ASME® ICONE 28

28th International Conference on Nuclear Engineering

CONFERENCE
Aug 4–6, 2021

Virtual, Online

Program

https://event.asme.org/ICONE

The American Society of Mechanical Engineers®
ASME®

ASME
SETTING THE STANDARD

Welcome

Dear Colleagues,

Greetings and Salutations to All! On behalf of the organizers of ICONE 28, I would like to extend to you my heartfelt welcome to the 28th International Conference on Nuclear Engineering. The year 2020 will forever be remembered for the COVID-19 pandemic and its resultant impact on our social and economic lives. Large in person social gatherings, including engineering conferences, are by necessity transitioning to virtual events. Following a very successful virtual ICONE 2020, Nuclear Engineering Conference powered by ICONE, we are sure that ICONE 28 will provide each of you a wonderful opportunity to have an energetic, shared, and comprehensive virtual conference.

As has been a long ICONE tradition, the ASME Nuclear Engineering Division is delighted to continue our collaboration with long-time partners; The Japan Society of Mechanical Engineers (JSME), and the Chinese Nuclear Society (CNS). We are all working together to promote a global nuclear resurgence. Together we continue to be a strong global voice for the nuclear community.

The conference will unfold in the virtual space, while being mindful of different time zones and preparations necessary for online participation including video recorded sessions. We hope that the virtual space will also create a rhythm and a platform for a continued scholarly exchange after the official conference dates, encouraging research and exchange of ideas on an ongoing basis. The virtual conference will feature both synchronous and asynchronous events, and discussion forums on an online platform, all of which will be pre- recorded and broadcast to ensure as wide participation as possible, given the international nature of the conference participants with different time zones.

As the premier nuclear engineering technical conference, ICONE is for nuclear professionals who want to stay technically current and on top of industry trends and developments. As always, the success of ICONE is due to the contribution of numerous professionals from industry, government, academia, and technical societies from around the globe. We at the ASME Nuclear Engineering Division would like to thank the Track and Session leaders who helped organize this conference. This conference will cover a wide range of topics in multiple tracks including: Operating Plant Challenges, Successes, and Lessons Learned; Nuclear Plant Engineering; Advanced Reactors and Fusion; Small Modular and Micro-Reactors Technologies and Applications; Nuclear Fuels, Research, and Fuel Cycle; Nuclear Codes & Standards; Thermal-Hydraulics; Computational Fluid Dynamics (CFD); Verification and Validation; Advanced Methods of Manufacturing (AMM) for Nuclear Reactors and Components; Decontamination, Decommissioning, and Radioactive Waste Management; Beyond Design Basis and Nuclear Safety; Risk Informed Management and Regulation; and supporting the future of our Industry, the Student Paper Competition. In addition to over three hundred technical presentations, ICONE 28 will present multiple plenary and panel sessions. The plenary and panel sessions will address key technical challenges and business issues facing the nuclear industry, featuring discussions with leaders from industry, academia, and government.

We will also hold a number of technical seminars/workshops, as well as the Nuclear Codes and Standards Seminar to expand the knowledge base of our profession. Lectures and discussions in those seminars will target a wide range of practitioners and young engineers to provide the basic principles, requirements, codes, standards, and best industry practices.

Our thanks to our Conference Sponsor, Westinghouse, for their continued support of the Nuclear Industry in general and ICONE in particular. Special thanks go to the ASME staff and the reviewers for assuring the excellence of the technical papers. Finally, we recognize, honor, and say thank you to all the authors, keynote and plenary speakers, and panel participants who are the major contributors to the success of the conference. I cordially invite all of you to participate and support ICONE 28 activities. Together, we will make the conference a triumph and continue the success of our great industry as well as the Nuclear Community as a whole.

Clayton T Smith

Clayton T Smith

Chairman,
ASME Nuclear Engineering Division
Conference Chair, ICONE 28

Contents

Committee

ICONE COMMITTEE MEMBERS

Asif Arastu
Unisont Inc.

Leon Cizelj
Jozef Stefan Institute

Yassin Hassan
Texas A&M University

Rosa LoFrano
University of Pisa

Shripad Revankar
Purdue University

Jovica Riznic
Canadian Nuclear Safety Commission

Richard Schultz
Idaho State University

Clay Smith
Smith ACG, LLC

Bob Stakenborghs
Advanced Clean Energy Consulting

Guoqiang Wang
Westinghouse Electric Co

ASME 2020 ICONE CONFERENCE ORGANIZING COMMITTEE

	ASME	JSME	CNS
Conference Chairs	**Clayton Smith,** Smith ACG, LLC	**Tetsuaki Takeda,** University of Yamanashi	**Shoujun WANG,** CNS President
Conference Co-Chairs	**Richard Schultz,** Idaho State University	**Shumpei Funatani,** University of Yamanashi	**Zengguang LEI,** CNS/CNNC
Technical Program Chairs	**Asif Arastu,** Unisont Inc.	**Hiroyuki Ohshima,** Japan Atomic Energy Agency	**Rui SHU,** China Nuclear Power Technology Research Institute
Technical Program Co-Chairs	**Bob Stakenborghs,** Advanced Clean Energy Consulting	**Takashi Takata,** Japan Atomic Energy Agency	**Liangzhi CAO,** Xi'an Jiao Tong University
Technical Program Secretary	**Yassin Hassan** Texas A&M University	**Dr. Masaki** Morishita	**Xiaoli ZHANG,** China Nuclear Power Technology Research Institute
Student Program Chair	**Shripad Revankar,** Purdue University	**Suichiro Miwa,** Hokkaido University	**Suyuan YU,** Tsinghua University
Steering Committee Chair	**Leon Cizelj,** Jozef Stefan Institute	**Yasuo Koizumi,** The University of Electro-Communications	**Zengguang LEI,** CNS Vice President, CNNC Chief Engineer
Steering Committee Vice Chair	**Shripad Revankar,** Purdue University		**Jianfu YU,** CNS
Steering Committee Secretary			**Yanyan ZHU,** CNS
Steering Committee Chairs	**Leon Cizelj** Jozef Stefan Institute	**Yasuo Koizumi** Japan Atomic Energy Agency	**Zengguang Lei** CNNC/CNS
Organizing Committee Chair	**Guoqiang Wang,** Westinghouse	**Tetsuaki Takeda,** University of Yamanashi	**Zhi WANG,** CNS
Organizing Committee Co-Chair	**Rosa Lo Frano,** University of Pisa	**Shumpei Funatani,** University of Yamanashi	**Wenxi TIAN,** Xi'an Jiao Tong University
Organizing Committee Secretary			**Yanyan ZHU,** CNS
Student Committee Chair	**Shripad Revankar,** Purdue University	**Suichiro Miwa,** Hokkaido University	**Shuyuan YU,** Tsinghua University
Award Committee Chair	**Leon Cizelj,** Jozef Stefan Institute		**Zhi WANG,** CNS
Award Committee Co-Chair	**Jovica Riznic,** Canadian Nuclear Safety Commission		

Schedule at a Glance

Schedule at a Glance

	Tuesday, August 3, 2021			
	Workshops On Demand			
Wednesday, August 4, 2021	**Eastern Time**	**Wednesday, August 4, 2021**		
	9:30AM to 9:45AM	**Welcome Messages**		
	9:45AM to 10:30AM	**Keynote** **Marie Blanc, Senior Vice President, EMEA** **Westinghouse Electric Company LLC**		
	10:30AM to 10:45AM	**Break**		
	10:45AM to 11:30 AM	**Advanced Reactors Plenary Session**		
	11:30AM to 11:45AM	**Break**		
	11:45AM to 1:00PM	**Advanced Manufacturing Panel**	**Women In Nuclear Engineering Panel**	
	1:00PM to 1:15PM	**Break**		
	Begins at 1:15PM	**Technical Sessions**		
	Begins at 3:00PM	**Technical Sessions**		
Thursday, August 5, 2021	**Eastern Time**	**Thursday, August 5, 2021**		
	9:00AM to 9:15AM	**Welcome Messages**		
	9:15AM to 10:00AM	**Climate Change Plenary Session**		
	10:00AM to 10:15AM	**Break**		
	10:15AM to 11:00AM	**Operating Plant Issues and Experience Plenary Session**		
	11:00AM to 11:15AM	**Break**		
	11:15AM to 12:30PM	Micro & Small Modular Reactors/Advanced Nuclear System Panel	Space and Other Applications of Nuclear Energy Panel	
	12:30PM to 12:45PM	**Break**		
	Begins at 12:45PM	**Technical Sessions**		
	Begins at 2:30PM	**Technical Sessions**		
	Begins at 4:15PM	**Technical Sessions**		
	5:45PM to 6:00PM	**Break**		
	6:00PM to 6:45PM	**Awards Reception**		
Friday, August 6, 2021	**Eastern Time**	**Friday, August 6, 2021**		
	8:00AM to 9:00AM	Track Roundtables	Track Roundtables	
	9:00AM to 10:15AM	Fukushima Panel - 10 years Later	AP1000 Plant Experience Panel	
	10:15AM to 10:30AM	**Break**		
	10:30AM to 11:45AM	Advanced Fuel Development Panel	Severe Accidents - Mitigation, Planning, Management Panel	Climate Change and Emission Reduction Panel
	11:45AM to 12:00PM	**Break**		
	Begins at 12:00PM	**Technical Sessions**		
	Begins at 1:45PM	**Technical Sessions**		
	Begins at 3:15PM	**Technical Sessions**		
	Begins at 4:45PM	**Technical Sessions**		

On Demand Workshops

WORKSHOPS

Thermal Hydraulics

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. The workshop will feature both industry and academic experts who will present advances in thermalhydraulics methods, experiments, and simulations of key phenomena for safety assessment of various reactor systems and components. For exchanging information and experience purposes, this workshop is applicable to both students/professors and engineers in the relevant industry fields.

Modules:

- Introduction and Overview of the TH Workshop
- Scaling For Thermal-hydraulics Experiments
- Fundamental Experiments and CFD Application for Large Advanced PWRs Development
- Fluid Transients in Piping Systems
- Thermal hydraulics aspects of leakage through cracked thin wall tubes
- PWR Safety Analysis Philosophy, WALT DNB/ATF Test Methodology, CIPS Phenomena and Analysis

Instructors: **Guanghui Su,** Xi'an Jiaotong University

Liangming PAN, Chongqing University

Guoqiang Wang, Westinghouse

Shripad Revankar, Purdue University

Jovica, Riznic, Canadian Nuclear Safety Commission

Yasushi Saito, Kyoto University

Wajih Hamouda, Ontario Power Generation

Asif Arastu, Unisont Inc.

Computational Fluid Dynamics

The CFD seminar will target young researchers, engineers, and students to provide the basis and results for a selection of several CFD applications for certain thermal-hydraulic problems. Wide variety knowledge and up-to-date information on CFD will be presented by leading CFD specialists. The presentations begin with the fundamental equations and numerical solution methods, and then continue to recent developments and some practical guidelines of CFD for nuclear engineering applications. Informal discussions and questions will be conducted.

Instructors: **Wenxi TIAN,** Xi'an Jiaotong University

Yassin Hassan, Texas A&M University

Richard Schultz, Idaho State University

Takashi Takata, The University of Tokyo

Elia Merzari, Pennsylvania State University

Sichao TAN, Harbin Engineering University

Shouxu Qiao, Harbin Engineering University

Nuclear Codes and Standards

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.

Instructors: **Christopher Mahler,** ASME

Daren Jensen, Optimum Performance Solutions 1

Dr. Seiji Asada, Mitsubishi Heavy Industries, Ltd.

Dr. Keiji Matsunaga, Toshiba ESS

Timothy Adams, Jensen Hughes

KEYNOTE

WEDNESDAY, AUGUST 4
9:45AM – 10:30AM EDT

Marie Blanc
Senior Vice President, EMEA
Westinghouse Electric Company LLC

Title: Making a Carbon-Free Future Possible

Biography: Marie Blanc is a Senior Vice President for Westinghouse Electric Company, leading the field service activities in Europe (EMEA Outage and Maintenance Services) since 2019. This organization, with approximately 600 employees, serves nuclear power plants with inspections, services and repairs across all of the EMEA region.
She started her career with ABB in Sweden as a nuclear fuel design engineer and brings 25 years of nuclear industry experience through a series of technical and leadership positions across Westinghouse different locations: she spent seven years in the US (Pittsburgh, Pennsylvania) and moved to Belgium in 2016.

Prior to her current role, Marie served as Vice President, Quality Environmental Health and Safety. Throughout her Westinghouse career, she has held roles of increasing responsibility in numerous areas across the company, including Fuel Engineering, Project Delivery, Procurement & Logistics, Quality and Continuous Improvement.

Marie has a master's degree in Mechanical Engineering from the University of Lund, Sweden and Institute of Technology (ETH), Zürich, Switzerland. She has an MBA degree from Stockholm School of Economics and is a certified Six Sigma Black Belt.

PLENARY SESSIONS

WEDNESDAY, AUGUST 4
10:45AM - 11:30AM EDT

Advanced Reactors Plenary

Kathryn Hyam - Director Nuclear C&S, ASME

Dr. Zheng Mingguang, SPIC

Dr. Hiroyuki OIGAWA, Executive Director, Japan Atomic Energy Agency

THURSDAY, AUGUST 5
9:15AM - 10:00AM EDT

Climate Change Plenary

Andy Miller, Associate Director for Climate at US EPA

Rui Shu, China Nuclear Power Technology Research Institute (CNPRI)

Eri Nakatani, Acting Director, Nuclear Energy Policy Planning Division, Agency for Natural Resources and Energy

THURSDAY, AUGUST 5
10:15AM - 11:00AM EDT

Operating Plant Issues and Experience Plenary

Richard Easterling - Sr. VP, Westinghouse Engineered Systems & Solutions

Fu Li, Tsinghua University

Dr. Koji OKAMOTO, Professor, The University of Tokyo

PANELS

Advanced Fuel Development

FRIDAY, AUGUST 6
10:30AM - 11:45AM EDT

The development of Robust or Accident Tolerant Fuel (ATF) has become an international area of interest and effort in the last few years. Conceptually ATF would provide leap-ahead improvement in Light Water Reactor (LWR) fuel safety during beyond design basis accidents and commercial benefit to nuclear utilities. Accelerated by the severe accident at the Fukushima Daiichi nuclear power plant in Japan, a variety of research, development and commercial analysis of ATF is presently underway globally. The insertion of ATF lead test rods (LTR) into a commercial PWR has been underway since 2019.

This panel will present and discuss the state-of-art knowledge of ATF from the point of view of industry, government, non-profit research agencies, and academic representatives currently leading global ATF development. The significant challenges in development and implementation of ATF, such as large scale ATF fabrication, acceptance by nuclear utilities, the role of government and inter-government agencies in ATF research oversight, and the engineering and scientific challenges to develop ATF will be presented. The goal of this panel is to communicate the current understanding of the commercial and technical challenges faced in ATF development.

Moderators: **Guoqiang Wang,** Westinghouse

Min XIAO, China Nuclear Power Technology Research Institute (CNPRI)/ China General Nuclear Power (CGN)

Panelists: **Fumiaki Inoue,** Toshiba Energy Systems & Solutions Corporation

Dennis Hussey, Electric Power Research Institute (EPRI)

John Strumpell, Framatome

Robert Oelrich, Pacific Northwest National Lab (PNNL)

Tong LIU, China Nuclear Power Technology Research Institute

Zach McDaniel, Westinghouse

Advanced Manufacturing

WEDNESDAY, AUGUST 4
11:45AM - 1:00PM EDT

Advanced manufacturing technologies are having an impact in a broad range of industries, including chemicals, oil and gas, composites, textiles, food, pharmaceuticals, and pulp and paper. As these advances continue to enable innovations in nuclear industry stakeholders are beginning the critical next step of developing and standardizing manufacturing best practices across industries. This panel will explore recent developments and innovations of importance for current fleet of nuclear power plants as well as for forthcoming advanced and small modular reactors.

Moderators: **Yangang DUAN,** China Nuclear Power Engineering Design Co., Ltd

Jovica Riznic, Canadian Nuclear Safety Commission

Panelists: **Clint Armstrong,** Westinghouse

Marc Albert, Electric Power Research Institute (EPRI)

Richard Jacobs, Pacific Northwest National Lab (PNNL)

Xiangbing LIU, Suzhou Nuclear Power Research Institute (SNPI)

Dr. Keiji Matsunaga, Toshiba Energy Systems & Solutions Corp

Panels

Micro & Small Modular Reactors/Advanced Nuclear System

THURSDAY, AUGUST 5
11:15AM - 12:30PM EDT

The micro reactors, small modular reactors and advanced reactors have the potential to reduce greenhouse gas emissions by displacing fossil fuels in the generation of electricity and in the application of process heat for number of energy intensive industrial products.

These reactors are characterized by high energy density, less nuclear waste and offer simplified operation and maintenance for multiple application scenarios, such as for distributed power and load-following applications, meanwhile increased security, economy and proliferation resistance. Particularly, the Generation IV reactors represent the development trend of advanced reactors, among which lead fast reactors (LFR) is expected as the first to realize industrialization.
This panel will discuss about technology development progress and status on advanced reactors, micro reactors and small modular reactors.

Moderators: **Shripad Revankar,** Purdue University
Danrong Song, Nuclear Power Institute of China

Panelists: **Matt Swartz,** Advanced Reactor Testing Programs
Jiming LIN, China General Nuclear Power Group
Masayoshi Matsuura, Hitachi-GE Nuclear Energy, Ltd.
Bruce McDowell, Pacific Northwest National Lab (PNNL)
Igor Pioro, University of Ontario Institute of Technology

Space and Other Applications of Nuclear Energy

THURSDAY, AUGUST 5
11:15AM - 12:30PM EDT

Besides the applications of energy for the civil electricity production in power plants the technology has essential uses across multiple sectors, including consumer products, food and agriculture, industry, medicine and scientific research, transport, and water resources and the environment. For space application Radioisotope Thermoelectric Generators (RTGs) have been used since 1960s, and recently fission micro reactors are considered for mars and deep space missions. The panel will discuss some of recent developments and advances in the application of nuclear energy in space missions, medical diagnostics and therapy, plant mutation and breeding, food irradiation, sterilization, pest control non-destructive diagnostics, instrumentation, nuclear power ships, propulsion, and as tracers.

Moderators: **Shripad Revankar,** Purdue University
Clayton Smith, SmithACG LLC

Panelists: **Asif Arastu,** Unisont Inc.
Robert Oelrich, Pacific Northwest National Lab (PNNL)
Jeff Katalenich, Pacific Northwest National Lab (PNNL)
Yan XIA, Institute of Spacecraft System Engineering (ISSE)

AP1000 Plant Experience

FRIDAY, AUGUST 6
9:00AM - 10:15AM EDT

AP1000, one of the advanced reactors, is featured for its passive technology, high safety, and simplified system configuration and manipulation. Four AP1000 units have been in safe and reliable operation for over 2 years in China. The AP1000 plants have also achieved high performance, operational economy and record refueling outage duration on account of both advanced technology and good operational management. With its safety, economy and load-following capacity, AP1000 plants can play a more important role in carbon reduction. This panel will discuss magnificent experiences and production management optimization efforts of AP1000 plants to facilitate its application, and will cover all phases such as engineering□commissioning□operation□outage□and so on.

Moderators: **Guoqiang Wang,** Westinghouse

Fan Fuping, Sanmen Nuclear Power Company (SMNPC)

Panelists: **Lilux XUN,** Shandong Nuclear Power Company Limited (SDNPC)

Sheng LYU, Sanmen Nuclear Power Plant

Christopher Goossen, Westinghouse

Luca Oriani, Westinghouse

Severe Accidents - Mitigation, Planning, Management

FRIDAY, AUGUST 6
10:30AM - 11:45AM EDT

The nuclear safety is always a big concern in nuclear industry, in particular after Fukushima Daiichi accident. Efforts have been made to prevent and mitigate the likelihood and impact of the severe accident in Gen III reactor design, such as IVR & EVR strategies adopted in various designs, as well as management of hydrogen risk, source term containment. This panel will present and discuss the recent progress of R&D in corium retention, code development, among others, facing the challenges in next generation reactor design.

Moderator: **Yidan Yuan,** China Nuclear Power Engineering Co. Ltd (CNPE)

Panelists: **Peng Chen,** China Nuclear Power Technology Research Institute (CNPRI)

Peng Xu, Idaho National Laboratory

Dr. Xiaoyang Gaus-Liu, Karlsruhe Institute of Technology (KIT)

Koichi Nakamura, CRIEPI

Panels

Fukushima Panel - 10 years Later

FRIDAY, AUGUST 6
9:00AM - 10:15AM EDT

This panel session was chaired by Dr. Tadashi Narabayashi, a member of the NISA advisory board on the technical lessons learned from the accident at the Fukushima Daiichi Nuclear Power Station, and the Fukushima Daiichi Nuclear Power Station of the NRA (Nuclear Regulation Authority. He is the chairman of a new committee to repair natural disasters and energy infrastructure such as earthquakes in Hokkaido, heavy typhoons, heavy rains in PESD / JSME. In this session, we will explain the progress of the decommissioning of the Fukushima Daiichi Nuclear Power Station for 10 years, the purification of contaminated water by ALPS, the development of robot technology for the removal of spent fuel and the removal of debris, etc. .. In addition, experts in radiation protection in the United States and experts in severe accidents in Europe will also participate in the panel discussion.

Moderators: **Tadashi Narabayashi,** Tokyo Institute of Technology
Dr. Hideharu Takahashi, Tokyo Institute of Technology

Panelists: **Tatsuya Taminami,** Fukushima Daiichi Decontamination and Decommissioning Engineering Company (FDEC).
Fumihito Shinozaki, Toshiba ESS
Dr. Satoshi Okada, Hitachi-GE Nuclear
Dr. David Miller, University of Illinois
Dr. Terttaliisa Lind, Paul Scherrer Institute
Ms. Olena Mykolaich, IAEA

Climate Change and Emission Reduction

FRIDAY, AUGUST 6
10:30AM - 11:45AM EDT

Climate change is driving the new build for wind, solar, other renewable energy sources as well as nuclear power. How well does nuclear fit into this “clean energy” paradigm? Our panel will discuss various aspects of nuclear power as it relates to clean energy and consider other factors such as cost and schedule. Tune in and learn why nuclear power should be considered the “go to” technology for a real net zero approach to clean energy.

