CONFERENCE PROGRAM

Hosted by:

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The Minerals, Metals & Materials Society

Supporting Organizations:

Canadian Nuclear Society / Société nucléaire canadienne

NACE International

American Nuclear Society

INTERNATIONAL CONFERENCE ON

18TH

Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors

August 13–17, 2017

Marriott Portland Downtown Waterfront
Portland, Oregon, USA

www.tms.org/EnvDeg2017

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KAERI Korea Atomic Energy Research Institute

Exelon Generation

Studsvik

AREVA

A.N.T. INTERNATIONAL

VATTENFALL

VTT

EXHIBITORS

GAIN Gateway for Accelerated Innovation in Nuclear

LWRS Light Water Reactor Sustainability

NSUF Nuclear Science User Facilities

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COMMITTEE INFORMATION

EXECUTIVE COMMITTEE

- **Conference General Chair**
  Mike Wright, Canadian Nuclear Laboratories
- **Technical Program Chair**
  John Jackson, Idaho National Laboratory
- **Assistant Technical Program Chair**
  Denise Paraventi, Naval Nuclear Laboratory

ORGANIZING COMMITTEE

- Todd Allen, Third Way and University of Wisconsin
- Peter Andresen, Andresen Consulting
- Steve Bruemmer, Pacific Northwest National Laboratory
- Jeremy Busby, Oak Ridge National Laboratory
- Thierry Couvant, Electricite de France
- Ian de Curieres, IRSN
- Pål Efsing, Ringhals AB, Sweden
- Ulla Ehrnstén, VTT Technical Research Centre of Finland
- Lionel Fournier, AREVA, France
- Steve Fyfitch, AREVA, U.S.
- Barry Gordon, Structural Integrity Associates Inc.
- Catherine Guerre, CEA
- En-Hou Han, Institute of Metals Research, China
- Ron Horn, GE-Hitachi, retired
- Il Soon Hwang, Seoul National University, Korea
- Gabriel Ilevbare, Idaho National Laboratory
- John Jackson, Idaho National Laboratory
- Anders Jenssen, Studsvik, Sweden
- Renate Kilian, AREVA GmbH
- Hong Pyo Kim, KAERI, Korea
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- Stuart Medway, AMEC Foster Wheeler
- Dave Morton, Naval Nuclear Laboratory
- Larry Nelson, JLN Consulting
- Greg Oberson, U.S. Nuclear Regulatory Commission
- Denise Paraventi, Naval Nuclear Laboratory
- Hans-Peter Seifert, PSI, Switzerland
- Robert Tapping, Canadian Nuclear Laboratories
- Gary Was, University of Michigan
- Yutaka Watanabe, Tohoku University
- Mike Wright, CNL, Canada
- T.K. Yeh, National Tsing Hua University, Taiwan
- Toshio Yonezawa, Tohoku University, Japan

SESSION CHAIRS & CO-CHAIRS

Zirconium and Fuel Cladding
Jacki Stevens, AREVA Inc.
Evan Dolley, GE Global Research
George Jiao, University of Michigan

Accident Tolerant Fuel Cladding
Gary Was, University of Michigan
Bruce Pint, Oak Ridge National Laboratory
Cem Topbasi, Electric Power Research Institute

Cables and Concrete Aging and Degradation – Cables
Leo Fifield, Pacific Northwest National Laboratory
Robert Duckworth, Oak Ridge National Laboratory
David Rouison, Kinectrics

Cables and Concrete Aging and Degradation – Concrete
Thomas Rosseel, Oak Ridge National Laboratory
Joe Wall, Electric Power Research Institute

BWR SCC and Water Chemistry
Bob Carter, Electric Power Research Institute
Earl Johns, Naval Nuclear Laboratory
Susan Garcia, Electric Power Research Institute

Plant Operating Experience
Maria-Lynn Komar, Kinectrics Inc.
Peter King, PJKing Consulting, Inc.

Irradiation Damage – Nickel Based and Low Alloy
Mychailo Toloczko, Pacific Northwest National Laboratory
Maxim Gussev, Oak Ridge National Laboratory
Myles Connor, General Electric-Hitachi

Irradiation Damage – Stainless Steel
Larry Nelson, JLN Consulting
Sarah Davidsaver, AREVA GmbH
Anna Hojna, Centrum vyzkumu Rez

Irradiation Damage – Swelling
Frank Garner, Radiation Effects Consulting
Cheng Sun, Idaho National Laboratory
Sebastien Teysseyre, Idaho National Laboratory

PWR Ni Alloy SCC – Alloy 600 Mechanistic
Steve Bruemmer, Pacific Northwest National Laboratory
Thierry Couvant, EDF
Tony Horner, Rolls Royce plc

PWR Ni Alloy SCC – Alloy 690 Mechanistic
Stuart Medway, AMEC Foster Wheeler
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Hannu Hänninen, Aalto University

PWR Ni Alloy SCC – SCC
Bogdan Alexandreanu, Argonne National Laboratory
Sonya Pemberton, AMEC Foster Wheeler
Grace Burke, The University of Manchester

PWR Ni Alloy SCC – Initiation
Dave Morton, Naval Nuclear Laboratory
Ziqing Zhai, Pacific Northwest National Laboratory
Meg Audrain, U.S. Nuclear Regulatory Commission

PWR Ni Alloy SCC – Aging Effects
Tyler Moss, Naval Nuclear Laboratory
Peter Chou, Electric Power Research Institute
Dan Schreiber, Pacific Northwest National Laboratory

