ASME® 2020

POWER

Power Conference

NUCLEAR

ASME's Nuclear Engineering Conference powered by ICONE

CONFERENCE
Aug 4–5, 2020

Virtual, Online

Program

https://event.asme.org/POWER
https://event.asme.org/ICONE

The American Society of Mechanical Engineers®
ASME®

ASME®
SETTING THE STANDARD

Welcome

ASME 2020 POWER CONFERENCE ORGANIZING COMMITTEE

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Steven Greco
Retired

Technical Program Chair
George Mesina
Idaho National Laboratory

Technical Program Co-Chair
Navid Goudarzi
University of North Carolina at Charlotte

Student Programs Coordinator
André Teixeira
Soja de Portugal

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Retired

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T2E3, Inc. - Energy Efficiency Enterprises

Secretary/Treasurer
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RMF Engineering

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Frank Michell
Retired

Michael Smiarowski
Siemens

André Teixeira
Soja de Portugal

FROM THE CONFERENCE CHAIRS & THE EXECUTIVE ADVISORY COMMITTEE

Dear Colleagues:

Welcome to the ASME 2020 Power Conference!

The ASME Power Conference is an annual event brought to you by the Power Division, one of ASME's largest technical divisions. The Division has put together a great program of peer-reviewed technical papers presented by the authors along with presentations from others industry professionals sharing their experiences with you.

Our conference was originally planned to be held at Disneyland in Anaheim, California. However, due to the Coronavirus pandemic, the in-person conference at Disneyland has unfortunately been canceled. Instead, we will have our very first virtual conference, which should be a unique experience for both the Power Division and attendees.

In addition to a packed schedule of technical paper presentations, we have much more for you to engage in and learn about through our virtual experience. From expert technical presentations, panel sessions, and tutorials, you will have many options from which to choose how you spend your time.

The ASME Power Division is excited to once again be partnering with the ASME Nuclear Engineering Division to bring you world class education and research.

We were looking forward to celebrating the Power Division's Centennial in person this year with everyone. We continue to be proud of the discoveries and innovation that has taken place over the last 100 years and look forward to all that will be accomplished in the future.

A special thank you to our volunteer leadership who have spent countless hours putting together a top-notch technical program, particularly during these unprecedented and challenging times. We would also like to thank all our sponsors and exhibitors for their support of the program, many of whom have supported ASME Power year after year! We would also like to thank you, our attendees, for joining us for our first ever virtual conference.

Have a great conference and thank you again for attending this year's event!

Steven Greco

Chairman,
ASME Power Division

Dear Colleagues,

Friendliest Greetings! Given the transition from the onsite International Conference on Nuclear Engineering (ICONE) in Anaheim CA due to the novel Coronavirus (COVID-19), we are shifting to a virtual meeting space with the goal of providing an engaging and meaningful experience for those who had expected to attend ICONE-28. On behalf of the organizers of ICONE 2020, I would like to extend to you my warmest welcome to the Nuclear Engineering Conference powered by ICONE. We are grateful for your patience and support as we transform our onsite meeting into a new opportunity with a purpose to have a dynamic, interactive, and inclusive virtual conference.

The ASME Nuclear Engineering Division is delighted to have our collaboration with long-time partners; The Japan Society of Mechanical Engineers (JSME), Chinese Nuclear Society (CNS), and our co-hosts, the organizers of 2020 Power & Energy Conference. We hope that this unique opportunity will serve as a catalyst to help the global nuclear resurgence. This year the ASME Nuclear Engineering Division (NED) celebrates its 65th Anniversary. The NED was founded in 1955, and it continues to be a strong global voice for the nuclear community today.

The conference will unfold in the virtual space, while being mindful of different time zones and preparations necessary for online participation including online posters, video recorded sessions, etc. 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, exhibits, 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, the Nuclear Engineering Conference powered by ICONE is developed for nuclear professionals who want to stay technically current and on top of industry trends and developments. The success of ICONE is due to the contribution of numerous professionals from companies, 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 14 Tracks including: Operating Plant Experience, Nuclear Fuel and Engineering, Nuclear Plant Engineering, SMR and Advanced Reactors, Nuclear Safety, Security, and Cyber Security, Codes and Standards, Thermal-Hydraulics, Computational Fluid Dynamics (CFD), Verification and Validation, Decontamination & Decommissioning, Beyond Design Basis, Nuclear Policy, and Probabilistic Risk Assessments. An important component of the conference is the Student Paper Competition. Through the ICONE student program, the conference also fosters the development of future nuclear professionals. They are the future of our industry, and I encourage you to show your support by attending the student presentations (Track 14) during the conference. The goal of this track is to provide students with an opportunity to gain technical and software skills, and professional development knowledge while increasing their awareness of industry issues, constraints and future trends. In addition to approximately five hundred technical presentations, the Nuclear Engineering Conference powered by ICONE 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.

Many individuals and organizations contributed to the conference. The Nuclear Engineering Conference powered by ICONE exhibitors range from major nuclear vendors to developers and producers of specialized instrumentation. Their products and services are ready to meet your business needs, so be sure to visit the exhibition program. We greatly appreciate the support of all of our sponsors and exhibitors. Special thanks go to the ASME staff and the reviewers for assuring the high quality of the technical papers. Finally, we recognize and honor all the authors, keynote and plenary speakers, and panel participants who are the major contributors to the success of the conference. I hope you will enjoy the conference and participate in technical deliberations.

Shripad T. Revankar

Chairman,

ASME Nuclear Engineering Division
Conference Chair,
Nuclear Engineering Conference powered by ICONE

Comittees

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Purdue University

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Bob Stakenborghs
Advanced Clean Energy Consulting

Guoqiang Wang
Westinghouse Electric Co

ASME 2020 ICONE CONFERENCE ORGANIZING COMMITTEE

	ASME	JSME	CNS
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Student Program Co-Chairs	Jovica Riznic Canadian Nuclear Safety Commission	-	Liangmin Pan Chongqing University
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Organizing Committee Co-Chairs	Guoqiang Wang Westinghouse Electric Co	Takeshi Hoshi Toshiba Energy Systems & Solutions Corporation	
Steering Committee Chairs	Leon Cizelj Jozef Stefan Institute	Yasuo Koizumi Japan Atomic Energy Agency	Zengguang Lei CNNC/CNS
Steering Committee Co-Chairs	Bob Stakenborghs Advanced Clean Energy Consulting	Kazushige Fujii Toshiba Energy Systems & Solutions Corporation	Jianfu YU CNS

Keynote Speaker

TUESDAY, AUGUST 4TH
10:15AM – 11:00AM

Bill Magwood
Director General
Nuclear Energy Agency (NEA)

Title: Nuclear Energy: A Legacy of Accomplishment and A Vision for a Better Future

Plenary Speakers

TUESDAY, AUGUST 4TH
12:30PM – 1:15PM

Ken Canavan
Chief Technology Officer
Westinghouse

Title: Tomorrow's Energy, Today: Modernization of the Nuclear Industry

WEDNESDAY, AUGUST 5TH
12:30PM – 1:15PM

Dr. Mark Peters
Lab Director
Idaho National Laboratory

Title: INL, A Vital Resource to Meet the Nation's Energy and Security Future

Schedule at a Glance

ASME's POWER and Nuclear Engineering powered by ICONE Virtual Conference

Monday, August 3, 2020

Monday, August 3, 2020

On Demand

Welcome from Chairs

Siemens Simulator

Workshops

Thermalhydraulic Methors, Experimentation and Benchmarking Workshop

Computational Fluid Dynamics Workshop

Nuclear Codes and Standards Workshop

Tutorials

Recognizing Pipe Support Problems Tutorial

Generator Tutorial on Operational Impacts

Care and Feeding of Fluid Film Bearings Tutorial

Panel

Post Fukushima-Daiichi Nuclear Safety and Plant Decommissioning Panel

POWER2020 Student and Early Career Panel

Tuesday, August 4, 2020

Tuesday, August 4, 2020

10:00AM to 10:15AM	General Session Room - **Welcome Message** **Opening:** Tom Costabile, ASME CEO **Conference Chairs:** Shripad Revankar and Steve Greco			
10:15AM to 11:00AM	General Session Room - Keynote **Nuclear Energy: A Legacy of Accomplishment and A Vision for a Better Future** Bill Magwood, Director-General, Nuclear Energy Agency Live Q&A			
11:00AM to 11:15AM	Networking Break		**Technical Sessions** Pre-Recorded Chat Q&A	
11:15AM to 12:15PM	Breakout Room #1 **ACE Rule Panel** **Moderators:** Brian Wodka Tina Toburen **Panelists:** Tony Licata, *Licata Energy* Michael Smiarowski, *Siemens* Keith Kirkpatrick, *McHale and Associates*	Breakout Room #2 **COVID-19 Impacts on Electrical Utilities Panel** **Moderators:** Frank Michell Shripad Revankar **Panelists:** Emeka Okafor, *AEP Ohio* Bethany Schunn, *Cardinal Power Plant* Dragan Komljenovic, *Hydro Quebec*	**Technical Session Room #1** ICONE 11.2 - Beyond Design Basis ICONE 14.8 - Student Paper Competition	
			Technical Session Room #2 ICONE 10.3 - Decontamination & Decommissioning ICONE 8.4 - Computational Fluid Dynamics (CFD)	
			Technical Session Room #3 ICONE 14.1 - Student Paper Competition	
			Technical Session Room #4 ICONE 3.5 - Nuclear Plant Engineering ICONE 14.2 - Student Paper Competition	
			Technical Session Room #5 ICONE 2.2 - Nuclear Fuel and Engineering ICONE 14.4 - Student Paper Competition	
			Technical Session Room #6 ICONE 5.1 - Nuclear Safety, Security, and Cyber Security	
			Technical Session Room #7 POWER 4 - Virtual Plant and Cyber-Physical Systems	
			Technical Session Room #8 POWER 6.1 - Renewable Energy Systems	
12:15PM to 12:30PM	Networking Break		**Technical Session Room #9** POWER 10.1 - Thermal Hydraulics and Computational Fluid Dynamics	

<table>
<tr><th colspan="5">Tuesday, August 4, 2020</th></tr>
<tr><td rowspan="12">Tuesday, August 4, 2020</td><td>12:30PM to 1:15PM</td><td colspan="3">General Session Room - Plenary
Tomorrow's Energy, Today: Modernization of the Nuclear Industry
Ken Canavan, Chief Technology Officer, Westinghouse Electric Co.
Live Q&A</td></tr>
<tr><td rowspan="2">1:15PM to 1:45PM</td><td colspan="2" rowspan="2">Exhibit Hall Break</td><td>Siemens Simulator (Live)
Interactive Session</td></tr>
<tr><td>Technical Sessions</td></tr>
<tr><td rowspan="9">1:45PM to 3:15PM</td><td rowspan="9">Breakout Room #1
Idaho National Lab: Enabling a Bright Future for Nuclear Energy through Innovation Panel
Live Q&A

Moderators:
John Wagner
George Mesina

Panelists:
Bruce Hallbert
Nicholas Smith
Mike Narato
Christine King
Jess Gehin
Kemal Pasamehmetoglu</td><td rowspan="9">Breakout Room #2
Robotics and Drones
Seminar
Live Q&A

Moderators:
Navid Goudarzi
Frank Michell

Panelists:
Dwayne McDaniel,
FIU
Dave Kahan,
GeckoRobotics
Cory Knittel,
Skydio
Lou Nash,
Measutronics Corp.</td><td>Technical Session Room #1
ICONE 7.5 - Thermal-Hydraulics</td></tr>
<tr><td>Technical Session Room #2
ICONE 13.1 - Probabilistic Risk Assessments</td></tr>
<tr><td>Technical Session Room #3
ICONE 14.3 - Student Paper Competition</td></tr>
<tr><td>Technical Session Room #4
ICONE 14.5 - Student Paper Competition</td></tr>
<tr><td>Technical Session Room #5
ICONE 3.2 - Nuclear Plant Engineering</td></tr>
<tr><td>Technical Session Room #6
ICONE 5.3 - Nuclear Safety, Security, and Cyber Security</td></tr>
<tr><td>Technical Session Room #7
ICONE 8.3 - Computational Fluid Dynamics (CFD)</td></tr>
<tr><td>Technical Session Room #8
ICONE 10.1 - Decontamination & Decommissioning</td></tr>
<tr><td>Technical Session Room #9
POWER 5 - Plant Development and Construction
POWER 10.2 - Thermal Hydraulics and Computational Fluid Dynamics</td></tr>
<tr><td>3:15PM to 3:30PM</td><td colspan="3">Exhibit Hall Break</td></tr>
<tr><td rowspan="12">Tuesday, August 4, 2020</td><td rowspan="11">3:30PM to 5:00PM</td><td rowspan="11">Breakout Room #1
Live Intro Advanced Fuel Development Panel
Live Q&A

Moderator:
Guoqiang Wang

Panelists:
Masao Owaki,
Toshiba
Dennis Hussey,
EPRI
John Strumpell,
Framatome
Bernie Copsey,
Westinghouse
Min Xiao,
CNPRI</td><td rowspan="11">Breakout Room #2
Operational Flexibility Workshop
Live Q&A

