Wu, Nuclear Power Institute of China

Xiaohua Yang, University of SouthChina, HN, China

Validation of new protection system for LVR15 research reactor

Technical Publication. ICONE23-2160

Martin Kropik, Jan Rataj, Michal Sunka, Czech Technical University

Technical Publication. ICONE23-2061

Cancelled

Session 14-6

Digital System Reliability and Analysis
2F Room 203

10:50-12:30

Session Chair: **Yasutake Fujishima**, Hitachi-GE Nuclear

Energy, Ltd. Japan
 Session Co-Chair: **Mauro Cappelli**, *Italian National Agency for New Technologies, Energy and Sustainable Economic Development* Italy

Optimization of Mechanical Shim control system parameters for AP1000 reactor using Particle Swarm Optimization

Technical Publication. ICONE23-1080

Pengfei Wang, Run Luo, Jiashuang Wan, Xiyu Wei, Fuyu Zhao, *Xi'an Jiaotong University*

application of STPA to the digital reactor protection system in NPP for system safety analysis

Technical Publication. ICONE23-1427

Zhaohui Liu, Xiaohua Yang, *University of South China, HN, China*
Zhiqiang Wu, *Nuclear Power Institute of China*

DESIGN OF ADVANCED CONTROLLERS FOR NUCLEAR REACTORS USING AN EVENT-TRIGGERED CONTROL TECHNIQUE

Technical Publication. ICONE23-1634

Mauro Cappelli, *Italian National Agency for New Technologies, Energy and Sustainable Economic Development*

Bernardino Castillo-toledo, *IPN*

Loris D'Abbierti, Stefano Di Gennaro, *University of L'Aquila*

Advanced analysis of the Structure of a Reactor Protection System

Technical Publication. ICONE23-2182

Alexander Kratzsch, *Institute of Process Technology, Process Automation and Measuring Technology*

Frank Dräger, *OKG AB / E.ON Kernkraft GmbH*

Thomas Gebhardt, *E.ON Kernkraft GmbH*

Daniel Fiß, Christian Vogel, *Institute of Process Technology, Process Automation and Measuring Technology*

Analysis of NSSS control system responses during load rejection transient for AP1000

Technical Publication. ICONE23-2027

Pengfei Wang, Jiashuang Wan, Run Luo, Shifa Wu, Xinyu Wei, Fuyu Zhao, *Xi'an Jiaotong University*

Session14-7

Advanced C&I Systems Design and Management
 2F Room 203 **13:30-15:10**

Session Chair: **Mauro Cappelli**, *Italian National Agency for New Technologies, Energy and Sustainable Economic Development* Italy

Session Co-Chair: **Shenjie Gu**, *Shanghai Nuclear Engineering Research and Design Institute* China

Guidance for Managing Digital Instrumentation & Control Obsolescence

Technical Publication. ICONE23-1396

Matthew O'Connor, *ELECTRIC POWER RESEARCH INSTITUTE*

Coordination of the I&C Design with the Obligatory Consideration of Human Factors; A Project Management Approach

Technical Publication. ICONE23-1912

Silvia Sanz Diaz, Antonio Ciriello, Wolfgang Krause, Eisinger Asriel, *Areva GmbH*

Function-centered Modeling of the Digital Instrument and Control system using the Colored Petri Net

Technical Publication. ICONE23-1031

Zhanguo Ma, Hidekazu Yoshikawa, Ming Yang, *Harbin Engineering University*

Research on conceptual design of Simplified Nuclear safety instrument and control system

Technical Publication. ICONE23-1563

Jie Huang, *China Ship Development and Design Center*

A sufficient condition for PD output feedback laws to be Asymptotic HTGR Power-Level Controllers

Technical Publication. ICONE23-1973

Zhe Dong, *Tsinghua University*

3F Room 301A

Track10

Thermal-Hydraulics

Session10-7

Supercritical Fluids & Gas-Cooled Reactors
 3F Room 301A **8:30-10:30**

Session Chair: **Wei Peng**, *Tsinghua University* China

Session Co-Chair: **Yanping Huang**, *Nuclear Power Institute of China* China

Numerical Comparison of Flow Behavior and Heat Transfer Aspects of Supercritical CO2 and Subcritical Water based Natural Circulation Loop

Technical Publication. ICONE23-1279

Milan Ks Sarkar, Dipankar Narayan Basu, *Indian Institute of Technology Guwahati*

Supercritical Steam Generator Design in Modular High-Temperature Gas-Cooled Reactor

Technical Publication. ICONE23-1474

Zhen Zhang, Xing-tuan Yang, Huai-ming Ju, *Tsinghua University*

Influence of the Forces on the Adhesion Behavior of Graphite Dust in HTGR

Technical Publication. ICONE23-1404

Wei Peng, Xiaokai Sun, Tianqi Zhang, Suyuan Yu, *Tsinghua University*

Analysis on ATWS induced by Station Blackout and by One Control Rod Withdrawal Out of the HTR-10GT Core

Technical Presentation Only. ICONE23-2126

Minggang Lang, *Tsinghua University*

Abrasion behavior of graphite pebble in the lifting pipeline of pebble bed HTR

[Technical Presentation Only](#). ICONE23-1780

Ke Shen, Hongbo Zhou, Sujia Geng, Suyuan Yuan, Tsinghua University

Session 10-8

Liquid Metal Thermal-Hydraulics
3F Room 301A

10:50-12:30

Session Chair: **Hidemasa Yamano**, Japan Atomic Energy Agency Japan
Session Co-Chair: **Wadim Jaeger**, Karlsruhe Institute of Technology Germany

Thermal-hydraulics design of the LBE spallation target system for CIADS

[Technical Publication](#). ICONE23-1209

Yongwei Yang, Deliang Fan, Kang Chen, Institute of Modern Physics, Chinese Academy of Sciences

Grey correlation degree analysis of the influence factors on natural circulation flow and heat transfer of Lead Bismuth Eutectic