IASCC Testing – Initiation and Growth
Peter Andresen, Andresen Consulting
Yiren Chen, Argonne National Laboratory
Colin Judge, Canadian Nuclear Laboratory

IASCC Testing – Characterization
Anders Jenssen, Studsvik Nuclear AB
Masato Koshiishi, Nippon Nuclear Fuel Development
Mike McMurtrey, Idaho National Laboratory

PWR Stainless Steel SCC and Fatigue – Fatigue
Denise Paraventi, Naval Nuclear Laboratory
Barry Gordon, Structural Integrity Associates Inc.
Renate Kilian, AREVA GmbH

PWR Stainless Steel SCC and Fatigue – SCC
Gabriel Ilevbare, Idaho National Laboratory
Keith Leonard, Oak Ridge National Laboratory
Elaine West, Knolls Atomic Power Laboratory

PWR Secondary Side
Ian De Curieres, IRSN
Jared Smith, Canadian Nuclear Laboratory
Brent Capell, Electric Power Research Institute

SESSION CHAIRS & CO-CHAIRS

Special Topics II: Processes
Ulla Ehrnstén, VTT Technical Research Centre of Finland Ltd.
TK-Yeh, National Tsing Hua University
George Young, Dominion Engineering

Welds, Weld Metals, and Weld Assessments
Catherine Guerre, CEA
Bryan Miller, Naval Nuclear Laboratory
Hans-Peter Seifert, Paul Scherrer Institute

PWR Oxides and Deposits
Cecilie Duhamel, MINES ParisTech
Fabio Scenini, The University of Manchester

General SCC and SCC Modeling
Raj Pathania, Electric Power Research Institute
David Tice, AMEC Foster Wheeler
Jean Smith, Electric Power Research Institute

Stainless Steel Aging and CASS
Steve Fyfitch, AREVA Inc.
Jeremy Busby, Oak Ridge National Laboratory
TS Byun, Pacfic Northwest National Laboratory

Special Topics I: Materials
Pål Efsing, Ringhals AB
Rory Kennedy, Idaho National Laboratory
Peter Hosemann, University of California, Berkeley

GENERAL INFORMATION

REGISTRATION
Your registration badge ensures admission to each of these events:

- Technical and Poster Sessions
- Sunday Welcome Reception
- Wednesday Poster Reception
- Wednesday Conference Banquet*
  **Please note that while one ticket for the conference banquet is included, registration was required for this event through the conference registration form. Check at the registration desk (Ballroom Foyer, Lower Level 1) for more information.*

The registration desk will be located at the Ballroom Foyer, Lower Level 1 and will be open during the following hours:

Sunday, August 13:
4:00 p.m. to 7:30 p.m.

Monday, August 14:
7:00 a.m. to 5:30 p.m.

Tuesday, August 15:
7:30 a.m. to 12:30 p.m.

Wednesday, August 16:
7:30 a.m. to 6:30 p.m.

Thursday, August 17:
7:30 a.m. to 5:00 p.m.

INTERNET ACCESS
Complimentary internet access is available for conference attendees in the meeting spaces at the Marriott Portland Downtown Waterfront hotel. Please use the internet conference code "**ENVDEG2017**" to access the internet.

If you are using a wired connection, please use the following instructions:

Plug the Ethernet cable into your computer. Connect your laptop to the "Marriott_CONFERENCE" wireless network. Launch a web browser. If you are not automatically redirected to a login page, type **www.purelyportland.com** in the address bar and press the "ENTER" key. Follow the on-screen instructions and enter the conference code above when prompted.

TECHNICAL SESSIONS
All oral presentations will be held in Salons A through E on Lower Level 1 of the Marriott Portland. All poster presentations will be held in the Ballroom Foyer, Lower Level 1. See the Technical Program section on pages 14-27 for room locations.

SESSION QUESTION AND ANSWERS
The organizers will be experimenting with the use of cloud-based comment sharing software called ThinkTank (www.thinktank.net) to capture session Q&A and commentary. Participation is voluntary, but recommended.

The keynote session will include presentations from the following individuals:

Todd Allen
Professor, University of Wisconsin, and Senior Fellow, Third Way
"21st Century Vision of Nuclear Energy"

Todd Allen is currently a professor at the University of Wisconsin and a senior fellow at Third Way, a Washington, D.C.-based think tank, supporting their Clean Energy Portfolio. He was the deputy director for science and technology at the Idaho National Laboratory (INL) from January 2013 through January 2016. Prior to INL he was a professor in the Engineering Physics Department at the University of Wisconsin, a position held from September 2003 through December 2012. From March 2008 through December 2012, he was concurrently the scientific director of the Advanced Test Reactor National Scientific User Facility at INL. Prior to joining the University of Wisconsin, he was a nuclear engineer at Argonne National Laboratory-West in Idaho Falls.

Scot A. Greenlee
Senior Vice President, Engineering and Technical Services, Exelon Nuclear Generation
"The 21st Century Vision for Nuclear Energy—U.S. Industry Perspective"

Scot A. Greenlee is responsible for governance and oversight of engineering functions at the 23 Exelon nuclear plants. Greenlee started his nuclear career in 1984 as an officer in the U.S. Nuclear Navy. Following a successful Navy career, he then spent four years as an inspector in the U.S. Nuclear Regulatory Commission (NRC). His nuclear utility experience started in 1995 as the operations staff superintendent at the Salem Nuclear Generating Station. He joined Exelon in 2007 as a corporate engineering director and was subsequently assigned as the Byron site engineering director before being promoted to the position of vice president of engineering in May of 2011 and senior vice president of engineering and technical services in July of 2013.