Steve Radke,
Siemens
Brian Vitalis,
Babcock Power
Alejandro Felix,
Siemens
William Conlon,
Pintail Power
Steve Reid,
TG Advisers
Glenn Davis,
Siemens</td><td>Technical Sessions</td></tr>
<tr><td>Technical Session Room #1
ICONE 1.1 - Operating Plant Experience</td></tr>
<tr><td>Technical Session Room #2
ICONE 10.2 - Decontamination & Decommissioning</td></tr>
<tr><td>Technical Session Room #3
ICONE 7.6 - Thermal-Hydraulics</td></tr>
<tr><td>Technical Session Room #4
ICONE 14.6 - Student Paper Competition</td></tr>
<tr><td>Technical Session Room #5
ICONE 5.2 - Nuclear Safety, Security, and Cyber Security</td></tr>
<tr><td>Technical Session Room #6
ICONE 5.6 - Nuclear Safety, Security, and Cyber Security</td></tr>
<tr><td>Technical Session Room #7
ICONE 12 - Nuclear Policy
ICONE 4.2 - SMR and Advanced Reactors</td></tr>
<tr><td>Technical Session Room #8
ICONE 8.2 - Computational Fluid Dynamics (CFD)</td></tr>
<tr><td>Technical Session Room #9
POWER 9.1 - Plant Performance</td></tr>
<tr><td>5:00PM to 5:30PM</td><td colspan="3">Opening and Networking Reception
Sponsor: Westinghouse Electric Co.
Introduction by Jeffrey Bradfute</td></tr>
<tr><td>5:30PM to 6:00PM</td><td colspan="3">Exhibit Hall</td></tr>
</table>

Schedule at a Glance

<table>
<tr><th colspan="5">Wednesday, August 5, 2020</th></tr>
<tr><td rowspan="11">Wednesday, August 5, 2020</td><td>10:00AM to 10:15AM</td><td colspan="3">General Session Room
Welcome Message</td></tr>
<tr><td rowspan="9">10:15AM to 11:45AM</td><td rowspan="9">Breakout Room #1
Idaho National Lab: Combining Energy Systems with Security Resiliency, and Efficiency Panel
Live Q&A

Moderator:
George Mesina

Panelists:
Shannon Bragg-Sitton
Jake Gentle
Thomas Mosier
Kurt Myers
Tanvir Tanim</td><td rowspan="9">Breakout Room #2
Advanced Manufacturing Panel
Live Q&A

Moderator:
Marc Albert, EPRI

Panelists:
Clint Armstrong,
Westinghouse
William Cleary,
Westinghouse
Mingyue Sun,
SNERDI
Kota Otsuki,
MHI</td><td>Technical Sessions
Pre-Recorded
Chat Q&A</td></tr>
<tr><td>Technical Session Room #1
ICONE 7.1 - Thermal-Hydraulics</td></tr>
<tr><td>Technical Session Room #2
ICONE 3.1 - Nuclear Plant Engineering</td></tr>
<tr><td>Technical Session Room #3
ICONE 8.1 - Computational Fluid Dynamics (CFD)</td></tr>
<tr><td>Technical Session Room #4
ICONE 3.3 - Nuclear Plant Engineering</td></tr>
<tr><td>Technical Session Room #5
ICONE 14.7 - Student Paper Competition</td></tr>
<tr><td>Technical Session Room #6
POWER 1.1 - Fuels, Combustion & Material Handling</td></tr>
<tr><td>Technical Session Room #7
POWER 6.2 - Renewable Energy Systems</td></tr>
<tr><td>Technical Session Room #8
POWER 7 - Heat Exchanger Technologies
POWER 6.3 - Renewable Energy Systems</td></tr>
<tr><td>11:45PM to 12:30PM</td><td colspan="2">Networking Break</td><td>Siemens Simulator (Live)</td></tr>
<tr><td rowspan="12">Wednesday, August 5, 2020</td><td>12:30PM to 1:15PM</td><td colspan="3">General Session Room - Plenary
INL, A Vital Resource to Meet the Nation’s Energy and Security Future
Mark Peters, INL Lab Director
Live Q&A</td></tr>
<tr><td>1:15PM to 1:45PM</td><td colspan="3">Exhibit Break</td></tr>
<tr><td rowspan="10">1:45PM to 3:15PM</td><td rowspan="10">Breakout Room #1
POWER Student Competition
Live Q&A

Moderators:
Andre Teixeira
Steve Greco</td><td rowspan="10">Breakout Room #2
SMR and Advanced Reactors Panel

Moderator:
Shripad Revankar

Panelists:
Matthew Swartz,
Westinghouse
Masayoshi Matsuura,
Hitachi
Song Danrong,
NPIC</td><td>Technical Sessions
Pre-Recorded
Chat Q&A</td></tr>
<tr><td>Technical Session Room #1
ICONE 6.1 - Codes & Standards</td></tr>
<tr><td>Technical Session Room #2
ICONE 7.3 - Thermal-Hydraulics</td></tr>
<tr><td>Technical Session Room #3
ICONE 3.4 - Nuclear Plant Engineering</td></tr>
<tr><td>Technical Session Room #4
ICONE 4.1 - SMR and Advanced Reactors</td></tr>
<tr><td>Technical Session Room #5
ICONE 5.4 - Nuclear Safety, Security, and Cyber Security</td></tr>
<tr><td>Technical Session Room #6
ICONE 7.2 - Thermal-Hydraulics</td></tr>
<tr><td>Technical Session Room #7
POWER 8.1 - Steam Turbines, Generators and Auxiliaries</td></tr>
<tr><td>Technical Session Room #8
POWER 2 - Combustion Turbine Combined Cycles</td></tr>
<tr><td>Technical Session Room #9
POWER 11 - Water Management for Power Systems</td></tr>
<tr><td>3:15PM to 3:30PM</td><td colspan="2">Student Live Q&A</td><td>Exhibit Hall Break</td></tr>
</table>

Wednesday, August 5, 2020	3:30PM to 5:00PM	Breakout Room #1 **Nuclear Policy Panel** Live Q&A **Moderator:** Bob Stakenborghs **Panelists:** Suzie Jaworowski, *US DOE* Alyse Huffman, *US House of Reps.* Spencer Nelson, *US Senate* Niko McMurray, *ClearPath* Jackie Kempfer, *Third Way*	Breakout Room #2 **ICONE Student Competition Winners** Live Q&A **Moderators:** Shripad Revankar Suyuan Yu Shuichiro Miwa Wolfgang Hasen	**Technical Sessions** Pre-Recorded Chat Q&A
				Technical Session Room #1 ICONE 13.2 - Probabilistic Risk Assessments
				Technical Session Room #2 ICONE 2.1 - Nuclear Fuel and Engineering
				Technical Session Room #3 ICONE 9 - Verification and Validation
				Technical Session Room #4 ICONE 7.4 - Thermal-Hydraulics
				Technical Session Room #5 ICONE 7.7 - Thermal-Hydraulics
				Technical Session Room #6 ICONE 5.5 - Nuclear Safety, Security, and Cyber Security
				Technical Session Room #7 ICONE 11.1 - Beyond Design Basis
				Technical Session Room #8 POWER 1.2 - Fuels, Combustion & Material Handling
				Technical Session Room #9 POWER 3 - Boilers & Heat Recovery Steam Generators POWER 1.3 - Fuels, Combustion & Material Handling
	5:00PM to 5:45PM	Awards - Meeting		

Thursday, August 6, 2020		
	12:00PM tp 1:45PM	Power Technical Committee Meetings

Workshops And Panels

COVID-19 IMPACTS ON ELECTRICAL UTILITIES

Panelist:
Dr. Dragan Komljenovic
Emeka Okafor
Bethany Schunn

Panel Description: Modern electrical power utilities are capital-intensive organizations that are fairly complex in terms of their internal structure, operations and deployed technologies. They also function in an increasingly complex business and operational environment characterized by significant uncertainties such as current COVID-19 pandemic. COVID -19 is affecting not only electrical utilities, but all sectors of life and businesses worldwide.

ROBOTICS AND DRONES SEMINAR

Panelists:
Dwayne McDaniel
Dave Kahan
Cory Knittel
Lou Nash

Panel Description: Robotics and drone technologies can benefit the inspection and maintenance practices of the growing power industry. This Seminar is designed to provide a unique and interdisciplinary opportunity to share and discuss the following domains:

- The latest in drone and mobile robot technologies for the field of non-destructive testing
- The case studies and demonstrations of drone and robotics that benefit the power generation community
- The evaluation of inspection metrics, namely the accuracy, cost, and safety, by using drones and mobile robot technologies
- The best practices in data collection, post-processing, and design of experiments

These technical domains benefit a broad range of power industry communities including engineers, researchers, NDT managers, plant managers, asset managers, inspectors, purchasing managers, outage planners, and turnaround planners.

COMBINING ENERGY SYSTEMS WITH SECURITY, RESILIENCY, AND EFFICIENCY

Panelists:
Shannon Bragg-Sitton
Jake Gentle
Thomas Mosier
Kurt Myers
Tanvir Tanim

Panel Description: Many forms of power generation supply our electrical grid. This panel focuses on how we have arrived at the current state, current efforts to improve it, and a view of things to come. Shannon Bragg-Sitton will lead off with a discussion of integrated energy systems. Jake Gentle will cover wind energy and cybersecurity. Thomas Mosier will present ways to boost hydropower flexibility. Kurt Meyers discuss the building of resilient microgrids, and Tanvir Tanim will finish with systems for storing the energy generated.

ACE RULE AND POWER PLANT HEAT RATE

Panelists:
Tony Licata
Mike Smiarowski
Keith Kirkpatrick

Panel Description: The US Environmental Protection Agency has issued their Affordable Clean Energy (ACE) rule that is applicable to coal-fired electric generating plants over 25MW. At the present time, States that have coal-fired plants are required to develop specific plans to reduce CO2 emission by implementing heat rate improvements on a long-term basis. One of the major concerns of some ASME divisions and committees is that there is no consensus standard to measure and report on improvements in long-term or annual heat rates. This panel will discuss the status of the ACE rule and key features to improve heat rates in advance of the implementation of the final rules by each state.
Representative of Codes & Standards will provide an status report on ASME's activities to develop a PTC for long-term heat rate.

Summarize current activities some utilities are investigating, which have been cited by the EPA as six candidate technologies:

- Neural Network/Intelligent Sootblowers
- Boiler Feed Pumps
- Air Heater and Duct Leakage Control
- Variable Frequency Drives
- Blade Path Upgrade (Steam Turbine)
- Redesign/Replace Economize

ADVANCED FUEL DEVELOPMENT

Panelists
Min Xiao
Bernie Copsey
Masao Owaki
Dennis Hussey
John Strumpell

Panel Description: 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.

Workshops And Panels

SMR AND ADVANCED REACTORS

Panelists:
Matthew Swartz
Masayoshi Matsuura
Song Danrong

Panel Description: The small modular reactor 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 have inherent safety and that offer simplified operation and maintenance for distributed power and load-following applications, and increased proliferation resistance and security. This panel will discuss about technology development progress and status on small modular reactors and advanced reactors.

ADVANCED MANUFACTURING

Panelists:
Clint Armstrong
William Cleary
Kota Otsuki
Marc Albert
Mingyue Sun

Description:
Westinghouse Advanced Manufacturing Technologies for Nuclear Applications
Advanced Electron Beam Welding Technology for Manufacturing Nuclear Power Plant Components
A Novel Technology of Manufacturing Pressure Vessels Used in PWRs

ENABLING A BRIGHT FUTURE FOR NUCLEAR ENERGY THROUGH INNOVATION

Moderator: John Wagner
Panelists:
Bruce Hallbert
Ashley Finan
Mike Narato
Christine King
Jess Gehin
Kemal Pasamehmetoglu

Panel Description: This panel focuses on the future of Nuclear Power with an emphasis on research and innovations underway at INL and around the USA. Bruce Halbert will lead off with our ongoing efforts to sustain the current fleet of nuclear power plants. Ashley Finan will cover Advanced Reactor Demonstrations via NRIC, the National Reactor Innovation Center. Mike Narato will present on new solutions for the nuclear fuel cycle. Christine King will discuss ways to accelerate nuclear energy innovation through GAIN, the Gateway for Accelerating Innovation in Nuclear. Jess Gehin will present big opportunities for nuclear power via microreactors. Finally, Kemal Pasamehmetoglu will address the global need for fast spectrum irradiation testing and the Versatile Test Reactor.

NUCLEAR ENERGY POLICY

Panelists:
Suzie Jaworowski
Alyse Huffman
Spencer Nelson
Niko McMurray
Jackie Kempfer

Panel Description:

- How policy decisions can have a positive impact on new technology development and how they are being used now to bring about rapid deployment of new advanced reactors.
- How some policy decisions, such as non-proliferation, can have a negative impact on technology development and the ability of US companies to compete in the international market.
- What can industry do to influence the policy decision makers to allow expansion of this important industry.

POST FUKUSHIMA-DAIICHI NUCLEAR SAFETY AND THE PLANT DECOMMISSIONING

Panelists:
Toshihiko Fukuda
Tadashi Narabayashi
Mariko Chuman
Masaki Murakoshi
Koji Okamoto
Hiroshige Kikura
Hideharu Takahashi

Panel Description: This Panel Session will be chaired by Dr Tadashi Narabayashi, he was an advisory meeting member of NISA with regard to technical lessons learned from the Fukushima Daiichi NPP accidents, and he was the member of Fukushima Daiichi Accident Investigation Team in NRA (Nuclear Regulatory Authority). He is the chairman of the new committee to learn Black out of Hokkaido earthquake, a lot of Typhoons and heavy rain in PESD/JSME. The session will show the progress of decommissioning of the Fukushima Daiichi NPS, technology development, research projects for that purpose, and support for Fukushima reconstruction activities, such as cut off the stack, spent fuel removal and robotics technology.