[Technical Publication](#). ICONE23-1621

Tao Zhou, Qijun Huo, Yifan He, Mengying Liu, North China Electric Power University

Study on heat transfer characteristics of natural circulation of different fluids in narrow rectangular channel

[Technical Publication](#). ICONE23-1571

Baixu Chen, Tao Zhou, Jingjing Li, Mingqiang Song, North China Electric Power University
Yanping Huang, Nuclear Power Institute of China

Liquid metal thermal hydraulics in rectangular ducts: Review, proposal and validation of empirical models

[Technical Publication](#). ICONE23-1101

Wadim Jaeger, Wolfgang Hering, Karlsruhe Institute of Technology
Fabien Portes, PHELMIA Grenoble INP
Martin Lux, Karlsruhe Institute of Technology

CFD Analysis of Helical Wire-wrapped Fuel Assembly for China Lead-based Research Reactor (CLEAR-I)

[Technical Presentation Only](#). ICONE23-1866

Zeng Fang Ge, Tao Zhou, Yun Qing Bai, Yong Song, Yong Zhang, Institute of nuclear energy safety technology, Chinese Academy of Sciences

Session 10-9

Containment Thermal-Hydraulics
3F Room 301A

13:30-15:10

Session Chair: **Kazuyuki Takase**, Japan Atomic Energy Agency Japan
Session Co-Chair: **Peipei Chen**, SNPTC China

LOCAL H2 CONCENTRATION EVOLUTION IN A PWR

NUCLEAR CONFINEMENT IN THE EVENT OF A SEVERE ACCIDENT

[Technical Publication](#). ICONE23-1542

Alexandre Zanchetti, EDF
Herve Cordier, Electricite de France

Numerical analysis of thermal hydraulic behavior based on two-fluid model during ingress of coolant event in blanket module

[Technical Publication](#). ICONE23-2059

Yasuo Ose, Yamato System Engineer Co., LTD.
Hisashi Tanigawa, Yoshinori Kawamura, Japan Atomic Energy Agency

CFD SIMULATION OF DIRECT CONTACT CONDENSATION PHENOMENON OF VAPOR IN SUBCOOLED WATER TANK

[Technical Publication](#). ICONE23-1322

Yu Ji, Harbin Institute of Technology
Yan Quan, Nuclear Power Institute of China
Yining Zhang, Haochun Zhang, Yahui Wang, Harbin Institute of Technology

Experiment study on water film/air counter current flow heat transfer of free falling Water film on steel plate

[Technical Presentation Only](#). ICONE23-1298

Po Hu, Shanghai Jiao Tong University

[Technical Publication](#). ICONE23-1701

Cancelled

Session 10-10

Steam Generator & Heat Exchanger
3F Room 301A

15:40-17:20

Session Chair: **Peipei Chen**, SNPTC China
Session Co-Chair: **Kazuyuki Takase**, Japan Atomic Energy Agency Japan

Thermal-hydraulic and flow instability analysis of an HTGR supercritical helical tube steam generator

[Technical Publication](#). ICONE23-2161

Yue Ma, Xiaowei Li, Xinxin Wu, Tsinghua University

COMPARATIVE ANALYSIS OF DIFFERENT METHODS IN MATHEMATICAL MODELLING OF THE RECUPERATIVE HEAT EXCHANGERS

[Technical Publication](#). ICONE23-1848

D Stevic, Dragutin Debeljkovic, Goran Simeunovic, University in Belgrade
Milan Misic, University of Pristina

Integral effect test on operational performance of PAFS (Passive Auxiliary Feedwater System) for CIV opening stroke

[Technical Publication](#). ICONE23-2089

Seok Kim, Byoung-uhn Bae, Yu-sun Park, Kyoung-ho Kang, Korea Atomic Energy Research Institute

3F Room 301B

Session10-17

Droplet Behavior
3F Room 301B

8:30-10:30

Session Chair: **Shoji Mori**, *Yokohama National University*
Japan
Session Co-Chair: **Di Zhang**, *Tsinghua University* China

Numerical Study on the Influence of Motion Behavior of a Droplet with Different Lift Forces in Flows

Technical Publication. ICONE23-1226

Yuzheng Li, Huang Zhang, Hanliang Bo, *Tsinghua University*

Microdroplet Diameter Enlargement for Enhancement of Moisture Separation Efficiency

Technical Publication. ICONE23-1361

Yoshihiro Ishikawa, Ryoma Fujihara, Shinji Kubo, Chikako Iwaki, *TOSHIBA Corporation*

An experiment investigation on droplet entrainment in the horizontal stratified flow condition

Technical Publication. ICONE23-1766

Byeonggeon Bae, Byong Jo Yun, *Pusan National University*

Numerical Investigation of Binary Saturated Water Droplet's Collision in High Pressure Steam

Technical Publication. ICONE23-1027

Di Zhang, *Tsinghua University*

EXPERIMENT OF DROPLET IMPACT ON WETTED SURFACE

Technical Publication. ICONE23-1217

Fan Zhang, Feng Chen, Hanliang Bo, *Tsinghua University*

The condensed droplets behavior on hydrophobic micro/nano structures during dropwise condensation

Technical Publication. ICONE23-1114

Kyung Won Hwang, Donghyun Kim, Hangjin Jo, Hyun Sun Park, Kiyofumi Moriyama, Moo Hwan Kim, *POSTECH*

Session10-18

Critical Heat Flux
3F Room 301B

10:50-12:30

Session Chair: **Guoqiang Wang**, *Westinghouse Electric*
United States
Session Co-Chair: **Shoji Mori**, *Yokohama National University* Japan

A New Determination Approach on Critical Heat Flux with Inverse Heat Conduction Problem

Technical Publication. ICONE23-1360

Fangxin Hou, *Tsinghua University*

Xiang Zhang, Teng Hu, *State Nuclear Power Technology Research and Development Center*
Huajian Chang, *Tsinghua University*