PROCEEDINGS

Full-conference registrants will receive complimentary access to the proceedings publications in e-book format, published post-conference in October 2017. A hard copy printed publication also will be available for purchase at www.springer.com.

NETWORKING & SOCIAL EVENTS

The **Welcome Reception** will be held on Sunday, August 13, from 5:30 p.m. to 7:30 p.m. in the Mt. Hood room (2nd floor) at the Marriott Portland.

A **Poster Reception** is planned for Wednesday, August 16, from 5:30 p.m. to 6:30 p.m. in Ballroom Foyer, Lower Level 1 at the Marriott Portland.

The **Conference Banquet** will he held on Wednesday, August 16, from 6:30 p.m. to 9:00 p.m. in Salons F-I, Lower Level 1, with a special tribute to Roger Washburne Staehle from 7:00 p.m. to 7:30 p.m. Please note that while one ticket for the conference banquet is included, registration was required for this event through the conference registration form. Check with TMS staff at the registration desk (Ballroom Foyer, Lower Level 1) for more information.

During the conference banquet, Peter Andresen, Andresen Consulting, will honor **Roger Washburne Staehle** (February 4, 1934–January 16, 2017), an international giant in the field of metallurgy and corrosion. Staehle founded the Fontana Corrosion Center (FCC), in addition to holding positions at The Ohio State University and the University of Minnesota. Among many honors throughout his career, he most notably received the W.R. Whitney Award from NACE, was a Fellow of NACE International and The Electrochemical Society, and was elected to the National Academy of Engineering in 1978.

EXHIBITION

The exhibition will be located at the Ballroom Foyer, Lower Level 1 at the Marriott Portland.

Monday, August 14
Set-Up: 8:00 a.m. to 9:30 a.m.
Exhibit Hours: 9:30 a.m. to 5:30 p.m.
Break from 9:40 a.m. to 10:20 a.m.
and 3:50 p.m. to 4:10 p.m.

Tuesday, August 15
Exhibit Hours: 9:30 a.m. to 1:30 p.m.
Break from 10:00 a.m. to 10:20 a.m.
and afternoon is free

Wednesday, August 16
Exhibit Hours: 9:30 a.m. to 6:30 p.m.
Break from 10:00 a.m. to 10:20 a.m.
and 3:50 p.m. to 4:10 p.m.
Poster Session Reception:
5:30 p.m. to 6:30 p.m.
Tear Down: After 6:30 p.m.

SPONSORS & EXHIBITORS

Thank you to the following Corporate Sponsors and Exhibitors for their generous support of the conference:

CORPORATE SPONSORS

Canadian Nuclear Laboratories

Laboratoires Nucléaires Canadiens

Canadian Nuclear Laboratories
Canadian Nuclear Laboratories (CNL) is Canada's premier nuclear science and technology laboratory, dedicated to developing peaceful and innovative applications of nuclear technology through its expertise in physics, metallurgy, chemistry, biology, and engineering. We address global issues across the nuclear lifecycle—reactors and fuels, waste management, nuclear safeguards—and develop novel medical isotopes and devices. With over 60 years of experience, CNL is a world leader in applied research and development in nuclear material testing and analysis for the commercial utility industry.

KINECTRICS

Kinetrics
Kinectrics performs a wide range of life cycle management services specifically focused for nuclear, including plant inspection, asset management, equipment qualification, feeder and fuel channel integrity services, regulatory affairs and licensing, decommissioning planning, and nuclear waste management. Kinectrics' capabilities include electrical and environmental testing and reliable effective solutions for the provision of key nuclear component parts and specialized inspection tooling. Kinectrics is staffed by experienced, world-class technical professionals working in advanced, specialized lab facilities. www.kinectrics.com

Naval Nuclear Laboratory

The Naval Nuclear Laboratory comprises the U.S. Department of Energy locations and personnel responsible for developing advanced naval nuclear propulsion technology, providing technical support to ensure the safety and reliability of our nation's naval nuclear reactors, and training the Sailors who operate those reactors in the U.S. Navy's submarines and aircraft carrier fleets.

The Naval Nuclear Laboratory includes the Bettis and Knolls Atomic Power Laboratories, the Kenneth A. Kesselring Site, and the Naval Reactors Facility which have proudly supported the nation since 1946. The Naval Nuclear Laboratory has nearly 7,000 employees working at primary locations in Pennsylvania, New York, South Carolina, and Idaho.

Dominion Engineering, Inc.

Founded in 1980 and located near Washington, D.C., in Reston, Virginia, Dominion Engineering, Inc. (DEI) provides technical consulting services, conducts R&D, and designs and builds specialized equipment for industry and government with an emphasis on energy and nuclear power technology. DEI's experienced technical staff includes mechanical, chemical, and materials engineers, and facilities include an 11,000-square-foot on-site laboratory that supports engineering test and research programs as well as the development and qualification of technologies for nuclear power plant applications. DEI performs a wide range of engineering evaluations including in the areas of stress, materials degradation, corrosion, thermal performance, water chemistry, and strategic planning. www.domeng.com

Korea Atomic Energy Research Institute

The Korea Atomic Energy Research Institute (KAERI) was established to lay a foundation for achieving national nuclear energy self-reliance. Over the past 58 years, KAERI has become the driving force behind Korea's national economic growth. KAERI has been a stepping stone to promote strong economic development by using nuclear energy as a major energy source, and to strengthen Korea's industrial competitiveness through the transfer of advanced science and technology. KAERI is committed to developing advanced nuclear technology to supply environmentally clean energy.