Workshops And Tutorials

THERMAL-HYDRAULIC METHODS, EXPERIMENTATION AND BENCHMARKING

Instructors:
Guoqiang Wang
Shripad T. Revankar
Guanghui Su
Asif H. Arastu
Jovica R. Riznic

Workshop Description: This workshop will present an overview of some of the key Thermal-Hydraulic methodologies, experimentation procedure and its application to nuclear power plants. The relevant computer code model and theory will be described, and real experimental work will be presented and discussed. 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:
1. Introduction and Overview of the TH Workshop
2. Scaling For Thermal-hydraulics Experiments
3. Fundamental Experiments and CFD Application for Large Advanced PWRs Development
4. Fluid Transients in Piping Systems
5. Thermal hydraulics aspects of leakage through cracked thin wall tubes
6. PWR Safety Analysis Philosophy, WALT DNB/ATF Test Methodology, CIPS Phenomena and Analysis

CFD (COMPUTATIONAL FLUID DYNAMICS)

Instructors:
Richard Schultz
Yassin Hassan
Elia Merzari
Anas Alwafi

Workshop Description: 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.
Nuclear Codes & Standards Workshop

NUCLEAR CODES & STANDARDS WORKSHOP

Instructors:
Clayton Smith
Daren Jansen
Jeffrey Fluckiger
Paul Lang
Christopher Mahler
Joseph Pang
Ralph Hill
Bob Keating
Tim Adams
Dale Matthews

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

Modules:
NQA-1 certification presentation
Conformity Assessment Activities – 2021 and Beyond
QP Program – Quality Program For General Industry – Non-Safety Related
Plant System Design – Innovation at ASME
ASME Section III Strategic Initiatives
ASME Section III Seismic Steering Committee
ASME Section III Fatigue Action Plan
ASME Section III Quality Program Reorganization
ANDE-1 Program and Certification

COMBINED PAPER AND PANEL SESSION: OPERATIONAL FLEXIBILITY

Instructors:
Steve Radke
Brian Vitalis
Mike Verbanic
Stephen Reid
William Conlon
Glenn Davis

Workshop Description: Operating flexibility is being required of all components of the Power Plant Steam Cycle. This includes both standalone systems and those in a combined cycle power plant. In this panel discussion we will look at how the independent components can be treated as a part of a cycle allowing for more flexibility of the entire Steam Cycle. This panel includes Industry experts that will discuss their separate components followed by an open discussion about integrating them into a system including an audience question and answer period.

Workshops And Tutorials

GENERATOR TUTORIAL ON OPERATIONAL IMPACTS

Instructors:
Russell Chetwynd, NEC
Alejandro Felix, Siemens

Tutorial Description: This Tutorial session will include presentation material and discussion on current industry topics that relate to the installed operating fleet of turbine-generators. Speakers will include Industry subject matter from OEMs, as well as alternate suppliers' to discuss their respective firms latest approaches, solutions, and experience for operating electrical generators operating in cyclic duty.

CARE AND FEEDING OF FLUID FILM BEARINGS TUTORIAL

Instructor: Dr. Lyle Branagan

Tutorial Description: Fluid film bearings are a critical component in the design and operation of the wide range of rotating machinery (turbines, generators, and auxiliaries) used in power generation plants. Successful application of these bearings benefits from an understanding of the key principles of the hydrodynamic film. An operating fluid-film bearing requires a rotating element, the stationary bearing surface which defines a clearance, and a lubricant to fill the clearance. The bearing is lined with tin-alloy babbitt, which adds the ability to understand the past, operating history of the bearing. Rather than merely replace damaged bearings, the babbitt (whitemetal) layer can be refurbished, allow a reduction of repair costs. This tutorial provides these critical insights into the hydrodynamic film and introduces the relevant aspects of the bearing material and lubricants. Several troubleshooting examples, from the Pioneer Bearing Damage Flip Chart, help to reinforce and apply the key principles. These examples also show the use and limitations of monitoring for temperature and vibration at the bearing. The final section provides an overview of the bearing refurbishment process including critical dimensions and the casting process. While the tutorial is targeted at users of fluid-film bearings, the information can be readily applied by consultants and machine designers.

RECOGNIZING PIPE SUPPORT PROBLEMS TUTORIAL

Instructor: Lange Kimball

Tutorial Description: Pipe supports, intended to be low maintenance items, became low priority to plants. Now, ASME B31.1, Chapter VII emphasizes that ignoring pipe supports is no longer acceptable and could open a plant up to significant liability. This workshop discusses setting up a pipe support surveillance program, highlights different support problems and how to recognize them. Potential damaging results are discussed. Suggestions are provided as to how to rectify the issues.

SIEMENS SIMULATOR

Instructors:
David Templeton
Chris Frick

Description: Siemens Remote Simulator training is an alternative to the high cost of purchasing a simulator, eliminates maintenance costs and the need for a plant staff member to be dedicated as a simulator instructor. By bringing the simulator to your facility you have all the experience and expertise of the Siemens Instructor and access to a multi-function training simulator without the hassle of personnel travel and related expenses.

August 4, 2020

11:00AM – 12:30PM
ICONE 11.2 - BEYOND DESIGN BASIS & ICONE 14.8 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16236: Thermal-Mechanical Analysis of Instrumentation Guide Tube Failure During a Severe Accident in a Nordic Boiling Water Reactor

Presenting Author: Ying Yue

ICONE28-POWER2020-16913: In-Vessel Core Melt Retention Strategy Applied for the Rivne Wwer-440 Unit

Presenting Author: Yaroslav Dubyk

ICONE28-POWER2020-16433: High Resolution 3d Simulation of Melt Jet Breakup Phenomena Using Multi-Gpu-Based Smoothed Particle Hydrodynamics Code and Comparison With Experimental Result

Presenting Author: So-Hyun Park

ICONE28-POWER2020-16820: Research on Analysis and Modeling Methods for Lbloca in Generation-□ Nuclear Power Plants Based on Autonomous Loca Analysis Platform Arsac

Presenting Author: Jiayue Zhou

ICONE28-POWER2020-16480: Optimization of In-Core Detector Locations in Advanced Heavy Water Reactor Using Bond Energy Algorithm

Presenting Author: Anupreethi Balajiranganathan

ICONE28-POWER2020-16864: Critical Conditions for Secondary Droplets Generated by Droplets Colliding Walls With Different Angles

Presenting Author: Yikai Wu

11:00AM – 12:30PM
ICONE 10.3 - DECONTAMINATION & DECOMMISSIONING AND ICONE 8.4 - COMPUTATIONAL FLUID DYNAMICS (CFD)

ICONE28-POWER2020-16181: Aerosol Source Terms Characterization During Cuttings of Fuel Debris Simulants With Different Tools in the Context of Fukushima Daiichi Decommissioning

Presenting Author: Dr. Emmanuel Porcheron

ICONE28-POWER2020-16298: Development of Gross-Beta and Tritium Monitoring System in Decommissioning Site Groundwater

Presenting Author: Woo Nyun Choi

ICONE28-POWER2020-16338: Effect of Containment Vessel's Size Scale on the Aerosol Spray Scavenging Efficiency With Water Mist

Presenting Author: Hui Liang

ICONE28-POWER2020-16314: Radioactivity Recovery Rate of Paper Sample for 3h and 14c Based on the Combustion Method

Presenting Author: Jun Woo Bae

ICONE28-POWER2020-17045: Numerical Simulation of Structural Optimization for Inlet Pipe of Centrifugal Pump in Cap1400 Power Plant Auxiliary System

Presenting Author: QU TING

ICONE28-POWER2020-17003: Static Application of Transient Hydrodynamic Loads on Vessel Internal Structures as a Result of Pulse Jet Mixer Overblow: Low-Frequency Loads

Presenting Author: Rafael Garcilazo

ICONE28-POWER2020-16852: Development and Validation of Effective Momentum Model for Steam Injection Through Multi-Hole Spargers Using a Steam Condensation Region Approach

Presenting Author: Xicheng Wang

11:00AM – 12:30PM
ICONE 14.1 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16558: Dynamic Pra Based on System Codes Coupling for Passive Safety System in Integral Pressurized Water Reactor

Presenting Author: Yi Mi

ICONE28-POWER2020-16934: Computational Fluid Dynamics Simulation of a Single-Phase Rectangular Thermosiphon

Presenting Author: Tri Nguyen

ICONE28-POWER2020-16661: Experimental Validation of Cfd Models Capturing the Thermal-Hydraulics in Liquid Metal Cooled Reactor Plena

Presenting Author: Brendan Ward

ICONE28-POWER2020-16760: Development of a Selection Tool for Choosing Decontamination Technology for Canadian Applications

Presenting Author: Rajinder Khurmi

ICONE28-POWER2020-16767: Irradiation Induced Crosslinking in "Green" Polylactic-Acid (Pla) Polymers for Enhanced Strength and Elevated Temperature Applications

Presenting Author: Wen Jiang

ICONE28-POWER2020-16242: Sensitivity and Uncertainty Information Incorporated Loss of Flow Accident Analyses for Research Reactors

Presenting Author: TAO LIU

ICONE28-POWER2020-16643: Direct Numerical Simulation of Fluid Flow in a 5x5 Square Rod Bundle Using Nek5000

Presenting Author: Adam Kraus

ICONE28-POWER2020-16379: Numerical Study of Tritium Mitigation Strategies for Fluoride Salt-Cooled High-Temperature Reactors

Presenting Author: Sheng Zhang

11:00AM – 12:30PM
ICONE 14.2 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16234: Simulations of Experiments on Isothermal Containment Atmosphere Mixing Caused by Vertical Injection

Presenting Author: Rok Krpan

ICONE28-POWER2020-16077: Module Design Layout and Equipment Analysis for Off-Site Prefabrication Manufacture and Assembly in a Small Modular Reactor

Presenting Author: Paul Wrigley

ICONE28-POWER2020-16927: Modeling the Flow Redistribution Upstream From the Spacer Grid of a Pwr

Presenting Author: Stanislas de Lambert

ICONE28-POWER2020-16129: Inverse Heat Conduction Problem in Estimating NPP Pipeline Performance

Presenting Author: Salvatore Angelo Cancemi

ICONE28-POWER2020-16241: Simulation of Enaccef2 Premixed Hydrogen-Air Mixture Deflagration Experiments Using Openfoam

Presenting Author: Justina Jaseliūnaitė

11:00AM – 12:30PM
ICONE 2.2 - NUCLEAR FUEL AND ENGINEERING AND ICONE 14.4 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16674: Development of the Fuel Behavior Analysis Code for Mechanical Fuel Cladding Failure During Reactivity Insertion Event in Pwr

Presenting Author: Yuma Higashi

ICONE28-POWER2020-16066: On-the-Fly Treatment of Discrete Representation Thermal Neutron Scattering Data in Rmc Code

Presenting Author: Lei ZHENG

ICONE28-POWER2020-16368: Neutronic Study on Conceptual Lithium Fluoride Salt Cooled Fusion Driven System for Actinide Transmutation

Presenting Author: Feryantama Putra

ICONE28-POWER2020-16215: Preventing Nuclear Fuel Material Adhesion on Glove Box Components Using Nanoparticle Coating

Presenting Author: Tomoomi Segawa

ICONE28-POWER2020-16940: Study on Seismic Isolation and Hi-Frequency Vibration Isolation Technology for Equipment in Nuclear Power Plant Using Aero Floating Technique

Presenting Author: Kiyotaka Takito

ICONE28-POWER2020-16740: Flow Characteristics of Upward Two-Phase Flows in a Rod Bundle Geometry

Presenting Author: Xu Han

ICONE28-POWER2020-16942: Experimental Study for Evaluation of Spreading Behavior of Free-Falling Molten Core With Floor Impingement

Presenting Author: Tomomasa Ito

11:00AM – 12:30PM
ICONE 5.1 - NUCLEAR SAFETY, SECURITY, AND CYBER SECURITY

ICONE28-POWER2020-16957: Numerical Analysis of Nuclear Facility Reinforced Concrete Roof Slab Behavior Under Close-in and Contact Explosions

Presenting Author: Li Rongpeng

ICONE28-POWER2020-16023: Seawater Desalination Using a High-Temperature Gas-Cooled Reactor (Htr): Regulatory and Safety Considerations

Presenting Author: Mishari Al-Saud

ICONE28-POWER2020-16167: Nuclear Facility Safety at the United States Department of Energy

Presenting Author: Patrick Frias

ICONE28-POWER2020-16847: Transient Analysis of Dedicated Pressure Relief Valve Under High-Pressure Condition in Severe Accident for Tianwan 56 Nuclear Power Plant

Presenting Author: Youyou Xu

ICONE28-POWER2020-16810: Use of Micro-Gravity Sensors for External Fluid Level Monitoring in Waste and Nuclear Related Applications

Presenting Author: Bryant Slater

ICONE28-POWER2020-16191: Research on Rapid Source Term Estimation in Nuclear Accident Emergency Decision for Pressurized Water Reactor

Presenting Author: WU GUOHUA

ICONE28-POWER2020-16344: An Image Quality Improvement Method Based on Neural Network for Digital Radiography Security Inspection System

Presenting Author: Zhiying Leng

ICONE28-POWER2020-16829: Agx and Agr as Highly Efficient Adsorbents for Organic Iodine

Presenting Author: Sanshiro Kobayashi

11:00AM – 12:30PM
POWER 4 - VIRTUAL PLANT AND CYBER-PHYSICAL SYSTEMS

ICONE28-POWER2020-16580: Using Machine Learning to Increase Model Performance for a Gas Turbine System

Presenting Author: Paolo Pezzini

ICONE28-POWER2020-17026: Risk-Based Approach to Cybersecurity in Connected Plant With Cyber-Physical Systems

Presenting Author: Pranav Patel

ICONE28-POWER2020-16620: System Analysis of a 100kw Internal Combustion Engine (Ice)/solid Oxide Fuel Cell (Sofc) Hybrid Configuration.