Moderators: **Robert Stakenborghs,** Advanced Clean Energy Consulting, LLC
Dr. Hidemasa Yamano, Japan Atomic Energy Agency

Panelists: **Qimin Chai,** National Center for Climate Change Strategy and International Cooperation (NCSC)
Ryoichi Komiyama, The University of Tokyo
Andy Miller, United States Environmental Protection Agency
Anthony Licata, Licata Energy & Environmental Consultants, Inc.

Women in Nuclear Engineering

WEDNESDAY, AUGUST 4
11:45AM - 1:00PM EDT

Climate change is the challenge of the 21st Century as well as gender equality, especially, in engineering. Women in engineering represent only 13% of the profession; several barriers currently prevent women from entering and/or remaining in the profession. Perception of engineering as male dominated is for sure an important constraint.

The panel explores these important questions centered around attracting and retaining women in engineering, and the barriers currently faced by the profession, such as:

- What could make the biggest difference in attracting and retaining women in engineering?
- What are you hearing underneath the variety of opinions being expressed on gender equality?
- What is it we are not hearing?
- In which way you may champion this change?

This discussion aims to highlight challenges, opportunities and key issues, and actions driving a culture that supports diversity and future inclusion.

Moderator: **Rosa Lo Frano,** University of Pisa

Panelists: **Dr. Martina Adorni,** NEA

Prof. Laura Savoldi, Politecnico di Torino

Dr. Erika Holt, VTT

Ms. Jadyn Reis, Graduate Student TAMU

Ms. Michela Angelucci, PhD student UniPi

Ms. Marylin Delgado, Graduate Student TAMU

SMMR @ ICONE28

AUGUST 5
12:45PM – 4:45PM

The time is now to develop newer, smaller, easy to site and construct nuclear power plants and let this high availability source of CO2 free power help us solve our climate dilemma. This information source business to-business conference will provide the opportunity for executive leaders in the SMMR nuclear technology industries to network with utility, regulatory, and financial organizations, to exchange ideas, to share lessons learned, and to establish strategic relationships.

Our program includes:

- Panel: Nuclear Power Debate- State Regulations
- Current Landscape of Advanced Reactors
- Micro Reactors
- Small Modular Reactors
- Development and Financing
- Advanced Manufacturing

ICONE 28 AWARDS

THURSDAY, AUGUST 5
6:00PM – 6:45PM EDT

2021 ICONE Long Service Award Recipients

We are pleased to announce recipients of the 2021 ICONE Long Service award.

Liangzhi Cao

Prof. Cao earned his PhD degree from Xi'an Jiaotong University in 2005. Before he joined the faculty of Xi'an Jiaotong University in 2007, he worked as a post-doctor in Korea Advanced Institute of Science and Technology through 2005 to 2006 and research scientist in the University of Tokyo. Prof. Cao became a full professor at Xi'an Jiaotong University in 2014, after which he visited the University of Michigan for one year as a visiting scholar. Prof. Cao has co-authored more than 200 high level peer-reviewed journal and conference papers as well as two monographs (one in Chinese and one in English). He is now serving as the Associate Editor for Annals of Nuclear Energy and ASME Journal of Nuclear Engineering and Radiation Sciences.

Prof. Cao has been joining in the organizing of ICONE since 2008 (ICONE17 organizers meeting). Two years later, when ICONE18 was held in Xi'an, he has served as the assistant technical program chair and coordinated the whole conference technical program and made a great contribution to the success of ICONE18. After that, he has served as the technical program assistant chairperson for ICONE19; technical track co-chair for ICONE19, ICONE21, ICONE24, ICONE25, ICONE27 and ICONE28, and currently as the technical program co-chair for ICONE28.

Kohei Hisamochi

Mr. Kohei Hisamochi graduated Kyushu University Nuclear Engineering Department (M. Eng.) in March 1993 and joined Hitachi, Ltd. He had been assigned in Nuclear Power Plant Engineering Department in Hitachi Works, Nuclear Systems Division (NSD) from 1993 to 2019 (NSD became Hitachi-GE Nuclear Energy, Ltd. in 2007). He was in charge of safety systems design and safety related studies including Probabilistic Safety Assessment and Severe Accident Analysis, and he was promoted to Senior Engineer in Nuclear Reactor Engineering

Section in the department in 2005. After 2013, when Hitachi-GE started UK ABWR licensing process, he was assigned as a technical subject matter expert of PSA, and completed the process with submitting full-scope modernized PSA for UK ABWR in 2017. He had promoted to Department General Manager in 2017, Division General Manager in 2019, and then Executive Vice President from 2020.

His Contributions to ICONE series of Conferences, include Track Leaders for ICONE-16 and ICONE-17 and ICONE Organizing Committee Member from ICONE-21 to ICONE-28.

Akihide Kugo

Mr. Akihide Kugo graduated from the University of Tokyo, Dept. of mechanical engineering in 1972. He received Master degree of Arts in International Study from University of Leeds in U.K., and Ph.D. in Energy Science from Kyoto University in Japan. He joined Kansai Electric Power Co., Inc. in 1978. He moved to Japan Nuclear Safety Institute where he was promoted to director position in 2012. From 2016 to 2020, he was director and executive officer. He dedicated himself in developing leadership educational programs for nuclear operators such as from the CEOs to the first-line managers. He was also a member of Working Group on Human and Organizational Factors (WGHOF) of CSNI OECD/NEA. From the aspects of human attributes, He established the program of a crisis management drill and exercise based on the episodic memories of Fukushima Accident. He also applied the methodology of psychological model of Johari-Window to the assessment of leadership training for shift supervisors of nuclear power station. Now, he is principal expert researcher in Mitsubishi Research Institute, Inc.

Mr. Kugo's contributions to ICONE-series of Conferences, include Organizing Committee Members from ICONE-23 to ICONE27, and serving as a panelist at ICONE-26 on a panel on Education and Human Resources Development

ICONE 28 AWARDS

Shripad Revankar

Shripad Revankar is a Professor of Nuclear Engineering at Purdue University. He has over 38 years (post Ph.D.) of research experience in advanced reactor systems, reactor safety, reactor thermal hydraulics, composite fuel for advanced nuclear reactors, instrumentation, multi-phase flow and heat transfer, microgravity multiphase flow, direct energy conversion, hybrid power systems, nuclear hydrogen generation, solar energy storage, packed bed reactor, renewable energy, and fuel cell technology. He has published over 500 peer reviewed technical articles in archival scientific journals, and conference proceedings and technical reports, and author/coauthor of three recent books. He is Chief Editor of Frontier in Energy-Nuclear Energy and International Journal of Magnetism & Nuclear Science. He is Fellow of ASME, ANS and AIChE. He received the 2019 ANS Thermal Hydraulics Division Technical Achievement Award.

Professor Revankar has been involved in ASME since 1987 and was Chair of ASME Nuclear Engineering Divisional Executive Committee and Chair of NUCLEAR 2020 -ASME's Nuclear Engineering Conference powered by ICONE.

Clayton T Smith

Mr. Smith's over 30 years of experience includes extensive 10 CFR Part 50, Appendix B, ACI, ASME Section III, ASME Section XI, IAEA, ISO 17024, ISO 17065, and NQA-1 Quality Program creation. He specializes in Nuclear Safety Related, ASME Section III, Division 1 & 2 design, construction, and procurement; Section XI nuclear power plant repair and replacements, coupled with traditional non-nuclear ACI, ASME and AWS Code design, construction, fabrication & installation; and National Board Inspection Code (NBIC) alteration and repair activities.

Mr. Smith is a multidiscipline NDE & QC Level III and holds various ACI and AWS certifications. He is a member of the ASME Board of Nuclear Codes and Standards, ASME Board of Conformity Assessment. ASME Section III Standards Committee, and has been chair/vice-chair, as well as being an active member, of many ACI, ASME, and AWS Standards Development Organization Committees. Finally, Mr. Smith is an ASME Designee, Current Chair of ASME Nuclear Engineering Division (NED), member of the International Conference on Nuclear Engineering (ICONE) Technical Program Committee and participates on the IAEA sector for International Codes and Standards. He is an ASME Certified Instructor and guest lecturer at many technical colleges and universities.

Mr. Smith has been a long serving NED Member, EC Member and Contributor to ICONE. With active participation since 2005, he started as a Codes and Standards Session Chair and author, and in 2008 joined the ASME ICONE Organizing Committee supporting Codes and Standards and Honors and Awards. Since 2008, he has served in all Organizing Committee roles, cumulating this year as ICONE 28 Conference Chair. He has actively supported and established a NED/ICONE standing delegate to the ASME Board on Nuclear Codes and Standards, resulting in a closer collaboration between Nuclear Codes and Standards, NED, and ICONE.

Technical Sessions

WEDNESDAY, AUGUST 4

01-01 OPERATING EXPERIENCE SESSION 01
SESSION BEGINS AT 1:15PM

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

Research on Setting Alarm Thresholds of Gaseous Effluent Radiation Monitoring From Nuclear Power Plants in China

Technical Paper Publication: ICONE28-62558

Wei He - *Nuclear and Radiation Safety Center, MEP*

Jing Jiang - *Nuclear and Radiation Safety Center, MEP*

Chen Xu - *Nuclear and Radiation Safety Center, MEP*

Qiang Lei - *Nuclear and Radiation Safety Center, MEP*

Chunyan Xu - *Nuclear and Radiation Safety Center, MEP*

Xinhua Liu - *Nuclear and Radiation Safety Center, MEP*

Yu Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Feng Xie - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Development of Digital Twins of PWR Steam Generators: Description of Two Maintenance-Oriented Use Cases

Technical Paper Publication: ICONE28-63246

Enrico Deri - *EDF*

Christophe Varé - *EDF*

Matthieu Wintergerst - *EDF*

Key Element Analysis and Suggestion for Strengthen the Quality Management of Nuclear Power Plant Fasteners

Technical Paper Publication: ICONE28-64142

Yan Lu - *Nuclear and Radiation Safety Center, MEE*

Ligong Ling - *Nuclear and Radiation Safety Center, MEE*

Yu Xu - *Nuclear and Radiation Safety Center, MEE*

Chen Gao - *Nuclear and Radiation Safety Center, MEE*

APROS-Based Loviisa NPP Full Scope Training Simulator and Engineering Model

Technical Paper Publication: ICONE28-64294

Arttu Meriläinen - *Fortum Power and Heat Oy*

Olli Viljakainen - *Fortum Power and Heat Oy*

Karri Honkoila - *Fortum Power and Heat Oy*

Ari Lahtela - *Fortum Power and Heat Oy*

02-01: STRUCTURAL AND SEISMIC ANALYSES
SESSION BEGINS AT 1:15PM

Chair: Asif Arastu - *Unisont Engineering, Inc.*

Chair: Antony Hurst - *Engineering Analysis Services Limited*

Chair: Brian Fant - *Bechtel*

Chair: Leon Cizelj - *Jozef Stefan Institute*

Chair: Miltos Alamaniotis - *The University of Texas at San Antonio*

Chair: Mauro Cappelli - *ENEA*

Chair: Damien Feron - *CEA*

Chair: Takashi Wakai - *Japan Atomic Energy Agency*

Chair: Yoshinori Katayama - *Toshiba Energy Systems & Solutions Corporation*

Chair: Akemi Nishida - *Japan Atomic Energy Agency*

Chair: Zhijian Zhang - *Harbin Engineering University*

Chair: Goran Simeunovic - *CVUT V Praze*

Chair: Yawei MAO - *China Nuclear Industry 23 Construction Co. Ltd.*

Chair: Clayton Smith - *Smith Associates Consulting Group LLC*

Outline of Guideline for Seismic Response Analysis Method Using 3D Finite Element Model of Reactor Building

Technical Paper Publication: ICONE28-61786

Byunghyun Choi - *Japan Atomic Energy Agency*

Akemi Nishida - *Japan Atomic Energy Agency*

Tadahiko Shiomi - *Japan Atomic Energy Agency*

Manabu Kawata - *Japan Atomic Energy Agency*

Yinsheng Li - *Japan Atomic Energy Agency*

Estimation of Vibration Characteristics of Nuclear Facilities Based on Seismic Observation Records

Technical Paper Publication: ICONE28-64337

Kouki Yamakawa - *Nuclear Regulation Authority*

Masaaki Saruta - *Nuclear Regulation Authority*

Hiroshi Moritani - *Nuclear Regulation Authority*

Hiroaki Yamazaki - *Nuclear Regulation Authority*
Akemi Nishida - *Japan Atomic Energy Agency*
Manabu Kawata - *Japan Atomic Energy Agency*
Kazuhiko Iigaki - *Japan Atomic Energy Agency*

Assessment of Seismic Fragility Using a Three-Dimensional Structural Model Reactor Building

Technical Paper Publication: ICONE28-64300

Akemi Nishida - *Japan Atomic Energy Agency*
Choi Byunghyun - *Japan Atomic Energy Agency*
Tadahiko Shiomi - *Japan Atomic Energy Agency*
Manabu Kawata - *Japan Atomic Energy Agency*
Yinsheng Li - *Japan Atomic Energy Agency*

Research and Application of Different Seismic Analysis Methods in Nuclear Power Equipment

Technical Paper Publication: ICONE28-64605

Xuan Huang - *Nuclear Power Institute of China*
Furui Xiong - *Nuclear Power Institute of China*
Shuai Liu - *Nuclear Power Institute of China*
Huanhuan Qi - *Nuclear Power Institute of China*
Qian Huang - *Nuclear Power Institute of China*
Ke Zhang - *Nuclear Power Institute of China*

Hybrid Dynamic Response Test Focusing on the Support Structure of Piping Systems

Technical Paper Publication: ICONE28-64586

Yukihiko Okuda - *Japan Atomic Energy Agency*
Akemi Nishida - *Japan Atomic Energy Agency*
Michiya Sakai - *Central Research Institute of Electric Power Industry*
Yuzo Shiogama - *Central Research Institute of Electric Power Industry*
Yinsheng Li - *Japan Atomic Energy Agency*

Research on Earthquake Acceleration Alarm of Nuclear Power Plant

Technical Paper Publication: ICONE28-64554

Liang Li - *Beijing University of Technology; Nuclear and Radiation Safety Centre*
Rong Pan - *Nuclear and Radiation Safety Centre*
Guopeng Ren - *Nuclear and Radiation Safety Centre*
Xiuyun Zhu - *Nuclear and Radiation Safety Centre*

07-01: THERMAL-HYDRAULICS EXPERIMENTAL STUDIES - I
SESSION BEGINS AT 1:15PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Void Fraction Measurement and Prediction of Two-Phase Boiling Flows in a Tubular Test Section

Technical Paper Publication: ICONE28-60406

Qingqing Liu - *University of Michigan*
Julio Diaz - *University of Michigan*
Victor Petrov - *University of Michigan*
Adam Burak - *University of Michigan*
Annalisa Manera - *University of Michigan*
Joseph Kelly - *U.S. Nuclear Regulatory Commission*
Xiaodong Sun - *University of Michigan*

Experimental Study on Boiling Heat Transfer Characteristics in an Inclined Tube Bundle

Technical Paper Publication: ICONE28-64355

Zongkun Li - *Harbin Engineering University*
Jie Cheng - *Harbin Engineering University*
Xuwei Zhou - *Harbin Engineering University*
Xiaobo Zeng - *Harbin Engineering University*
Xiaxin Cao - *Harbin Engineering University*
Guangming Fan - *Harbin Engineering University*

Experimental Study of Flow Characteristics in Round Jet Flow Using Particle Image Velocimetry (PIV)

Technical Paper Publication: ICONE28-64534

Lei Wu - *Harbin Engineering University*
Jianjun Wang - *Harbin Engineering University*

Baseline WALT DNB Test Results With Cr-Coated Cladding to Support_x000B_Accident Tolerant Fuel Development

Technical Paper Publication: ICONE28-66591

Guoqiang Wang - *Westinghouse Electric Company LLC*
William A. Byers - *Westinghouse Electric Company LLC*
Zeses Karoutas - *Westinghouse Electric Company LLC*

Study of Recent Sodium Pool Fire Model Improvements for Melcor Code

Technical Paper Publication: ICONE28-64509

Mitsuhiro Aoyagi - *Japan Atomic Energy Agency*

David Louie - *Sandia National Laboratories*

Akihiro Uchibori - *Japan Atomic Energy Agency*

Takashi Takata - *Japan Atomic Energy Agency*

David Luxat - *Sandia National Laboratories*

08-01: CFD ANALYSES OF EXPERIMENTAL TESTS SESSION BEGINS AT 1:15PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Water Hammer Simulation in Two-Phase Flow Regimes Using Open Source Code OpenFOAM

Technical Paper Publication: ICONE28-61351

Paul Fuchs - *Ruhr-Universität Bochum*

Marco K. Koch - *Ruhr-Universität Bochum*

Influence of Inlet Turbulent Flow Generated by Periodic Computations on the Pressure Drop and Axial Velocity Distribution Predictions

Technical Paper Publication: ICONE28-64275

Chufa Qiu - *CEA*

Bruno Raverdy - *CEA*

Andre Bergeron - *CEA*

Vincent Faucher - *CEA*

A New Concept for Irradiation Experiments in Fast-Reactor Environment: CFD Simulation of the LBE Loop in Hyst

Technical Paper Publication: ICONE28-63180

Ran Kong - *Purdue University*

Seungjin Kim - *Purdue University*

Robert Wahlen - *Niowave, Inc.*

Terry Grimm - *Niowave. Inc.*

Flow Induced Vibration Analysis and Remediation Using a Cartesian Grid Flow Solver

Technical Paper Publication: ICONE28-64842

Alexander Boschitsch - *Continuum Dynamics, Inc.*

Pavel Danilov - *Continuum Dynamics, Inc.*

Andrew Kaufman - *Continuum Dynamics, Inc.*

Alan Bilanin - *Continuum Dynamics, Inc.*

Exploring Probability of Gas Entrainment With CFD Analysis of the Flow in the MICAS Experimental Facility

Technical Paper Publication: ICONE28-65276

Harshit Bhatia - *Commissariat à l'Énergie Atomique et aux Énergies Alternatives*

Ulrich Bieder - *CEA Saclay*

David Guenadou - *CEA Cadarache*

Yannick Gorsse - *CEA Saclay*

10-01: ADVANCED METHODS OF MANUFACTURING (AMM) FOR NUCLEAR REACTORS AND COMPONENTS SESSION BEGINS AT 1:15PM

Chair: **David Gandi** - EPRI

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

Chair: **Y.A. Hassan** - Professor, Texas A&M

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Yoshinori Katayama** - Toshiba Energy Systems & Solutions Corporation

Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Chair: **Weibao Tang** - Shanghai Electric Nuclear Power Equipment Co., Ltd.

Chair: **Xiaojiang Wang** - China Nuclear Power Engineering Co. Ltd.

Chair: **Tsutomu Koguchi** - Mitsubishi Heavy Industries, Ltd.

Chair: **Junya Kaneda** - Hitachi-Ge Nuclear Energy Ltd.

Investigation on Solidification Behavior of Deposited Metal by GTAW With ERNiCrFe-13 Wire

Technical Paper Publication: ICONE28-63770

Guo Xiao - *Harbin Welding Institute*

Xu Kai - *Harbin Welding Institute*

Lv Xiaochun - *Harbing Welding Institute*

Chen Peiyin - *Harbin Well Welding Co., Ltd.*

Chen Bo - *Harbin Well Welding Co., Ltd.*

Huo Shubin - *Harbin Well Welding Co., Ltd.*

Application of High-Precision Assembly Technology for Large Structures by Laser Beam Welding

Technical Paper Publication: ICONE28-64302

Tomoyuki Nishiyama - *Mitsubishi Heavy Industries, Ltd.*

Takashi Kagawa - *Mitsubishi Heavy Industries, Ltd.*

Shuho Tsubota - *Mitsubishi Heavy Industries, Ltd.*
Masahiro Kimura - *Mitsubishi Heavy Industries, Ltd.*

Additive Manufacturing at Westinghouse Electric

Technical Paper Publication: ICONE28-68543

William Cleary - *Westinghouse Electric Company*
Thomas Pomorski - *Penn United Technologies*
David Huegel - *Westinghouse Electric Company*
Clinton Armstrong - *Westinghouse Electric Company*

12-01 EX-VESSEL PHENOMENA SESSION BEGINS AT 1:15PM

Chair: **Jian Deng** - Nuclear Power Institute of China
Chair: **Ivo Kljenak** - Jozef Stefan Institute

The Experimental Research of Surface Characteristics on CHF for the Downward Facing Surface

Technical Paper Publication: ICONE28-64130

Bo Lin - *CNPRI*
Lei Zhang - *CNPRI*
Dongshan Wei - *CNPRI*
Junying Xu - *CNPRI*
Xiangyu Yun - *CNPRI*
Huiyong Zhang - *CNPRI*

Analysis of the Reflooding Process in Degraded Particle Beds by Simulations of the Debris Test Facility With the Severe Accident Analysis Code ASTEC V2.1 and COCOMO Code

Technical Paper Publication: ICONE28-60964

Jan Peschel - *Ruhr-University Bochum AG PSS*
Christoph Bratfisch - *Ruhr-University Bochum AG PSS*
Marco Koch - *Ruhr-University Bochum AG PSS*

Estimation of Long-Term Ex-Vessel Debris Cooling by Water in Fukushima Daiichi Nuclear Power Plant Unit-3

Technical Paper Publication: ICONE28-64246

Ikken Sato - *Japan Atomic Energy Agency*
Akifumi Yamaji - *Waseda University*
Xin Li - *Waseda University*
Hiroshi Madokoro - *Japan Atomic Energy Agency*

Analyses of Wet and Dry Cavity Strategies for Bwr Severe Accident Management With Melcor-2.2

Technical Paper Publication: ICONE28-63285

Ayato Takashima - *Waseda University*
Akifumi Yamaji - *Waseda University*
Xin Li - *Waseda University*
Daisuke Fujiwara - *TEPCO Systems Corporation*
Hitoshi Shirai - *TEPCO Systems Corporation*
Takumi Nojuu - *TEPCO Systems Corporation*

Preliminary Evaluation on the Relocation Phase of Ex-Vessel Debris of Fukushima Daiichi Nuclear Power Plant Unit-3

Technical Paper Publication: ICONE28-64540

Xin Li - *Waseda University*
Akifumi Yamaji - *Waseda University*
Masahiro Furuya - *Waseda University*
Ikken Sato - *Japan Atomic Energy Agency*
Hiroshi Madokoro - *Japan Atomic Energy Agency*
Yuji Ohishi - *Osaka University*

Characteristics of Debris From Simulated Molten Fuel Coolant Interaction Experiments