FIRST DNB TESTS AT THE WESTINGHOUSE ADVANCED LOOP TESTER (WALT)

Technical Publication. ICONE23-1535

Guoqiang Wang, *Westinghouse Electric*
W. A. Byers, R. L. Oelrich, Z. Karoutas, S. Ray, *Westinghouse Electric Company LLC*

Analysis of the effect of flow instability in forced circulation on critical heat flux

Technical Publication. ICONE23-1167

Hui He, Liangming Pan, Hang Liu, Yao Wu, *Chongqing University*

Testing Plan for Critical Heat Flux Measurement during In-Vessel Retention

Technical Publication. ICONE23-1088

Kazuyoshi Aoki, Chikako Iwaki, Hisaki Sato, Satoshi Mimura, *Toshiba Corporation*
Daisuke Kanamori, *The Kansai Electric Power Co., Inc.*

Critical Heat Flux Enhancement in Saturated Pool Boiling using Water-Based Nanofluid with Honeycomb Porous Plate

Technical Publication. ICONE23-1059

Shoji Mori, Mt Aznam Suazlan, *Yokohama National University*

Session10-19

Flow Instability & Oscillation
3F Room 301B

13:30-15:10

Session Chair: **Takeshi Takeda**, *Japan Atomic Energy Agency* Japan
Session Co-Chair: **Bao-wen Yang**, *Xian Jiaotong University* China

Capability of the RELAP5 code to simulate flow instability in PCS test facility under low pressure natural circulation

Technical Publication. ICONE23-1006

Wenjing Lei, Xiabin Cao, Ya Li, Ming Ding, Xiaofan Hou, Huiqiang Xu, *Harbin Engineering University*

Visualization of chaotic mixing induced by oscillatory flow in a curved tube

Technical Publication. ICONE23-1241

Hideyuki Kusaka, Seiichiro Yuguchi, Gaku Tanaka, *Chiba University*

Experimental investigation on flow instability of forced circulation in a vertical mini-rectangular channel

Technical Publication. ICONE23-1676

Zhiting Yu, Sichao Tan, Hongsheng Yuan, Hanying Chen, Nailiang Zhuang, *Harbin Engineering University*

Theory Study on Interface Kelvin-Helmholtz Instability of Film on Wall of Cyclone Separator

Technical Publication. ICONE23-1207
Zhen Huang, Zejun Xiao, Xiao Yan, Nuclear Power Institute of China

Technical Publication. ICONE23-1612
Cancelled

3F Room 302

Track6

Advanced Reactors

Session6-2

Advanced Light Water Reactors 2
 3F Room 302 8:30-10:30

Session Chair: **Kazuyoshi Aoki, Toshiba Corporation**
 Japan

Session Co-Chair: **Jovica Riznic, Canadian Nuclear Safety Commission**
 Canada

Radionuclide Accumulation Based on Non-uniform Burnup Distribution in AP1000 Reactor
Technical Publication. ICONE23-1484
Xiaohui Sun, Harbin Engineering University

Development of a fast simulation program for AP1000 nuclear steam supply system
Technical Publication. ICONE23-1248
Jiashuang Wan, Pengfei Wang, Shoujun Yan, Xinyu Wei, Fuyu Zhao, Xi'an Jiaotong University

Investigation on Air Cooling of the Passive Containment Cooling System
Technical Publication. ICONE23-1351
Huanran Fan, Cheng Li, State Nuclear Power Technology R&D Centre

US-ABWR Design Features and FLEX Concept for Extended Loss of AC Power Events
Technical Publication. ICONE23-2073
Kenji Arai, TOSHIBA Corporation
Yuji Yamamoto, Toshiba
Steven Thomas, Bill Mookhoek, Nuclear Innovation North America
James Powers, Toshiba America Nuclear Energy
Thomas F Carter, Westinghouse Electric Company

Full scale Containment LOCA response test at the INKA Test Facility
Technical Publication. ICONE23-2083
Thomas Wagner, Robert Drescher, AREVA GmbH
Stephan Leyer, Université du Luxembourg

Session6-3

Advanced Light Water Reactors 3
 3F Room 302 10:50-12:30

Session Chair: **Jovica Riznic, Canadian Nuclear Safety Commission**
 Canada
 Session Co-Chair: **Kazuhiro Kamei, Toshiba Corporation**
 Japan

ABWR1 - A Generation III.7 Reactor after the Fukushima Daiichi accident
Technical Publication. ICONE23-1638
Takashi Sato, Keiji Matsumoto, Toshiba Corporation

ABWR2 - innovative Passive Containment Cooling System for the innovative ABWR
Technical Publication. ICONE23-1641
Takashi Sato, Keiji Matsumoto, Toshiba Corporation

ABWR3 - Passive double confinement and SA population dose evaluation for the innovative ABWR
Technical Publication. ICONE23-1645
Takashi Sato, Kenji Hosomi, Keiji Matsumoto, Toshiba Corporation

ABWR4 - Spent fuel pool and core cooling during refueling of the innovative ABWR under a SBO
Technical Publication. ICONE23-1647
Takashi Sato, Makoto Akinaga, Keiji Matsumoto, Toshiba Corporation

Track13

Nuclear Education, Public Acceptance and Related Issues

Session13-1

Nuclear Education, Public Acceptance and Related Issues I
 3F Room 302 13:30-15:10

Session Chair: **Hiroshige Kikura, Tokyo Institute of Technology**
 Japan
 Session Co-Chair: **Emilio Baglietto, Massachusetts Inst of Tech**
 United States

An Overview of Training and Technical Communication of Chinese Representative Nuclear Power Engineering Company of EPC mode
Technical Publication. ICONE23-1034
Ting Qi, China Nuclear Power Engineering Ltd.co

Integrating Security Issues in Nuclear Engineering Curriculum in Indonesia : Classical vs Policy Approaches
Technical Publication. ICONE23-1129
Susetyo Hario Putero, Widya Rosita, Ferdiansjah Ferdiansjah, Sihana Sihana, Haryono Budi Santosa, Anung Muharini, Universitas Gadjah Mada, Indonesia