Presenting Author: José Colón Rodríguez

ICONE28-POWER2020-16226: Intelligent Coal Type Identifier for Efficient Thermal Power Plants

Presenting Author: Ashit Gupta

ICONE28-POWER2020-16571: Modeling and Control of Subcritical Coal-Fired Power Plant Components for Fault Detection

Presenting Author: Selorme Agbleze

11:00AM – 12:30PM
POWER 6.1 - RENEWABLE ENERGY SYSTEMS

ICONE28-POWER2020-17028: Experimental Investigation of Turbulence Effect on Aerodynamic Noise of Channeled Naca 0012 Airfoil

Presenting Author: Hussein Mohammad

ICONE28-POWER2020-16124: Read, Reckon, and React: Talking to Electrons for Greater Renewable Energy Integration

Presenting Author: Jacqueline DeSouza

ICONE28-POWER2020-16079: Comparison of Trapezoidal Secondary Reflectors of a Linear Fresnel Reflector

Presenting Author: Oscar A. Lopez-Nuñez

ICONE28-POWER2020-16902: The Optimization and System Identification of a Variable Pico-Scale Hydro Turbine for Pressure Regulation

Presenting Author: Shi Miao Yu

ICONE28-POWER2020-16938: Adjusting the Levelized Cost of Energy for Different Rates of Compensation for Solar Generation: A Case Study

Presenting Author: Peter M. Schwarz

ICONE28-POWER2020-16044: Investigation of Southern California's Natural Gas Infrastructure to Transport and Store Hydrogen to Meet Electric Demand Based on a 100% Renewable Energy Portfolio

Presenting Author: Zahra Heydarzadeh

ICONE28-POWER2020-16444: Investigation of Oxygen Transport Through the Ionomer Film in the Catalyst Layer of Pem Fuel Cell Using Molecular Dynamics (Md) Simulation Method

Presenting Author: Linhao Fan

ICONE28-POWER2020-16770: Life Cycle Assessment (Lca) of H2 Fuel Cell Based Commercial & Heavy-Duty Vehicles

Presenting Author: Shahbaz Tahir

11:00AM – 12:30PM
POWER 10.1 - THERMAL HYDRAULICS AND COMPUTATIONAL FLUID DYNAMICS

ICONE28-POWER2020-16015: Evaluating the Cyclic Variability of a Multi-Cylinder Flex-Fuel Engine by Using Wavelets

Presenting Author: FAZAL UM MIN ALLAH

ICONE28-POWER2020-16710: Study on Gas-Liquid Two-Phase Flow Distribution Inside a Flute Header

Presenting Author: Liping Pang

ICONE28-POWER2020-16552: Large Eddy Simulations of In-Nozzle Cavitation Phenomena for Cold Fuel Injection

Presenting Author: Stavros Bontitsopoulos

ICONE28-POWER2020-16374: High-Performance Computing to Enable Next-Generation Low-Temperature Waste Heat Recovery

Presenting Author: Vivek Rao

ICONE28-POWER2020-16993: Convolutional Neural Network Model for the Prediction of Plenum Temperature in a Waste Glass Melter

Presenting Author: Donna Post Guillen

ICONE28-POWER2020-16696: Effect of Magnetic Field on the Heat Transfer Performance of Hybrid Nanofluid in a Lid Driven Cavity Over Solid Block

Presenting Author: Rajesh Nimmagadda

ICONE28-POWER2020-16916: Heron as a Tool for Light Water Reactor Market Interaction in a Deregulated Market

Presenting Author: Paul Talbot

ICONE28-POWER2020-16244: Thermal and Fluid Analysis of Test Canister for Spent Nuclear Fuel

Presenting Author: Marwan Charrouf

11:00AM – 12:30PM
ICONE 7.5 - THERMAL-HYDRAULICS

ICONE28-POWER2020-16224: Experimental Study on Flow Patterns of Decaying Swirling Gas-Liquid Flow in a Horizontal Pipe

Presenting Author: shuai liu

ICONE28-POWER2020-16857: Experimental Study on Aerosol Collection by Spray Droplets: Application to Fission Products Removal in Containment

Presenting Author: Haomin SUN

ICONE28-POWER2020-16946: Investigation of the Structure Velocity in a 3x3 Rod Bundle Under Bubbly and Cap-Bubbly Regimes

Presenting Author: Pei-Syuan Ruan

ICONE28-POWER2020-16678: An Integrated Experimental Test Facility to Support Development of the Passive Containment Cooling System of Hpr1000

Presenting Author: Wei Li

ICONE28-POWER2020-16362: Study on Natural Circulation Flow Instabilities in Rod Bundle Channel Under Rolling Conditions

Presenting Author: Kun Cheng

ICONE28-POWER2020-16367: Experimental Study on Gravity Driven Discharging of Quasi-Two-Dimensional Pebble Bed Based on Mathematical Morphology

Presenting Author: Yujia Liu

ICONE28-POWER2020-16709: Experimental Investigation of the Transient Pool Boiling Heat Transfer on the Quenching of Vertical Rodlet in Water

Presenting Author: Zefeng Wang

ICONE28-POWER2020-16211: An Experimental Study of Two-Phase Flow in a Tight Lattice Using Wire-Mesh Sensor

Presenting Author: Hengwei Zhang

1:45PM – 3:15PM
ICONE 13.1 - PROBABILISTIC RISK ASSESSMENTS

ICONE28-POWER2020-16209: The Fire Event Analysis for Fire Frequency Estimation on Japanese Nuclear Power Plant

Presenting Author: Yasunori Nagata

ICONE28-POWER2020-16623: Level 2 Psa Overview of Hpr1000 Nuclear Power Plant

Presenting Author: WANG Ziguan

ICONE28-POWER2020-16172: Multi-Group Staggered Tests for Highly Redundant Systems

Presenting Author: Shota Soga

ICONE28-POWER2020-16874: Applicability of of Flash-Cat Model to Cable Tray Fire Modeling in Zone Code Bri2002

Presenting Author: Koji SHIRAI

ICONE28-POWER2020-16076: Study on Methodology and Application of Seismic-Induced Flood Level 2 Psa for Pwr in China

Presenting Author: LIU Yu

ICONE28-POWER2020-16201: Development of Advanced Fire Zone Model Applicable to Fire Pra for Nuclear Power Plant

Presenting Author: Junghoon Ji

ICONE28-POWER2020-16761: Risk-Informed Analysis for Accident Tolerant Fuel in Pressurized Water Reactor

Presenting Author: Zhegang Ma

1:45PM – 3:15PM
ICONE 14.3 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16450: Modeling of Low-Temperature Reduction of Metal Oxide in Hydrogen Treatment System for Severe Accidents in Nuclear Power Plants

Presenting Author: Kotaro Nakamura

ICONE28-POWER2020-16697: Experimental Study on Transient Heat Transfer for Helium Gas Flowing in a Minichannel

Presenting Author: Feng Xu

ICONE28-POWER2020-16032: Prediction of Extremely High Minimum Heat Flux Point During Quenching in Nanofluid

Presenting Author: Yutaro Umehara

ICONE28-POWER2020-16216: Aerosol Decontamination Behavior in Two Phase Flow During Pool Scrubbing

Presenting Author: Kohei Yoshida

ICONE28-POWER2020-16233: Experimental Investigation of Behavior of Impinging Liquid Jet in a Shallow Pool by 3d-Lif

Presenting Author: Sota Yamamura

ICONE28-POWER2020-16705: Heat Transfer and Fluid Flow Characteristic of One Side Heated Vertical Rectangular Channel That Inserted Thin Metallic Wire

Presenting Author: Gota Suga

ICONE28-POWER2020-16440: Validation of Analysis Models on Relocation Behavior of Molten Core Materials in Sodium-Cooled Fast Reactors Based on the Melt Discharge Experiment With a Shallow Coolant Pool

Presenting Author: Kai Igarashi

ICONE28-POWER2020-16842: Experiment and Analysis on Isolation Condenser Simulator Using Pressurized Steam

Presenting Author: Kosuke Ono

1:45PM – 3:15PM
ICONE 14.5 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16162: Point Defects Effects on Tensile Strength of Bcc-Fe Studied by Molecular Dynamics Simulations

Presenting Author: Pandong Lin

ICONE28-POWER2020-16062: Nuclear Data Sensitivity and Uncertainty Analysis for Generalized Response With Rmc Code

Presenting Author: Shi Guanlin

ICONE28-POWER2020-16174: Flow Pattern Transition Criteria for Upward Two-Pahse Flow in Annulus

Presenting Author: He wen

ICONE28-POWER2020-16212: Numerical Investigation on Turbulence Models in Bubbly Flow Using Euler-Lagrange Approach

Presenting Author: Yujia Zhou

ICONE28-POWER2020-16257: Experimental Investigation on Temperature Characteristics of Condensation Induced Water Hammer in a Natural Circulation System

Presenting Author: Jianchuang sun

ICONE28-POWER2020-16320: Study on Scattering Correction of the Co-60 Gantry-Movable Dual-Projection Digital Radiography Inspection System

Presenting Author: Minzi Ni

ICONE28-POWER2020-16100: Neutronic and Thermal-Mechanical Coupling Schemes for Heat Pipe Cooled Reactor Designs

Presenting Author: Yugao Ma

ICONE28-POWER2020-16272: Study on Irradiation Damage of Rpv Steels Based on Coupling Cluster Dynamics and Crystal Plasticity Finite Element Method

Presenting Author: Wang Xiaotong

1:45PM – 3:15PM
ICONE 3.2 - NUCLEAR PLANT ENGINEERING

ICONE28-POWER2020-16358: Study on Heating Process of Dehumidifying Experiment in High Temperature Gas-Cooled Reactor

Presenting Author: Kaiyue Shen

ICONE28-POWER2020-16168: Reactor Core Control Based on Artificial Intelligence

Presenting Author: Victor Morokhovskyi

ICONE28-POWER2020-16035: Nuclear Pressure Vessel Manufacture Using the Hot Isostatic Pressing (Hip) Process

Presenting Author: John Sulley

ICONE28-POWER2020-16090: Ihsi Effectiveness for Crack Propagation Observed at Hamaoka Plr Piping

Presenting Author: Hideki YUYA

ICONE28-POWER2020-16198: Design Applicability of the Advanced Spectrum Method Assisted by Time History Analysis for Multiply Supported Piping System

Presenting Author: Ayaka Yoshida

ICONE28-POWER2020-16862: Uncertainty Quantification of Seismic Response of Reactor Building Considering Different Modeling Methods

Presenting Author: Byunghyun Choi

ICONE28-POWER2020-16074: Corrosion of High Temperature Alloys in the Primary Coolant of Htgr Under Very-High Temperature Operation

Presenting Author: Qiuhao Wang

1:45PM – 3:15PM
ICONE 5.3 - NUCLEAR SAFETY, SECURITY, AND CYBER SECURITY

ICONE28-POWER2020-16723: Development of Three-Dimensional Distribution Visualization Technology for Boron Using Energy Resolved Neutron-Imaging System (Raden)

Presenting Author: Yuta Abe

ICONE28-POWER2020-16654: Research on Cooling Water Source Safety Measures in Water Intake Engineering of Coastal Npp

Presenting Author: TANG-BENJING

ICONE28-POWER2020-16482: Reliability Assessment of Npp System for Risk Management Based on an Information Reasoning Methodology

Presenting Author: LU Hongxing

ICONE28-POWER2020-16182: Preliminary Investigation on Improvement of Fp Management During Bwr Severe Accident With Melcor-2.2

Presenting Author: Kento Matsubara

ICONE28-POWER2020-16707: A Novel System for Automated Proper Use Identification of Personal Protective Equipment in Decommissioning Site of Fukushima Daiichi Nuclear Power Station

Presenting Author: Shi Chen

ICONE28-POWER2020-16584: Melcor Demonstration Analysis of Accident Scenarios at a Spent Nuclear Reprocessing Plant

Presenting Author: Kenneth C. Wagner

ICONE28-POWER2020-16470: Analysis of Transient Corium Pool Structure in the Lower Plenum of Reactor Vessel

Presenting Author: Liang Chen

ICONE28-POWER2020-16380: Weakly Supervised Deep Neural Network for Bearing Fault Diagnosis

Presenting Author: Daisuke Miki

1:45PM – 3:15PM
ICONE 8.3 - COMPUTATIONAL FLUID DYNAMICS (CFD)

ICONE28-POWER2020-16775: Experimental and Numerical Investigation of Thermal Performance of Synthetic Jet Impingement

Presenting Author: Pushpanjay Kumar Singh

ICONE28-POWER2020-16736: Development of a Multiphase Particle Method for Melt-Jet Breakup Behavior of Molten Core in Severe Accident

Presenting Author: zidi wang

ICONE28-POWER2020-16747: Development on Simulation Method for Two-Phase Flow in Large Diameter Pipes With 90 Degree Elbows

Presenting Author: Yoshiteru Komuro

ICONE28-POWER2020-16907: Deposition Velocity and Penetration Efficiency of Particle Transport in a Square Channel Using a Lagrangian-Based Modelling Approach

Presenting Author: Byung-Hee Choi

ICONE28-POWER2020-16836: Numerical Simulation of the Air-Water Two-Phase Flow Across a 90-Degree Vertical-Upward Elbow

Presenting Author: Shouxu Qiao

ICONE28-POWER2020-16841: Computational Study on the Spherical Laminar Flame Speed of Hydrogen-Air Mixture

Presenting Author: Nuri Trianti

ICONE28-POWER2020-16703: Hybrid Nodal Integral/finite Element Method for Time-Dependent Convection Diffusion Equation

Presenting Author: Sundar Namala

ICONE28-POWER2020-16851: Numerical Validation of Aqua-Sf in Snl-T3 Sodium Spray Fire Experiment

Presenting Author: Masateru Sonehara

1:45PM – 3:15PM
ICONE 10.1 - DECONTAMINATION & DECOMMISSIONING

ICONE28-POWER2020-16826: Sensitivity Analysis of External Exposure Doses for Future Burial Measures of Decontamination Soil Generated Outside of Fukushima Prefecture