Technical Paper Publication: ICONE28-65676

Hemanth Rao Ellapu - *Indira Gandhi Centre for Atomic Energy*
Prabhat Kumar Shukla - *Indira Gandhi Centre for Atomic Research*
Paulson Varghese - *HBNI*
S R Polaki - *Indira Gandhi Centre for Atomic Research*
Vetrivendan E - *Indira Gandhi Centre for Atomic Research*
Sanjay Kumar Das - *Indira Gandhi Centre for Atomic Research*
Ponraju Durairaj - *Indira Gandhi Centre for Atomic Research*
Athmalingam S - *Indira Gandhi Centre for Atomic Research*
Venkatraman B - *Indira Gandhi Centre for Atomic Research*

14-01 STUDENT PAPER COMPETITION SESSION BEGINS AT 1:15PM

Chair: **Shripad Revankar** - Purdue University

Study on Local Sub-Cooling Boiling in the Vertical Upward Pipe

Technical Paper Publication: ICONE28-61374

Mengmeng Liu - *Institute of Nuclear and New Energy Technology*
Zhen Zhang - *Institute of Nuclear and New Energy Technology*
Xingtuan Yang - *Institute of Nuclear and New Energy Technology*

Wall Materials Effects on Sheltered Indoor Doses From an SMR Hypothetical Severe Accident Release

Technical Paper Publication: ICONE28-62097

Yamato Sugitatsu - *Purdue University*
Shripad T. Revankar - *Purdue University*

A 3D Numerical Simulation on Heat Transfer Behavior in Eagle ID1 In-Pile Test Using Finite Volume Particle Method

Technical Paper Publication: ICONE28-61469

Ting Zhang - *Kyushu University*
Koji Morita - *Kyushu University*
Xiaoxing Liu - *Kyushu University*
Wei Liu - *Kyushu University*
Kenji Kamiyama - *Japan Atomic Energy Agency*

Experimental Study on Bubble and Aerosol Behavior During Pool Scrubbing

Technical Paper Publication: ICONE28-61490

Kohei Yoshida - *University of Tsukuba*
Kota Fujiwara - *University of Tsukuba*
Akiko Kaneko - *University of Tsukuba*
Yutaka Abe - *University of Tsukuba*

Preliminary Version of Improved Particle-Flow Model in SIMMER-V for an Alternative Severe Accident Modeling Approach in SFRs

Technical Paper Publication: ICONE28-64152

Csengeri Eszter - *Commissariat à l'Énergie Atomique et aux Énergies Alternatives*
Andrea Bachrata - *Commissariat à l'Énergie atomique et aux Énergies Alternatives*
Laurent Trotignon - *Commissariat à l'Énergie atomique et aux Énergies Alternatives*
Elsa Merle - *Université Grenoble Alpes*

Image Based Bubbly Flow Feature Identification Using Deep Learning

Technical Paper Publication: ICONE28-64155

Takashi Furuhashi - *Hokkaido University*
Takuro Sasaki - *Hokkaido University*
Shuichiro Miwa - *Hokkaido University*

14-10 STUDENT PAPER COMPETITION SESSION BEGINS AT 1:15PM

Chair: **Shuichiro Miwa** - *Hokkaido University*
Chair: **Shripad Revankar** - *Purdue University*

Modeling and Sensitivity Analysis of the Sodium-Water Reaction Accident in Parallel Channels

Technical Paper Publication: ICONE28-64490

Gang Luo - *Xi'an Jiaotong University*
Peiwei Sun - *Xi'an Jiaotong University*
Xi Bai - *Xi'an Jiaotong University*
Huasong Cao - *Xi'an Jiaotong University*
Kai Wang - *Nuclear Power Design and Research Sub-institute, Nuclear Power Institute of China*
Huanjun Zhu - *China Institute of Atomic Energy*

Analysis of IP200 Severe Accident Process Response to SBO and Emergency Power Failure

Technical Paper Publication: ICONE28-64541

ZhenHang Zheng - *Harbin Engineering University*

Minjun Peng - *Harbin Engineering University*

Hao Yu - *Harbin Engineering University*

Yang Yang - *Harbin Engineering University*

Study on Buckling Strength and Post Buckling Behaviors of Reactor Vessel Lower Heads

Technical Paper Publication: ICONE28-65553

Masato Murohara - *The University of Tokyo*

Takuya Sato - *The University of Tokyo*

Naoto Kasahara - *The University of Tokyo*

Akira Yamazaki - *The University of Tokyo*

Thermal Impact on Geological Disposal of Mixed UO2-Mox Vitrified Waste Associated With MOX Reprocessing

Technical Presentation Only: ICONE28-65722

Eriko Minari - *Tokyo Institute of Technology*

Tomohiro Okamura - *Tokyo Institute of Technology*

Masahiko Nakase - *Tokyo Institute of Technology*

Hidekazu Asano - *Radioactive Waste Management Funding and Research Center*

Kenji Takeshita - *Tokyo Institute of Technology*

Swift-Rimpuff Modeling of Air Dispersion at a Nuclear Powerplant Site With Heterogeneous Upwind Topography

Technical Paper Publication: ICONE28-64608

Xinwen Dong - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Sheng Fang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Shuhan Zhuang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

An Original Distributed Simulation Method Applied to the Advanced Nuclear Power Plant Control Technology Hardware-in-the-Loop Simulation Verification Platform

Technical Paper Publication: ICONE28-64464

Bowen Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Zhe Dong - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Di Jiang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

01-02: OPERATING PLANT EXPERIENCE - 2 SESSION BEGINS AT 3:00PM

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

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

Chair: **Wajih Hamouda** - Ontario Power Generation

Chair: **Hong Pyo Kim** - KAERI

Chair: **Yukinori Hirose** - Toshiba Energy Systems & Solutions Corporation

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Chair: **Arnold Gad-Briggs** - EGB Engineering and Cranfield University

Chair: **Fuping Fan** - Sanmen Nuclear Power Co., Ltd.

Chair: **Tunfeng QI** - WANO Shanghai Office

A Sodium-Cooled Fast Reactor Simulation System and its Application in Teaching Research Based on VPOWER Platform

Technical Paper Publication: ICONE28-64364

Chengzhi Ji - *Tsinghua University*

Biheng Xie - *Tsinghua University*

Xiaoyu Guo - *Tsinghua University*

Wenbin Han - *Tsinghua University*

Yisheng Hao - *Tsinghua University*

Junyi Chen - *Tsinghua University*

Shanfang Huang - *Tsinghua University*

Kan Wang - *Tsinghua University*

Hongbin Wei - *Tsinghua University*

Yanming Liang - *Beijing Neoswise Science & Technology Co. Ltd.*

Experimental Study on Performance Improvement of HTR-10 Helium Purification System

Technical Paper Publication: ICONE28-64681

Fangfang Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Liqiang Wei - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Tianyu Kang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Chuangguo Hu - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Feng Xie - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Xiaoming Chen - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Lei Shi - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Automated Eddy Current Array Sensor Delivery Tool for Nondestructive Examination of Spent Fuel Pool Liner

Technical Paper Publication: ICONE28-65628

Michael Smith - *University of North Carolina at Charlotte*

Emily Abbate - *University of North Carolina at Charlotte*

Joey Phillips - *University of North Carolina at Charlotte*

Byungsik Yoon - *Electric Power Research Institute*

Occupational Radiation Exposures ALARA Reduction Through Fast Purging of Hydrogen Cooled Generators for Boiling Water Nuclear Reactors

Technical Presentation Only: ICONE28-76369

Ted Warren - *Lectrodryer*

Keith Quick - *Southern Nuclear*

02-02/05-04: SAFETY SYSTEMS AND ANALYSES/ NUCLEAR FUELS, RESEARCH, AND FUEL CYCLE SESSION BEGINS AT 3:00PM

Chair: **Brian Fant** - *Bechtel*

Chair: **Leon Cizelj** - *Jozef Stefan Institute*

Improvement of Transverse Leakage Term Based on Fourier Series Expansion in the 2D/1D Method

Technical Paper Publication: ICONE28-64612

Kaijie Zhu - *Tsinghua University*

Boran Kong - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Han Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Jiong Guo - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Fu Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Jie Hou - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Recent Activities and New Challenges for the EUR Organization

Technical Paper Publication: ICONE28-64617

Vincent Sorel - *EDF*

Affect Analysis of Surface Liquid Film Coverage on the Safety Performance of Containment

Technical Paper Publication: ICONE28-64278

Xingwei Shi - *Nuclear and Radiation Safety Center*

Xinfang Cui - *Beijing System Design Institutes of Electro-Mechanic Engineering*

Shaoxin Zhuang - *Nuclear and Radiation Safety Center*

Wei Song - *Nuclear and Radiation Safety Center*

Jiaxu Zuo - *Nuclear and Radiation Safety Center*

Study on the Applicability of Typical Valve Failure Data to Non-Reactor Nuclear Fuel Cycle Facilities

Technical Paper Publication: ICONE28-63354

Dan Lyu - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Xiao-Wei Yang - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Yan Lu - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Shi-Jun Wang - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Chun-Yan Xu - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Machine Learned Metamodeling of a Computationally Intensive Accident Simulation Code

Technical Paper Publication: ICONE28-66619

Jun Liao - *Westinghouse Electric Company LLC*

Clarence Worrell - *Westinghouse Electric Company*

James Spring - *Westinghouse Electric Company*

Landon Conner - *Purdue University*

07-02: THERMAL-HYDRAULICS EXPERIMENTAL STUDIES - II
SESSION BEGINS AT 3:00PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Quantitative Measurements of Bubbles and Foam Flow Generated From Two-Phase Subcooled Flow Boiling of Seawater in a Vertical Annulus

Technical Paper Publication: ICONE28-64748

Yuanjie Li - *City University of Hong Kong*

Chin Pan - *City University of Hong Kong*

Syed Waqar Ali Shah - *City University of Hong Kong*

Experimental and Numerical Investigation on Debris Bed Quenching With Additional Injection of Non-Condensable Gas

Technical Paper Publication: ICONE28-65512

Markus Petroff - *University of Stuttgart*

Rudi Kulenovic - *University of Stuttgart*

Jörg Starflinger - *University of Stuttgart*

Experimental Study on the Critical Heat Flux of the Zirconium Alloy Microstructure Surface Fabricated by Ultraviolet Laser

Technical Paper Publication: ICONE28-65752

Quan-yao Ren - *NPIC*

Haoyu Wang - *NPIC*

Fawen Zhu - *NPIC*

Yuanming Li - *NPIC*

Lin Zhang - *NPIC*

Zengping Pu - *NPIC*

Pan Yuan - *NPIC*

Renjie Ran - *NPIC*

Chunlan Huang - *NPIC*

Quan Li - *NPIC*

Xiaoliang Wang - *Harbin Institute of Technology*

Yongda Liu - *Harbin Institute of Technology*

Jie Xu - *Harbin Institute of Technology*

UHT Test Facility Updates and Oxidation Tests for Accident Tolerant_x000B_Fuel Development

Technical Paper Publication: ICONE28-66592

Guoqiang Wang - *Westinghouse Electric Co.*

William A. Byers - *Westinghouse Electric Company LLC*

A New Insight Into Molten Corium Concrete Interaction With Concrete Ablation Analysis for Mitigation Scheme

Technical Paper Publication: ICONE28-65217

Ilyas Khurshid - *Khalifa University of Science and Technology*

Amidu Alade - *Khalifa University of Science and Technology*

Yacine Addad - *Khalifa University of Science and Technology*

Imran Afghan - *Khalifa University of Science and Technology*

08-02: NUMERICAL SIMULATION AND ANALYSES SESSION BEGINS AT 3:00PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Three-Dimensional Numerical Simulation on Transient Natural Circulation Device Characteristics of DRACS in PLANDTL-DHX Experimental Device

Technical Paper Publication: ICONE28-64515

Zijia Chen - *North China Electric Power University*
Daogang Lu - *North China Electric Power University*
Yuhao Zhang - *North China Electric Power University*
Jinsong Guo - *North China Electric Power University*

Numerical Simulation of Added Mass in Narrow Gaps of Multi-Layer Thin-Walled Shell of Fast Reactor

Technical Paper Publication: ICONE28-64644

Duan Dexuan - *North China Electric Power University*
Daogang Lu - *North China Electric Power University*
Yu Liu - *North China Electric Power University*
Donghao Li - *North China Electric Power University*

Numerical Analysis of Pressurized Thermal Shock in Reactor Pressure Vessel

Technical Paper Publication: ICONE28-64737

Yubin Zhang - *China Nuclear Power Research Institute Ltd.*

Numerical Simulation of Bubble Shape and Departure in Nucleate Pool Boiling at High Superheat

Technical Paper Publication: ICONE28-64740

Swapan Paruya - *National Institute of Technology Durgapur*
Jyoti Bhati - *National Institute of Technology Durgapur*
Farheen Akhtar - *National Institute of Technology Durgapur*

Numerical Simulation of Thermo-Hydraulic Characteristics of 7-Pin Sodium Fast Reactor Test Fuel Bundle With Variable-Pitch Helical Wire

Technical Paper Publication: ICONE28-64755

Siyuan Li - *China Institute of Atomic Energy*
Aimin Zhang - *China Institute of Atomic Energy*
Songtao Ji - *China Institute of Atomic Energy*
Yanlin Li - *Tsinghua University*

Analysis of Particle Transfer Behavior in Fuel Rod Bundles Using CFD Lagrangian Particle Tracking Method

Technical Paper Publication: ICONE28-66793

Yiban Xu - *Westinghouse Electric Company, LLC*
Michael A. Krammen - *Westinghouse Electric Company LLC*
Guoqiang Wang - *Westinghouse Electric Company LLC*
Jesse S. Fisher - *Westinghouse Electric Company LLC*
Zeses Karoutas - *Westinghouse Electric Company LLC*

12-02 CONTAINMENT ISSUES SESSION BEGINS AT 3:00PM

Chair: **Tadashi Watanabe** - University of Fukui
Chair: **Ivo Kljenak** - Jozef Stefan Institute

Study on Potential Leakage and Electrical Performance for Electrical Penetration Assemblies Under Severe Accident Conditions

Technical Paper Publication: ICONE28-64368

Yu Liu - *China Nuclear Power Engineering*
Jing Liu - *China Nuclear Power Engineering*
Cong Wang - *China Nuclear Power Engineering*
Heng Gao - *China Nuclear Power Engineering*

14-02 STUDENT PAPER COMPETITION SESSION BEGINS AT 3:00PM

Chair: **Shripad Revankar** - Purdue University

Experimental Study on Heat Transfer Characteristics of Water Injection on Molten Pool With Low Mass Fraction of Zirconium

Technical Paper Publication: ICONE28-62115

Zongyang LI - *Tsinghua University*
Huajian Chang - *Tsinghua University & State Power Investment Corporation Research Institute*
Fangfang Fang - *State Power Investment Corporation Research Institute*
Kun Han - *State Power Investment Corporation Research Institute*
Botao Hao - *State Power Investment Corporation Research Institute*
Lian Chen - *State Power Investment Corporation Research Institute*

Technical Sessions

Research on Eccentricity Performance of Capacitance Rod Position Measurement Sensor for Measuring Non-Metallic Rod

Technical Paper Publication: ICONE28-62370

Yanlin Li - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Benke Qin - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Hanliang Bo - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Effect of Annealing Temperature on Dislocation Loop Absorption and Evolution in Fe by Molecular Dynamics Study

Technical Paper Publication: ICONE28-62550

Pandong Lin - *Institute of Nuclear and New Energy Technology*

Junfeng Nie - *Institute of Nuclear and New Energy Technology*

Meidan Liu - *Institute of Nuclear and New Energy Technology*

Study on Heat Transfer Coefficient of Supercritical Water Based on Factorial Analysis

Technical Paper Publication: ICONE28-63216

Peng Xu - *North China Electric Power University*

Tao Zhou - *Southeast University*

Ning Chen - *North China Electric Power University*

Juan Chen - *North China Electric Power University*

Zhongguang Fu - *North China Electric Power University*

Simulation Research of Combustion Characteristics of Mixed Sodium Fire in a Columnar Flow

Technical Paper Publication: ICONE28-63298

Yaolong Ma - *Harbin Engineering University*

Zhigang Zhang - *Harbin Engineering University*

Qi Wu - *Harbin Engineering University*

Fang Wang - *Harbin Engineering University*

14-11 STUDENT PAPER COMPETITION SESSION BEGINS AT 3:00PM

Chair: **Suyuan Yu** - INET, Tsinghua University

Chair: **Shripad Revankar** - Purdue University

Simulation Analysis and Optimization of Lubricating Oil System

Technical Paper Publication: ICONE28-64547

Qiongxiao Wu - *Harbin Engineering University*

Jianjun Wang - *Harbin Engineering University*

Jingming Chen - *Wuhan Second Ship Design and Research Institute*

Pengzheng Li - *Wuhan Second Ship Design and Research Institute*

Research on the Air-Water Flow Regime and Characteristics in Rectangular Channel

Technical Paper Publication: ICONE28-66238

Qingche He - *Chongqing University*

Wangtao Xu - *Chongqing University*

Meiyue Yan - *Chongqing University*

Luteng Zhang - *Chongqing University*

Liangming Pan - *Chongqing University*

Mixing Process of Two Component Gases by Natural Convection and Molecular Diffusion

Technical Paper Publication: ICONE28-64553

Takeaki Ube - *University of Yamanashi*

Tetsuaki Takeda - *University of Yamanashi*

High Flux Reactor Review and Reactivity Control Analysis

Technical Paper Publication: ICONE28-64723

Lin Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Wei Xu - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Fei Xie - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Effects of Non-Condensable Gas on Characteristics of Natural Circulation Flow of Isolation Condenser

Technical Paper Publication: ICONE28-64595

Tetsuya Takada - *Hokkaido University*

Yasunori Yamamoto - *Hokkaido University*

Kosuke Ono - *Hokkaido University*

14-18 STUDENT PAPER COMPETITION SESSION BEGINS AT 3:00PM

Chair: **Satoshi Takeda** - Osaka University

Chair: **Shripad Revankar** - Purdue University

Experimental Study on the Flow Characteristics of Rod Bundle Under Rolling Motion

Technical Paper Publication: ICONE28-65590

Xin Li - *Harbin Engineering University*

Sichao Tan - *Harbin Engineering University*

Chao Qi - *Harbin Engineering University*

Peiyao Qi - *Harbin Engineering University*

Shouxu Qiao - *Harbin Engineering University*

Nonlinear Low Bias Current Control for Magnetic Bearing System Using Active Disturbance Rejection Technology

Technical Paper Publication: ICONE28-65730

Yichen Yao - *Tsinghua University*

Yixin Su - *Tsinghua University*

Suyuan Yu - *Tsinghua University*

Optimization of Maintenance Strategy for Sea Water Pumps in Nuclear Plants

Technical Paper Publication: ICONE28-65720

Ling Zhao - *Nuclear Power Operations Research Institute*

Deyi Liu - *CNNP Nuclear Power Operations Management Co., Ltd.*

Ming Zhao - *CNNP Nuclear Power Operations Management Co., Ltd.*

The Effect of Flow Channel Geometry on Thermomechanical Performance of Printed Circuit Heat Exchanger (PCHE)

Technical Paper Publication: ICONE28-65609

Witiwat Jiragoontansiri - *King Mongkut's University of Technology Thonburi*

Teerapat Woravisuttsarakul - *King Mongkut's University of Technology Thonburi*

Rinrada Sae-Pueng - *King Mongkut's University of Technology Thonburi*

Yanin Sukjai - *King Mongkut's University of Technology Thonburi*

Koroush Shirvan - *Massachusetts Institute of Technology*

THURSDAY, AUGUST 5

02-03: PROPERTIES AND DEGRADATION OF MATERIALS SESSION BEGINS AT 12:45PM

Chair: **Damien Feron** - CEA

Chair: **Leon Cizelj** - Jozef Stefan Institute

Study on Dehumidification of Carbon Materials Based on Thermogravimetry

Technical Paper Publication: ICONE28-63633

Da Yan - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Kaiyue Shen - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Yicheng Guo - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Huaqiang Yin - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Tao Ma - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Xuedong He - *Tsinghua University*

Oxidation Behaviors of the High Temperature Alloys in the Impure Helium and Argon

Technical Paper Publication: ICONE28-63659

Wei Zheng - *Tsinghua University*

Haoxiang Li - *Tsinghua University*

Qiuhao Wang - *Tsinghua University*

Huaqiang Yin - *Tsinghua University*

Xuedong He - *Tsinghua University*

Hua Fan - *Tsinghua University*

Tao Ma - *Tsinghua University*

Corrosion Behavior of Superalloys in High Temperature Gas Cooled Reactor in Impure Helium with Corrosion Time

Technical Paper Publication: ICONE28-64351

Haoxiang Li - *Tsinghua University*

Bin Du - *Tsinghua University*

Wei Zheng - *Tsinghua University*

Qiuhao Wang - *Tsinghua University*
Huaqiang Yin - *Tsinghua University*
Xuedong He - *Tsinghua University*
Hua Fan - *Tsinghua University*
Tao Ma - *Tsinghua University*

Cause Analysis and Influence Evaluation of Cracks in Thick Slab Construction

Technical Paper Publication: ICONE28-64548

Yi Guixiang - *Central Research Institute of Building and Construction Co., Ltd. MCC*
Li Liang - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Comparative Study on Thermal Stress Analysis and Fatigue Curve in Stress and Fatigue Calculation of Nuclear Equipment

Technical Paper Publication: ICONE28-64784

Xuejiao Shao - *Nuclear Power Institute of China*
Hai Xie - *Nuclear Power Institute of China*
Liping Zhang - *Nuclear Power Institute of China*
Yixiong Zhang - *Nuclear Power Institute of China*
Xiaolong Fu - *Nuclear Power Institute of China*
Xue Mi - *Nuclear Power Institute of China*
Hui Li - *Nuclear Power Institute of China*

Evaluations of TiO2 Deposition on Structure Surfaces and Water Radiolysis for the Corrosive Environment in a Reactor Pressure Vessel

Technical Paper Publication: ICONE28-64931

Takashi Mawatari - *Toshiba Energy Systems & Solutions Corporation*
Yasushi Yamamoto - *Toshiba Energy Systems & Solutions Corporation*
Osamu Shibasaki - *Toshiba Energy Systems & Solutions Corporation*
Takahiro Hara - *Toshiba Energy Systems & Solutions Corporation*
Yusuke Horayama - *Toshiba Energy Systems & Solutions Corporation*
Junichi Takagi - *Toshiba Energy Systems & Solutions Corporation*