Electric Power Research Institute

The Electric Power Research Institute Inc. (EPRI) conducts research and development relating to the generation, delivery and use of electricity for the benefit of the public. An independent, nonprofit organization, EPRI brings together its scientists and engineers as well as experts from academia and industry to help address challenges in electricity, including reliability, efficiency, affordability, health, safety and the environment. EPRI also provides technology, policy and economic analyses to drive long-range research and development planning, and supports research in emerging technologies. EPRI's members represent approximately 90 percent of the electricity generated and delivered in the United States, and international participation extends to more than 30 countries. EPRI's principal offices and laboratories are located in Palo Alto, California; Charlotte, North Carolina; Knoxville, Tennessee; and Lenox, Massachusetts. www.epri.com

Exelon Generation
Exelon Generation, a subsidiary of Exelon Corporation (NYSE: EXC), is one of the largest, most efficient clean energy producers in the U.S., with a generating capacity of more than 33,300 megawatts. Exelon Generation operates the largest U.S. fleet of carbon-free nuclear plants with 20,200 megawatts of capacity from 23 reactors at 14 facilities in Illinois, Maryland, New Jersey, New York, and Pennsylvania. Exelon Generation also operates a diverse mix of wind, solar, landfill gas, hydroelectric, natural gas and oil facilities in 16 states with more than 13,100 megawatts. Exelon Generation has an industry-leading safety record and is an active partner and economic engine in the communities it serves by providing jobs, charitable contributions and tax payments that help towns and regions grow. Follow Exelon Generation on Twitter @ExelonGen and @ExelonNuclear, view the Exelon Generation channel on YouTube.

Studsvik
Studsvik offers a range of advanced technical services to the global nuclear power industry. Studsvik's business focus areas are fuel and materials technology, reactor analysis software and consultancy services within waste treatment technology, decommissioning, NORM and solutions for final disposal. The company has 70 years nuclear technology and radiological service experience. Studsvik has 700 employees in 7 countries and the company's shares are listed on the Nasdaq Stockholm.

AREVA Inc.
AREVA in North America (AREVA Inc.) combines U.S. and Canadian leadership to supply high added-value products and services to support the operation of the commercial nuclear fleet. AREVA is recognized by utilities around the world for its expertise, its skills in cutting-edge technologies, and its dedication to the highest level of safety. AREVA Inc.'s 4,100 employees are helping build tomorrow's energy model: supplying ever safer, cleaner and more economical energy to the greatest number of people. Join the energy conversation with AREVA Inc. on Twitter: @AREVAus, Facebook: AREVAinc, and our other social media channels.

ANT International
ANT International specializes in providing expert training and knowledge in the areas of
Fuel Material, Structural Material Degradation and Coolant Chemistry and Corrosion. The expert training is provided through seminars, online courses, and handbooks & reports by ANT International Network of Experts. The Network were the leaders of the nuclear technical community that developed the current nuclear industry. The mission of ANT International is to transfer the unique expertise of The Network, who developed the current nuclear industry, to the new generation of engineers. The goal is to improve safety and profitability throughout the nuclear industry.

Vattenfall
Ringhals AB is operating four nuclear power plants at the Swedish west coast just north of the city of Varberg. At the site there are both BWR and PWR. units, commissioned between 1974 and 1983, with a total installed capacity of 3950 MWe. During a normal year, Ringhals provides between 15 and 20% of the electric energy used in Sweden. The site is majority owned by the Swedish state owned utility company Vattenfall AB. Since Vattenfall has a highly decentralized structure, plant engineering and maintenance services are provided by plant staff.

VTT

EXHIBITORS

Gateway for Accelerated Innovation in Nuclear
In November 2015, the Department of Energy Office of Nuclear Energy (DOE-NE) launched the Gateway for Accelerated Innovation in Nuclear (GAIN) initiative to make national laboratory state-of-the-art research and development infrastructure, technical and regulatory expertise, and financial support available to the nuclear industry to optimize development of advanced nuclear energy technologies toward commercial readiness. GAIN's vision for 2030 is the U.S. nuclear industry is equipped to lead the world in deployment of innovative nuclear technologies to supply urgently needed abundant clean energy both domestically and globally. Technology leadership and industrial leadership will enable the U.S. to deploy domestic nuclear energy technologies that are more affordable, while maintaining and improving the reliability, safety, and security of nuclear energy. An effective public-private partnership is necessary to achieve these goals by 2030. gain.inl.gov

Light Water Reactor Sustainability Program
The Light Water Reactor Sustainability (LWRS) Program is a U.S. Department of Energy (DOE) research and development program to inform and support the long-term operation of our nation's commercial nuclear power plants. The research uses the unique facilities and capabilities at the DOE national laboratories in collaboration with industry, academia, and international partners. The purpose of the LWRS Program is to provide technical results for plant owners to make informed decisions on maintaining their plants through long-term operation and seeking renewed operating licenses for the plants from the U.S. Nuclear Regulatory Commission, reducing the uncertainties and accompanying risks associated with those decisions.

Nuclear Science User Facilities
The Nuclear Science User Facilities (NSUF) offers unparalleled research opportunities for nuclear energy researchers. Users are provided access (at no cost to the researcher) to world-class nuclear research facilities, technical expertise from experienced scientists and engineers, and assistance with experiment design, assembly, safety analysis, and examination. Access is awarded through a competitive peer-reviewed process. NSUF offers research proposal options through an online submittal system. Proposals should be consistent with the DOE-NE mission and its programmatic interests. These include the Light Water Reactor Sustainability, Fuel Cycle Research and Development, Advanced Modeling and Simulation, and Advanced Reactor Technology programs. All proposals are subject to a peer-review process before selection. An accredited U.S. university or college must lead research proposals for irradiation/ post-irradiation experiments. All NSUF research must be nonproprietary and results are expected to be published. Collaborations with other national laboratories, federal agencies, non-U.S. universities and industries are encouraged.