Presenting Author: Asako Shimada

ICONE28-POWER2020-16319: Comparative Evaluation of Resolution and Detection Efficiency According to Pips Detector Active Area for Airborne Alpha and Beta Detection System

Presenting Author: Si Hyeong Sung

ICONE28-POWER2020-16698: Goss Alpha and Gross Beta Activity Concentration in Bahe River Flowing Through Xi'an Chanba Area

Presenting Author: Huo Yonggang

ICONE28-POWER2020-16423: Measurement of Thermal Decomposition Temperature and Rate of Sodium Hydride

Presenting Author: Munemichi Kawaguchi

ICONE28-POWER2020-16070: A Laser Decontamination Technology for Radioactive Contaminated Metals

Presenting Author: Zhao Wan

ICONE28-POWER2020-16834: Challenge to Investigation of Fuel Debris in Rpv by an Advanced Super Dragon Articulated Robot Arm, (2) Design and Prototyping of a Lightweight Super Long Reach Articulated Manipulator

Presenting Author: Gen Endo

1:45PM – 3:15PM
POWER 5 - PLANT DEVELOPMENT AND CONSTRUCTION AND POWER 10.2 - THERMAL HYDRAULICS AND COMPUTATIONAL FLUID DYNAMICS

ICONE28-POWER2020-16309: Thermodynamic Analysis on a Heat-Power Decoupling System Integrated With Absorption Heat Pump

Presenting Author: Liyuan Wang

ICONE28-POWER2020-17018: Why the Tokamak Will Never Produce Commercial-Level Energy

Presenting Author: Brenda Bayles

ICONE28-POWER2020-16271: Thermo-Economic Optimization on the Waste Heat Recovery System of Sco2 Coal-Fired Power Plants

Presenting Author: Ruiqiang Sun

ICONE28-POWER2020-16918: Extending Life Expectancy of La Esmeralda Reservoir: A Bet to Support Colombia's Future Energy Demand

Presenting Author: David A. del Río

ICONE28-POWER2020-16249: Temperature and Heat Flux Measurements in a Direct Fired Laboratory Magnetohydrodynamic Generator Channel

Presenting Author: Emily Davis

ICONE28-POWER2020-16945: Model Investigation Using Artificial Intelligence and Data Mining

Presenting Author: Dr. George L Mesina

3:30PM – 5:00PM
ICONE 1.1 - OPERATING PLANT EXPERIENCE

ICONE28-POWER2020-17035: Automated Analysis of Ultrasonic Testing Data Using Artificial Intelligence

Presenting Author: Kanta Takahashi

ICONE28-POWER2020-16105: Periodic Tests Improvement of Emergency Diesel Generator Units in Nuclear Power Plant

Presenting Author: Liu Fei

ICONE28-POWER2020-16861: Convolutional Neural Network Considering the Effects of Noise for Bearing Fault Diagnosis

Presenting Author: ilyoung han

ICONE28-POWER2020-16636: Artificial Neural Network Model for Diagnosing the Performance and the Conditions of Air-Operated Valves

Presenting Author: Taeyun Kim

ICONE28-POWER2020-16386: Technology of Phased Array Ultrasonic Testing on Jet Pump Beam Installed in Reactor Pressure Vessel

Presenting Author: Shunsuke Sasaki

ICONE28-POWER2020-16150: A New Data Driven Method for Monitoring a Large Number of Process Values and Detecting Anomaly Signs With a Two-Stage Model Composed of a Time Window and a Deviation Autoencoders

Presenting Author: Susumu Naito

ICONE28-POWER2020-16169: Key Learnings of Full Scope Simulator's Nuclear Steam Supply System (Nsss) Model Re-Hosting Project at Edf

Presenting Author: DAVID PIALLA

ICONE28-POWER2020-17067: Optimal Scheduling of Inspection Process for Fast Reactor via Integer Programming

Presenting Author: Masaaki Suzuki

3:30PM – 5:00PM
ICONE 10.2 - DECONTAMINATION & DECOMMISSIONING

ICONE28-POWER2020-16342: Preliminary Optimization of Mobile Radioactive Contamination Detection System for Scanning Surface Soil Based on Marssim

Presenting Author: Se-Won Park

ICONE28-POWER2020-16414: Control Rod Blades Size Reduction Using Underwater Plasma Cutting and Its Effects on Boron Carbide Powder Scattering

Presenting Author: Yassine Serbouti

ICONE28-POWER2020-16160: Study of Laser 3d Scanning Model Reconstruction for Nuclear Facilities Decommissioning

Presenting Author: Zhang Yongling

ICONE28-POWER2020-16301: Tritium Recovery Using High Temperature Furnace in Melting of the Radioactive Aluminum Sample

Presenting Author: Kang, Ki Joon

ICONE28-POWER2020-16141: Implementation and Validation of an Aerosol Collection Model by a Spray in a Cfd Code – Application to the Scavenging of Aerosols Released During Laser Cutting Operations of Fuel Debris for the Dismantling of the Damaged Reactors of Fukushima Dai-Ichi

Presenting Author: Thomas GELAIN

ICONE28-POWER2020-16299: Occupational Exposure Calculation During Dismantling and Disposal of the Bio-Shield of a Kori Nuclear Power Plant Unit#1

Presenting Author: ChoongWie Lee

ICONE28-POWER2020-16307: Radiological Safety Assessment of Accident Scenarios of 1 Ton / Day Spent Resin Treatment Facility

Presenting Author: Jaehoon Byun

ICONE28-POWER2020-16303: Spectral Resolution Improvement Using Collimator for Airborne Alpha Beta Detection System

Presenting Author: Min Ji Kim

3:30PM – 5:00PM
ICONE 7.6 - THERMAL-HYDRAULICS

ICONE28-POWER2020-16949: Experimental Study of the Effect of Hydrogen Inflow on Passive Core Cooling System With Natural Circulation Flow

Presenting Author: Yasunori Yamamoto

ICONE28-POWER2020-16397: Experimental Study of Bubble behavior in A Flowing Liquid Layer

Presenting Author: Zhengzheng Zhang

ICONE28-POWER2020-16648: Experimental Study of Boiling Characteristics of Seawater After an Accidental Shutdown of the Pump

Presenting Author: Yuanjie Li

ICONE28-POWER2020-16964: Analysis of Droplet Impacting on Inclined Wall

Presenting Author: Chen Bowen

ICONE28-POWER2020-16644: Experimental Results on the Coolability of a Top Flooded Debris Bed With Seawater Injection

Presenting Author: Zayed Ahmed

ICONE28-POWER2020-16430: Experimental Investigation on Gas Mixing and Stratification in Containment Influenced by External Cooling

Presenting Author: Ying Li

ICONE28-POWER2020-16780: Experimental and Numerical Research on Steam Direct Contact Condensation Process in Automatic Depressurization System of Ap1000

Presenting Author: ZHANG Yuhao

3:30PM – 5:00PM
ICONE 14.6 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16281: Comparative Thermal Analyses Between Theoretical Mode and Relap5 Code Simulation for Otsc of a Small Pwr

Presenting Author: Baihui Jiang

ICONE28-POWER2020-16294: Power Rising and Descending Transient for the Otsg of a Small Pwr

Presenting Author: Baihui Jiang

ICONE28-POWER2020-16277: Cogeneration of Multi-Modelar High Temperature Gas-Cooled Reactor Based on Cu-Cl Cycle and High Temperature Electrolysis

Presenting Author: Liu Miao

ICONE28-POWER2020-16327: Stochastic Simulation Method for Reasoning of Dynamical Uncertain Causality Graph

Presenting Author: Hao Nie

ICONE28-POWER2020-16297: Experimental Study on Two Different Gas-Liquid Separators Under Different Flow Patterns

Presenting Author: Xiaobo Zeng

ICONE28-POWER2020-16056: A Comparative Study of Constrained and Unconstrained Melting Inside a Sphere

Presenting Author: Rohit Kothari

ICONE28-POWER2020-16296: Validation of relap5/mod3.4 for Flashing-Induced Instabilities in a Natural Circulation Loop

Presenting Author: Yifan Xu

ICONE28-POWER2020-16353: Development of a Simplified Model for Aerosol Removal by Spray System of Containment

Presenting Author: Yu Huiyu

3:30PM – 5:00PM
ICONE 5.2 - NUCLEAR SAFETY, SECURITY, AND CYBER SECURITY

ICONE28-POWER2020-16175: Study on Eutectic Melting Behavior of Control Rod Materials in Core Disruptive Accidents of Sodium-Cooled Fast Reactors: (4) Validation of a Multi-Phase Model for Eutectic Reaction Between Stainless Steel and Boron Carbide

Presenting Author: Koji Morita

ICONE28-POWER2020-16765: The Heating Impact on the Corrosion Mechanism of Carbon Steel Surrounded by Bentonite

Presenting Author: Masao Uyama

ICONE28-POWER2020-16248: Discussion of Water Quality Factors Affecting 137cs Adsorption and the Relationship Between 137cs-Kd and Flow Rate in Freshwater

Presenting Author: Jiaxin Wang

ICONE28-POWER2020-16792: Research on Nuclear Safety Video Display Unit Technology Based on Digital Twin

Presenting Author: Yanqun Wu

ICONE28-POWER2020-16755: Determining Airborne Release Fraction From Dot 7a Drums Exposed to a Thermal Insult

Presenting Author: Hector Mendoza

ICONE28-POWER2020-16742: Abstract Stratification and Heat Transfer of Molten Corium Pool for In-Vessel Retention

Presenting Author: xiaoli wu

ICONE28-POWER2020-16052: Emergency Action Level Study in Reprocessing Facility

Presenting Author: WANG Renze

3:30PM – 5:00PM
ICONE 5.6 - NUCLEAR SAFETY, SECURITY, AND CYBER SECURITY

ICONE28-POWER2020-16245: Emulation Methodology of Programmable Logic Controllers for Cybersecurity Applications

Presenting Author: Raymond Fasano

ICONE28-POWER2020-16222: The Choice of Mosfet Manufacturing Technique Used in Emergency Response Robot

Presenting Author: LIU YINING

ICONE28-POWER2020-16906: Analysis of National and International Standards to Identify Priority Control Methods

Presenting Author: Michael Rowland and Jacob James

ICONE28-POWER2020-16334: Artificial Neural Networks in Condition Monitoring and Fault Diagnosis of Nuclear Power Plans: A Concise Review

Presenting Author: Botao Jiang

ICONE28-POWER2020-16511: Image Calibration Based on Dynamic No-Load Data for the 60co Gantry-Movable Dual-Projection Radiography Inspection System

Presenting Author: Guangchao Li

ICONE28-POWER2020-16589: Molecular Dynamics Study of Evaporation Induced Entrainment of Radioactive Contaminants

Presenting Author: Pierce, Flint

3:30PM – 5:00PM
ICONE 12 - NUCLEAR POLICY AND ICONE 4.2 - SMR AND ADVANCED REACTORS

ICONE28-POWER2020-16033: Reforms and Innovations in a Nuclear Engineering Course-"Nuclear Power Plant Systems and Equipment"

Presenting Author: Jiageng Wang

ICONE28-POWER2020-16064: Public Engagement of Nuclear Energy in China: The Characteristics of Public Knowledge, Risk Perception, Trust Perception and Environmental Concern

Presenting Author: Priscilla Obeng Oforiwaa

ICONE28-POWER2020-16662: Large-Scale Rig for the Characterization of Dcc at Sub-Atmospheric Pressure

Presenting Author: Rosa Lo Frano

ICONE28-POWER2020-16058: Modeling the Molten Salt Reactor Experiment With the Gothic Code

Presenting Author: Rodney Harvill

ICONE28-POWER2020-16671: Synergy of an Smr for Addressing Remote Communities Non-Nuclear Waste

Presenting Author: Glenn Harvel

ICONE28-POWER2020-17041: Feasibility Study on Small and Medium Pwr by Utilizing Uranium Silicide Fuel in the Aspects of Fundamental Neutronics, Inherent Safety, and Non-Proliferation Features

Presenting Author: Natsumi Mitsuboshi, Hiroshi Sagara

ICONE28-POWER2020-16746: Development of Safety-Enhanced Fast Reactor by Using Minor Actinide Bearing Internal Blanket

Presenting Author: Sho Fuchita

ICONE28-POWER2020-16751: Sodium Fire Analysis Using a Sodium Chemistry Package in Melcor

Presenting Author: Mitsuhiro Aoyagi

3:30PM – 5:00PM
ICONE 8.2 - COMPUTATIONAL FLUID DYNAMICS (CFD)

ICONE28-POWER2020-16419: Time-Dependent Solution of Unsteady Fluid Flow Equations for High Speed Oscillating Compressible Flows and Blast Wave Propagations

Presenting Author: Ramlala P. Sinha

ICONE28-POWER2020-16593: Cfd Preliminary Assessment of the Alfred Fa Thermal-Hydraulics

Presenting Author: Ranieri Marinari

ICONE28-POWER2020-16682: Investigation on Post Accident Heat Removal From Partial Core Relocation in Lower Plenum After Cda in Sfrs: 3-D Cfd Analysis

Presenting Author: Vidhyasagar Jhade

ICONE28-POWER2020-16080: Toward Industrial Applicability of Dnb Predictions in Cfd With Improved Wall Boiling Models

Presenting Authors: Jinyong Feng

ICONE28-POWER2020-16316: Numerical Analysis of Single-Phase Thermal Hydraulic Parameters Along Nanostructured Coating Film

Presenting Author: Omar S. Al Yahia

ICONE28-POWER2020-16047: Static Application of Transient Hydrodynamic Loads on Vessel Internal Structures as a Result of Pulse Jet Mixer Overblow: High-Frequency Load Acoustic Event

Presenting Author: Brian Fant

ICONE28-POWER2020-16139: Implementation and Validation of a Particle Resuspension Model in a Cfd Code – Application to an Air Ingress Scenario in a Vacuum Toroidal Vessel