03-01: ADVANCED REACTORS AND FUSION SESSION BEGINS AT 12:45PM

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting
Chair: **Jovica Riznic** - Canadian Nuclear Safety Commission
Chair: **Glenn Harvel** - University of Ontario Institute of Technology
Chair: **Asif Arastu** - Unisont Engineering, Inc.
Chair: **Mohamed El-Genk** - University of New Mexico
Chair: **Rosa Lo Frano** - Dimnp - University of Pisa
Chair: **Dmitry Paramonov** - JSC Atomenergoproekt
Chair: **Ivan Otic** - Karlsruhe Institut of Technology
Chair: **Takeshi Yamada** - Hitachi-GE Nuclear Energy, Ltd.
Chair: **Tomohiko Ikegawa** - Hitachi
Chair: **Hideki Horie** - Toshiba Corp.
Chair: **Hiroshige Kikura** - N/A
Chair: **Hideharu Takahashi** - N/A
Chair: **Fu Li** - Tsinghua University
Chair: **Grant Hawkes** - Idaho National Laboratory
Chair: **Wulyu Zhong** - Southwestern Institute of Physics
Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Alternative Absorber Materials for Control Rods in ALFRED

Technical Paper Publication: ICONE28-61123

Hui Guo - *Shanghai Jiao Tong University*
Xin Jin - *Shanghai Jiao Tong University*
Kuaiyuan Feng - *Shanghai Jiao Tong University*
Hanyang Gu - *Shanghai Jiao Tong University*

Corrosion Behavior of Iron-Chrome Alloys in Liquid Bismuth

Technical Paper Publication: ICONE28-63277

Toshihide Takai - *Japan Atomic Energy Agency*
Tomohiro Furukawa - *Japan Atomic Energy Agency*
Shigeki Watanabe - *National Institutes for Quantum and Radiological Science and Technology*
Noriko Ishioka - *National Institutes for Quantum and Radiological Science and Technology*

Numerical Investigation of Safety System Parameters in Molten Salt Reactor: Wall Effect on Freeze Valve Opening Time

Technical Paper Publication: ICONE28-64134

Muhammad Ilham - *The University of Electro-Communications*

Indarta Kuncoro Aji - *Kyushu University*

Okawa Tomio - *The University of Electro-Communications*

A Preliminary Study on Neutronic Performance of the Spallation Target With the Proton Beam Variation

Technical Paper Publication: ICONE28-64388

Junjie Zhou - *South China University of Technology*

Qin Zeng - *South China University of Technology*

Jinchen Yang - *South China University of Technology*

Yi Yang - *South China University of Technology*

Ying Shi - *South China University of Technology*

Yanyi Jiang - *South China University of Technology*

Sensitivity Analysis of Power Related Parameters in a Reactivity-Initiated Accident of a Molten Salt Reactor

Technical Paper Publication: ICONE28-64430

Chaoqun Wang - *Shanghai Institute of Applied Physics, Chinese Academy of Sciences*

Qun Yang - *Shanghai Institute of Applied Physics, Chinese Academy of Sciences*

Kai Wang - *Shanghai Institute of Applied Physics, Chinese Academy of Sciences*

Xiaowei Jiao - *Shanghai Institute of Applied Physics, Chinese Academy of Sciences*

Zhaozhong He - *Shanghai Institute of Applied Physics, Chinese Academy of Sciences*

04-01: MICRO REACTOR DESIGN ASPECTS SESSION BEGINS AT 12:45PM

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

Study on the Small Pressurized Water Reactor Based on Fully Ceramic Microencapsulated Fuel

Technical Paper Publication: ICONE28-63314

Jinfeng Huang - *East China University of Science and Technology*

Preliminary Core Design of the Solid Moderator Reactor for Investigation of the In-Depth Europa Ice Layer

Technical Paper Publication: ICONE28-64261

Shuta Fukizaki - *Waseda University*

Akifumi Yamaji - *Waseda University*

Takanari Fukuda - *Waseda University*

Westinghouse eVinci Heat Pipe Micro Reactor Technology Development

Technical Paper Publication: ICONE28-67519

Matt Swartz - *Westinghouse Electric Co.*

William Byers - *Westinghouse Electric Co.*

Rory Blunt - *Westinghouse Electric Co.*

John Lojek - *Westinghouse Electric Co.*

07-03: NUMERICAL EVALUATION AND ANALYSIS SESSION BEGINS AT 12:45PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Numerical Evaluation of Sodium-Water Reaction Based on Engineering Approach With Particle Method

Technical Paper Publication: ICONE28-61345

Wataru Kosaka - *Japan Atomic Energy Agency*

Akihiro Uchibori - *Japan Atomic Energy Agency*

Hideki Yanagisawa - *NESI Corporation*

Takashi Takata - *Japan Atomic Energy Agency*

Sunghyon Jang - *The University of Tokyo*

Numerical Simulation of Vortex Shedding Downstream of a Thermoacoustic Engine Stack

Technical Paper Publication: ICONE28-63381

Bowen Qiao - *Chiba University*

Shota Yamada - *Chiba University*

Gaku Tanaka - *Chiba University*

Application of High Accuracy Numerical Methods for the Natural Circulation Problem

Technical Paper Publication: ICONE28-64367

Fei Chao - *Wuhan Second Ship Design and Research Institute*
Longze Li - *Wuhan Second Ship Design and Research Institute*
Wen Yang - *Wuhan Second Ship Design and Research Institute*
Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*
Yun Tai - *Wuhan Second Ship Design and Research Institute*
Jianqiang Shan - *Xi'an Jiaotong University*

Numerical Analysis on the Thermal-Hydraulic Characteristics for the Reactor Main Vessel Cooling System of Chinese Sodium Cooled Fast Reactor

Technical Paper Publication: ICONE28-64293

Ping Song - *Wuhan Second Ship Design and Research Institute*
Tangtao Feng - *Wuhan Second Ship Design and Research Institute*
Dalin Zhang - *Xi'an Jiaotong University*
Lie Chen - *Wuhan Second Ship Design and Research Institute*
Shaodan Li - *Wuhan Second Ship Design and Research Institute*
Yuansheng Lin - *Wuhan Second Ship Design and Research Institute*
Suizheng Qiu - *Xi'an Jiaotong University*

A Numerical Study of Supersonic Film Cooling With Discrete Holes

Technical Paper Publication: ICONE28-64607

Hang Ni - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Wei Peng - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Jie Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Yinhai Zhu - *Tsinghua University*
Peixue Jiang - *Tsinghua University*

Numerical Calculations of the Effective Thermal Conductivity of the Dispersion Fuel Sphere With the Internal Heat Sources

Technical Paper Publication: ICONE28-65191

Ziping Liu - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Jun Sun - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Han Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Yu Ji - *Institute of Nuclear and New Energy Technology, Tsinghua University*

11-01 DECONTAMINATION AND DECOMMISSIONING SESSION BEGINS AT 12:45PM

Chair: **Anthony Hechanova** - Abu Dhabi Polytechnic

Scenario Developing for Nuclear Emergency Decision Deduction Training Platform for Radiographers in Development Countries (Case Study, Ghana)

Technical Paper Publication: ICONE28-60369

Priscilla Oforiwaa - *Tsinghua University*
Manchun Liang - *Tsinghua University*
Guofeng Su - *Tsinghua University*
Ke Li - *Tsinghua University*
Chao Zhang - *Tsinghua University*

Radiation Dose Evaluation of Typical Design Basis Accident for Advanced PWR in China

Technical Paper Publication: ICONE28-61090

Haiying Chen - *Nuclear and Radiation Safety Center*
Shaowei Wang - *Nuclear and Radiation Safety Center*
Xinlu Tian - *Nuclear and Radiation Safety Center*
Fudong Liu - *Nuclear and Radiation Safety Center*

Features of a BWR Neutron Absorber Melt Relocation in an Oxidative Environment During the Clads-Made-02 Test

Technical Paper Publication: ICONE28-65129

Anton Pshenichnikov - *Japan Atomic Energy Agency*
Yuji Nagae - *Japan Atomic Energy Agency*
Masaki Kurata - *Japan Atomic Energy Agency*

Study of Penetration Behavior of Cs Into Concrete - Investigation of Permeation Behavior Using Neutron Activation Analysis for Construction of Cs Permeation Simulation Method

Technical Presentation Only: ICONE28-64566

Kai Yoneyama - *Tokyo City University*
Isamu Sato - *Tokyo City University*
Shuhei Miwa - *Japan Atomic Energy Agency*
Eriko Suzuki - *Japan Atomic Energy Agency*
Noriaki Furuya - *Tokyo City University*

Development of Real-Time Simulation Technology for Robots With Flexible Arms Based on Three-Dimensional Computer Graphics Methods

Technical Presentation Only: ICONE28-60410

Katsuhiko Hirano - *Hitachi-GE Nuclear Energy, Ltd.*
Katsunori Ueno - *Hitachi-GE Nuclear Energy, Ltd.*
Hiroshi Seki - *Hitachi, Ltd.*

12-03 SEVERE ACCIDENT SCENARIOS SESSION BEGINS AT 12:45PM

Chair: **Tadashi Watanabe** - University of Fukui
Chair: **Asif Arastu** - Unisont Engineering, Inc.
Chair: **Clayton Smith** - Smith Associates Consulting Group LLC
Chair: **Ivo Kljenak** - Jozef Stefan Institute
Chair: **Alexei Miassoedov** - IAEA
Chair: **Pavel Kudinov** - Royal Institute of Technology (KTH)
Chair: **Masahiro Ishigaki** - University of Fukui
Chair: **Chiaki Kino** - Japan Atomic Energy Agency
Chair: **Peng Chen** - China General Nuclear Power Corporation
Chair: **Yidan Yuan** - China Nuclear Power Engineering
Chair: **Jian Deng** - Nuclear Power Institute of China

Analysis of IPWR Severe Accident Process Response to SBLOCA

Technical Paper Publication: ICONE28-64417

Hao Yu - *Harbin Engineering University*
Minjun Peng - *Harbin Engineering University*

Hydrodynamic Analysis of Steam Generator Under LOCA Conditions

Technical Paper Publication: ICONE28-64709

Xiaoqiang He - *Harbin Engineering University*
Puzhen Gao - *Harbin Engineering University*
Weichao Yuan - *Harbin Engineering University*

Severe Accident Analysis of a Floating Nuclear Power Plant After Station Black Out Accident

Technical Paper Publication: ICONE28-64611

Longze Li - *Wuhan Second Ship Design and Research Institute*
Fei Chao - *Wuhan Second Ship Design and Research Institute*
Wen Yang - *Wuhan Second Ship Design and Research Institute*
Yun Tai - *Wuhan Second Ship Design and Research Institute*
Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*
Jue Wang - *Wuhan Second Ship Design and Research Institute*
Chuan He - *Wuhan Second Ship Design and Research Institute*
Xiaofan Hou - *Wuhan Second Ship Design and Research Institute*

Loss of Main Feedwater ATWS Accident Analysis for Ship Nuclear Power Platform

Technical Paper Publication: ICONE28-65078

Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*
Feifei Song - *Wuhan Second Ship Design and Research Institute*
Longze Li - *Wuhan Second Ship Design and Research Institute*
Fei Chao - *Wuhan Second Ship Design and Research Institute*
Xiaofan Hou - *Wuhan Second Ship Design and Research Institute*

14-03 STUDENT PAPER COMPETITION SESSION BEGINS AT 12:45PM

Chair: **Jovica Riznic** - Canadian Nuclear Safety Commission
Chair: **Shripad Revankar** - Purdue University

Nanoindentation Test of F321 Austenitic Stainless Steel Under Fe-Ion Irradiation

Technical Paper Publication: ICONE28-63353

Meidan Liu - *Institute of Nuclear and New Energy Technology*
Pandong Lin - *Institute of Nuclear and New Energy Technology*
Junfeng Nie - *Institute of Nuclear and New Energy Technology*

Effective Solid Angle Model and Monte Carlo Method: Improved Estimations to Measure Cosmic Muon Intensity at Sea Level in All Zenith Angles

Technical Paper Publication: ICONE28-63444

Junghyun Bae - *Purdue University*
Stylianos Chatzidakis - *Purdue University*
Robert Bean - *Purdue University*

Experimental Study on Measurement of Annular Flow Film Thickness in Vertical Narrow Rectangular Channel

Technical Paper Publication: ICONE28-63469

Antai Liu - *Harbin Engineering University*
Haifeng Gu - *Harbin Engineering University*
Fuqiang Zhu - *Harbin Engineering University*
Changqi Yan - *Harbin Engineering University*

Grey Correlation Study on Natural Circulation Heat Transfer Coefficient of Liquid Metal

Technical Paper Publication: ICONE28-63561

Ning Chen - *North China Electric Power University*
Tao Zhou - *Southeast University*
Lanyu Zhou - *China Nuclear Power Engineering Co., Ltd.*
Tian Qi - *North China Electric Power University*
Juan Chen - *North China Electric Power University*
Xiang Feng - *North China Electric Power University*

Study on Flow and Heat Transfer of Liquid Gallium,

Technical Paper Publication:ICONE28-63480

Shang Mao - *Southeast University*
Tao Zhou - *Southeast University*

02-04: PLANT CONSTRUCTION, EQUIPMENT, AND OPERATION SESSION BEGINS AT 2:30PM

Chair: **Leon Cizelj** - Jozef Stefan Institute

Application for 3D Laser Scanning During Construction Stage of Nuclear Power Project

Technical Paper Publication: ICONE28-63294

He Weiting - *CNPDC*
Weifeng Jiang - *CNPDC*
Yikun Zhou - *CNPDC*

Application of Combining 3D Model and Survey on Site to Simulate Dome Lifting

Technical Paper Publication: ICONE28-65502

He Weiting - *CNPDC*
Yuanxia Zhou - *CNPDC*
Jie Yang - *CNPDC*

Simulation for Predicting Condition of Plant Equipment

Technical Paper Publication: ICONE28-64527

Shoichi Kashiwase - *Toshiba Energy Systems & Solutions Co.*
Kenji Osaki - *Toshiba Energy Systems & Solutions Co.*
Makoto Hatakeyama - *Toshiba Energy Systems & Solutions Co.*
Tomokazu Kaneko - *Toshiba Energy Systems & Solutions Co.*

03-02 ADV REACTORS AND FUSION SESSION BEGINS AT 2:30PM

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

Numerical Study on Multiscale Heat Conduction Problems in Very High Temperature Reactor Fuel Pebble Based on Openfoam

Technical Paper Publication: ICONE28-64416

Jincheng Wang - *Harbin Engineering University*
Ming Ding - *Harbin Engineering University*

Arkadia: For the Innovation of Advanced Nuclear Reactor Design

Technical Paper Publication: ICONE28-64525

Hiroyuki Ohshima - *Japan Atomic Energy Agency*
Tai Asayama - *Japan Atomic Energy Agency*
Tomohiro Furukawa - *Japan Atomic Energy Agency*
Masaaki Tanaka - *Japan Atomic Energy Agency*
Takashi Takata - *Japan Atomic Energy Agency*
Yasuhiro Enuma - *Japan Atomic Energy Agency*

Activities of the GIF Safety and Operation Project of Sodium-Cooled Fast Reactor Systems

Technical Paper Publication: ICONE28-66385

Hidemasa Yamano - *Japan Atomic Energy Agency*

Marie-Sophie Chenaud - *Commissariat à l'Énergie Atomique et aux Énergies*

Seok-Hun Kang - *Korea Atomic Energy Research Institute*

Tyler Sumner - *Argonne National Laboratory*

Haileyesus Tsige-Tamirat - *European Commission Joint Research Centre*

Jin Wang - *China Institute of Atomic Energy*

Evegeny Rozhikhin - *Institute for Physics and Power Engineering*

Conceptual Study of Neutron Physics of Nuclear Fuel Cycle for Ceramic Fast Reactor

Technical Paper Publication: ICONE28-65406

Xuesong Yan - *Institute of Modern Physics, Chinese Academy of Sciences*

Yaling Zhang - *Institute of Modern Physics, Chinese Academy of Sciences*

Yucui Gao - *Institute of Modern Physics, Chinese Academy of Sciences*

04-02: SMRS AND MICRO REACTOR DESIGNS SESSION BEGINS AT 2:30PM

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

Design Study of SMR Class Super FR Core for In-Vessel Retention

Technical Paper Publication: ICONE28-64162

Ryotaro Sasaki - *Waseda University*

Akifumi Yamaji - *Waseda University*

Kyota Uchimura - *Waseda University*

A Sodium-Cooled Thermal-Spectrum Fission Battery

Technical Paper Publication: ICONE28-65765

Patrick McDaniel - *University of New Mexico*

Charles Forsberg - *Massachusetts Institute of Technology*

Neutron Physics Characterization and Optimization Analysis of the ACPR100 Small Modular Reactor

Technical Paper Publication: ICONE28-65689

Songyang Liu - *Harbin Engineering University*

Xiang Wang - *Harbin Engineering University*

Flux Rate Calculation and Analysis of the Integrated Small Pressurized Water Reactor Based on Monte Carlo Method

Technical Paper Publication: ICONE28-64448

Wen Yang - *Wuhan Second Ship Design and Research Institute*

Fei Chao - *Wuhan Second Ship Design and Research Institute*

Yun Tai - *Wuhan Second Ship Design and Research Institute*

Longze Li - *Wuhan Second Ship Design and Research Institute*

Conceptual Design and Evaluation of Residual Heat Removal System for Small Lead-Bismuth Fast Reactor

Technical Paper Publication: ICONE28-64466

Shijia Xu - *Chongqing University*

Qinglong Wen - *Chongqing University*

Shenhui Ruan - *Chongqing University*

Ningning Zhao - *Chongqing University*

Yukang Liu - *Chongqing University*

05-01 FUEL MANUFACTURING TECHNOLOGIES SESSION BEGINS AT 2:30PM

Chair: **Paul K. Chan** - Royal Military College of Canada

Chair: **Daisuke Sato** - MHI

Research on Application of Additive Manufacturing Technology In_x000B_Nuclear Fuel Assembly Field

Technical Paper Publication: ICONE28-65776

Hua Li - *Nuclear Power Institute of China*

Ti Yue - *Nuclear Power Institute of China*

Fawen Zhu - *Nuclear Power Institute of China*

Yuan Peng - *Nuclear Power Institute of China*

Yun Li - *Nuclear Power Institute of China*

Chunlan Huang - *Nuclear Power Institute of China*

Youjia Zhang - *Nuclear Power Institute of China*

A Statistical Approach for Modeling the Effect of Hot Press Conditions on the Mechanical Strength Properties of HTGR Fuel Elements

Technical Paper Publication: ICONE28-64507

Jun Aihara - *Japan Atomic Energy Agency*
Masatoshi Kuroda - *Kumamoto University*
Yukio Tachibana - *Japan Atomic Energy Agency*

Manufacturability Estimation on Burnable Poison Mixed Fuel for Improving Criticality Safety of HTGR Fuel Fabrication

Technical Paper Publication: ICONE28-61763

Toshinari Hasegawa - *Japan Atomic Energy Agency*
Yuji Fukaya - *Japan Atomic Energy Agency*
Shohei Ueta - *Japan Atomic Energy Agency*
Minoru Goto - *Japan Atomic Energy Agency*

Development of Cesium Trap Material for Coated Fuel Particles in High Temperature Gas-Cooled Reactors

Technical Paper Publication: ICONE28-61765

Koei Sasaki - *Japan Atomic Energy Agency*
Shuichiro Miura - *University of Fukui*
Ken-Ichi Fukumoto - *University of Fukui*
Hirofumi Ohashi - *Japan Atomic Energy Agency*
Minoru Goto - *Japan Atomic Energy Agency*
Yan L. Xing - *Japan Atomic Energy Agency*

Feasibility Study of Disassembly Technologies of Fast Reactor Fuel Assembly

Technical Paper Publication: ICONE28-64250

Hidetsugu Nishikawa - *Mitsubishi Heavy Industries, Ltd.*
Masayuki Takeuchi - *Japan Atomic Energy Agency*
Toru Kitagaki - *Japan Atomic Energy Agency*
Yuuichi Tooya - *Mitsubishi Heavy Industries, Ltd.*

Risk Analysis of Gasification Process of Nuclear Fuel Manufacturing Facilities Based on FTA

Technical Paper Publication: ICONE28-63648

Xiaowei Yang - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*
Dan Lyu - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*
Ji Que - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*
Yuntao Liu - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*
Shangui Zhao - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

07-04: HEAT TRANSFER CHARACTERISTICS AND BEHAVIOR
SESSION BEGINS AT 2:30PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Microscopic Heat Transfer Characteristics During Cooling of High Temperature Surface by a Falling Liquid Film

Technical Paper Publication: ICONE28-61737

Yutaro Umehara - *UEC*
Tomio Okawa - *UEC*

Core Thermal-Hydraulic Analysis During Dipped-Type Direct Heat Exchanger Operation in Natural Circulation Conditions

Technical Paper Publication ICONE28-63380

Erina Hamase - *Japan Atomic Energy Agency*
Norihiro Doda - *Japan Atomic Energy Agency*
Ayako Ono - *Japan Atomic Energy Agency*
Yasuhiro Miyake - *NDD Corporation*
Yasutomo Imai - *NDD Corporation*
Masaaki Tanaka - *Japan Atomic Energy Agency*

Aerosol Removal by a Heat Exchanger of Passive Containment Cooling System

Technical Paper Publication: ICONE28-64252

Yangyang Liang - *China Nuclear Power Engineering Co., Ltd.*
Junjing Lu - *China Nuclear Power Engineering Co., Ltd.*
Tianqi Zhang - *China Nuclear Power Engineering Co., Ltd.*
Xu Han - *China Nuclear Power Engineering Co., Ltd.*
Yidan Yuan - *China Nuclear Power Engineering Co., Ltd.*

A Study of Heat Transfer and Flow Characteristics Under Non-Uniform Thermal Boundary Condition

Technical Paper Publication: ICONE28-64408

Qiang Wang - *Yanshan University*
Yuting Xu - *Tsinghua University; Chinese Academy of Customs Administration*
He Wang - *Heilongjiang University of Science & Technology*

11-02 RADIOACTIVE WASTE MANAGEMENT SESSION BEGINS AT 2:30PM

Chair: **Anthony Hechanova** - Abu Dhabi Polytechnic

System Modelling Approach of Radionuclide Soil-to-Plant Transfer for Nuclear Emergencies Decision: Case Study – China

Technical Paper Publication: ICONE28-60416

Priscilla Oforiwaa - *Tsinghua University*
Manchun Liang - *Tsinghua University*
Guofeng Su - *Tsinghua University*