BADGES

All attendees must wear registration badges at all times during the congress to ensure admission to events included in the paid fee such as technical sessions, exhibition, and receptions.

REFUNDS

The deadline for all refunds was July 7, 2017. No refunds will be issued at the conference. Fees and tickets are nonrefundable.

AMERICANS WITH DISABILITIES ACT

The federal Americans with Disabilities Act (ADA) prohibits discrimination against, and promotes public accessibility for, those with disabilities. In support of, and in compliance with ADA, we ask those requiring specific equipment or services to contact TMS Meeting Services at mtgserv@tms.org in advance.

CELL PHONE USE

In consideration of attendees and presenters, we kindly request that you minimize disturbances by setting all cell phones and other devices on "silent" while in meeting rooms.

ANTI-HARASSMENT

In all activities, TMS is committed to providing a professional environment free of harassment, disrespectful behavior, or other unprofessional conduct.

TMS policy prohibits conduct that is disrespectful, unprofessional, or harassing as related to any number of factors including, but not limited to, religion, ethnicity, gender, national origin or ancestry, physical or mental disability, physical appearance, medical condition, partner status, age, sexual orientation, military and veteran status, or any other characteristic protected by relevant federal, state, or local law or ordinance or regulation.

Failure to comply with this policy could lead to censure from the TMS Board of Directors, potential legal action, or other actions.

Anyone who witnesses prohibited conduct or who is the target of prohibited verbal or physical conduct should notify TMS staff member as soon as possible following the incident. It is the duty of the individual reporting the prohibited conduct to make a timely and accurate complaint so that the issue can be resolved swiftly.

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TMS reserves the right to all audio and video reproduction of presentations at TMS-sponsored meetings. By registering for this meeting, all attendees acknowledge that they may be photographed by TMS personnel while at events and that those photos may be used for promotional purposes, in and on TMS publications and websites, and on social media sites.

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TMS complies with the antitrust laws of the United States. Attendees are encouraged to consult with their own corporate counsel for further guidance in complying with U.S. and foreign antitrust laws and regulations.

TMS DIVERSITY AND INCLUSION STATEMENT

The Minerals, Metals & Materials Society (TMS) is committed to advancing diversity in the minerals, metals, and materials professions, and to promoting an inclusive professional culture that welcomes and engages all who seek to contribute to the field. TMS recognizes that a diverse minerals, metals, and materials workforce is critical to ensuring that all viewpoints, perspectives, and talents are brought to bear in addressing complex science and engineering challenges. To build and nurture this diverse professional community, TMS welcomes and actively engages the participation of underrepresented groups in all of its initiatives and endeavors.

EMERGENCY PROCEDURES

The chances of an emergency situation occurring at Environmental Degradation 2017 are quite small. However, being prepared to react effectively in case of an incident is the most critical step in ensuring the health and safety of yourself and those around you. Please take a few moments to review the maps of the Marriott Portland Downtown Waterfront printed in this program (on page 35). When you enter the building, familiarize yourself with the exits and the stairs leading to those exits. When you arrive at your session or event location, look for the emergency exits that are in closest proximity to you.

In case of emergency, dial 911 to contact local law enforcement. To call for hotel security in a non-emergency situation, dial 0 from any house phone.

The Marriott Portland hotel security department and a number of other hotel employees are also trained in CPR, first aid, and disaster preparedness.

In case of a fire, an alarm will sound with an announcement to evacuate. The Marriott Portland is equipped with fire sprinkler systems (including guest rooms), smoke/fire detectors (including guest rooms), and emergency lighting in staircases. The hotel does participate in periodic tests on the fire system as well as conducts evacuation drills.

TECHNICAL PROGRAM

INTERNATIONAL CONFERENCE ON

18TH

Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors

www.tms.org/EnvDeg2017

PROGRAM OVERVIEW

Date	Salon A-B	Salon C-D	Salon E
Monday AM			8:00 AM Plenary
	10:20 AM PWR Nickel SCC - SCC	10:20 AM Irradiation Damage - Stainless Steel	10:20 AM Accident Tolerant Fuel Cladding
Monday PM	3:00 PM PWR Nickel SCC - Initiation - Part I	2:10 PM Irradiation Damage - Swelling	4:10 PM General SCC and SCC Modeling - Part I
Tuesday AM	8:20 AM PWR Nickel SCC - Initiation - Part II	8:20 AM Irradiation Damage - Nickel Based and Low Alloy	8:20 AM General SCC and SCC Modeling - Part II
	9:35 AM PWR Nickel SCC - Aging Effects	10:20 AM PWR Oxides and Deposits	10:20 AM Special Topics II - Processes
Tuesday PM	**Free Afternoon**		
Wednesday AM	8:20 AM PWR Nickel SCC - Alloy 600 Mechanistic	8:20 AM BWR SCC and Water Chemistry	8:20 AM Zirconium and Fuel Cladding
Wednesday PM	1:20 PM PWR Nickel SCC - Alloy 690 Mechanistic	1:20 PM Stainless Steel Aging and CASS	1:20 PM Welds, Weld Metals, and Weld Assessments
	4:10 PM PWR Stainless Steel SCC and Fatigue - SCC - Part I		4:10 PM Special Topics I - Materials - Part I
Thursday AM	8:20 AM PWR Stainless Steel SCC and Fatigue - SCC - Part II	8:20 AM Plant Operating Experience	8:20 AM Special Topics I - Materials - Part II
	10:20 AM PWR Stainless Steel SCC and Fatigue - Fatigue	10:20 AM Cables and Concrete Aging and Degradation - Cables	10:20 AM IASCC Testing - Characterization
Thursday PM	2:35 PM PWR Secondary Side	3:00 PM Cables and Concrete Aging and Degradation - Concrete	2:10 PM IASCC Testing - Initiation and Growth