Presenting Author: Thomas GELAIN

ICONE28-POWER2020-16817: A Numerical Simulation Method for Core Internals Behavior in Severe Accident Conditions: Chemical Reaction Analyses in Core Structures by Jupiter

Presenting Author: Susumu Yamashita

3:30PM – 5:00PM
POWER 9.1 - PLANT PERFORMANCE

ICONE28-POWER2020-16534: Online Adaptive Control Tuning in a Gas Turbine Hybrid System

Presenting Author: Harry Bonilla

ICONE28-POWER2020-16269: Thermo-Economic Analysis on Waste Heat and Water Recovery Systems of Boiler Exhaust in Coal-Fired Power Plants

Presenting Author: Kaixuan Yang

ICONE28-POWER2020-16467: A Novel Coal-Fired Chp System Integrated With Steam Ejectors to Realize Heat-Power Decoupling and Energy Saving

Presenting Author: Miaomiao Liu

ICONE28-POWER2020-16195: Stochastic Optimization for Long-Term Capital Structures, Systems, and Components Refurbishment and Replacement

Presenting Author: Congjian Wang

ICONE28-POWER2020-16286: Technical Evaluation and Applications of Heat Recovery From Simple Cycle Gas Turbine Exhaust Systems

Presenting Author: Bouria Faqihi

ICONE28-POWER2020-16227: Study on Basic Coal Consumption Characteristics in Dynamic Process of 660mw Ultra-Supercritical Coal-Fired Unit

Presenting Author: Junjie Yin

ICONE28-POWER2020-16708: Study on Formation, Deposition and Fouling Prediction of Ammonium Bisulfate (Abs) at Air Preheater

Presenting Author: Liping Pang

ICONE28-POWER2020-16255: Optimization of Extraction Position Under Low Loads Operation of Power Plant in Power-Water Cogeneration

Presenting Author: Jiang Fan

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10:15AM – 11:45AM
ICONE 7.1 - THERMAL-HYDRAULICS

ICONE28-POWER2020-16346: The Experimental Study of Single Droplet Impinging on a Inclined Heated Wall

Presenting Author: Wenlong Tian

ICONE28-POWER2020-16117: Experimental Study of Thermal and Hydraulic Characteristics of Pressurizer-Typed Heating Containter During Blowdown Process

Presenting Author: Bingzheng Ke

ICONE28-POWER2020-16632: Calculation of Critical Heat Flux Using an Inverse Heat Transfer Method to Support Treat Experiment Analysis

Presenting Author: Robert Armstrong

ICONE28-POWER2020-16109: Experimental Study on Natural Convection Heat Transfer Outside Tube Bundle in Space Under Low Temperature Difference

Presenting Author: Xu Junxiu

ICONE28-POWER2020-16434: Influence of Gas Properties on Gas-Liquid Two-Phase Flow

Presenting Author: Miki Saito

ICONE28-POWER2020-17004: Calculation and Analysis of Steam Hammer in Main Steam Pipe in Hpr1000

Presenting Author: yu pei

ICONE28-POWER2020-16315: Experimental Study on the Sub-Channel Void Fraction Characteristics of Bubbly Flow in Rod Bundles

Presenting Author: Quan-yao Ren

ICONE28-POWER2020-16759: High-Energy X-Ray Ct Measurement of Void Fraction Distribution Around Part Length Rods in a Rod Bundle at High Pressures and Temperatures

Presenting Author: Takahiro Arai

10:15AM – 11:45AM
ICONE 3.1 - NUCLEAR PLANT ENGINEERING

ICONE28-POWER2020-16783: Corrosion Property of Container Using Hybrid Material for Thermal Decomposition Process of Sulfuric Acid

Presenting Author: Ikuo Ioka

ICONE28-POWER2020-16908: Development and Assessment of a Nearly Autonomous Management and Control System During a Single Loss of Flow Accident

Presenting Author: Linyu Lin

ICONE28-POWER2020-16782: Research on Hydraulic Model Test of Pumping Station Forebay

Presenting Author: Jiale Jian

ICONE28-POWER2020-16002: Life Prediction Model for Nuclear Power Plant Intake Structure Exposed to Chloride Environment Based on Similarity Principle

Presenting Author: Chen Sen

ICONE28-POWER2020-16813: Development and Assessment of Data-Driven Digital Twins in a Nearly Autonomous Management and Control System for Advance Reactors

Presenting Author: Linyu Lin

ICONE28-POWER2020-16773: Investigation of Hardening Law on Welding Residual Stress Analysis for Nickel Based Alloy 82 Weld Metal

Presenting Author: MITSURU EJIRI

ICONE28-POWER2020-17050: Study on the Interaction Between Safety-Related and Non Safety-Related Items in the Component Cooling Water System Room of the Qinshan Nuclear Power Plant in the Earthquake Condition

Presenting Author: Liang Zhang

ICONE28-POWER2020-16855: Analytical Study on Perforation Damage to Reinforced Concrete Slab Subjected to Oblique Impact by Missiles With Different Nose Shape

Presenting Author: Zuoyi Kang

10:15AM – 11:45AM
ICONE 8.1 - COMPUTATIONAL FLUID DYNAMICS (CFD)

ICONE28-POWER2020-16351: Natural-convective transport model of radon from building materials into indoor atmosphere

Presenting Author: Shengyang Feng

ICONE28-POWER2020-16431: Feasibility Study for Flow-Induced Vibration in Stud Pipe Using Computational Fluid Dynamics

Presenting Author: Khac-Ha Nguyen

ICONE28-POWER2020-16393: Numerical Simulation of Micro Particles Motion in Two-Phase Bubbly Flow

Presenting Author: Hiroyuki Yoshida

ICONE28-POWER2020-16193: Design of an Innovative Moisture Separator Technology for Use in Nuclear Power Plants: Numerical Approach (Part 1)

Presenting Author: Loris Padovan

ICONE28-POWER2020-16340: Cfd-Dem Simulations of Graphite Particle Collisions in Opposed Jet Mill

Presenting Author: Sifan Peng

ICONE28-POWER2020-16273: Numerical Investigation of the Obstacle on Hydrogen Distribution in a Vessel

Presenting Author: Tianlin Wang

ICONE28-POWER2020-16213: Numerical Simulation of Liquid Jet Behavior in Shallow Pool by Interface Tracking Method

Presenting Author: Hiroyuki Yoshida

10:15AM – 11:45AM
ICONE 3.3 - NUCLEAR PLANT ENGINEERING

ICONE28-POWER2020-16235: Classification Research of Communication System of Nuclear Power Plant

Presenting Author: YUYUN

ICONE28-POWER2020-16361: Parameter Investigation and Analysis for Improving Plasma Production and Conductivity in the Mhd Generation

Presenting Author: Kang, Tae Uk

ICONE28-POWER2020-16161: Molecular Dynamics Simulations of the Coupled Effects of Vacancies and Strain on Displacement Cascades in α-Fe

Presenting Author: Pandong Lin

ICONE28-POWER2020-16138: Research on Fault Diagnosis of Nuclear Power Plant Based on Neural Network

Presenting Author: SUN Pengpeng

ICONE28-POWER2020-16413: Thermal Efficiency Optimization of a Modular High Temperature Gas-Cooled Reactor Plant by Extraction Steam Distribution

Presenting Author: Di Jiang

ICONE28-POWER2020-16207: Proportional Integral Disturbance Observer of Nuclear Reactors

Presenting Author: Dong Zhe

ICONE28-POWER2020-16745: Development of Design Support System for Piping Route and Differential Pressure Flowmeter by Three-Dimensional Fluid Analysis

Presenting Author: Takatsugu Miura

ICONE28-POWER2020-16254: Coordinated Control Scheme Design of a Nuclear Heating Reactor Cogenertion Plant for Balancing Renewables

Presenting Author: Dong Zhe

10:15AM – 11:45AM
ICONE 14.7 - STUDENT PAPER COMPETITION

ICONE28-POWER2020-16806: Numerical Study of Fuel Melting and Molten Migration Based on the Mps Method

Presenting Author: Lei Zhong

ICONE28-POWER2020-16456: Numerical Investigation on Heat Transfer to Supercritical Water Flowing Upward in a 4-M Long Bare Vertical Circular Tube

Presenting Author: Dong YANG

ICONE28-POWER2020-16509: Experimental on Entropy Generation of Supercritical Pressure Water Flowing in Reactors

Presenting Author: peng xu

ICONE28-POWER2020-16900: Anomaly Detection for Network Traffic of I&c Systems Based on Neural Network

Presenting Author: Wen Si

ICONE28-POWER2020-16630: Experimental Study on the Thermal Properties and Stability of Hybrid Nanofluids and Evaluation of Its Heat Exchange Efficiency

Presenting Author: Yubai Xiao

ICONE28-POWER2020-16677: A Review of Degradation Modeling of Key Components of Sensor Circuits Based on Physical Analysis

Presenting Author: Yunlong Zhu

10:15AM – 11:45AM
POWER 1.1 - FUELS, COMBUSTION & MATERIAL HANDLING

ICONE28-POWER2020-16095: Boiler Emissions and Performance Improvement Due to Utilization of Novel Real-Time Intelligent Sootblowing Boiler Monitoring.

Presenting Author: Boris Chudnovsky

ICONE28-POWER2020-17065: Towards Micro-Liter Combustion Diagnostics Within Heated Microchannel

Presenting Author: Seyed Navid Roohani Isfahani

ICONE28-POWER2020-16008: Decentralized Pid Controller Design for Sofc-Gt

Presenting Author: Tooran Emami

ICONE28-POWER2020-16061: Prediction of Ultra-Lean Si Engine Performance by Qd-Combustion Model With an Improved Laminar Flame Speed

Presenting Author: Ratnak Sok

ICONE28-POWER2020-16438: Numerical Study on Renewable and Sustainable Fuels for High-Pressure-Dual-Fuel Engines

Presenting Author: Stephanie Frankl

ICONE28-POWER2020-16713: Characterizing Premixed Syngas Combustion and Flame Dynamics in Micro Scales

Presenting Author: Sunita Pokharel

ICONE28-POWER2020-16997: Analysis of Current Hybrid-Electric Automobile Drivetrains and Novel Configurations in the Interest of Increased Efficiency

Presenting Author: Andrew Ahn

ICONE28-POWER2020-16572: Effects of Ambient Air Humidity on Emissions and Efficiency of Large-Bore Lean-Burn Otto Gas Engines in Development and Application

Presenting Author: Tomas Bartkowski

10:15AM – 11:45AM
POWER 6.2 - RENEWABLE ENERGY SYSTEMS

ICONE28-POWER2020-16163: Dynamic Simulation of Coal-Fired Power Plant Integrated With Trough Solar Collector Operating in Parallel With High Pressure Heaters

Presenting Author: Hui Yan

ICONE28-POWER2020-16588: Pilot-Scale System With Particle-Based Heat Transfer Fluids for Concentrated Solar Power Applications

Presenting Author: Joshua Hlebak

ICONE28-POWER2020-16304: A High-Power Ironless Ultra-Light Direct-Drive Wind Generator Based on Circular Flux

Presenting Author: Charles Vann

ICONE28-POWER2020-16240: A Life Cycle Assessment of Biodiesel Fuel Produced From Waste Cooking Oil

Presenting Author: Nelson Macken

ICONE28-POWER2020-16802: Low-Grade Heat Utilization Through Ultrasound- Enhanced Desorption of Activated Alumina/ Water for Thermal Energy Storage

Presenting Author: Hooman Daghooghi Mobarakeh

ICONE28-POWER2020-16189: Dynamic Modeling and Simulation of a Solar Air Heater Assisted by a Dehumidification System for an Agriculture Greenhouse

Presenting Author: Fahad Almehmadi

10:15AM – 11:45AM
POWER 7 - HEAT EXCHANGER TECHNOLOGIES AND POWER 6.3 - RENEWABLE ENERGY SYSTEMS

ICONE28-POWER2020-16557: Prediction of Wind Speed, Potential Wind Power, and the Associated Uncertainties for Offshore Wind Farm Using Deep Learning

Presenting Author: Gary Talor

ICONE28-POWER2020-16500: A Hybrid Model for Short-Term Wind Speed Prediction Based on Ensemble Empirical Mode Decomposition and Bo-Lstm Networks

Presenting Author: Yihan He

ICONE28-POWER2020-16616: Hydrothermal Enhancement of Horizontal Ground Source Heat Pump

Presenting Author: Anthony DiCarlo

ICONE28-POWER2020-16579: Thermal Performance Evaluation of a Solar Collector Utilizing a Novel Resistance Network Model

Presenting Author: Arman Nokhosteen

ICONE28-POWER2020-16695: Comparison Study of Two Different Integrated Solar Combined Cycle Systems

Presenting Author: Liqiang Duan

ICONE28-POWER2020-16510: Wind Turbine Blade Coating Fatigue Induced by Raindrop Impact

Presenting Author: Weifei Hu

ICONE28-POWER2020-16278: Phase Change Thermal Diode Using Al2o3-Cu/water Hybrid Nanofluids for Thermal Rectification Enhancement

Presenting Author: Wong Man Yi

ICONE28-POWER2020-17076: Variable Frequency Drives Improve Power Plant Minimum Operating Level Performance

Presenting Author: Glenn Davis

1:45PM – 3:15PM
ICONE 6.1 - CODES & STANDARDS

ICONE28-POWER2020-16022: New Requirements of Defence in Depth and Extension of Its Application

Presenting Author: Wang Chengcheng

ICONE28-POWER2020-16753: Heat Transfer for Supercritical Flow With Trace

Presenting Author: Jay Spore

ICONE28-POWER2020-17070: Effect of Crack Length on the Environmental Acceleration in Fatigue Crack Growth of 316 Stainless Steel in a Simulated Pwr Primary Water