Study on the Structural Evaluation and Optimization of Spent Nuclear Fuel Cask

Technical Paper Publication: ICONE28-63369

Yuchen Hao - *Tsinghua University*
Jinhua Wang - *Tsinghua University*
Yue Li - *Tsinghua University*
Bin Wu - *Tsinghua University*
Haitao Wang - *Tsinghua University*
Tao Ma - *Tsinghua University*

Investigation and Design of Energy-Absorbing Structure in Nuclear Fuel Cask

Technical Paper Publication: ICONE28-63388

Yuchen Hao - *Tsinghua University*
Yue Li - *Tsinghua University*
Jinhua Wang - *Tsinghua University*
Bin Wu - *Tsinghua University*
Tao Ma - *Tsinghua University*
Haitao Wang - *Tsinghua University*

Solving the Challenges of Early Storage of Spent Fuel: The Sentry™ Spent Fuel Management System

Technical Paper Publication: ICONE28-66590

Timothy Lloyd - *Westinghouse Electric*

Estimation of the Amount of I-129 in the Environment Generated Due to the Decay of Te-129m Discharged by the Fukushima NPS Accident

Technical Paper Publication: ICONE28-65725

Haruo Sato - *Okayama University*

The Vertical Leaching Migration Research on 137Cs in Soil Around Shidaowan Plant of CAP1400

Technical Paper Publication: ICONE28-64641

Qiong Zhang - *Nuclear and Radiation Safety Center*

12-04 RADIOLOGICAL CONSEQUENCES SESSION BEGINS AT 2:30PM

Chair: **Yidan Yuan** - China Nuclear Power Engineering
Chair: **Ivo Kljenak** - Jozef Stefan Institute

The Radioactivity Monitoring of Environmental Samples in Zhejiang During the Events of Nuclear Leakage in Japan

Technical Paper Publication: ICONE28-64262

Gongye Liu - *Radiation Monitoring Technical Center of Ecology and Environment Ministry of China*

Jia Yang - *Radiation Monitoring Technical Center of Ecology and Environment Ministry of China*

Xiaoyan Hu - *Radiation Monitoring Technical Center of Ecology and Environment Ministry of China*

Fei Hu - *Radiation Monitoring Technical Center of Ecology and Environment Ministry of China*

Yuanyi Xiang - *Radiation Monitoring Technical Center of Ecology and Environment Ministry of China*

Source and Concentration of Radionuclides by Inland Nuclear Power Plant Under Normal Operation

Technical Paper Publication: ICONE28-63275

Jiaxin Wang - *Tsinghua University*

Liguo Zhang - *Tsinghua University*

Study on Main Radionuclides of Liquid Waste in Containment Under Severe Accident

Technical Paper Publication: ICONE28-64403

Shaowei Wang - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Haiying Chen - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

Wei Li - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*

The Caesium Retention Mechanism Related to Oxidation of the Reactor Coolant Boundaries Materials

Technical Presentation Only: ICONE28-63971

Ngarayana I. Wayan - *Nagaoka University of Technology*

Kenta Murakami - *Nagaoka University of Technology*

Thi-Mai-Dung Do - *Nagaoka University of Technology*

Preliminary Simulations on the Atmospheric Dispersion of Radioactive Substance for the Two Sites in Tunisia

Technical Paper Publication: ICONE28-63536

Ghannouchi Elyes - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Yu Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Jianzhu Cao - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Feng Xie - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Liguo Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Jiejuan Tong - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Rentai Yao - *China Institute for Radiation Protection*

Khaled Debbabi - *Tunisian Association of Nuclear Sciences and Techniques*

14-04 STUDENT PAPER COMPETITION SESSION BEGINS AT 2:30PM

Chair: **Jovica Riznic** - Canadian Nuclear Safety Commission

Chair: **Shripad Revankar** - Purdue University

Transport Behavior of Silver in High-Temperature Gas-Cooled Reactors

Technical Paper Publication: ICONE28-63484

Yu Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Jianzhu Cao - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Feng Xie - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Xiaobao Yang - *Department of Physics, South China University of Technology*

Peng Li - *College of Physics and Electronic Engineering, Shanxi University*

Jie Ma - *College of Physics and Electronic Engineering, Shanxi University*

Xianbao Duan - *School of Materials Science and Engineering, Wuhan Institute of Technology*

Measurement of Liquid Film Thickness for Annular Two-Phase HFC134a Gas-Liquid Ethanol Flow in the Vertical Tube

Technical Paper Publication: ICONE28-63488

Huacheng Zhang - *Kyushu University*

Tutomu Hisano - *Kyushu University*

Shoji Mori - *Kyushu University*

Hiroyuki Yoshida - *Japan Atomic Energy Agency*

Development of Liquid-Particle Image Reconstruction Method in Centrifugal Field by Linear Sensor Wireless Electrical Resistance Tomography (LS-WERT)

Technical Paper Publication: ICONE28-63487

Kota Kimura - *Chiba University*

Yosephus Prayitno - *Chiba-University*

Prima Sejati - *Chiba-University*

Tong Zhao – *University of Gadjah Mada*

Yoshiyuki Iso - *IHI*

Masahiro Takei - *Chiba University*

Research on Tritium Behavior Issues in High-Temperature Gas-Cooled Reactors

Technical Paper Publication: ICONE28-63539

Ziling Zhou - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Chuan Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Nan Gui - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Feng Xie - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Yanwei Wen - *Huazhong University of Science & Technology*

Bin Shan - *Huazhong University of Science & Technology*

Jia Fu - *Xihua University*

Qunchao Fan - *Xihua University*

Study on Deposition Motion of Naturally Circulating Particulate Matter in Supercritical Water Based on Factor and Correspondence Analysis

Technical Paper Publication: ICONE28-63677

Tian Qi - *North China Electric Power University*

Tao Zhou - *Southeast University*

Ning Chen - *North China Electric Power University*

Juan Chen - *North China Electric Power University*

Robustness Analysis and Improvement of Fault Diagnosis Model for Nuclear Power Plants Based on Random Forest

Technical Paper Publication: ICONE28-64109

Jiangkuan Li - *Shanghai Jiao Tong University*

Meng Lin - *Shanghai Jiao Tong University*

02-05: NUCLEAR FUEL AND MULTIPHYSICS METHODS SESSION BEGINS AT 4:15PM

Chair: **Leon Cizelj** - Jozef Stefan Institute

Study on the Transport Mechanism and Troubleshooting Analysis of Spherical Fuel in High Temperature Gas Cooled Reactor

Technical Paper Publication: ICONE28-63134

Jinhua Wang - *Tsinghua University*

Yuchen Hao - *Tsinghua University*

Yue Li - *Tsinghua University*

Bin Wu - *Tsinghua University*

Haitao Wang - *Tsinghua University*

Tao Ma - *Tsinghua University*

Experimental Simulation of Transitions Between Forced Circulation and Natural Circulation With Nuclear Reactivity Feedback

Technical Paper Publication: ICONE28-66338

Hanying Chen - *Shenzhen Institute of Information Technology*

Linzhong Xia - *Shenzhen Institute of Information Technology*

Puzhen Gao - *Harbin Engineering University*

Sichao Tan - *Harbin Engineering University*

Hongsheng Yuan - *China Nuclear Power Technology Research Institute Co. Ltd.*

05-02 FUEL PERFORMANCE ASSESSMENT SESSION BEGINS AT 4:15PM

Chair: **Paul K. Chan** - Royal Military College of Canada
Chair: **Andrew Prudil** - Canadian Nuclear Laboratories
Chair: **Robert Oelrich** - Pacific Northwest National Laboratory

Modeling of Irradiation-Induced Thermo-Mechanical Coupling Behavior in Triso-Zr Fuel

Technical Paper Publication: ICONE28-65563

Hongyang Wei - *Nuclear Power Institute of China*
Fawen Zhu - *Nuclear Power Institute of China*
Jun Ru - *Nuclear Power Institute of China*
Haoyu Wang - *Nuclear Power Institute of China*
Jing Zhang - *Fudan University*
Hua Li - *Nuclear Power Institute of China*
Yun Li - *Nuclear Power Institute of China*
Chunlan Huang - *Nuclear Power Institute of China*
Yuanming Li - *Nuclear Power Institute of China*
Shurong Ding - *Fudan University*

Preliminary Research on the Thermal-Mechanical Coupling Behavior Simulation Method of M3 Fuel

Technical Paper Publication: ICONE28-64920

Changbing Tang - *Nuclear Power Institute of China*
Yongjun Jiao - *Nuclear Power Institute of China*
Yuanming Li - *Nuclear Power Institute of China*
Kun Zhang - *Nuclear Power Institute of China*

Atomic Insights on Interaction Mechanism of Dislocation With Void/Impurity/Precipitates in BCC Iron

Technical Paper Publication: ICONE28-65197

Muhammad Zubair - *University of Sharjah*
M Mustafa Azeem - *Xi'an Jiaotong University*
Yun Di - *Xi'an Jiaotong University*

Evaluation of the Applicability of Plutonium Transmuted From Minor Actinides by Fusion Reactor as Fertile Fuel in Boiling Water Reactor

Technical Paper Publication: ICONE28-65139

Masaki Shimizu - *Tohoku University*
Hiroki Shishido - *Tohoku University*
Hidetoshi Hashizume - *Tohoku University*

Prediction of Iodine Peak and Iodine Purification Time in PWR Nuclear Power Plant With Defective Fuel Rods

Technical Paper Publication: ICONE28-64147

Liang Wang - *Nuclear and Radiation Safety Center, Ministry of Ecology and Environment*
Zhiyuan Liu - *State Power Investment Corporation Limited*
Fei Liu - *State Power Investment Corporation Limited*
Yuanlv Ye - *Nuclear and Radiation Safety Center, MEE*
Chunming Zhang - *Nuclear and Radiation Safety Center*
Fudong Liu - *Nuclear and Radiation Safety Center, MEE*

Steady-State Performance Analysis of a Dual-Cladding Design for Accident Tolerant Fuel

Technical Paper Publication: ICONE28-63101

Qianliang Deng - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Songyang Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Dingqu Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Yueyuan Jiang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Zhihong Liu - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Wei Xiong - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Yalin Tian - *Institute of Nuclear and New Energy Technology, Tsinghua University*

07-05: CODE AND METHOD IMPROVEMENTS SESSION BEGINS AT 4:15PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

A Modified Model for the Net Vapor Generation Point and Its Application on CHF Prediction in Subcooled Flow Boiling

Technical Paper Publication: ICONE28-64022

Md. Abdur Rafiq Akand - *Kyushu University*
Kei Kitahara - *Kyushu University*
Tatsuya Matsumoto - *Kyushu University*
Wei Liu - *Kyushu University*
Koji Morita - *Kyushu University*

Codes and Methods Improvements for VVER Comprehensive Safety Assessment: The CAMIVVER H2020 Project

Technical Paper Publication: ICONE28-64169

Denis Verrier - *Framatome*
Barbara Vezzoni - *Framatome*
Barbara Calgaro - *Framatome*
Olivier Bernard - *Framatome*
Alberto Previti - *Framatome*
Clément Lafaurie - *Framatome*
Artur Hashymov - *LLC ENERGORISK*
Pavlin Groudev - *INRNE*
Antoaneta Stefanova - *INRNE*
Neli Zaharieva - *INRNE*
Frédéric Damian - *CEA*
Pietro Mosca - *CEA*
Daniele Tomatis - *CEA*
Ulrich Bieder - *CEA*
Adrien Willien - *EDF*
Nicolas Dos Santos - *EDF*
Luigi Mercatali - *KIT Institute for Neutron Physics and Reactor Technology*
Victor Hugo Sanchez-Espinoza - *KIT Institute for Neutron Physics and Reactor Technology*
Nicola Forgione - *Università di Pisa*
Sandro Paci - *Università di Pisa*

Hybrid Improved Empirical Mode Decomposition and Artificial Neural Network Model for the Prediction of Critical Heat Flux (CHF)

Technical Paper Publication: ICONE28-64879

Messaoud Djeddou - *Larbi Ben M'Hidi University of Oum El-Bouaghi*
Xingang Zhao - *Oak Ridge National Laboratory*
Ibrahim A. Hameed - *Norwegian University of Science and Technology*
Ahmed Rahmani - *Larbi Ben M'Hidi University of Oum El-Bouaghi*

Research on Dimensionless Analysis Method of Scale Effects for Molten Pool Experiments

Technical Paper Publication: ICONE28-64739

Fengyang Quan - *China Nuclear Power Engineering Co., Ltd.*
Wei Li - *China Nuclear Power Engineering Co., Ltd.*
Zikun Zhao - *China Nuclear Power Engineering Co., Ltd.*
Xiao Zeng - *China Nuclear Power Engineering Co., Ltd.*
Yong Guo - *China Nuclear Power Engineering Co., Ltd.*
Yidan Yuan - *China Nuclear Power Engineering Co., Ltd.*

07-10: THERMAL-HYDRAULICS GENERAL STUDIES AND ANALYSES - III SESSION BEGINS AT 4:15PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Implementation of Solar Salt as Fluid in asyst4.1 and Validation for a Natural Circulation Loop

Technical Paper Publication: ICONE28-64703

A.K. Trivedi - *McMaster University*
D.R. Novog - *McMaster University*
C. Allison - *Innovative Systems Software*

Spreading Behavior of Molten Metal on Flat Plate in a Shallow Water Pool

Technical Paper Publication: ICONE28-64614

Yasunori Yamamoto - *Hokkaido University*
Tomomasa Ito - *Hokkaido University*
Kyosuke Nihashi - *Hokkaido University*
Shuichiro Miwa - *Hokkaido University*

Phase-Field Model for Recrystallization of Impurities in Sodium Coolant

Technical Paper Publication: ICONE28-65721

Munemichi Kawaguchi - *University of Fukui*

Design of a Novel Test Section for the Lead Fast Reactors Development: The CIRCE-THETIS Facility

Technical Paper Publication: ICONE28-65575

Pierdomenico Lorusso - *ENEA*

Ivan Di Piazza - *ENEA*

Daniele Martelli - *ENEA*

Andrea Musolesi - *ENEA*

Mariano Tarantino - *ENEA*

11-03 DECONTAMINATION AND DECOMMISSIONING SESSION BEGINS AT 4:15PM

Chair: **Anthony Hechanova** - Abu Dhabi Polytechnic

Research of a Fast Sample Preparation Method for Water Radioactivity Measurement

Technical Paper Publication: ICONE28-60437

Xiangwei Wang - *Tsinghua University*

Shuijun He - *Tsinghua University*

Manchun Liang - *Tsinghua University*

Guofeng Su - *Tsinghua University*

Anying Chen - *Tsinghua University*

Chao Zhang - *Tsinghua University*

Ke Li - *Tsinghua University*

Risk Factors Selection Approach for Nuclear Decommissioning Risk Assessment, Modeling and Management

Technical Paper Publication: ICONE28-63239

Ngbede Junior Awodi - *College of Nuclear Science and Technology*

Yong-Kuo Liu - *Harbin Engineering University*

Abiodun Ayodeji - *Zhejiang University*

Justina Onyinyechukwu Adibeli - *Harbin Engineering University*

The Development Status of Decommissioning Technology of Nuclear Facilities: An Insight From Patents

Technical Paper Publication: ICONE28-64203

Yading Zhang - *China Institute of Nuclear Information & Economics*

Dan Mo - *China Institute of Nuclear Information & Economics*

Ran Su - *China Institute of Nuclear Information & Economics*

Haoliang Haoliang - *China Institute of Nuclear Information & Economics*

Design Analysis of Radiation Shielding Door in High-Level Waste Treatment Plant

Technical Paper Publication: ICONE28-64335

Jingyi Shen - *China Nuclear Power Engineering Co., Ltd.*

Zonghuan Chen - *China Nuclear Power Engineering Co., Ltd.*

Bingheng Wang - *China Nuclear Power Engineer Co., Ltd.*

Guiling Gao - *China Nuclear Power Engineering Co., Ltd.*

Summary of the Practice of Clearance of Uranium-Containing Calcium Fluoride Slags in China's Nuclear Facilities

Technical Paper Publication: ICONE28-64357

Lei Qiang - *China NSC*

Jing Jiang - *Nuclear and Radiation Safety Center, MEE*

Shijun Wang - *Nuclear and Radiation Safety Center, MEE*

Chunyan Xu - *Nuclear and Radiation Safety Center, MEE*

Zhaowen Zhu - *Nuclear and Radiation Safety Center, MEE*

Chen Xu - *Nuclear and Radiation Safety Center, MEE*

Xiaolong Li - *Nuclear and Radiation Safety Center, MEE*

Min Zhang - *Nuclear and Radiation Safety Center, MEE*

12-05 STRUCTURAL INTEGRITY SESSION BEGINS AT 4:15PM

Chair: **Peng Chen** - China General Nuclear Power Corporation

Chair: **Ivo Kljenak** - Jozef Stefan Institute

Study on Safety Class 2 Piping Fatigue Evaluation for 60 Years of Design Life

Technical Paper Publication: ICONE28-62333

Dae Geon Lee - *KEPCO E&C*

Kyoung Su Kim - *KEPCO E&C*

Young Hun Heo - *KEPCO E&C*

Seong Ho Cho - *KEPCO E&C*

Hyeong Wook Kim - *KEPCO E&C*

Sensitivity Analysis on the Blast Resistance of Steel Concrete Structure Wall Based on CONWEP

Technical Paper Publication: ICONE28-64415

Guopeng Ren - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Liang Li - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Rong Pan - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Feng Sun - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Research and Design of LBB System for Main Pipeline of Nuclear Power Plant

Technical Paper Publication: ICONE28-64429

Yingying Jiang - *Harbin Engineering University*

Hong Xia - *Harbin Engineering University*

Zhichao Wang - *Harbin Engineering University*

Jiyu Zhang - *Harbin Engineering University*

Wenzhe Yin - *Harbin Engineering University*

Visualization Method of Resilience of Nuclear Structure

Technical Presentation Only: ICONE28-65746

Yuto Kuwabara - *University of Tokyo*

Kazuyuki Demachi - *University of Tokyo*

Shi Chen - *University of Tokyo*

14-05 STUDENT PAPER COMPETITION SESSION BEGINS AT 4:15PM

Chair: **Wolfgang Hansen** - Technische Universität Dresden

Chair: **Shripad Revankar** - Purdue University

Research on Grey Correlation of Factors Influencing Particulate Matter Concentration of Supercritical Water Reactor

Technical Paper Publication: ICONE28-63699

Cheng Hu - *North China Electric Power University*

Tao Zhou - *Southeast University*

Juan Chen - *North China Electric Power University*

Ning Chen - *North China Electric Power University*

Xijia Ding - *North China Electric Power University*

Fang Xiaolu - *North China Electric Power University*

Experimental Observation of Nucleate Boiling Entrainment in a Liquid Film

Technical Paper Publication: ICONE28-63813

Junpei Tabuchi - *The University of Electro-Communications*

Yuki Narushima - *Hitachi, Ltd.*

Kenichi Katono - *Hitachi, Ltd.*

Tomio Okawa - *The University of Electro-Communications*

Calculation of Probability of Survival (POS) in Dynamic Systems Based on RMC Code

Technical Paper Publication: ICONE28-64077

Conglong Jia - *Tsinghua University*

Guanlin Shi - *Tsinghua University*

Zhiyuan Feng - *Tsinghua University*

Xiaoyu Guo - *Tsinghua University*

Kan Wang - *Tsinghua University*

Shanfang Huang - *Tsinghua University*

Jingang Liang - *Tsinghua University*

The Interfacial Area Weighted Area-Averaged Gas Velocity Model for the Interfacial Area Transport Equation in the System Analysis Code

Technical Paper Publication: ICONE28-64196

Mengsi Shen - *Shanghai Jiao Tong University*

Meng Lin - *Shanghai Jiao Tong University*

14-12 STUDENT PAPER COMPETITION SESSION BEGINS AT 4:15PM

Chair: **Suyuan Yu** - INET, Tsinghua University

Chair: **Shripad Revankar** - Purdue University

Study on Radiation Dose Calculation of PWR Spent Fuel Storage and Transportation

Technical Paper Publication: ICONE28-64457

Wen Yang - *Wuhan Second Ship Design and Research Institute*

Xing Li - *Wuhan Second Ship Design and Research Institute*

Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*

Lun Zhou - *Wuhan Second Ship Design and Research Institute*

Using Monte Carlo Method and Adaptive Sampling to Estimate the Limit Surface

Technical Paper Publication: ICONE28-64484

Lixuan Zhang - *Harbin Engineering University*

Zhijian Zhang - *Harbin Engineering University*

He Wang - *Harbin Engineering University*

Yuhang Zhang - *Harbin Engineering University*

Dabin Sun - *Harbin Engineering University*

Analysis of Temperature Field in Hot Leg Piping of Space Nuclear Closed Brayton Cycle

Technical Paper Publication: ICONE28-64526

Wenkui Ma - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Ping Ye - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Yue Gao - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Gang Zhao - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Xiaoyong Yang - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Jie Wang - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Power Control System Design for a Heat Pipe Cooled Reactor

Technical Paper Publication: ICONE28-64468

Haowei Sun - *Xi'an Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Development of Ultrasonic Measurement System for Shape and 2D Velocity Field Using Ultrasonic Velocity Profiler and Total Focusing Methods

Technical Paper Publication: ICONE28-64510

Zeliang Zhang - *Tokyo Institute of Technology*

Tianrun Liu - *Tokyo Institute of Technology*

Munkhbat Batsaikhan - *Tokyo Institute of Technology*

Hideharu Takahashi - *Tokyo Institute of Technology*

Hiroshige Kikura - *Tokyo Institute of Technology*

FRIDAY, AUGUST 6

02-06: DESIGN ANALYSES AND OPTIMISATION SESSION BEGINS AT 12:00PM

Chair: **Leon Cizelj** - Jozef Stefan Institute

Optimization of Active Magnetic Bearings' Power Supply System for Main Helium Fan in High Temperature Gas-Cooled Reactor

Technical Paper Publication: ICONE28-64397

Luo Huan - *Tsinghua University*

Mo Ni - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Zhou Yan - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Shi Zhengang - *Institute of Nuclear and New Energy Technology of Tsinghua University*

Dynamic Characteristics Analysis of Nuscale in Frequency Domain

Technical Paper Publication: ICONE28-64460

Jingrui Yang - *Science and Technology on Reactor System Design Technology Laboratory, Nuclear Power Institute of China*

Qian Ma - *Xi'an Jiaotong University*

Lingtong Han - *China National Nuclear Industry Corporation 404*

Peiwei Sun - *Xi'an Jiaotong University*

A High-Temperature Gas-Cooled Reactor (HTGR) Simulation System and Its Application Based on Vpower Platform