Plenary

Monday AM
August 14, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chair: Michael Wright, Canadian Nuclear Laboratories

8:00 AM Introductory Comments Mike Wright

8:30 AM Keynote
21st Century Vision of Nuclear Energy: *Todd Allen*[1]; [1]University of Wisconsin and ThirdWay

9:15 AM Plenary
The 21st Century Vision for Nuclear Energy – U.S. Industry Perspective: *Scot Greenlee*[1]; [1]Exelon Nuclear Generation

9:40 AM Break

Accident Tolerant Fuel Cladding

Monday AM
August 14, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Gary Was, University of Michigan; Bruce Pint, Oak Ridge National Laboratory; Cem Topbasi, Electric Power Research Institute

10:20 AM
Accident Tolerant FeCrAl Fuel Cladding: Current Status towards Commercialization: *Kevin Field*[1]; Yukinori Yamamoto[1]; Bruce Pint[1]; Maxim Gussev[1]; Kurt Terrani[1]; [1]Oak Ridge National Laboratory

10:45 AM
Interdiffusion Behavior of FeCrAl with U_3Si_2: *Rita Hoggan*[1]; Jason Harp[1]; Lingfeng He[1]; [1]Idaho National Laboratory

11:10 AM
Mechanical Behavior of FeCrAl and Other Alloys Following Exposure to LOCA Conditions Plus Quenching: Raul Rebak[1]; Michael Schuster[1]; *Evan Dolley*[1]; Cole Crawford[1]; [1]GE Global Research

11:35 AM
Mechanical Behavior and Structure of the Advanced Fe-Cr-Al Alloy Weldments: *Maxim Gussev*[1]; Kevin Field[1]; Ercan Cakmak[1]; Yukinori Yamamoto[1]; [1]Oak Ridge National Laboratory

12:00 PM Lunch Break - On Your Own

1:20 PM
Investigating Potential Accident Tolerant Fuel Cladding Materials and Coatings: *Kevin Daub*[1]; Suraj Persaud[1]; Heidi Nordin[1]; Raul Rebak[2]; Rudi Van Nieuwenhove[3]; Sridhar Ramamurthy[4]; [1]Canadian Nuclear Laboratories; [2]GE Global Research; [3]Institutt for Energiteknikk; [4]Surface Science Western, Western University

1:45 PM
Steam Oxidation Behavior of FeCrAl Cladding: *Bruce Pint*[1]; Kurt Terrani[1]; Raul Rebak[2]; [1]Oak Ridge National Laboratory; [2]General Electric

2:10 PM
In-situ Proton Irradiation-corrosion Study of ATF Candidate Alloys in Simulated PWR Primary Water: *Peng Wang*[1]; Gary Was[1]; [1]University of Michigan

2:35 PM
Hydrothermal Corrosion of SiC Materials for Accident Tolerant Fuel Cladding with and without Mitigation Coatings: *Stephen Raiman*[1]; Caen Ang[1]; Peter Doyle[2]; Kurt Terrani[1]; [1]Oak Ridge National Laboratory; [2]University of Tennessee

3:00 PM
Characterization of the Hydrothermal Corrosion Behavior of Ceramics for Accident Tolerant Fuel Cladding: *Peter Doyle*[1]; Stephen Raiman[2]; Raul Rebak[3]; Kurt Terrani[2]; [1]University of Tennessee, Knoxville; [2]Oak Ridge National Laboratory; [3]GE Global Research Center

3:25 PM
Corrosion of Multilayer Ceramic-coated ZIRLO Exposed to High Temperature Water: Kiran Kumar[1]; *Gary Was*[1]; [1]University of Michigan

3:50 PM Break

Poster Session: Accident Tolerant Fuel Cladding

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

B-1: Effect of Chromium Grain Size and Morphology on the HT Oxidation Behavior of Chromium Coated Zr Based Alloys: *Nihed Chaabane*[1]; Jean-Christophe Brachet[1]; Matthieu Le Saux[1]; Didier Hamon[1]; Elodie Rouesne[1]; Stéphane Urvoy[1]; Michel Tabarant[1]; Michel Schlegel[1]; Fernando Lomello[1]; [1]CEA Saclay

B-2: Thermomechanical Characteristics of Mo for Accident Tolerance Fuel Cladding under Internal Pressure: *Young-Jin Kim*[1]; Bo Cheng[2]; Peter Chou[2]; Cem Topbasi[2]; Sam Armijo[2]; [1]FNC Technology Company; [2]Electric Power Research Institute

B-3: Modeling Radiation Defect Cluster Accumulation in Neutron Irradiated FeCrAl: *Dwaipayan Dasgupta*[1]; Aaron Kohnert[1]; Brian Wirth[1]; [1]The University of Tennessee, Knoxville

B-4: Development of Corrosion Resistant Coating to Silicon Carbide for Nuclear Fuels: *Ryo Ishibashi*[1]; Takao Kondo[2]; Katsumasa Miyazaki[1]; [1]Hitachi,Ltd. Research & Development Group; [2]Hitachi-GE Nuclear Energy, Ltd.