3D Virtual Facilities with Interactive Instructions for Nuclear Education and Training

Technical Publication. ICONE23-1365
Yoshinori Satoh, *Toshiba Corporation*
Ye Li, Xuefeng Zhu, Rizwan Uddin, *University of Illinois at Urbana-Champaign*

Development of New Micro-Physics Nuclear Reactor Simulator™ and its Possibility for Introductory Education of Nuclear Engineering
Technical Publication. ICONE23-1422
Masahiro Tatsumi, Kousuke Tsujita, Yohei Tamari, *Nuclear Engineering, Ltd.*

Outreach activity by using three-dimensional nuclear chart: understanding nuclear physics and nuclear energy
Technical Publication. ICONE23-1392
Hiroyuki Koura, *Japan Atomic Energy Agency*

Session13-2

Nuclear Education, Public Acceptance and Related Issues II
 3F Room 302 15:40-17:20

Session Chair: **Emilio Baglietto**, *Massachusetts Inst of Tech* United States
 Session Co-Chair: **Hiroshige Kikura**, *Tokyo Institute of Technology* Japan

Research on the Development Trend of Public Communication of Nuclear Power
Technical Publication. ICONE23-1541
Zhanghui Xiong, *China Nuclear Power Engineering Co., Ltd*

Efforts in public acceptance and in the field of education for the deep geological disposal project in Japan
Technical Publication. ICONE23-1594
Ken Kaku, Kumiko Ezaki, Maya Shimizu, Takashi Tomimori, *Nuclear Waste Management Organization of Japan*

Radiation education to the elementary and junior high school students in Aomori Prefecture
Technical Publication. ICONE23-1597
Susumu Nagai, Yasuharu Okamura, Toshiharu Miyakawa, Misaki Sakata, *Japan Nuclear Fuel Limited*

Outlines of JAEA's Instructor Training Program and future prospects
Technical Publication. ICONE23-2009
Akihide Hidaka, Kazuyuki Nakamura, Yukiko Yabuuchi, Yoko Watanabe, Nobuyoshi Arai, Makoto Sawada, Kiyonobu Yamashita, Tomotsugu Sawai, Hiroyuki Murakami, *Japan Atomic Energy Agency*

Technical Publication. ICONE23-1146
 Cancelled

3F Room 304

Track2

Nuclear Fuel and Materials

Session2-7

Fuel Cladding Behavior in Accidents and Corrosion Product Release
 3F Room 304 8:30-10:30

Session Chair: **Robert L Oelrich**, *Westinghouse* United States
 Session Co-Chair: **Ikuo Ioka**, *Japan Atomic Energy Agency* Japan

"Radiation-Induced Electrolysis (III)" - A Potential Root Cause Of Hydrogen Explosions in The Fukushima Daiichi Accident -
Technical Publication. ICONE23-1093
Genn Saji, *Independent Research and Consulting*

STUDY ON THE IMPACT OF CHEMICAL EFFECTS ON SUMP STRAINER HEAD LOSS
Technical Publication. ICONE23-1159
Weiwei Liu, *Nuclear Power Institute of China*

Axial Load Behavior Analysis of Zircaloy-4 cladding under LOCA Quench Conditions
Technical Publication. ICONE23-1408
Hsingtzu Wu, Yutaka Udagawa, Takafumi Narukawa, Masaki Amaya, *Japan Atomic Energy Agency*

Comparative Molecular Simulation Studies of Oxidation Reactions and Hydrogen Release for Zirconium Metals and Silicon Carbide under Severe Accident Conditions
Technical Publication. ICONE23-1558
Masahiko Machida, Nakamura Hiroki, *Japan Atomic Energy Agency*
Sriram Srinivasan, Adri Van Duin, *Pennsylvania State University*

Hydrides and fracture of pure zirconium and Zircaloy-4 hydrogenated at temperatures typical for loss-of-coolant accident conditions
Technical Publication. ICONE23-1724
Anton Pshenichnikov, Juri Stuckert, Mario Walter, Dimitri Litvinov, *Karlsruhe Institute of Technology*

Al3Ti-based intermetallic compounds for the surface coating on Zr fuel claddings
Technical Presentation Only. ICONE23-1162
Jeong-yong Park, Il-hyun Kim, Hyun-gil Kim, Yang-il Jung, Dong-jun Park, Jung-hwan Park, Yang-hyun Koo, *Korea Atomic Energy Research Institute*

Session2-8

Fuel Design and Inspection
 3F Room 304 10:50-12:30

Session Chair: **Yoshihiro Isobe**, *Nuclear Fuel Industries*,

Ltd. Japan
 Session Co-Chair: **Suardi Suardi**, *National Nuclear Energy Agency* Indonesia

study on pneumatic leak test for irradiated fuel rods

Technical Publication. ICONE23-1252
Liuwei Kuang, Liang Ren, Linzhi Jiang, Bang Wen, *nuclear power institute of China*
Huarong Liu, *Sichuan College of Architectural Technology*

Mitsubishi PWR Fuel Assembly ZDP-1 with high reliability to avoid GTRF wear

Technical Publication. ICONE23-2204
Norihiro Kitashiba, *Mitsubishi Nuclear Fuel Co., Ltd.*

Electron Beam Welding Technology for U-Mo Plate-type Fuel Assembly Fabrication

Technical Publication. ICONE23-1099
Soosung Kim, *Korea Atomic Energy Research Institute*
Yong-jin Jeong, Jong-man Park, Yoon-sang Lee, Chong-tak Lee, *KAERI*

Model Simulation of Geometry and Stress-Strain Variation of BATAN Fuel Pin Prototype-01 during Irradiation Test in RSG-GAS Reactor

Technical Presentation Only. ICONE23-1946
Suardi Suardi, Muhammad Rifai, *Badan Tenaga Nuklir Nasional*