Technical Paper Publication: ICONE28-64532

Biheng Xie - *Tsinghua University*

Chengzhi Ji - *Tsinghua University*

Xiaoyu *Guo* - *Tsinghua University*

Wenbin *Han* - *Tsinghua University*

Yisheng *Hao* - *Tsinghua University*

Junyi Chen - *Tsinghua University*

Shanfang Huang - *Tsinghua University*

Kan Wang - *Tsinghua University*

Hongbin Wei - *Beijing Neoswise Science & Technology Co. Ltd.*

Yanming Liang - *Beijing Neoswise Science & Technology Co. Ltd.*

Research on DTS Analysis Method for 1000MWe PWR NPP

Technical Paper Publication: ICONE28-64716

Yubin Zhang - *China Nuclear Power Research Institute Ltd.*

Experimental and Analytical Investigation on Local Damage to Reinforced Concrete Panels Subjected to Projectile Impact: Part 1 – Penetration Damage Mode due to Normal Impact

Technical Paper Publication: ICONE28-64521

Zuoyi Kang - *Japan Atomic Energy Agency*

Yukihiko Okuda - *Japan Atomic Energy Agency*

Akemi Nishida - *Japan Atomic Energy Agency*

Haruji Tsubota - *Japan Atomic Energy Agency*

Yinsheng Li - *Japan Atomic Energy Agency*

04-03: MISCELLANEOUS SYSTEM DESIGN CONSIDERATIONS SESSION BEGINS AT 12:00PM

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting
Chair: **Jovica Riznic** - Canadian Nuclear Safety Commission
Chair: **Y.A. Hassan** - Professor, Texas A&M
Chair: **Daisuke Sato** - N/A
Chair: **Yoshihiro Isobe** - Nuclear Fuel Industries Ltd.
Chair: **Takashi Shimomura** - Mitsubishi Nuclear Fuel Co., Ltd.
Chair: **Satoshi Takeda** - Osaka University
Chair: **Asif Arastu** - Unisont Engineering, Inc.
Chair: **Danrong Song** - Nuclear Power Institute of China
Chair: **Hongyi Yang** - China Institute of Atomic Energy
Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Load Match-Oriented Coordinated Control for Modular High Temperature Gas-Cooled Reactor Based on Dynamic Matrix Control

Technical Paper Publication: ICONE28-64572

Di Jiang - *Tsinghua University*

Zhe Dong - *Tsinghua University*

Bowen Li - *Tsinghua University*

Xiaojin Huang - *Tsinghua University*

Evaluation of Serpent Capabilities for Hyperfidelity Depletion of Pebble Bed Cores

Technical Paper Publication: ICONE28-65810

Yves Robert - *University of California, Berkeley*

Massimiliano Fratoni - *University of California, Berkeley*

Preliminary Transient Analysis for LBE-Cooled Fast Reactor BLESS-D

Technical Paper Publication: ICONE28-63220

Mian Xing - *State Power Investment Corporation Research Institute*

Linsen Li - *State Power Invest Corporation Research Institute*

Gang Zheng - *State Power Invest Corporation Research Institute*

Junlang Wen - *Sun Yat-Sen University*

Chunyuan Liu - *State Power Invest Corporation Research Institute*

Yeoh Eing Yee - *State Power Invest Corporation Research Institute*

Zhen Luo - *State Power Invest Corporation Research Institute*

Peidong Sun - *State Power Invest Corporation Research Institute*

Jianjun Feng - *Nuclear and Radiation Safety Center*

07-06: FLOW BEHAVIOR STUDIES
SESSION BEGINS AT 12:00PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Frequency of Plug/Slug Bubbles in Horizontal Air-Water Two-Phase Flow

Technical Paper Publication: ICONE28-63179

Ran Kong - *Purdue University*

Seungjin Kim - *Purdue University*

Study on Interaction of Pressurized Subcooled Water Injected With Thermal Glycerin

Technical Paper Publication: ICONE28-64720

Feng Mao - *China Nuclear Power Technology Research Institute*

Lei Zhang - *China Nuclear Power Technology Research Institute*

Xiangyu Yun - *China Nuclear Power Technology Research Institute*

Donghua Lu - *China Nuclear Power Technology Research Institute*

Wenxi Tian - *Shaanxi Key Laboratory of Advanced Nuclear Energy and Technology*

Huiyong Zhang - *China Nuclear Power Technology Research Institute*

Study on Influence of Rolling and Heaving Motions on Differential Pressure and Flow Rate Measurements

Technical Paper Publication: ICONE28-65755

Biao Zhang - *Harbin Engineering University*

Jingyu Liu - *China Nuclear Power Technology Research Institute Co., Ltd.*

Xin Li - *Harbin Engineering University*

Shouxu Qiao - *Harbin Engineering University*

Dongyang Li - *Harbin Engineering University*

Sichao Tan - *Harbin Engineering University*

Mixing Characteristic Measurement of Flow in Reactor Pressure Vessel by Laser Induced Fluorescent Method

Technical Paper Publication: ICONE28-65770

Mingpeng Chen - *Harbin Engineering University*

Guanhui Xie - *Harbin Engineering University*

Dongyang Li - *Harbin Engineering University*

Sichao Tan - *Harbin Engineering University*

Behavior of the Pressure Fluctuation of the Two-Phase Flow in a Subchannel

Technical Presentation Only: ICONE28-69402

Masaki Ikeda - *Hitachi-GE Nuclear Energy, Ltd.*

Kiyoshi Fujimoto - *Hitachi-GE Nuclear Energy, Ltd.*

Kenichi Katono - *Hitachi-GE Nuclear Energy, Ltd.*

Kenichi Yasuda - *Hitachi-GE Nuclear Energy, Ltd.*

Atsushi Ui - *Central Research Institute of Electric Power Industry*

08-03: GENERAL CFD APPLICATIONS AND ASSESSMENTS - I
SESSION BEGINS AT 12:00PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Results of a LES Application to LBE Turbulent Flow in a Wire-Wrapped Single Rod Channel

Technical Paper Publication: ICONE28-64153

Andrea Pucciarelli - *University of Pisa*

Resistance and Thermal Stress Analysis of Miniflow Pipeline of Residual Heat Removal System in Pressurized Water Reactor

Technical Paper Publication: ICONE28-64401

Pi Yue - *China Nuclear Power Engineering Co., Ltd.*

Hou Ting - *China Nuclear Power Engineering Co., Ltd.*

Assessment and Analysis of Various Mechanisms in the Coalescence and Breakup Models for Upward Bubbly Flow

Technical Paper Publication: ICONE28-64436

Shunran Guan - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Jinyu Han - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Chenru Zhao - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Hanliang Bo - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Advances in the Development of a Fluid-to-Fluid Similarity Theory for Fluids at Supercritical Pressure: Results From Sensitivity Analyses

Technical Paper Publication: ICONE28-64713

Alessandro De Angelis - University of Pisa

Andrea Pucciarelli - University of Pisa

Walter Ambrosini - University of Pisa

Sara Kassem - University of Pisa

Extending a Fluid-to-Fluid Similarity Rationale for Heat Transfer at Supercritical Pressure to R134a

Technical Paper Publication ICONE28-64822

Sara Kassem - University of Pisa

Andrea Pucciarelli - University of Pisa

Walter Ambrosini - University of Pisa

12-06 NEXT GENERATION REACTORS (1)
SESSION BEGINS AT 12:00PM

Chair: **Jian Deng** - Nuclear Power Institute of China

Chair: **Ivo Kljenak** - Jozef Stefan Institute

Study on Eutectic Melting Behavior of Control Rod Materials in Core Disruptive Accidents of Sodium-Cooled Fast Reactors: Part 1 – Project Overview and Progress Until 2019

Technical Paper Publication: ICONE28-63301

Hidemasa Yamano - *Japan Atomic Energy Agency*

Toshihide Takai - *Japan Atomic Energy Agency*

Tomohiro Furukawa - *Japan Atomic Energy Agency*

Shin Kikuchi - *Japan Atomic Energy Agency*

Yuki Emura - *Japan Atomic Energy Agency*

Kenji Kamiyama - *Japan Atomic Energy Agency*

Hiroyuki Fukuyama - *Tohoku University*

Hideo Higashi - *Tohoku University*

Tsuyoshi Nishi - *Ibaraki University*

Hiromichi Ohta - *Ibaraki University*

Koji Morita - *Kyushu University*

Kinya Nakamura - *Central Research Institute of Electric Power Industry*

Study on Eutectic Melting Behavior of Control Rod Materials in Core Disruptive Accidents of Sodium-Cooled Fast Reactors: Part 2 – Kinetic Study on Eutectic Reaction Process Between Stainless Steel With Low Boron Carbide Concentration and Stainless Steel

Technical Paper Publication: ICONE28-62252

Shin Kikuchi - *Japan Atomic Energy Agency*

Kan Sakamoto - *Nippon Nuclear Fuel Development Co., Ltd.*

Toshihide Takai - *Japan Atomic Energy Agency*

Hidemasa Yamano - *Japan Atomic Energy Agency*

Fragmentation and Cooling Behavior of a Simulated Molten Core Material Discharged Into a Sodium Pool With Limited Depth and Volume

Technical Paper Publication: ICONE28-64500

Kenichi Matsuba - *Japan Atomic Energy Agency*

Shinya Kato - *Japan Atomic Energy Agency*

Kenji Kaymiyama - Japan Atomic Energy Agency

Assan Akayev - *National Nuclear Center of the Republic of Kazakhstan*

Viktor Baklanov - *National Nuclear Center of the Republic of Kazakhstan*

Development of a Passive Reactor Shutdown Device for Prevention of Core Disruptive Accidents in Fast Reactors: Project Overview and Preliminary Results

Technical Paper Publication: ICONE28-64099

Koji Morita - *Kyushu University*

Wei Liu - *Kyushu University*

Tatsumi Arima - *Kyushu University*

Yuji Arita - *University of Fukui*

Koharu Kawase - *University of Fukui*

Isamu Sato - *Tokyo City University*

Haruaki Matsuura - *Tokyo City University*

Yoshihiro Sekio - *Japan Atomic Energy Agency*

Hiroshi Sagara - *Tokyo Institute of Technology*

Masatoshi Kawashima - *Tokyo Institute of Technology*

Dropping-Rod Analysis of Control Rod in ADS Lead-Bismuth Alloy Zero-Power Reactor

Technical Paper Publication: ICONE28-64082

Hui Fu - *North China Electric Power University*

Daogang Lu - *North China Electric Power University*

Yu Liu - *North China Electric Power University*

13-01: RISK INFORMED MANAGEMENT AND REGULATION SESSION BEGINS AT 12:00PM

Chair: **Zhegang Ma** - Idaho National Laboratory

Chair: **Hidemasa Yamano** - Japan Atomic Energy Agency

Chair: **Pandey Mahesh** - University of Waterloo

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **David Louie** - Sandia National Laboratories

Chair: **Alessandro Petruzzi** - Nuclear and Industrial Engineering

Chair: **Dmitry Grishchenko** - KTH

Chair: **Scott Sanborn** - Sandia National Laboratories

Chair: **Kazuyuki Demachi** - N/A

Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Chair: **Arun Veeramany** - Pacific Northwest National Laboratory

Chair: **Anton Prins** - Risk Management and Consultancy

Chair: **Arnold Yuan** - Ryerson University

Chair: **Ivan Vrbanic** - APoSS d.o.o.

Chair: **Jaroslav Holy** - UJV

Chair: **Koji Shirai** - Central Research Institute of Electric Power Industry

Chair: **Akio Gofuku** - N/A

Chair: **Patrick Frias** - U.S. Department of Energy

Chair: **Louis Restrepo** - Boston Government Services, LLC

Chair: **Qinfang Zhang** - Shanghai Nuclear Engineering Research & Design Institute

Chair: **Deng Wei** - China Nuclear Power Engineering Co., Ltd.

Level 2 Probability Risk Assessment for External Events: Approach and Application for NPPs in China

Technical Paper Publication: ICONE28-64329

Yu Liu - *China Nuclear Power Engineering*

Cong Wang - *China Nuclear Power Engineering*

Jing Liu - *China Nuclear Power Engineering*

Heng Gao - *China Nuclear Power Engineering*

Application of Probabilistic Safety Analysis for Nuclear Power Plant Overhaul Risk Assessment

Technical Paper Publication: ICONE28-64332

Deyi Liu - *CNNP*

Yong Cao - *CNNP*

Ming Zhao - *CNNP*

Shengjia Zou - *CNNP*

Yang Luo - *CNNP*

Mingying Hu - *CNNP*

Ling Zhao - *Nuclear Power Operations Research Institute*

Jie Xu - *CNNP*

Zilong Wang - *CNNP*

Li Wang - *CNNP*

Probabilistic Safety Assessment on Unavailability of Auxiliary External Power Supply in Fangjiashan Nuclear Power Plant

Technical Paper Publication: ICONE28-64590

Shengjia Zou - *CNNP*

Ming Zhao - *CNNP*

Deyi Liu - *CNNP*

Yang Luo - *CNNP*

Wang Li - *CNNP*

Jianguo Zhang - *CNNP*

Honghao Chen - *CNNP*

Naiyuan Zhang - *Haiyan Ecological Environment Bureau*

PSA Analysis of Switch Port Disabled on DCS Layer 1

Technical Paper Publication: ICONE28-64597

Yang Luo - Qinshan Nuclear Power

Deyi Liu - *CNNP*

Yong Cao - *CNNP*

Shengjia Zou - *CNNP*

Research on Internal Fire Ignition Frequency of Fire Probability Safety Analysis in Small Module Reactor

Technical Paper Publication: ICONE28-65152

Yanzhu Chen - *SNPI*

Zhichao Yang - *Suzhou Nuclear Power Research Institute*

14-06 STUDENT PAPER COMPETITION SESSION BEGINS AT 12:00PM

Chair: **Wolfgang Hansen** - Technische Universität Dresden
Chair: **Shripad Revankar** - Purdue University

Research on the Diagnosis Model of Break Diameter During the Blowdown Process of SBLOCA

Technical Paper Publication: ICONE28-64215

Bingzheng Ke - *Harbin Engineering University*
Puzhen Gao - *Harbin Engineering University*
Kun Cheng - *Nuclear Power Institute of China*
Bo Wang - *Harbin Engineering University*
Jiming Wen - *Harbin Engineering University*
Bowen Chen - *Harbin Engineering University*
Ruifeng Tian - *Harbin Engineering University*
Lingyan Wu - *Nuclear Power Institute of China*

Implementation and Validation of an Improved Interfacial Area Concentration Model for Two-Phase Flow CFD Simulations

Technical Paper Publication: ICONE28-64342

Xiang Zhang - *Harbin Engineering University*
Minjun Peng - *Harbin Engineering University*
Tenglong Cong - *Shanghai Jiao Tong University*
Chuan Lu - *Nuclear Power Institute of China*
Chenyang Wang - *Nuclear Power Institute of China*

Review of the Configuration Risk Management Methodologies

Technical Paper Publication: ICONE28-64281

Yuhang Zhang - *Harbin Engineering University*
Zhijian Zhang - *Harbin Engineering University*
He Wang - *Harbin Engineering University*
Lixuan Zhang - *Harbin Engineering University*
Dabin Sun - *Harbin Engineering University*

Key Parameters Determination of Integral-Plate Cruciform Control Rod

Technical Paper Publication: ICONE28-64220

Hao Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Songyang Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Dingqu Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Yueyuan Jiang - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Wentao Hao - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Wei Xiong - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Jizhong Ma - *Chinergy Co. Ltd.*

Dynamic Modeling of Nuclear Hydrogen Production Using Methane Steam Reforming

Technical Paper Publication: ICONE28-64344

Junyi Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Zhe Dong - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Bowen Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Analysis of Friction Factor of Two-Phase Flow in Helically Coiled Tubes

Technical Paper Publication: ICONE28-64356

Baihui Jiang - *Tsinghua University*
Zhiwei Zhou - *Tsinghua University*
Yu Ji - *Tsinghua University*

14-13 STUDENT PAPER COMPETITION
SESSION BEGINS AT 12:00PM

Chair: **Liangming Pan** - Chongqing University
Chair: **Shripad Revankar** - Purdue University

Heat Transfer and Fluid Flow Characteristic of U-Shaped Flow Channel for Applications of VHTR

Technical Paper Publication: ICONE28-64552

Yasuaki Takayama - *University of Yamanashi*
Tetsuaki Takeda - *University of Yamanashi*

Low Dose Assessment Uncertainty Analysis for the Landauer® Nanodot OSLDs

Technical Paper Publication: ICONE28-65591

Egemen Aras - *NC State University*
Robert Hayes - *NC State University*

Simulation of Steam Generator Tube Rupture Accident in Pressurized Water Reactors Using PCTRAN

Technical Paper Publication: ICONE28-65663

Suubi Racheal - *Harbin Engineering University*
Yongkuo Liu - *Harbin Engineering University*
Abiodun Ayodeji - *Zhejiang University*
Miyombo Ernest Miyombo - *Harbin Engineering University*

Study on Laminar Turbulent Transition in Square Arrayed Rod Bundles

Technical Paper Publication: ICONE28-65706

Carolina da Silva Bourdot Dutra - *Pennsylvania State University*
Elia Merzari - *Pennsylvania State University*

Study on Flow Characteristics of Double Loop Natural Circulation System Under Asymmetric Conditions

Technical Paper Publication: ICONE28-65682

Shuang Wang - *Harbin Engineering University*
Xin Li - *Harbin Engineering University*
Yongchao Liu - *Harbin Engineering University*
Sichao Tan - *Harbin Engineering University*
Shouxu Qiao - *Harbin Engineering University*

02-07: CONTROL ENGINEERING
SESSION BEGINS AT 1:45PM

Chair: **Mauro Cappelli** - ENEA
Chair: **Leon Cizelj** - Jozef Stefan Institute
Chair: **Miltos Alamaniotis** - The University of Texas at San Antonio

Research on Nuclear Turbine Control and Protection System Based on DCS Integrated Technical Solution

Technical Paper Publication: ICONE28-64191

Shi Guilian - *China Techenergy Co. Ltd.*
Wang Jikun - *China Techenergy Co. Ltd.*
Gao Jingbin - *China Techenergy Co. Ltd.*

Analysis of Flow Resistance Influence on Step-Down Process of the Control Rod Hydraulic Drive System

Technical Paper Publication: ICONE28-64227

Linqing Yang - *Tsinghua University*
Benke Qin - *Tsinghua University*
Hanliang Bo - *Tsinghua University*

Design and Analysis of a Reliable Communication System in Nuclear Safety Instrument and Control System

Technical Paper Publication: ICONE28-64398

Le Li - *China Techenergy Co., Ltd.*
Zhihui Zhang - *China Techenergy Co., Ltd.*
Chao Gao - *China Techenergy Co., Ltd.*
Guangqiang Ma - *China Techenergy Co., Ltd.*
Fei Zhou - *China Techenergy Co., Ltd.*

Research on Electric and I&C Equipment Safety Function Classification of Nuclear Power Plant

Technical Paper Publication: ICONE28-64446

Yuqi Wang - *China Nuclear Power Engineering Co., Ltd.*
Qian Sun - *CNPE*

Research on Start-Up Design of Nuclear Safety Level Parallel Redundant Control Station

Technical Paper Publication: ICONE28-64714

Guilian Shi - *China Techenergy Co., Ltd.*
Yunxu Shou - *China Techenergy Co., Ltd.*
Li Gang - *China Techenergy Co., Ltd.*

04-04 THERMAL HYDRAULIC DESIGN CONSIDERATIONS
SESSION BEGINS AT 1:45PM

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Robert Stakenborghs** - Advanced Clean Energy Consulting

Application of EEMD-Multiscale Entropy Algorithm in the Signal Analysis of Narrow Channel Two-Phase Flow Under Rolling Motion

Technical Paper Publication: ICONE28-62494

Wenjun Chu - *Tsinghua University*

Yang Liu - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Liqiang Pan - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Hongye Zhu - *Institute of Nuclear and New Energy Technology*

Xingtuan Yang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

A Finnish District Heating Reactor: Thermal-Hydraulic Design and Transient Analyses

Technical Paper Publication: ICONE28-64163

Rebekka Komu - *VTT Technical Research Centre of Finland, Ltd.*

Seppo Hillberg - *VTT Technical Research Centre of Finland, Ltd.*

Ville Hovi - *VTT Technical Research Centre of Finland, Ltd.*

Jaakko Leppänen - *VTT Technical Research Centre of Finland, Ltd.*

Joona Leskinen - *VTT Technical Research Centre of Finland, Ltd.*

Thermal Hydraulics Analysis of a High-Performance Once-Through Steam Generator With Annular Narrow Slot Tube

Technical Paper Publication: ICONE28-64168

Jinyu Han - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Shunran Guan - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Wen He - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Chenru Zhao - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Hanliang Bo - *Institute of Nuclear and New Energy Technology, Tsinghua University*

A Finnish District Heating Reactor: Background and General Overview

Technical Paper Publication: ICONE28-64346

Jaakko Leppänen - *VTT Technical Research Centre of Finland, Ltd.*

Seppo Hillberg - *VTT Technical Research Centre of Finland, Ltd.*

Ville Hovi - *VTT Technical Research Centre of Finland, Ltd.*

Rebekka Komu - *VTT Technical Research Centre of Finland, Ltd.*

Joona Kurki - *VTT Technical Research Centre of Finland, Ltd.*

Unna Lauranto - *VTT Technical Research Centre of Finland, Ltd.*

Ahti Oinonen - *VTT Technical Research Centre of Finland, Ltd.*

Jussi Peltonen - *VTT Technical Research Centre of Finland, Ltd.*

Antti Rintala - *VTT Technical Research Centre of Finland, Ltd.*

Ville Tulkki - *VTT Technical Research Centre of Finland, Ltd.*

Riku Tuominen - *VTT Technical Research Centre of Finland, Ltd.*

Ville Valtavirta - *VTT Technical Research Centre of Finland, Ltd.*

A Finnish District Heating Reactor: Neutronics Design and Fuel Cycle Simulations

Technical Paper Publication: ICONE28-64347

Jaakko Leppänen - *VTT Technical Research Centre of Finland, Ltd.*

Ville Valtavirta - *VTT Technical Research Centre of Finland, Ltd.*

Riku Tuominen - *VTT Technical Research Centre of Finland, Ltd.*

Antti Rintala - *VTT Technical Research Centre of Finland, Ltd.*

Unna Lauranto - *VTT Technical Research Centre of Finland, Ltd.*

Heat Transfer Analysis of a Conceptual Horizontally-Oriented High Temperature Gas-Cooled Reactor