Irradiation Damage - Stainless Steel

Monday AM
August 14, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Larry Nelson, JLN Consulting; Sarah Davidsaver, AREVA; Anna Hojna, Centrum vyzkumu Rez

10:20 AM
Effect of Strain Rate and High Temperature Water on Deformation Structure of VVER Neutron Irradiated Core Internals Steel: *Anna Hojna*[1]; Jan Duchon[1]; Patricie Halodova[1]; Hygreeva Namburi[1]; [1]Centrum vyzkumu Rez

10:45 AM
Radiation-Induced Precipitates in a Self-Ion Irradiated Cold-Worked 316 Austenitic Stainless Steel Used for PWR Baffle-Bolts: *Jan Michalicka*[1]; Zhijie Jiao[2]; Gary Was[2]; [1]CEITEC - Brno University of Technology; [2]University of Michigan

11:10 AM
In Situ and Ex Situ Observations of the Influence of Twin Boundaries on Heavy Ion Irradiation Damage Effects in 316L Austenitic Stainless Steels: *Gabriel De Bellefon*[1]; Jean Claude van Duysen[2]; Kumar Sridharan[1]; [1]University of Wisconsin Madison; [2]EDF

11:35 AM
In Situ Microtensile Testing for Ion Beam Irradiated Materials: *Hi Vo*[1]; Ashley Reichardt[1]; David Frazer[1]; Nathan Bailey[1]; Peter Chou[2]; Peter Hosemann[1]; [1]University of California, Berkeley; [2]Electric Power Research Institute

12:00 PM Lunch Break - On Your Own

1:20 PM
Development of High Irradiation Resistance and Corrosion Resistance Oxide Dispersion Strengthed Austenitic Stainless Steels: *Takahiro Ishizaki*[1]; Yusaku Maruno[1]; Kiyohiro Yabuuchi[2]; Sosuke Kondo[2]; Akihiko Kimura[2]; [1]Hitachi, Ltd.; [2]Kyoto University

1:45 PM
Probing Damage Gradients in Ion-irradiated Tungsten Using Spherical Nanoindentation: *Siddhartha Pathak*[1]; Jordan Weaver[2]; Cheng Sun[2]; Yongqiang Wang[2]; Surya Kalidindi[3]; Nathan Mara[2]; [1]University of Nevada, Reno; [2]Los Alamos National Laboratory; [3]Georgia Institute of Technology

Poster Session: Irradiation Damage - Stainless Steel

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

H-1: Complexity of Strain Hardening Behavior and "Traveling Wave" Deformation Modes in Neutron-irradiated Austenitic Steels: *Maxim Gussev*[1]; David McClintock[1]; Francis Garner[2]; [1]Oak Ridge National Laboratory; [2]Radiation Effects Consulting

H-2: Current Status of RPV Material Characterization from Decommissioned Zion Nuclear Power Plant: *Mikhail Sokolov*[1]; Thomas Rosseel[1]; Randy Nanstad[1]; Xiang Chen[1]; [1]Oak Ridge National Laboratory

PWR Nickel SCC - SCC

Monday AM
August 14, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Bogdan Alexandreanu, Argonne National Laboratory; Sonya Pemberton, Amec Foster Wheeler; M. Grace Burke, University of Manchester

10:20 AM
Scoring Process for Evaluating Laboratory PWSCC Crack Growth Rate Data of Thick-wall Alloy 690 Wrought Material and Alloy 52, 152, and Variant Weld Material: *Amanda Jenks*[1]; Glenn White[1]; Paul Crooker[2]; [1]Dominion Engineering, Inc.; [2]Electric Power Research Institute

10:45 AM
Applicability of Alloy 690/52/152 Crack Growth Testing Conditions to Plant Components: *Warren Bamford*[1]; Stephen Fyfitch[2]; Paul Crooker[3]; Raj Pathania[3]; [1]Westinghouse Electric; [2]AREVA; [3]EPRI

11:10 AM
SCC of Alloy 152/52 Welds Defects, Repairs and Dilution Zones in PWR Water: *Peter Andresen*[1]; Kawaljit Ahluwalia[2]; [1]Andresen Consulting; [2]EPRI

11:35 AM
NRC Perspectives on Primary Water Stress Corrosion Cracking of High-chromium, Nickel-based Alloys: *Greg Oberson*[1]; [1]U.S. Nuclear Regulatory Commission

12:00 PM Lunch Break - On Your Own

1:20 PM
Stress Corrosion Cracking of 52/152 Weldments near Dissimilar Metal Weld Interfaces: *Bogdan Alexandreanu*[1]; Yiren Chen[1]; Wei-Ying Chen[1]; Ken Natesan[1]; [1]Argonne National Laboratory

1:45 PM
Composite Material Stress Corrosion Crack Arrest Testing in Hydrogen Deaerated Water: *David Morton*[1]; [1]Knolls Atomic Power Laboratory

2:10 PM
Investigation of Hydrogen Behavior in Relation to the PWSCC Mechanism in Alloy TT690: *Takumi Terachi*[1]; Takuyo Yamada[1]; Nobuo Totsuka[1]; Koji Arioka[1]; [1]Institute of Nuclear Safety System, Incorporated

Poster Session: PWR Nickel SCC - SCC

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

N-1: Under-prediction of Alloy 690 Weld Metal Crack Growth for Non-uniform Growth Measured Via In-situ Electric Potential Drop Measurements: *Gregory Hock*[1]; Tyler Moss[1]; [1]Naval Nuclear Laboratory

N-2: PWSCC Crack Growth in Dilution Zones of Alloy 152/52 Welded to Low Alloy Steel or Carbon Steel: *Mychailo Toloczko*[1]; Matthew Olszta[1]; Nicole Overman[1]; Stephen Bruemmer[1]; [1]Battelle/PNNL

Irradiation Damage - Swelling

Monday PM
August 14, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Frank Garner, Radiation Effects Consulting; Cheng Sun, Idaho National Laboratory; Sebastien Teysseyre, Idaho National Laboratory

2:10 PM
Formation of He Bubbles by Repair-welding in Neutron-irradiated Stainless Steels Containing Surface Cold Worked Layer: *Masato Koshiishi*[1]; Naoto Shigenaka[2]; [1]NFD; [2]Hitachi-GE Nuclear Energy, Ltd.