Technical Publication. ICONE23-1714
Cancelled

Session2-9

Fuel Safety and Performance
 3F Room 304 13:30-15:10

Session Chair: **Lembit Sihver**, *Chalmers University of Technology* Sweden
 Session Co-Chair: **Radek Skoda**, *Czech Technical University in Prague* Czech Republic
 Session Co-Chair: **Yoshihiro Isobe**, *Nuclear Fuel Industries, Ltd.* Japan

Calculation of kinetic parameters for ADS cores with minor actinides by using Monte Carlo method

Technical Publication. ICONE23-1068
Run Luo, *Xi'an Jiaotong University*
Xinyu Wei, Fuyu Zhao, *Xi'an Jiaotong University*

Mitigating Fuelling Transients and Improving Power Compliance Margin During Refuelling for CANDU Reactors

Technical Publication. ICONE23-1189
Jason Song, Paul Chan, Hugues Bonin, *Royal Military College of Canada*

Analysis of UO₂-BeO Fuel Performance Using FRAPCON

Technical Publication. ICONE23-2146
Shripad Revankar, Deepthi Chandramouli, *Purdue University*

Analysis of UO₂-BeO Fuel Performance Using RELAP5 During Loss of Coolant Accident

Technical Publication. ICONE23-2147
Shripad Revankar, *Purdue University*
Wenzong Zhou, *City University of Hongkong*
Deepthi Chandramouli, *Purdue University*

FULL SCALE AP1000® FUEL ASSEMBLY MECHANICAL TEST UNDER SIMULATED END OF LIFE (EOL) CONDITION

Technical Publication. ICONE23-2189
Jin Liu, Michael L. Boone, *Westinghouse Electric Company*

Session2-10

Actinide and MOX Fuel Development
 3F Room 304 15:40-17:20

Session Chair: **Paul Chan**, *Royal Military College of Canada* Canada
 Session Co-Chair: **Wenzhong Zhou**, *City University of Hong Kong* China
 Session Co-Chair: **Yoshihiro Isobe**, *Nuclear Fuel Industries, Ltd.* Japan

Numerical Calculations for Heat Capacity of Actinide Dioxides

Technical Publication. ICONE23-1508
Hiroki Nakamura, Masahiko Machida, *Japan Atomic Energy Agency*

Fully Coupled Modeling of Burnup Dependent (U1-y, Puy)O₂-x Fast Reactor Fuel performance

Technical Publication. ICONE23-1993
Rong Liu, Wenzhong Zhou, *City University of Hong Kong*

Fully Coupled Modeling of Burnup Dependent Light Water Fuel Performance using COMSOL Multiphysics

Technical Publication. ICONE23-1994
Rong Liu, *City University of Hong Kong*
Andrew Prudil, *Royal Military College of Canada*
Wenzhong Zhou, *City University of Hong Kong*

Phenyl trifluoromethyl sulfone as diluent in a grouped actinide extraction process

Technical Presentation Only. ICONE23-1708
Jenny Halleröd, Ivan Kajan, Christian Ekberg, Emma Aneheim, *Chalmers University of Technology*

Student Program (Student Paper Competition)

Only students-presenters from Track 18 "Student Paper Competition" with accepted final papers.

JSME, ASME, CNS and European Student-Track Leaders selected 15 "Qualified Students" from each of the following geographic locations: Japan/Asia, North America, China, and Europe (60 students in total).

SCHEDULE DURING THE CONFERENCE

May 18 (Mon) Oral and poster presentations
May 19 (Tue) Oral and poster presentations / Banquet
May 20 (Wed) Oral presentations / Awarding ceremony
May 21 (Thu) Technical tour (full day)

AWARDING

There will be three competition categories:
1) Akiyama Medal, 2) Best papers, and 3) Best posters.