Presenting Author: Yoichi Takeda

ICONE28-POWER2020-16594: Seismic Time History Data Precision and Time Interval Requirement

Presenting Author: Dali Li

ICONE28-POWER2020-16801: Numerical Simulation of Multiple Physical Processes in Nuclear System Based on Galerkin Finite Element Method

Presenting Author: Baoxin Yuan

ICONE28-POWER2020-16735: Proposal of Inspection Rationalization Scheme and Application for Primary Piping of Sodium Cooled Fast Reactor

Presenting Author: YADA Hiroki

1:45PM – 3:15PM
ICONE 7.3 - THERMAL-HYDRAULICS

ICONE28-POWER2020-16798: Preliminary Development on Thermal-Hydraulic Analysis Code for the Spent Fuel Rod Under the Condition of Spray Cooling

Presenting Author: GUO Chao

ICONE28-POWER2020-16967: Study on Effect of Sloshing Phenomenon on Pressurizer

Presenting Author: Jiarui Chen

ICONE28-POWER2020-16183: Experimental Study of the Processes of Gas-Steam Pressurizer Insurge Transients

Presenting Author: Bolong Wang

ICONE28-POWER2020-16955: Experimental Study on Multi-Channel Jets in Plate Assembly Under Blockage Condition

Presenting Author: Peng Wang

ICONE28-POWER2020-16766: Theoretical Research on Two-Phase Flow Instability in Parallel Channels Under Periodic Perturbation

Presenting Author: Libo Qian

ICONE28-POWER2020-16786: Study on the Liquid Seal Discharge Process in an Over-Pressurized Accident

Presenting Author: Dan Wu

ICONE28-POWER2020-16526: Thermal Hydraulic Design Support and Safety Analyses of Sealer Uk Demo

Presenting Author: Kevin Zwijsen

ICONE28-POWER2020-16891: Study on the Multi-Variable and Multi-Objective Optimization of the Reactor System

Presenting Author: Li WANG

1:45PM – 3:15PM
ICONE 3.4 - NUCLEAR PLANT ENGINEERING

ICONE28-POWER2020-16673: Numerical Simulation of Structural Optimization for Inlet Pipe of Centrifugal Pump in Cap1400 Power Plant Auxiliary System

Presenting Autor: QU TING

ICONE28-POWER2020-16474: Using Pipe Whip Analysis via the Finite Element Method to Underpin the Delineation Between High and Moderate Energy Lines

Presenting Author: Antony Hurst

ICONE28-POWER2020-16774: Structure Topology Optimization Design and Shock Resistance Study on Nuclear Power Safety Dcs Cast Aluminum Cabinet

Presenting Author: Dongwei Wang

ICONE28-POWER2020-16426: Investigating Structural Response of Pressure Reducing Valve of Supercritical Steam Generator System Under Cyclic Moments, Thermal Transient and Pressure Loadings

Presenting Author: Antony Hurst

ICONE28-POWER2020-16849: Analytical Study on Dynamic Response of Reinforced Concrete Structure With Internal Equipment Subjected to Missile Impact

Presenting Author: Yukihiko Okuda

ICONE28-POWER2020-16668: Stress Analysis on the Lower Head of Central Measuring Shroud Under Thermal Striping and Thermal Shock Conditions

Presenting Author: Shu ZHENG

ICONE28-POWER2020-16843: Experimental Study on Local Damage to Reinforced Concrete Structure Subjected to Missile Impact - Outline of Oblique Impact Test

Presenting Author: Akemi Nishida

ICONE28-POWER2020-16650: Analysis of Flow Induced Vibrations in Steam Generator Channel Head Drain Plug

Presenting Author: Antony Hurst

1:45PM – 3:15PM
ICONE 4.1 - SMR AND ADVANCED REACTORS

ICONE28-POWER2020-16711: Li4sio4 Breeder Pebbles by Drip Casting Method

Presenting Author: Rosa Lo Frano

ICONE28-POWER2020-16418: Analysis of Gas Entrainment Phenomenon From Free Liquid Surface for a Sodium-Cooled Fast Reactor Design- Validation of Velocity Profile and Strouhal Number in a Flow Field

Presenting Author: Mao Uchida

ICONE28-POWER2020-16196: Development of a Flow Network Calculation Code (Fncc) for High Temperature Gas- Cooled Reactors (Htgrs)

Presenting Author: Takeshi Aoki

ICONE28-POWER2020-16218: Htgr Power-Level Control Only by Regulating Helium Flowrate

Presenting Author: Dong Zhe

ICONE28-POWER2020-16345: Optimal Design for Helium Cooled Solid Breeder Blanket of Cfetr

Presenting Author: Jose Angel Nogueron Valiente

ICONE28-POWER2020-16050: Guidance for Developing Fuel Design Limit of High Temperature Gas-Cooled Reactor

Presenting Author: Hiroyuki Sato

ICONE28-POWER2020-16199: Methodology Development for Transient Flow Distribution Analysis in High Temperature Gas-Cooled Reactor

Presenting Author: Takeshi Aoki

ICONE28-POWER2020-16624: Adaptation of Standards to Innovative Reactors

Presenting Author: Jorge Enrique MUÑOZ GARCIA

1:45PM – 3:15PM
ICONE 5.4 - NUCLEAR SAFETY, SECURITY, AND CYBER SECURITY

ICONE28-POWER2020-16071: Cyber Resilience Analysis of Scada Systems in Nuclear Power Plants

Presenting Author: Meghan Galiardi

ICONE28-POWER2020-16192: Research on Fault Diagnosis in Nuclear Power Plants Based on Signed Directed Graph

Presenting Author: WU GUOHUA

ICONE28-POWER2020-16130: Method for Prognosis of Lbloca Initiated Emergency Condition

Presenting Author: Wang Ning

ICONE28-POWER2020-16562: Melcor Validation Study on Multi-Room Fire

Presenting Author: Samir El-Darazi

ICONE28-POWER2020-16387: Numerical Simulation Method Research on Pellet-Cladding Mechanical Interaction Based on Abaqus Software

Presenting Author: Changbing tang

ICONE28-POWER2020-16102: Study on Eutectic Melting Behavior of Control Rod Materials in Core Disruptive Accidents of Sodium-Cooled Fast Reactors: (1) Project Overview and Progress Until 2018

Presenting Author: Hidemasa YAMANO

ICONE28-POWER2020-16400: Benchmarking an Ai-Guided Reasoning-Based Operator Support System on the Three Mile Island Accident Scenario

Presenting Author: Botros Hanna

ICONE28-POWER2020-16738: Effects of Pre-Crack Depth and Hydrogen Absorption on the Failure Strain of Zircaloy-4 Cladding Tubes Under Biaxial Strain Conditions

Presenting Author: Feng Li

1:45PM – 3:15PM
ICONE 7.2 - THERMAL-HYDRAULICS

ICONE28-POWER2020-16679: Investigation on Velocity Distribution in the Subchannels of Pin Bundle With Wrapping Wire - Evaluation of Reynolds Number Dependence in 3-Pin Bundle

Presenting Author: Kosuke Aizawa

ICONE28-POWER2020-16004: Experimental Study of Temperature Variations on Flow Phenomena in a Closed Rectangular Natural Circulation Circuit With Single Heated Channel.

Presenting Author: Solomon Bello

ICONE28-POWER2020-16005: Study on Breakdown Features and Characteristics of Film at the Corrugated Plate Corner

Presenting Author: Wang Bo

ICONE28-POWER2020-16599: Advanced Components for Dry Cask Storage Thermal-Hydraulic Investigations

Presenting Author: Alex Salazar

ICONE28-POWER2020-16164: Effects of Rolling on Characteristics of System Under Forced Circulation and Natural Circulation

Presenting Author: Rong Cai

ICONE28-POWER2020-16796: Study on Cooling Process in a Reactor Vessel of Sodium-Cooled Fast Reactor Under Severe Accident - Velocity Measurement Experiments Simulating Operation of Decay Heat Removal Systems

Presenting Author: Mitsuyo Tsuji

ICONE28-POWER2020-16173: Experimental Investigation of Particle Decontamination Efficiency in a *Single-Bubble by Pool Scrubbing*

Presenting Author: Kota Fujiwara

1:45PM – 3:15PM
POWER 8.1 - STEAM TURBINES, GENERATORS AND AUXILIARIES

ICONE28-POWER2020-16881: The Effect of Generator Hydrogen Gas Purity on Heat Rate

Presenting Author: John McPhearson

ICONE28-POWER2020-17037: Unique Solutions for Speedy Failed Generator Recovery

Presenting Author: Russell J Chetwynd

ICONE28-POWER2020-16885: Application of Ge Low Load Package on an Existing District Heating Power Plant : A Case Study

Presenting Author: Antonio Mambro

ICONE28-POWER2020-16905: The Change in Boiler and Steam Turbine Failure Modes With Minimum Load Operation - Supplemented With Modeling to Predict Susceptibility and Validation Through Plant Testing

Presenting Author: Matthew Scoffone

ICONE28-POWER2020-16302: Thermo-Economic Optimization of the Dual-Pressure Condenser for 700 °C Ultra-Supercritical Coal-Fired Power Plants

Presenting Author: Yue Fu

ICONE28-POWER2020-17072: The Importance of Coupling Bolting and Coupling Preparation

Presenting Author: Yue Fu

ICONE28-POWER2020-17023: Applications, Design, Analysis, and Optimization of Active Magnetic Bearings Supported Systems

Presenting Author: Dr. Wan Zhong, Dr. Alan Palazzolo

ICONE28-POWER2020-17075: Optimizing Turbine Bolting With Galling Resistant Fasteners

Presenting Author: Michael F. Dolan

ICONE28-POWER2020-17033: Steam Turbine Modernizations - Recent Applications and Approaches

Presenting Author: Michael Smiarowski

1:45PM – 3:15PM
POWER 2 - COMBUSTION TURBINE COMBINED CYCLES

ICONE28-POWER2020-16807: Economic Analysis of Trigeneration Systems Considering Participations of Energy Storage

Presenting Author: Hang Ma

ICONE28-POWER2020-16809: Micromixers and Hydrogen Enrichment – the Future Combustion Technology in Zero-Emission Power Plants

Presenting Author: Muzafar Hussain

ICONE28-POWER2020-17021: Efficiency Based Optimum Design of Steam and Power Systems for Industrial Facilities

Presenting Author: Mana M. Alowaidh; Abdulaziz Al-Dulaijan; Solomon Oji

ICONE28-POWER2020-16764: Study on Effects of Compressor Inlet Air Cooling on Gtcc System Performance Under Different Environmental Conditions

Presenting Author: Liqiang DUAN

ICONE28-POWER2020-16097: Addressing the Energy Trilemma With Lpg-Fuelled, Water-Free Combined Cycle Power Plant

Presenting Author: Michael Welch

ICONE28-POWER2020-17054: Combustion Turbines and Combine Cycle Applications: Filling in the Training Gaps

Presenting Author: David Templeton and Chris Frick

1:45PM – 3:15PM
POWER 11 - WATER MANAGEMENT FOR POWER SYSTEMS

ICONE28-POWER2020-17056: Treating Effluent Streams at Coal Power Plants Using Membranes

Presenting Author: Nicholas Siefert

ICONE28-POWER2020-17062: Determination of Trace Lead, Cadmium, and Arsenic (Iii) in Municipal Wastewater by Anodic Stripping Voltammetry

Presenting Author: Shengcun Ma

ICONE28-POWER2020-17044: Thermoelectric Power Plants Water Use and Technology Benefits Model (The Wut Benefits Model)

Presenting Author: Erik Shuster

ICONE28-POWER2020-17038: Importance of Plant-Level Variations for Assessment of Water-Related Threats to the Power Sector

Presenting Author: Vincent Tidwell

ICONE28-POWER2020-17058: The National Energy Technology Laboratory (Netl) Perspective on the Development of Water Management Technologies

Presenting Author: Jessica Mullen

1:45PM – 3:15PM
POWER STUDENT COMPETITION

ICONE28-POWER2020-16726: Latent Dynamics in Siting Onshore Wind Energy Farms: A Case of a Wind Farm in South Africa

Presenting Author: Paul A. Adedeji

ICONE28-POWER2020-16560: Combining a Proton Exchange Membrane Fuel Cell and Ultracapacitors to Replace Batteries and Extend Flight Time for a Vertical Take-Off Unmanned Aerial System.