Technical Paper Publication: ICONE28-65828

Jinyong Feng - *Massachusetts Institute of Technology*

Emilio Baglietto - *Massachusetts Institute of Technology*

William R. Stewart - *Massachusetts Institute of Technology*

Enrique V. Lopez - *Massachusetts Institute of Technology*

Ralph Wiser - *Massachusetts Institute of Technology*

Koroush Shirvan - *Massachusetts Institute of Technology*

07-07: ACCIDENT EVALUATIONS AND MITIGATIONS SESSION BEGINS AT 1:45PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

The Evaluation of Break Sizes of LOCA by Temperature Difference at the Recirculation Inlets of BWR

Technical Paper Publication: ICONE28-65413

Sheng-Dih Hwang - *Institute of Nuclear Energy Research*

Applicability Assessment of Accident Analysis Codes and Determination of Testing Facility for Validation of the CAP1400

Technical Paper Publication: ICONE28-66257

Xiaoyu Cai - *Shanghai Nuclear Engineering and Design Institute*

Guobao Shi - *Shanghai Nuclear Engineering and Design Institute*

Jinquan Yan - *Shanghai Nuclear Engineering and Design Institute*

Pu Fan - *Shanghai Nuclear Engineering and Design Institute*

Dongjian Zhao - *Shanghai Nuclear Engineering and Design Institute*

RELAP5 Code Analyses of PKL-4 Project Test on PWR Multiple Steam Generator Tube Rupture Accident With Recovery Actions

Technical Paper Publication: ICONE28-64117

Masashi Sekine - *NRA*

Junichi Kaneko - *NRA*

Takeshi Takeda - *JAEA*

08-04: GENERAL CFD APPLICATIONS AND ASSESSMENTS - II SESSION BEGINS AT 1:45PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

A Preliminary Evaluation of the Computational Fluid Dynamics Capabilities in MOOSE

Technical Paper Publication: ICONE28-64908

Abdullah Weiss - *Texas A&M University*

M. Gomaa Abdoelatef - *Texas A&M University*

Mohammad T.H. Bani Ahmad - *Texas A&M University*

Karim Ahmed - *Texas A&M University*

Mark L. Kimber - *Texas A&M University*

Tritium Transport Modeling and Analysis for HCCB Blanket of CFETR

Technical Paper Publication: ICONE28-65076

Baorui Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Zhaoyang Xia - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Zhiwei Zhou - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Investigation of Applicability of Subchannel Analysis Code ASFRE on Thermal Hydraulics Analysis in Fuel Assembly With Inner Duct Structure in Sodium Cooled Fast Reactor

Technical Paper Publication: ICONE28-65662

Norihiro Kikuchi - *Japan Atomic Energy Agency*

Yasutomo Imai - *NDD Corporation*

Ryuji Yoshikawa - *Japan Atomic Energy Agency*

Norihiro Doda - *Japan Atomic Energy Agency*

Masaaki Tanaka - *Japan Atomic Energy Agency*

Migration Characteristics of Aerosol Particles in Reactor Compartment Under Break Accident

Technical Paper Publication: ICONE28-64606

Peng Xu - *Harbin Engineering University*

Ruifeng Tian - *Harbin Engineering University*

12-07 NEXT GENERATION REACTORS (2) SESSION BEGINS AT 1:45PM

Chair: **Jian Deng** - Nuclear Power Institute of China

Chair: **Ivo Kljenak** - Jozef Stefan Institute

Analysis and Research on Sodium Single Droplet Combustion

Technical Paper Publication: ICONE28-64402

Lei Zhao - *CIAE*

Investigation on Thermal Stability of Sintered Magnesia in Sodium for Core Catcher Application in SFRs

Technical Paper Publication: ICONE28-65785

Prabhat Kumar Shukla - *Indira Gandhi Centre for Atomic Research*

Hemanth Rao E. - *Indira Gandhi Centre for Atomic Research*

Muthuganesh M. - *Indira Gandhi Centre for Atomic Research*

Vetrivendan Elumalai - *Indira Gandhi Centre for Atomic Research*

S.R. Polaki - *Indira Gandhi Centre for Atomic Research*

Sanjay Kumar Das - *Indira Gandhi Centre for Atomic Research*

Pramod Kumar Chaurasia - *Indira Gandhi Centre for Atomic Research*

Ningshen S. - *Indira Gandhi Centre for Atomic Research*

Ponraju Durairaj - *Indira Gandhi Centre for Atomic Research*

Athmalingam S. - *Indira Gandhi Centre for Atomic Research*

Venkatraman B. - *Indira Gandhi Centre for Atomic Research*

Analytical Study on Removal Mechanisms of Cesium Aerosol From a Noble Gas Bubble Rising Through Liquid Sodium Pool (II) Effects of Particle Size Distribution and Agglomeration in Aerosols

Technical Paper Publication: ICONE28-63286

Shinya Miyahara - *University of Fukui, Research Institute of Nuclear Engineering*

Munemichi Kawaguchi - *University of Fukui, Research Institute of Nuclear Engineering*

Hiroshi Seino - *Japan Atomic Energy Agency, Oarai Research and Development Institute*

Takuto Atsumi - *University of Fukui, Research Institute of Nuclear Engineering*

Masayoshi Uno - *University of Fukui, Research Institute of Nuclear Engineering*

Experimental Study on Aerosol Transport Behavior in Multiple Cells With Expandable Connecting Pipe for Safety Assessment of Sodium-Cooled Fast Reactors

Technical Paper Publication ICONE28-61200

Ryota Umeda - *Japan Atomic Energy Agency*

Toshiki Kondo - *Japan Atomic Energy Agency*

Shin Kikuchi - *Japan Atomic Energy Agency*

Akikazu Kurihara - *Japan Atomic Energy Agency*

13-02: RISK-INFORMED MANAGEMENT AND REGULATION SESSION BEGINS AT 1:45PM

Chair: **Sai Zhang** - Idaho National Laboratory

Chair: **Arun Veeramany** - Pacific Northwest National Laboratory

Configuration Risk Management Support for the Maintenance Rules at Qinshan NPP1

Technical Paper Publication: ICONE28-64543

Li Wang - *CNNP Nuclear Power Operations Management Co., Ltd.*

Zilong Wang - *CNNP Nuclear Power Operations Management Co., Ltd.*

Deyi Liu - *CNNP Nuclear Power Operations Management Co., Ltd.*

Jie Xu - CNNP Nuclear Power Operations Management Co., Ltd.

Jianzhang Zhou - *CNNP Nuclear Power Operations Management Co., Ltd.*

Shengjia Zou - *CNNP Nuclear Power Operations Management Co., Ltd.*

Study on the Off-Site Consequence Evaluation of NPP Severe Accident Based on JRODOS Platform

Technical Paper Publication: ICONE28-66056

Xuan Wang - *Shanghai Nuclear Engineering Research and Design Institute Co., Ltd.*

Li Guo - *National Nuclear Emergency Response Technical Support Center, National Defense Science and Industry*

Xiujing Lin - *National Nuclear Emergency Response Technical Support Center, National Defense Science and Industry*

Fenglei Du - *Shanghai Nuclear Engineering Research & Design Institute Co., Ltd.*

Xiang Pu - *Shanghai Nuclear Engineering Research & Design Institute Co., Ltd.*

Xiaodong Huang - *Shanghai Nuclear Engineering Research and Design Institute Co., Ltd.*

Xiaowei Xiong - *Nuclear and Radiation Safety Center of Ministry of Ecology and Environment*

Bo Wang - *Nuclear and Radiation Safety Center of Ministry of Ecology and Environment*

Periodic Test Period Extension for Partial Closing of Main Steam Isolation Valve

Technical Paper Publication: ICONE28-64413

Deyi Liu - *CNNP*
Yong Cao - *CNNP*
Ming Zhao - *CNNP*
Zilong Wang - *CNNP*
Yang Luo - *CNNP*
Shengjia Zou - *CNNP*
Mengying Hu - *CNNP*
Jie Xu - *CNNP*

The Safety Analysis of the Design of the Reactor Coolant Pump Heat Shield in Qinshan Nuclear Power Plant

Technical Paper Publication: ICONE28-64423

Zilong Wang - *China National Nuclear Power Co., Ltd.*
Deyi Liu - *China National Nuclear Power Co., Ltd.*
Ming Zhao - *China National Nuclear Power Co., Ltd.*
Li Wang - *CNNP*
Jie Xu - *CNNP*

Chinese People May Have a Different Perception of Severe Nuclear Accidents

Technical Paper Publication: ICONE28-65349

Hsingtzu Wu - *Huazhong University of Science and Technology*
Leyao Huang - *Huazhong University of Science and Technology*

Development of Best Estimate Plus Uncertainty (BEPU) Application for RELAP5-3D

Technical Presentation Only: ICONE28-65388

Yong-Joon Choi - *Idaho National Laboratory*
Carlo Parisi - *Idaho National Laboratory*

14-07 STUDENT PAPER COMPETITION

SESSION BEGINS AT 1:45PM

Chair: **Vladimir Stevanovic** - University of Belgrade
Chair: **Shripad Revankar** - Purdue University

System Design for Ammonia Nuclear Thermal Propulsion

Technical Paper Publication: ICONE28-64359

Chenrui Mao - *Tsinghua University*
Yu Ji - *Tsinghua University*
Jun Sun - *Tsinghua University*
Zhaoyu Liang - *Tsinghua University*
Lei Shi - *Tsinghua University*

Security Analysis Based on Probabilistic Safety Analysis Coupled With Deterministic Safety Analysis Used Raven

Technical Paper Publication: ICONE28-64361

Dabin Sun - *Harbin Engineering University*
Zhijian Zhang - *Harbin Engineering University*
Lei Li - *Harbin Engineering University*
Sijuan Chen - *Harbin Engineering University*
He Wang - *Harbin Engineering University*
Yuhang Zhang - *Harbin Engineering University*
Lixuan Zhang - *Harbin Engineering University*

Production of Cyclotron-Based Gallium-68 With Low Energy Protons: Preliminary Target Design and Shielding Considerations Cyclotron

Technical Paper Publication: ICONE28-65064

Luis Fernando Salas Tapia - *Harbin Engineering University*
Tian Zhang - *Harbin Engineering University*

Droplet Entrainment Phenomena Affected by Interfacial Behavior of a High-Speed Gas Jet Into a Liquid Pool

Technical Presentation Only: ICONE28-62342

Masafumi Saito - *University of Tsukuba*
Akiko Kaneko - *University of Tsukuba*
Yutaka Abe - *University of Tsukuba*
Akihiro Uchibori - *Japan Atomic Energy Agency*

Akikazu Kurihara - *Japan Atomic Energy Agency*
Takashi Takata - *Japan Atomic Energy Agency*
Hiroyuki Ohshima - *Japan Atomic Energy Agency*

An Operational Mcnp Gui

Technical Presentation Only: ICONE28-65781

Radoslaw Pudelko - *North Carolina State University*
Samuel Hanson - *North Carolina State University*
Robert Hayes - *North Carolina State University*

14-14 STUDENT PAPER COMPETITION SESSION BEGINS AT 1:45PM

Chair: **Liangming Pan** - Chongqing University
Chair: **Shripad Revankar** - Purdue University

A Study on Radiation Imaging Mechanism and Characteristics in Different Inspection Systems

Technical Paper Publication: ICONE28-66127

Yuting Xu - *Institute of Nuclear and New Energy Technology, Tsinghua University; Chinese Academy of Customs Administration*
Zhifang Wu - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Qiang Wang - *Yanshan University*

Study on Collapsed Cross Section for Radial Reflector in LWR

Technical Paper Publication: ICONE28-65686

Ryosuke Shibano - *Osaka University*
Tatsuya Kawano - *Osaka University*
Satoshi Takeda - *Osaka University*
Takanori Kitada - *Osaka University*
Yoshitada Masaoka - *Nuclear Fuel Industries*
Hiroaki Nagano - *Nuclear Fuel Industries*
Yasuhiro Kodama - *Nuclear Fuel Industries*
Hideaki Hyoudo - *Nuclear Fuel Industries*

Heat Transfer Performance for Helium Gas Flowing in a Minichannel With Different Inner Diameters

Technical Paper Publication: ICONE28-65691

Feng Xu - *Kobe University*
Qiusheng Liu - *Kobe University*
Makoto Shibahara - *Kobe University*

Pipe Performance in Long Term Operation Framework: Ageing Issues

Technical Paper Publication: ICONE28-65931

Salvatore Angelo Cancemi - *University of Pisa*
Rosa Lo Frano - *University of Pisa*

Characteristics of Two-Phase Flow in Packed Bed Systems

Technical Paper Publication: ICONE28-64955

Noriaki Yasugi - *Kyoto University*
Akito Fujitsu - *Kyoto University*
Naoya Odaira - *Kyoto University*
Daisuke Ito - *Kyoto University*
Kei Ito - *Kyoto University*
Yasushi Saito - *Kyoto University*

U.S. Nuclear Power Plant Performance Assessment Using the Versatile_x000B_ Economic Risk Tool (VERT)

Technical Paper Publication: ICONE28-65769

Jaden Miller - *Idaho State University*
Spencer Ercanbrack - *Idaho State University*
Chad Pope - *Idaho State University*

02-08: BALANCE OF PLANT SESSION BEGINS AT 3:15PM

Chair: **Leon Cizelj** - Jozef Stefan Institute

100-Gigawatt-Hour Crushed-Rock Heat Storage for Variable Electricity and Heat With Base-Load Reactor Operations

Technical Paper Publication: ICONE28-64632

Charles Forsberg - *Massachusetts Institute of Technology*

Nuclear Air-Brayton Combined Cycles Using Electrically-Heated Conductive Firebrick Heat Storage and Hydrogen for Peak Power

Technical Paper Publication: ICONE28-64638

Charles Forsberg - *Massachusetts Institute of Technology*
Daniel Stack - *Massachusetts Institute of Technology*
Patrick McDaniel - *University of New Mexico*

Research on Multi-Objective Optimal Design of Plate Heat Exchanger in Nuclear Power Plant Cold Chain System

Technical Paper Publication: ICONE28-64427

Weiguang Zhao - *Harbin Engineering University*
Jiangwu Shi - *Harbin Engineering University*
Xiuan Zhou - *Harbin Engineering University*
Changqi Yan - *Harbin Engineering University*
Jianjun Wang - *Harbin Engineering University*

Conceptual Design of Nuclear Wet Steam Turbines for Ease of Mass Manufacture

Technical Paper Publication: ICONE28-64473

Edmund Ireland - *University of Manchester*

05-03 FUEL FAILURE
SESSION BEGINS AT 3:15PM

Chair: **Hakan Ozaltun** - Idaho National Laboratory
Chair: **Paul K. Chan** - Royal Military College of Canada
Chair: **Justin Spencer** - Canadian Nuclear Laboratories
Chair: **Daisuke Sato** - N/A
Chair: **Yoshihiro Isobe** - Nuclear Fuel Industries Ltd.
Chair: **TAKASHI Shimomura** - Mitsubishi Nuclear Fuel Co., Ltd.
Chair: **Satoshi Takeda** - Osaka University
Chair: **Liangzhi Cao** - Xi'an Jiaotong University
Chair: **Min Xiao** - China Nuclear Power Technology Research Institute/Cgn
Chair: **Zafar Koreshi** - Air University, Islamabad
Chair: **Asif Arastu** - Unisont Engineering, Inc.
Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Evaluation of Interface Stresses and Cladding-Cladding Delamination Failures in U-Mo Fuel Plates

Technical Paper Publication: ICONE28-65840

Hakan Ozaltun - *Idaho National Laboratory*

Flow Induced Vibration and Fretting Wear Characteristics of Fuel Rods

Technical Paper Publication: ICONE28-62135

Zhipeng Feng - *Nuclear Power Institute of China*
Huanhuan Qi - *Nuclear Power Institute of China*
Xuan Huang - *Nuclear Power Institute of China*
Guo Chen - *Nuclear Power Institute of China*
Shuai Liu - *Nuclear Power Institute of China*
Yixiong Zhang - *Nuclear Power Institute of China*

Sensitivity Study on TRISO Fuel Failure Probability Evaluation for HTGR

Technical Paper Publication: ICONE28-64154

Jian Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Ding She - *Institute of Nuclear and New Energy Technology, Tsinghua University*
Lei Shi - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Further Study on Real-Time Positioning of Fuel Failures Method in HFETR

Technical Paper Publication: ICONE28-64210

Sun Shouhua - *Institute for Advanced Study, Chengdu University*
Jian Li - *Tsinghua University*

Experimental Study on Flow Blockage Accidents in a Narrow Rectangular Channel

Technical Paper Publication: ICONE28-64684

Dongdong Yuan - *Harbin Engineering University*
Weian Du - *China Ship Development and Design Centre*
Yuhao He - *Harbin Engineering University*
Jiahong Zhu - *Harbin Engineering University*
Yonghao Zhang - *Harbin Engineering University*
Chengwei Li - *Harbin Engineering University*
Sichao Tan - *Harbin Engineering University*
Dongyang Li - *Harbin Engineering University*

Levelized Cost of Electricity Evaluation Methodology Applied to High-Burnup 18 and 24-Month Fuel Cycle

Technical Paper Publication: ICONE28-66589

David Stucker - *Westinghouse Electric Company LLC*

Jeff Norrell - *Westinghouse Electric Company LLC*

Ho Lam - *Westinghouse Electric Company LLC*

Fausto Franceschini - *Westinghouse Electric Company LLC*

07-08: THERMAL-HYDRAULICS GENERAL STUDIES AND ANALYSES - I
SESSION BEGINS AT 3:15PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Subchannel Analysis of Radial Uniform and Non-Uniform Heating Assembly Under Low Mass Flow Rate Conditions

Technical Paper Publication: ICONE28-63636

Gan Zhu - *Institute of Nuclear and New Energy Technology*

Heng Xie - *Institute of Nuclear and New Energy Technology*

Wei Xu - *Institute of Nuclear and New Energy Technology*

Eigenvalue Analysis of Well-Posedness of Two-Fluid Single Pressure Model With Virtual Mass Force and Interfacial Pressure

Technical Paper Publication: ICONE28-64434

Fei Chao - *Wuhan Second Ship Design and Research Institute*

Wen Yang - *Wuhan Second Ship Design and Research Institute*

Longze Li - *Wuhan Second Ship Design and Research Institute*

Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*

Jianqiang Shan - *Xi'an Jiaotong University*

Benchmark Study of RBHT Experiment for the Effect of Spacer Grids on Reflood Heat Transfer With LOCUST Code

Technical Paper Publication: ICONE28-64465

Qiang Du - *Chongqing University*

Qinglong Wen - *Chongqing University*

Shenhui Ruan - *Chongqing University*

Hongsheng Yuan - *China Nuclear Power Technology Research Institute Co., Ltd.*

Ting Wang - *China Nuclear Power Technology Research Institute Co., Ltd.*

Study on Flow Boiling of Refrigerants in Micro/Mini-Channels

Technical Paper Publication: ICONE28-65417

Wen He - *Tsinghua University*

Chenru Zhao - *Tsinghua University*

Hanliang Bo - *Tsinghua University*

General Discussion on Terminal Velocity for Rising Single Bubble

Technical Paper Publication: ICONE28-64697

Qinghua Wang - *Kyoto University*

Takehiko Yokomine - *Kyoto University*

Zensaku Kawara - *Kyoto University*

Tomoaki Kunugi - *Zhejiang University*

09-01: VERIFICATION AND VALIDATION - I
SESSION BEGINS AT 3:15PM

Chair: **Richard Schultz** - Consultant

Chair: **Y.A. Hassan** - Professor, Texas A&M

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Alessandro Petruzzi** - Nuclear and Industrial Engineering

Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Chair: **Joshua Kaizer** - U.S. Nuclear Regulatory Commission

Chair: **Sam Treasure** - Rolls-Royce

Chair: **Masaaki Tanaka** - Japan Atomic Energy Agency

Chair: **Kotaro Nakada** - Toshiba Energy Systems & Solutions Corporation

Chair: **Milorad Dzodzo** - Westinghouse Electric Company

Chair: **Hui Yu** - State Power Investment Corporation Research Institute

Chair: **Yanhua Yang** - Shanghai Jiao Tong University

Validation of Evaluation Method of Feedback Reactivity for Plant Dynamics Analysis Code During Unprotected Loss of Heat Sink Event in Sodium-Cooled Fast Reactors

Technical Paper Publication: ICONE28-62354

Kazuo Yoshimura - *Japan Atomic Energy Agency*

Norihiro Doda - *Japan Atomic Energy Agency*

Kennichi Igawa - *NESI Corporation*

Masaaki Tanaka - *Japan Atomic Energy Agency*

Hidemasa Yamano - *Japan Atomic Energy Agency*

Experiment on Vortex Shedding in Water Medium of Three-Way Closed Branch Pipe

Technical Paper Publication: ICONE28-64450

Shuai Liu - *Nuclear Power Institute of China*

Xuan Huang - *Nuclear Power Institute of China*

Zhipeng Feng - *Nulear Power Institute of China*

Xiaozhou Jiang - *Nulear Power Institute of China*

Bihao Wang - *Nulear Power Institute of China*

Application of Finite Difference Jacobian Based Newton-Krylov Method for Coupled Neutronics Conduction Problems of Nuclear Reactor

Technical Paper Publication: ICONE28-64622

Baokun Liu - *Tsinghua University*

Yingjie Wu - *Tsinghua University*

Han Zhang - *Tsinghua University*

Jiong Guo - *Tsinghua University*

Fu Li - *Tsinghua University*

Verification of PWR-Core Analysis Code CORAL Using VERA Core Physics Benchmark

Technical Paper Publication: ICONE28-64721

Wen Yang - *Wuhan Second Ship Design and Research Institute*

Fei Chao - *Wuhan Second Ship Design and Research Institute*

Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*

Xing Li - *Wuhan Second Ship Design and Research Institute*

Baolin Liu - *Wuhan Second Ship Design and Research Institute*

Preliminary Verification Calculation and Sensitivity Analysis on PISAA Code Compared to MELCOR