ICONE23 Committee Meetings

Pre-conference Meeting

Date: May 17(Sun) 17:15-18:15
Place: Room 202

Post- conference Meeting

Date: May 20(Wed) 14:00-17:00
Place: Multipurpose Room

ASME/NED All Technical Committee Meeting

Date: May 18(Mon) 13:00-13:45
Place: Room 102B

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A.Gabbar, Hossam	7-5(P49)
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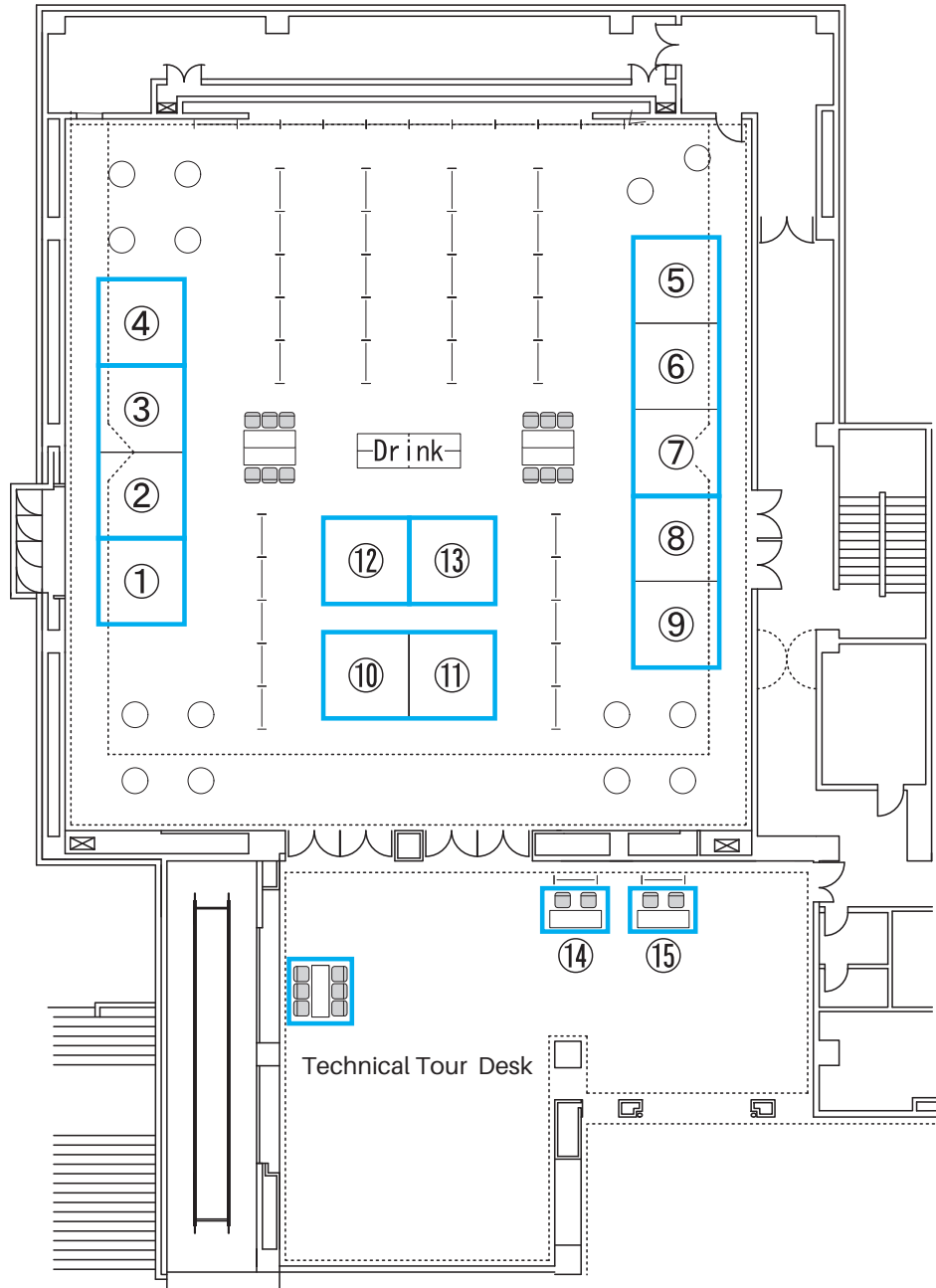
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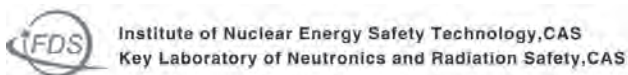
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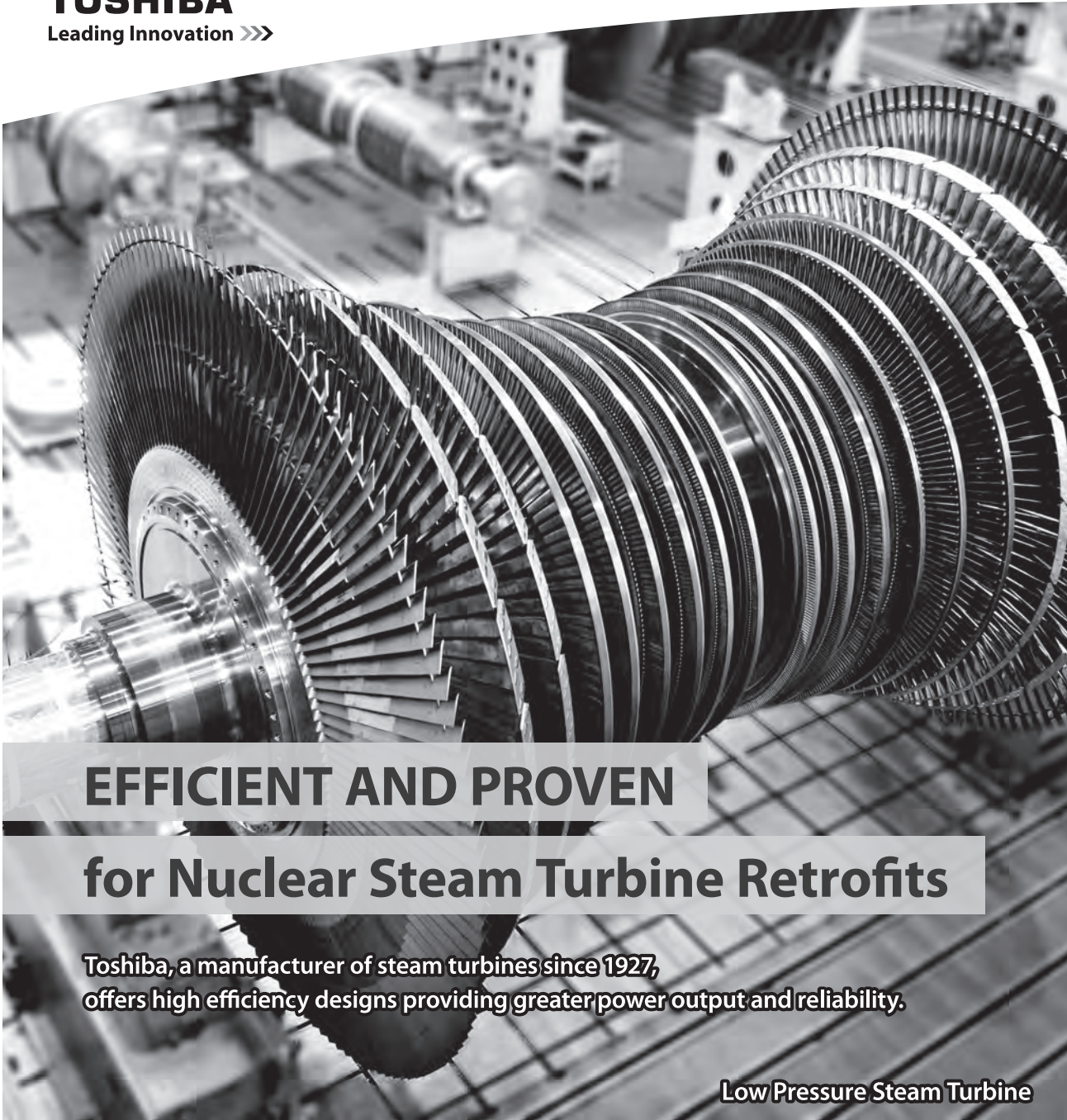
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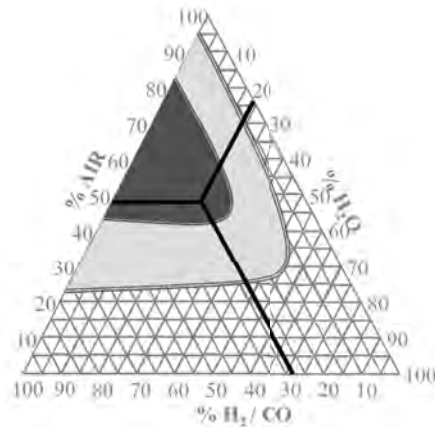
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Monozukuri — Technology to protect energy and tomorrow