Presenting Author: Justin Laddusaw

ICONE28-POWER2020-16911: A Review of Cryogenics Applications for Power and Energy

Presenting Author: Wajiha Rehman

ICONE28-POWER2020-16828: Building Energy Prediction Using Artificial Neural Networks(lstm)

Presenting Author: Sankhanil Goswami

ICONE28-POWER2020-16578: Multivariable Analysis of Historical Data to Characterize Performance Degradation of Power Equipment

Presenting Author: Swatara Tucker

ICONE28-POWER2020-16637: A Comprehensive Framework for Distributed Energy Resource Aggregators

Presenting Author: Nicolas Campbell

I**CONE28-POWER2020-16078:** Yield and Empirical Relationship for a Stirling Cryocooler Liquid Air Energy Storage System

Presenting Author: Christopher Girouard

ICONE28-POWER2020-16087: Energy Recovery for Dual-Stirling Liquid Air Energy Storage Prototype

Presenting Author: Nick Bailey

ICONE28-POWER2020-16595: Modeling of Micro-Tubular Flame-Assisted Fuel Cells

Presenting Author: Rhushikesh Ghotkar

ICONE28-POWER2020-16950: A take on wake modeling of turbines based on deep learning

Presenting Author: Dorsa Ziaei

ICONE28-POWER2020-16556: Thermodynamic Analysis for Cogeneration Csp-Med Cycle Using Supercritical Carbon Dioxide and Sensible Heat Sources

Presenting Author: Rodrigo Caceres Gonzalez

ICONE28-POWER2020-16556: Thermodynamic Analysis for Cogeneration Csp-Med Cycle Using Supercritical Carbon Dioxide and Sensible Heat Sources

Presenting Author: Yanjie Zheng

ICONE28-POWER2020-16446: Characterization of Precipitates and Formed Oxides in Fatigue Crack of Alloy 617 in a Steam Environment at 750°c

Presenting Author: Masumi Yoshida

ICONE28-POWER2020-16772: Digitalisation of Biomass Exploration: A Case Study of Biomass Feedstock Classification

Presenting Author: Olatunji Obafemi

ICONE28-POWER2020-16247: Steady-State Carbon Neutral Integration of a Small Modular Reactor With a Pulp and Paper Mill

Presenting Author: Elizabeth Worsham

ICONE28-POWER2020-16521: Improving the Energy Capacity and Cost Effectiveness of Flywheel Rotors in Grid-Scale Energy Storage Systems by Varying Their Shape, Speed and Size

Presenting Author: Vaishnavi Kale

ICONE28-POWER2020-16769: Modeling and Analysis of a Thermal Management System With Thermoelectric Cooling for the Application in Li-Ion Batteries

Presenting Author: Amirhossein Mostafavi

ICONE28-POWER2020-16635: A Framework for Demand-Side Load Management With Demand Response Input

Presenting Author: Miguel Peinado-Guerrero

3:30PM – 5:00PM
ICONE 13.2 - PROBABILISTIC RISK ASSESSMENTS

ICONE28-POWER2020-16897: Probability of Rupture for Wwer-1000 Main Piping

Presenting Author: Yaroslav Dubyk

ICONE28-POWER2020-16819: Inter-Unit Common Cause Failure Analysis Based on Data from Intra-Unit Cases

Presenting Author: Eishiro Higo

ICONE28-POWER2020-16835: Research on Probabilistic Safety Assessment (Psa) Method of Safety Class Dcs in Nuclear Power Plant Based on Fuzzy Markov Procedure

Presenting Author: Tian Xufeng

ICONE28-POWER2020-17030: Effect of Failure Modes on Seismic Fragility Assessment of Carbon Steel Elbow Pipe

Presenting Author: Yohei Ono

ICONE28-POWER2020-16491: Single Point Vulnerabilities Management Strategy of Qinshan Nuclear Power Plant

Presenting Author: Hanlin Wang

ICONE28-POWER2020-16889: Incorporating Flex Strategies in Multi-Unit Probabilistic Risk Assessment

Presenting Author: Sai Zhang

ICONE28-POWER2020-16700: Technical Maturity Assessment of Risk-Informed Safety Analysis Tools

Presenting Author: Yong-Joon Choi

3:30PM – 5:00PM
ICONE 2.1 - NUCLEAR FUEL AND ENGINEERING

ICONE28-POWER2020-16838: Two-Dimensional Full Core Analysis of Ifba-Coated Triso Fuel Particles in Very High Temperature Reactors

Presenting Author: Saeed Alameri

ICONE28-POWER2020-16325: Multiphysics analysis of Thorium-based fuel performance under reactor steady-state and accident conditions

Presenting Author: Chenjie Qiu

ICONE28-POWER2020-16793: Study on the Thermal-Mechanical Performance of Sic Composites Cladding Under Multiple Conditions

Presenting Author: Chunyu Yin

ICONE28-POWER2020-16231: Modelling of the H2020 Inspyre Fuel Creep Experiment

Presenting Author: Kevin Zwijsen

ICONE28-POWER2020-16060: Post-Irradiation Examination Results of the First Modern Fueled Experiments in the Transient Research Test Facility

Presenting Author: Jason Schulthess

ICONE28-POWER2020-16200: Synergetic Oxidation in Alkali In-Situ Leaching Uranium

Presenting Author: Wensheng Liao

ICONE28-POWER2020-16157: Study on the Impact Limiter Design in Spent Fuel Transfer Cask in Nuclear Power Plants

Presenting Author: Yuchen Hao

ICONE28-POWER2020-16121: The Experimental Research on the Mechanical Characteristics of the Newly Designed Fuel Rod Supporting Structure of Spacer Grid

Presenting Author: Quan-yao Ren

3:30PM – 5:00PM
ICONE 9 - VERIFICATION AND VALIDATION

ICONE28-POWER2020-16655: Comparison of the Behavior of Different Jet Configurations in a Crossflow

Presenting Author: Michael Lewandowski

ICONE28-POWER2020-16485: Sensitivity Analysis for Dynamical Response of Reactor Coolant System Based on Optimus

Presenting Author: Yuan Yanli

ICONE28-POWER2020-16550: Design of an Innovative Moisture Separator Technology for Use in Nuclear Power Plants: Experimental Validation (Part 2)

Presenting Author: Carsten Hersberger

ICONE28-POWER2020-16403: Metamorphic Testing on Nuclide Inventory Tool

Presenting Author: Meng Li

ICONE28-POWER2020-16666: Code to Code Validation of Sac-3d Based on Ebr-Ii Benchmark Problem

Presenting Author: Siyu LYU

ICONE28-POWER2020-16903: Identifying the Cause of and Fixing Ill-Conditioning in Nuclear Analysis Codes

Presenting Author: Lance Larsen

3:30PM – 5:00PM
ICONE 9 - VERIFICATION AND VALIDATION

ICONE28-POWER2020-16204: Experimental Study of Pure Steam and Steam-Air Mixture Condensation on a Vertical Chrome-Plated Tube

Presenting Author: Zesheng Niu

ICONE28-POWER2020-16741: Modeling of Thermal Hydraulic Characteristics for a Lbe-Cooled Fast Reactor Helical Coiled Type Steam Generator

Presenting Author: Xueyou DING

ICONE28-POWER2020-16867: Analytical Justifications as Part of the "Post-Fukushima" Upgrades Implementation on Zaporizhzhya Npp Unit 1

Presenting Author: Oleksandr Mazurok

ICONE28-POWER2020-16818: Development of Ex-Vessel Phenomena Analysis Model for Multi-Scenario Simulation System, Spectra

Presenting Author: Akihiro Uchibori

ICONE28-POWER2020-16206: Numerical Study of Collision Behavior of Melt Droplets During Fuel-Coolant Interaction

Presenting Author: Panpan Wen

ICONE28-POWER2020-16217: Gas Accumulation at Inverse U-Bend Resulted From Sudden Pressure Drop and Temperature Increase

Presenting Author: Hongrae Jo

ICONE28-POWER2020-16914: Representativity Analysis Applied to Treat Water Loop Loca Experiment Design

Presenting Author: Aaron S. Epiney

ICONE28-POWER2020-16724: Investigation of Turbulent Prt Model and the Segmentation Rule for Lbe Turbulent Heat Transfer

Presenting Author: Peiying Li

3:30PM – 5:00PM
ICONE 7.7 - THERMAL-HYDRAULICS

ICONE28-POWER2020-16598: Thermal-Hydraulic Investigations of a Horizontal Dry Cask Simulator

Presenting Author: Ramon Pulido

ICONE28-POWER2020-16647: Experimental Investigations on Thermal Stratification in a Large Pool of Water With Immersed Isolation Condenser

Presenting Author: Dr. Sunil Kumar

ICONE28-POWER2020-16484: Experimental Study on Flow Patterns and Pressure Drop of Decaying Swirling Gas-Liquid Flow in a Vertical Pipe

Presenting Author: Zhang, Jiarong

ICONE28-POWER2020-16396: Numerical Simulation of Twisted Tube Heat Exchanger for Lead-Cooled Fast Reactor

Presenting Author: Wei Xie

ICONE28-POWER2020-16404: Analysis of the Behavior of Droplet Impinging on a Curved Dry Wall in a Rotating Flow Field

Presenting Author: Zhen Qin Xiong

ICONE28-POWER2020-16592: Thermal Safety Margin Calculation of the Mp-2 Experiment in the Advanced Test Reactor

Presenting Author: Grant Hawkes

3:30PM – 5:00PM
ICONE 5.5 - NUCLEAR SAFETY, SECURITY, AND CYBER SECURITY

ICONE28-POWER2020-16091: Study on Eutectic Melting Behavior of Control Rod Materials in Core Disruptive Accidents of Sodium-Cooled Fast Reactors: (2) Effect of Crystalline Phase on Thermophysical Properties of Eutectic Melts in a Solid State

Presenting Author: Toshihide Takai

ICONE28-POWER2020-16144: Research on On-Site Calibration and Energy Correction Method for Fixed Neutron Dosimeter

Presenting Author: Jinxu Lv

ICONE28-POWER2020-16122: Study on Measures During Loss of Normal Feedwater Accident for Ap1000 Npp in Lower Power Operation

Presenting Author: Baisong Ma

ICONE28-POWER2020-16373: New Control System of Vr-1 Training Reactor

Presenting Author: Martin Kropik

ICONE28-POWER2020-16115: Finite Element Method for Thermal Design of Radioactive Material Transport Packages

Presenting Author: MENG Dongyuan

ICONE28-POWER2020-16208: Analytical Study on Removal Mechanisms of Cesium Aerosol From a Noble Gas Bubble Rising Through Liquid Sodium Pool

Presenting Author: Shinya Miyahara

ICONE28-POWER2020-16143: Measurement of Uranium Radioactivity in Wastewater With Ultra-Low Level Liquid Scintillation Analyzer

Presenting Author: Jinxu Lv

ICONE28-POWER2020-16075: Study on Eutectic Melting Behavior of Control Rod Materials in Core Disruptive Accidents of Sodium-Cooled Fast Reactors:(3) Kinetic Study of Boron Carbide-Stainless Steel Eutectic Melting by Differential Thermal Analysis

Presenting Author: Shin KIKUCHI

3:30PM – 5:00PM
ICONE 11.1 - BEYOND DESIGN BASIS

ICONE28-POWER2020-16437: Time Series Clustering and Classification for Uncertainty Analysis by Maap5 Code

Presenting Author: Ikuo Kinoshita

ICONE28-POWER2020-16633: Simulation of Severe Accident Progression Using Roshni - a New Integrated Simulation Code for Phwr Severe Accident Progression and Accident Consequence Assessments

Presenting Author: Sunil Niijhawan

ICONE28-POWER2020-16517: Unmet Challenges to Successfully Mitigating Severe Accidents in Multi-Unit Candu Reactors

Presenting Author: Sunil Niijhawan

ICONE28-POWER2020-16547: Computational Modeling of Terry Turbine Airflow Testing to Support the Expansion of Operating Band in Beyond Design Basis Conditions

Presenting Author: Lindsay Gilkey

ICONE28-POWER2020-16291: Modeling Axial Relocation of Fragmented Fuel During Loss of Coolant Conditions Using Abaqus

Presenting Author: Zehua Ma

ICONE28-POWER2020-16664: Study of the Ageing Effects on the Lower Head Failure in a Pwr Reactor

Presenting Author: Rosa Lo Frano

ICONE28-POWER2020-16634: Fuelpool– a Computer Program to Model Candu Spent Fuel Pool Severe Accident Progression and Consequences

Presenting Author: Yong Mann Song

ICONE28-POWER2020-16311: Impact Analysis of Npp H4 Connections Design Improvement on Emergency Operation

Presenting Author: WANG Yuqi

3:30PM – 5:00PM
POWER 1.2 - FUELS, COMBUSTION & MATERIAL HANDLING

ICONE28-POWER2020-16568: Reactor Network Modeling of Stability and Emissions of Hydrogen and Natural Gas Blends for a Piloted Gas Turbine Combustor

Presenting Author: Candy Hernandez

ICONE28-POWER2020-16619: Investigation of Mycelium Growth Network as a Thermal Transpiration Membrane for Thermal Transpiration Based Pumping and Power Generation

Presenting Author: Alexander R. Hartwell

ICONE28-POWER2020-16381: Advancements of a Piston Engine and Electrochemical Combined Hybrid System for Unmanned Aerial Systems

Presenting Author: Thomas S Welles

ICONE28-POWER2020-16449: Effect of Tube Parameters on Thrust Generated by Pulse Detonation Engine

Presenting Author: Shivam

ICONE28-POWER2020-16371: Numerical and Experimental Study of Geometry Effects on Fuel/air Mixing and Combustion Characteristics of a Dln Burner

Presenting Author: Yan Zhao

ICONE28-POWER2020-16607: Integration of Novel Geometry Solid Oxide Fuel Cells Into a Residential Furnace/boiler

Presenting Author: Alexander Hartwell

ICONE28-POWER2020-16477: Realization of a Fully Optically Accessible Medium Speed Large Bore Engine Using a Fisheye Optics

Presenting Author: Stephan Karmann

ICONE28-POWER2020-16583: Chemical Kinetic Model Reduction and Analysis of Tetrahydrofuran Combustion Using Stochastic Species Elimination

Presenting Author: Mazen A. Eldeeb

3:30PM – 5:00PM
POWER 3 - BOILERS & HEAT RECOVERY STEAM GENERATORS AND POWER 1.3 - FUELS, COMBUSTION & MATERIAL HANDLING

ICONE28-POWER2020-16912: Data Analytics Applied to Coal Fired Boilers for Detecting Leaks

Presenting Author: Natarianto Indrawan

ICONE28-POWER2020-16890: Hrsg Fleet Integrity Management - Lessons Learned From the Field

Presenting Author: Andreas Fabricius

ICONE28-POWER2020-17059: Boiler & Aqcs Load Cycling and Low Load Operation

Presenting Author: Brian Vitalis

ICONE28-POWER2020-16608: Investigation of Soot Formation in Fuel-Rich Premixed Propane/air Microcombustion at Low Temperatures

Presenting Author: Ryan Milcarek