Technical Paper Publication: ICONE28-64749

Mingqiang Song - *Nuclear and Radiation Safety Center*

Ningna Zhang - *China Nuclear Power Engineering Co., Ltd.*

Xiaoming Yang - *China Nuclear Power Engineering Co., Ltd.*

Rubing Ma - *China Nuclear Power Engineering Co., Ltd.*

Zhiyi Yang - *Nuclear and Radiation Safety Center*

Chao Ding - *Nuclear and Radiation Safety Center*

12-08 ACCIDENT MANAGEMENT AND SAFETY ANALYSES
SESSION BEGINS AT 3:15PM

Chair: **Tadashi Watanabe** - University of Fukui

Chair: **Ivo Kljenak** - Jozef Stefan Institute

The Development of the NPP Nuclear Emergency Drilling Assistant System

Technical Paper Publication: ICONE28-63630

Chen Yanfang - *The Second Ship Design Institute*

Hou Xueyan - *Wuhan Nuclear Power Operation Technology Co. Ltd.*

Chao Fei - *The Second Ship Design Institute*

Li Longze - *The Second Ship Design Institute*

He Chuan - *The Second Ship Design Institute*

Yang Wen - *The Second Ship Design Institute*

The Safety of Nuclear Fuel Cycle Facilities in China After the Fukushima Accident

Technical Paper Publication: ICONE28-64258

Ji Que - *Nuclear and Radiation safety center, MEE*

Xiao-Wei Yang - *Nuclear and Radiation Safety Center, MEE*

Yun-Tao Liu - *Nuclear and Radiation Safety Center, MEE*

Hong Shen - *Nuclear and Radiation Safety Center, MEE*

Shan-Gui Zhao - *Nuclear and Radiation Safety Center, MEE*

Tian-Shu Liu - *Nuclear and Radiation Safety Center, MEE*

A Beyond Design Basis Earthquake Study of Operating Nuclear Fuel Cycle Facilities

Technical Paper Publication: ICONE28-64514

Liang Li - *Beijing University of Technology; Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Guo Peng Ren - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Xiu Yun Zhu - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

Rong Pan - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*

14-08 STUDENT PAPER COMPETITION SESSION BEGINS AT 3:15PM

Chair: **Vladimir Stevanovic** - University of Belgrade

Chair: **Shripad Revankar** - Purdue University

Assessment of the Interfacial Drag Models in Relap5 With Mixture Level Swell Experiment

Technical Paper Publication: ICONE28-66240

Luteng Zhang - *Chongqing University*

Liang-ming Pan - *Chongqing University*

Wangtao Xu - *Chongqing University*

Qing-che He - *Chongqing Universtiy*

Zaiyong Ma - *Chongqing University*

Wan Sun - *Chongqing University*

Wen Zhu - *Chongqing University*

Tao Huang - *Nuclear Power Institute of China*

Shuhua Ding - *Nuclear Power Institute of China*

Research on Remaining Useful Lifetime Prediction Methods of Main Transformer in Nuclear Power Station

Technical Paper Publication: ICONE28-64425

Zikang Li - *Harbin Engineering University*

Minjun Peng - *Harbin Engineering University*

Investigation of Steam Injector Operation Mechanism Through Flow Visualization

Technical Paper Publication: ICONE28-64443

Xin Xie - *Hokkaido University*

Yifei Xu - *Hokkaido University*

Shuichiro Miwa - *Hokkaido University*

Kazuhiro Sawa - *Hokkaido University*

Hiroto Sakashita - *Hokkaido University*

Numerical Simulation of Hi Thermal Decomposer in Iodine-Sulfur Cycle Process

Technical Paper Publication: ICONE28-64449

Qunxiang Gao - *Institute of Nuclear and New Energy Technology*

Wei Peng - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Ping Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Laijun Wang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Gang Zhao - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Linear Active Disturbance Rejection Control of Steam Bypass System for a Pressurized Water Reactor

Technical Paper Publication: ICONE28-64451

Xianshan Zhang - *Xi'an Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Xinyu Wei - *Xi'an Jiaotong University*

Xiaolong Gou - *China Nuclear Power Design Company, Ltd.*

Guocheng Tan - *China Nuclear Power Design Company, Ltd.*

Yajie Tian - *China Nuclear Power Design Company, Ltd.*

Transfer Function Development and Dynamic Analysis of a Heat Pipe Cooled Reactor

Technical Paper Publication: ICONE28-64453

Songmao Pu - *Xi'an Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Xinyu Wei - *Xi'an Jiaotong University*

14-15 STUDENT PAPER COMPETITION SESSION BEGINS AT 3:15PM

Chair: **Leon Cizelj** - Jozef Stefan Institute

Chair: **Shripad Revankar** - Purdue University

Study on Deteriorated Heat Transfer in Upward Flow of Supercritical Water in a 1-M Vertical Bare Tube

Technical Paper Publication: ICONE28-64530

Nikita Dort-Goltz - *University of Ontario Institute of Technology*

Igor Pioro - *University of Ontario Institute of Technology*

Jennifer Mckellar - *University of Ontario Institute of Technology*

Liquid Film Behavior of Bottoming Liquid Jet in a Shallow Pool Measured by 3D-LIF

Technical Paper Publication: ICONE28-64733

Sota Yamamura - *University of Tsukuba*
Hiroyuki Yoshida - *Japan Atomic Energy Agency*
Naoki Horiguchi - *Japan Atomic Energy Agency*
Akiko Kaneko - *University of Tsukuba*
Yutaka Abe - *University of Tsukuba*

Research on Pipeline Crack Detection Based on Acoustic Emission

Technical Paper Publication: ICONE28-64766

Jing Luo - *Harbin Engineering University*
Hang Wang - *Harbin Engineering University*
Minjun Peng - *Harbin Engineering University*

Improved Wet Scavenging Schemes for Air Dispersion Modeling of Cs-137 in the Fukushima Accident

Technical Paper Publication: ICONE28-64621

Shuhan Zhuang - *Tsinghua University*
Sheng Fang - *Tsinghua University*
Xinwen Dong - *Tsinghua University*

Experimental Study on Flow Pattern of 10 mm Vertical Pipe

Technical Paper Publication: ICONE28-64725

Wangtao Xu - *Chongqing University*
Qingche He - *Chongqing University*
Meiyue Yan - *Chongqing University*
Wen Zhu - *Chongqing University*
Luteng Zhang - *Chongqing University*
Dan Wu - *Nuclear Power Institute of China*
Tao Huang - *Nuclear Power Institute of China*
Zaiyong Ma - *Chongqing University*
Wan Sun - *Chongqing University*
Liangming Pan - *Chongqing University*

Vertical-Downward Two-Phase Flow Regime Identification by Probabilistic Neural Network (PNN) and Nonlinear Support Vector Machine (SVM)

Technical Paper Publication: ICONE28-65467

Wenyi Zhong - *Harbin Engineering University*
Shouxu Qiao - *College of Nuclear Science and Technology*
Sijia Hao - *College of Nuclear Science and Technology*
Xupeng Li - *College of Nuclear Science and Technology*
Sichao Tan - *College of Nuclear Science and Technology*

06-01: NUCLEAR CODES & STANDARDS SESSION BEGINS AT 4:45PM

Chair: **Clayton Smith** - Smith Associates Consulting Group LLC
Chair: **Koji Yamada** - Chubu Electric Power Co., Inc.
Chair: **Asif Arastu** - Unisont Engineering, Inc.
Chair: **Mathew Panicker** - U.S. Nuclear Regulatory Commission
Chair: **Yasushi Saito** - N/A
Chair: **Ruilin Dong** - ISNI
Chair: **Lin Tian** - Shanghai Nuclear Engineering Research & Design Institute Co., Ltd.

Research on Radioactive Consequence Limits for SSG-30

Technical Paper Publication: ICONE28-64663

Zhao Danni - *Nuclear and Radiation Safety Centre, Ministry of Environmental Protection*
Zongzhu Pang - *Ministry of Environmental Protection*
Ming Li - *Ministry of Environmental Protection*
Yu Liu - *Ministry of Environmental Protection*

Research on Quality Assurance of Raw Materials for Nuclear Power Equipment

Technical Paper Publication: ICONE28-64692

Pu Chenghao - *Nuclear and Radiation Safety Center*
Jin Gang - *Nuclear and Radiation Safety Center*
Yi Zilong - *Nuclear and Radiation Safety Center*
Huang Jiaqi - *Nuclear and Radiation Safety Center*
Han Dongao - *Nuclear and Radiation Safety Center*
Li Maolin - *Nuclear and Radiation Safety Center*
Wu Qi - *Nuclear and Radiation Safety Center*

Study on Aging Management of Operating Nuclear Power Plants in China

Technical Paper Publication: ICONE28-64761

Liang Li - *Beijing University of Technology*

Gui Xiang Yi - *Central Research Institute of Building and Construction Co., Ltd. MCC*

Development of an Integrated Design Evaluation 'HITEP' Platform for High-Temperature Pressure Boundary Components and Piping Systems

Technical Paper Publication: ICONE28-65552

Hyeong-Yeon Lee - *Korea Atomic Energy Research Institute*

Si-Hwa Jeong - *Sungkyunkwan University*

Min-Gu Won - *National Fusion Research Institute*

Nam-Su Huh - *Seoul National University of Science and Technology*

Enhancement Status of "Technical Guidelines for Watertight Facilities (JEAG4630)"

Technical Presentation Only: ICONE28-63212

Koji Yamada - *Chubu Electric Power Co., Inc.*

Isamu Nakazuka - *Toshiba Energy Systems & Solutions Corp.*

Yohei Komiyama - *Hitachi-GE Nuclear Energy, Ltd.*

Shizuo Noda - *Japan Nuclear Safety Institute*

07-09: THERMAL-HYDRAULICS GENERAL STUDIES AND ANALYSES - II
SESSION BEGINS AT 4:45PM

Chair: **Guoqiang Wang** - Westinghouse Electric Co.

Study on Water Cooler Performance for High Temperature Helium Experimental System

Technical Paper Publication: ICONE28-65596

Qingxiang Hu - *Tsinghua University*

Wei Peng - *Tsinghua University*

Gang Zhao - *Tsinghua University*

Jie Wang - *Tsinghua University*

Research on Acoustic Characteristic of Steam Injection Under Small delta-T Below Saturation

Technical Paper Publication: ICONE28-65743

Hui Li - *Harbin Engineering University*

Yong Li - *Wuhan Second Ship Design and Research Institute*

Qi Xiao - *Wuhan Second Ship Design and Research Institute*

Dongyang Li - *Harbin Engineering University*

Sichao Tan - *Harbin Engineering University*

Development of Ex-Vessel Debris Bed in a Flooded Cavity With Inclined Bottom Structure Under Two-Phase Condition

Technical Paper Publication: ICONE28-66235

Mayank Modak - *Pohang University of Science and Technology*

Hyun Sun Park - *Pohang University of Science and Technology*

Yu Jung Choi - *Korea Hydro and Nuclear Power Co.*

Mi Ro Seo - *Korea Hydro and Nuclear Power Co., Ltd.*

On the Study of the Version Upgrade for Integration Development Environment of the Safety Analysis Code

Technical Presentation Only: ICONE28-66435

Ilyong Yoo - *Korea Hydro & Nuclear Power Co., Central Research Institute*

09-02: VERIFICATION AND VALIDATION - II
SESSION BEGINS AT 4:45PM

Chair: **Richard Schultz** - Consultant

Chair: **Y.A. Hassan** - Professor, Texas A&M

Chair: **Asif Arastu** - Unisont Engineering, Inc.

Chair: **Alessandro Petruzzi** - Nuclear and Industrial Engineering

Chair: **Clayton Smith** - Smith Associates Consulting Group LLC

Chair: **Joshua Kaizer** - U.S. Nuclear Regulatory Commission

Chair: **Sam Treasure** - Rolls-Royce

Chair: **Masaaki Tanaka** - Japan Atomic Energy Agency

Chair: **Kotaro Nakada** - Toshiba Energy Systems & Solutions Corporation

Chair: **Milorad Dzodzo** - Westinghouse Electric Company

Chair: **Hui Yu** - State Power Investment Corporation Research Institute

Chair: **Yanhua Yang** - Shanghai Jiao Tong University

Application of Best-Estimate Plus Uncertainty Analysis Method in Nuclear Safety Evaluation

Technical Paper Publication: ICONE28-64393

Xinlu Tian - *Nuclear and Radiation Safety Center*
Haiying Chen - *Nuclear and Radiation Safety Center*
Jingping Jing - *Nuclear and Radiation Safety Center*
Shaoxin Zhuang - *Nuclear and Radiation Safety Center*

A Small PWR-Core Physical Calculation Based on PWR-Core Analysis Code Coral

Technical Paper Publication: ICONE28-64912

Wen Yang - *Wuhan Second Ship Design and Research Institute*
Lun Zhou - *Wuhan Second Ship Design and Research Institute*
Yun Tai - *Wuhan Second Ship Design and Research Institute*
Jinrong Qiu - *Wuhan Second Ship Design and Research Institute*

Validation of Computational Fluid Dynamics Models for Industrial Applications

Technical Paper Publication: ICONE28-66712

Milorad Dzodzo - *Westinghouse Electric Company*

Turbulence Modeling for Developing and Fully Developed Molten-Salt (FLiNaK) Flow in a Circular Pipe

Technical Presentation Only: ICONE28-64990

Laith Zaidan - *Texas A&M University*
Mark Kimber - *Texas A&M University*

Development of Standard Software Verification and Validation Plan to Enhance Software Dependability for Digital Protection Systems

Technical Presentation Only: ICONE28-65992

Hiroshi Watanabe - *MHI NS Engineering Co., Ltd.*
Satoshi Watanabe - *MHI NS Engineering Co., Ltd.*
Makoto Takashima - *MHI NS Engineering Co., Ltd.*
Yuji Maruta - *Mitsubishi Heavy Industries, Ltd.*

12-09 ARTIFICIAL INTELLIGENCE METHODS AND PSA
SESSION BEGINS AT 4:45PM

Chair: **Chiaki Kino** - Japan Atomic Energy Agency
Chair: **Ivo Kljenak** - Jozef Stefan Institute

An Optimized Dynamic Algorithm With Photon Attenuation Coefficient for_x000B_Path-Planning in Radioactive Environments

Technical Paper Publication: ICONE28-64958

Miyombo Ernest Miyombo - *Harbin Engineering University*
Yongkuo Liu - *Harbin Engineering University*
Abiodun Ayodejia - *Zhejiang University*

Towards Malicious Action Detection for Nuclear Security via Integrated Deep Learning Based Image Recognition and Natural Language Processing

Technical Paper Publication: ICONE28-64559

Kazuyuki Demachi - *The University of Tokyo*
Shi Chen - *The University of Tokyo*
Masaki Sudo - *The University of Tokyo*

A Graph-Based Scene Understanding Approach for Ensuring Proper Use of Personal Protective Equipment at the Decommissioning Site of Fukushima Daiichi Nuclear Power Station

Technical Paper Publication: ICONE28-64193

Shi Chen - *The University of Tokyo*
Kazuyuki Demachi - *The University of Tokyo*

Equal Forced Time Step Approach to PSA for a Dynamic System: A Case of the Holdup Tank

Technical Paper Publication: ICONE28-64081

Taapopi Taapopi - *Harbin Engineering University*
He Wang - *Harbin Engineering University*
Jizhi Zhou - *Fujian Fuqing Nuclear Power Co. Ltd.*

Study on PSA Application in VVER NPP Design Extension Condition Identification

Technical Paper Publication: ICONE28-66662

Chao Ma - *CNPE*
Yuan Ma - *CNPE*
Jinyan Du - *CNPE*

14-09 STUDENT PAPER COMPETITION SESSION BEGINS AT 4:45PM

Chair: **Shuichiro Miwa** - Hokkaido University

Chair: **Shripad Revankar** - Purdue University

Long-Term Simulation of Sodium Dynamics During a Large Leakage Sodium-Water Reaction

Technical Paper Publication: ICONE28-64454

Xi Bai - *Xi'an Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Gang Luo - *Xi'an Jiaotong University*

Huasong Cao - *Xi'an Jiaotong University*

Study on the Dynamic Modeling of the Micro-High Temperature Gas Cooled Reactor for Control System Design

Technical Paper Publication: ICONE28-64455

Leilei Qiu - *Xi'an Jiaotong University*

Xinyu Wei - *Xi'an Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Shengyong Liao - *China Nuclear Power Engineering Co., Ltd.*

Application of Bayesian Classifiers for the Accident Diagnosis in Nuclear Power Plants

Technical Paper Publication: ICONE28-64483

Ben Qi - *Tsinghua University*

Jingang Liang - *Tsinghua University*

Liguo Zhang - *Tsinghua University*

Jiejuan Tong - *Tsinghua University*

Shu Yan - *Liaoning Hongyanhe Nuclear Power Co., Ltd.*

All-Coefficient Adaptive Control System Design for a Space Nuclear Reactor

Technical Paper Publication: ICONE28-64459

Qian Ma - *Xi'an Jiaotong University*

Zhitong Yu - *Shanghai Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Yuwen Jia - *China Institute of Atomic Energy*

Shifa Wu - *Xi'an Jiaotong University*

Study on the Modeling and Simulation of the Horizontal Steam Generator in VVER-1000

Technical Paper Publication: ICONE28-64456

Ru Zhang - *Xi'an Jiaotong University*

Junyan Qing - *Nuclear Power Institute of China*

Xiaolong Bi - *Xi'an Jiaotong University*

Guanfu Jiang - *Xi'an Jiaotong University*

Peiwei Sun - *Xi'an Jiaotong University*

Xinyu Wei - *Xi'an Jiaotong University*

Effect Analysis of Power Supply Topology on the Reliability of the Reactor Protection System

Technical Paper Publication: ICONE28-64646

Haojing Zhang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Huasheng Xiong - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Chao Guo - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Duo Li - *Institute of Nuclear and New Energy Technology, Tsinghua University*

Xiaojin Huang - *Institute of Nuclear and New Energy Technology, Tsinghua University*

14-17 STUDENT PAPER COMPETITION SESSION BEGINS AT 4:45PM

Chair: **Stylianos Chatzidakis** - Purdue University

Chair: **Shripad Revankar** - Purdue University

Comparison on HAPPY200 Reactor With Different Type Fuel Assembly

Technical Paper Publication: ICONE28-65932

Canhui Sun - *Southeast University; State Power Investment Corporation Research Institute*

Tao Zhou - *Southeast University*

Yaodong Chen - *State Power Investment Corporation Research Institute*

Zhaocan Meng - *State Power Investment Corporation Research Institute*

Experimental Study of Characteristics of Flow Field in Rod Bundle Channel Under Blocking Conditions

Technical Paper Publication: ICONE28-65498

Xiaoyong Yu - *Harbin Engineering University*
Yonghao Zhang - *Harbin Engineering University*
Peiyao Qi - *Xi'an Thermal Power Research Institute Co., Ltd.*
Yusheng Liu - *Nuclear and Radiation Safety Centre*
Shouxu Qiao - *Harbin Engineering University*
Sichao Tan - *Harbin Engineering University*

Research on Optimization and Verification Method of Sensor Arrangement in the Chemical and Volume Control System

Technical Paper Publication: ICONE28-65466

Gui Zhou - *Harbin Engineering University*
Minjun Peng - *Harbin Engineering University*
Hang Wang - *Harbin Engineering University*

Influence of Fuel Pellets' Thermal Expansion on Temperature Feedback Regulation for Megawatt-Class Space Gas-Cooled Fast Reactor

Technical Paper Publication: ICONE28-65504

He Yuhao - *Harbin Engineering University*
Yuan Dongdong - *Harbin Engineering University*
Qiu Zhifang - *Nuclear Power Institute of China*
Ning Kewei - *Harbin Engineering University*
Wang Xiaoyu - *Nuclear Power Institute of China*
Fulong Zhao - *Harbin Engineering University*
Tan Sichao - *Harbin Engineering University*

Dynamic Model of the VVER-1000 Reactor for Seismic and LB LOCA Evaluation

Technical Paper Publication: ICONE28-65756

Oleksii Ishchenko - *National Technical University of Ukraine, Igor Sikorsky Kyiv Polytechnic Institute*
Vladislav Filonov - *National Technical University of Ukraine, Igor Sikorsky Kyiv Polytechnic Institute*
Yaroslav Dubyk - *IPP-Centre*

14-16 STUDENT PAPER COMPETITION SESSION BEGINS AT 4:45PM

Chair: **Leon Cizelj** - Jozef Stefan Institute
Chair: **Shripad Revankar** - Purdue University

Neutronic/Thermal-Hydraulic Coupling Analysis of Xi'an Pulsed Reactor Based on RMC and COBRA-TF

Technical Paper Publication: ICONE28-64623

Ruihan Li - *Tsinghua University*
Jingang Liang - *Tsinghua University*
Jianzhu Cao - *Tsinghua University*
Xiaoyu Guo - *Tsinghua University*
Xinyi Zhang - *Northwest Institute of Nuclear Technology*
Lipeng Wang - *Northwest Institute of Nuclear Technology*

Preliminary Design of a Fuel Element With Divergent Hot Gas Channel in Particle Bed Reactor for Nuclear Thermal Propulsion

Technical Paper Publication: ICONE28-64771

Zhaoyu Liang - *Tsinghua University*
Yu Ji - *Tsinghua University*
Jun Sun* - *Tsinghua University*
Chenrui Mao - *Tsinghua University*
Lei Shi - *Tsinghua University*

Improvement of Conversion Ratio of Thorium Fuel in LWR by Adding Neutron Absorber

Technical Paper Publication: ICONE28-65683

Taishi Takeishi - *Osaka University*
Satoshi Takeda - *Osaka University*
Takanori Kitada - *Osaka University*

Comparison of Pebble Bed Velocity Profiles Between High-Fidelity and Intermediate-Fidelity Codes

Technical Paper Publication: ICONE28-65759

David Reger - *Penn State University*
Elia Merzari - *Pennsylvania State University*
Paolo Balestra - *Idaho National Laboratory*
Sebastian Schunert - *Idaho National Laboratory*
Yassin Hassan - *Texas A&M University*

Analysis of Passive Tube Condensation With Non-Condensable Gas Using Heat and Mass Analogy Model

Technical Paper Publication: ICONE28-65829

Ugur Cotul - *Purdue University*
Shripad T. Revankar - *Purdue University*

Development of Effective Momentum Model for Steam Injection Through Multi-Hole Spargers: Unit Cell Model

Technical Paper Publication: ICONE28-65751

Xicheng Wang - *Royal Institute of Technology (KTH)*
Dmitry Grishchenko - *Royal Institute of Technology (KTH)*
Pavel Kudinov - *Royal Institute of Technology (KTH)*

ASME® ICONE 28

28th International Conference on Nuclear Engineering

See you 2022

https://event.asme.org/ICONE

The American Society of Mechanical Engineers®
ASME®

ASME
SETTING THE STANDARD