Trees bathe in the warm sunshine while soaking up water.

They feed on the precious nutrients, put out buds, extend trunks, spread branches,
and put out leaves as they grow slowly but steadily over the time.

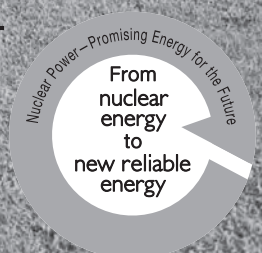
The flourishing tree produces clean air, clear water and rich harvest soil,
furthermore provides many blessing to humankind.

The various trees breathing firmly and perpetuating life
provide hope for the earth and humankind.

We at Hitachi-GE Nuclear Energy provide wide-ranging support for the nuclear power
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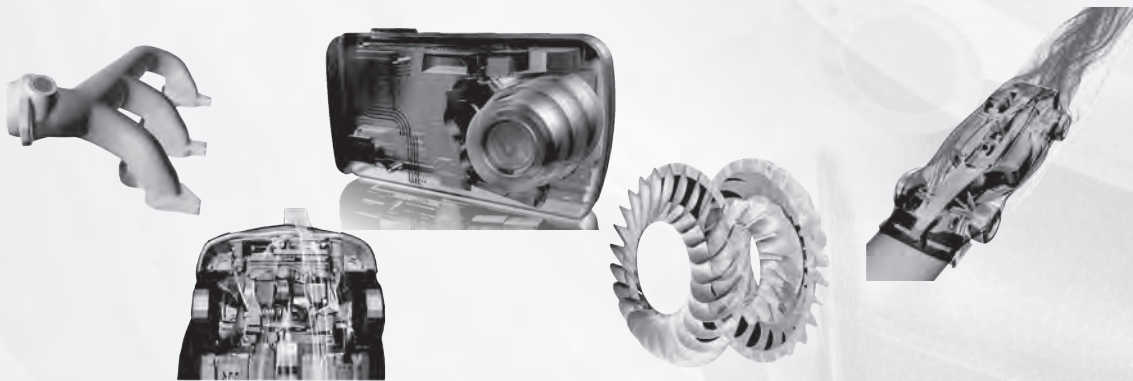
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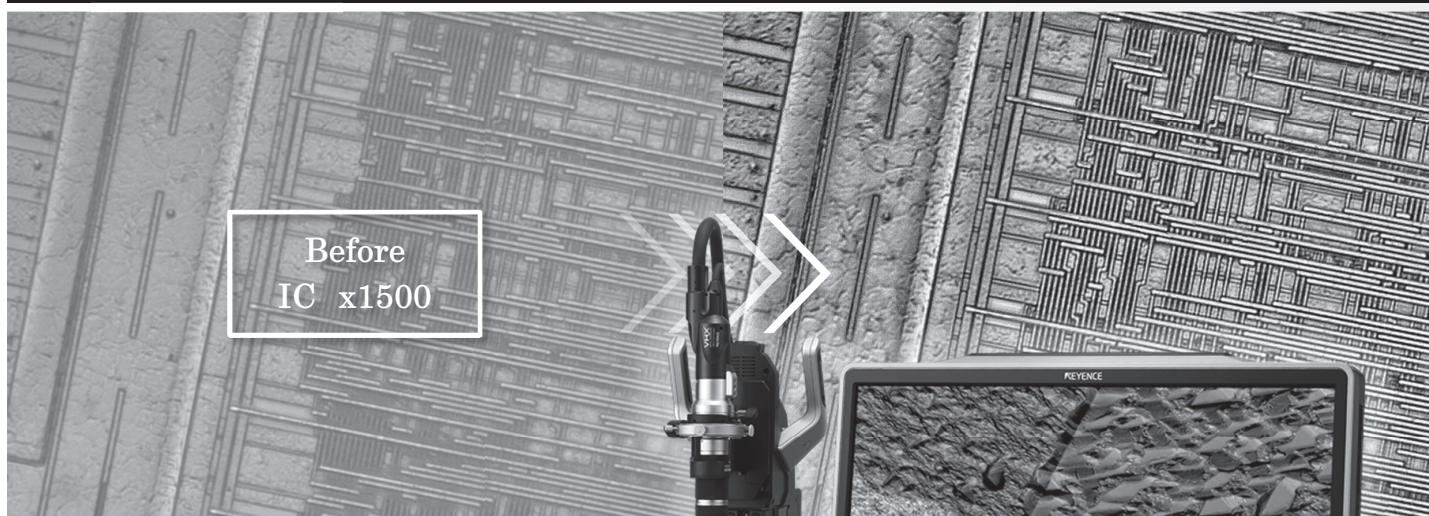
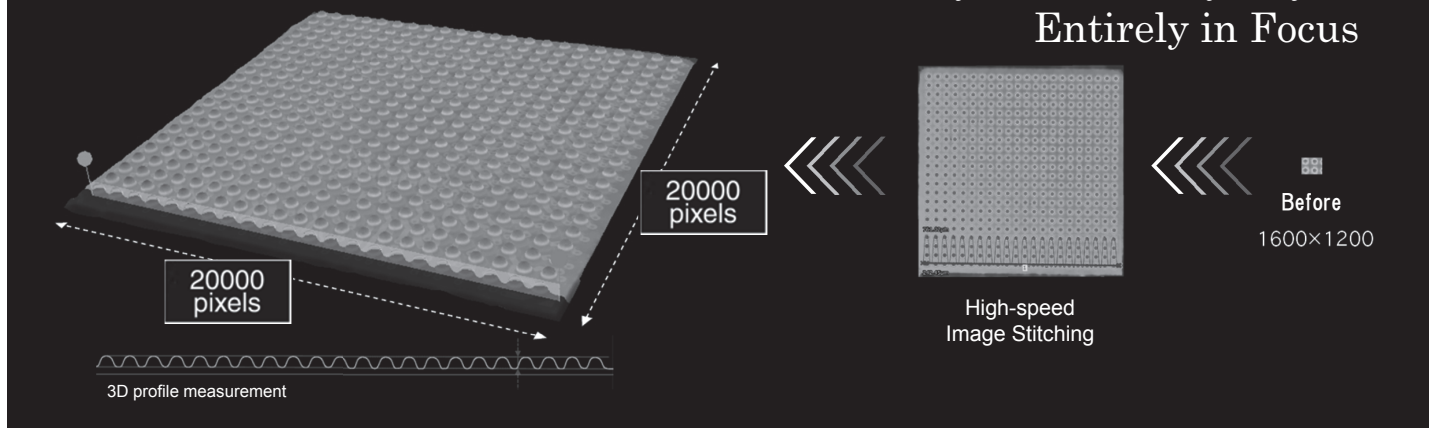
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70 Birch Alley Suite 240 Beavercreek, OH 45440
Phone: +1-937-912-5798 Fax: +1-513-672-0523
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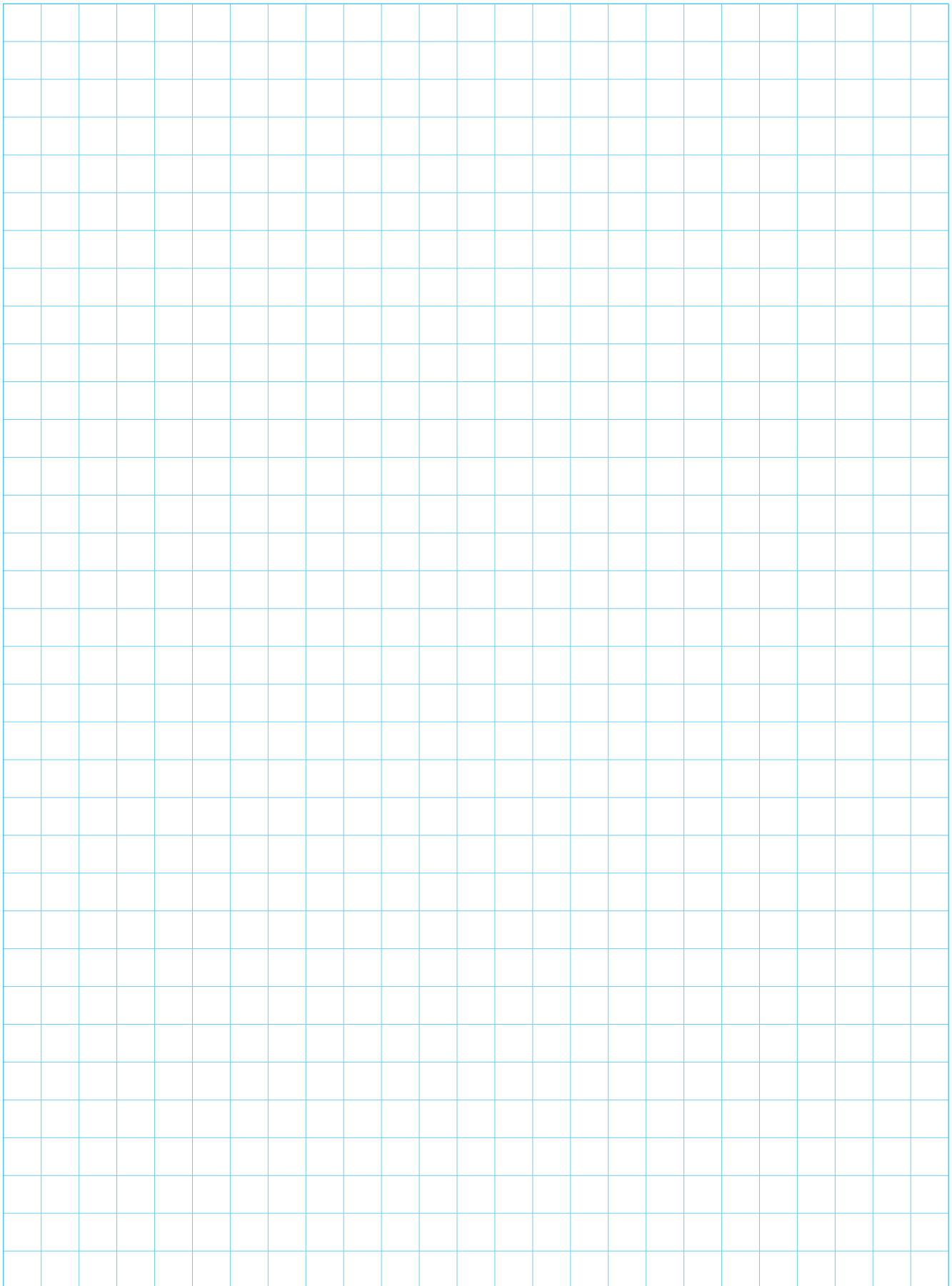
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