2:35 PM
Predictions and Measurements of Helium and Hydrogen in PWR Structural Components Following Neutron Irradiation and Subsequent Charged Particle Bombardment: *Frank Garner*[1]; Lin Shao[2]; Cem Topbasi[3]; [1]Radiation Effects Consulting; [2]Texas A&M University; [3]EPRI

3:00 PM
Emulating Neutron-induced Void Swelling in Stainless Steels Using Ion Irradiation: *Cheng Sun*[1]; Lorenzo Malerba[2]; Milan Konstantinovic[2]; Eda Aydogan[3]; Frank Garner[4]; Stuart Maloy[3]; [1]Idaho National Laboratory; [2]SCK.CEN; [3]Los Alamos National Laboratory; [4]Texas A&M University

3:25 PM
Carbon Contamination, Its Consequences and Its Mitigation in Ion-simulation of Neutron-induced Swelling of Structural Steels: Lin Shao[1]; Jonathan Gigax[1]; Hyosim Kim[1]; *Frank Garner*[1]; Jing Wang[2]; Mychailo Toloczko[2]; [1]Texas A&M University; [2]Pacific Northwest National Laboratory

3:50 PM Break

4:10 PM
Void Swelling Screening Criteria for Stainless Steels in PWR Systems: *Sarah Davidsaver*[1]; Stephen Fyfitch[1]; Daniel Brimbal[2]; Joshua McKinley[3]; Kyle Amberge[4]; [1]AREVA; [2]AREVA NP SAS; [3]Westinghouse Electric Company; [4]EPRI

4:35 PM
Theoretical Study of Swelling of Structural Materials in Light Water Reactors at High Fluencies: *Stanislav Golubov*[1]; Alexander Barashev[1]; [1]Oak Ridge National Laboratory

Poster Session: Irradiation Damage - Swelling

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

I-1: Modeling Radiation Defect Cluster Evolution in Irradiated 800H: *Andrew Payant*[1]; A. Kohnert[1]; B. Wirth[1]; [1]University of Tennessee Knoxville

PWR Nickel SCC - Initiation - Part I

Monday PM
August 14, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: David Morton, Knolls Atomic Power Laboratory; Ziqing Zhai, Pacific Northwest National Laboratory; Meg Audrain, U.S. Nuclear Regulatory Commission

3:00 PM
Crack Initiation of Alloy 600 in PWR Water: *Peter Andresen*[1]; Peter Chou[2]; [1]Andresen Consulting; [2]EPRI

3:25 PM
SCC Initiation Behavior of Alloy 182 in PWR Primary Water: *Mychailo Toloczko*[1]; Ziqing Zhai[1]; Karen Kruska[1]; Stephen Bruemmer[1]; [1]Battelle/PNNL

3:50 PM Break

4:10 PM
Multiple Cracks Interactions in Stress Corrosion Cracking: In-situ Observation by Digital Image Correlation and Phase Field Modelling: *Jose Bolivar Vina*[1]; Thanh-Tung Nguyen[1]; Yu Shi[1]; Marion Fregonese[1]; Julien Rethore[1]; Jerome Adrien[1]; Andrew King[2]; Jean-Yves Buffiere[1]; Nicolas Huin[3]; [1]INSA de Lyon; [2]Synchrotron SOLEIL; [3]AREVA NP CT

4:35 PM
Stress Corrosion Cracking Initiation of Alloy 82 in Hydrogenated Steam: *Catherine Guerre*[1]; Elizabeth Chaumun[2]; Cécilie Duhamel[3]; Eva Héripré[4]; Mohamed Sennour[3]; Jérôme Crépin[3]; Ian de Curières[5]; [1]CEA; [2]CEA (formerly); [3]MINES ParisTech; [4]Ecole Polytechnique; [5]IRSN

5:00 PM
Application of Ultra-high Pressure Cavitation Peening on Reactor Vessel Head Penetration, BMN and Primary Nozzles: *Daniel Brimbal*[1]; Gary Poling[2]; Darren Wood[2]; Antoine Marion[1]; Nicolas Huin[1]; Olivier Calonne[1]; [1]AREVA NP; [2]AREVA Inc.

General SCC and SCC Modeling - Part I

Monday PM
August 14, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Raj Pathania, EPRI; David Tice, Amec Foster Wheeler; Jean Smith, EPRI

4:10 PM
Calibration of the Local IGSCC Engineering Model for Alloy 600: *Thierry Couvant*[1]; Jacqueline Caballero[1]; Cecilie Duhamel[2]; Jerome Crépin[2]; [1]EDF R&D; [2]Mines ParisTech

4:35 PM
Prediction of IGSCC as a FEM Post Analysis: *Thierry Couvant*[1]; [1]EDF R&D

5:00 PM
Monte Carlo Simulation Based on SCC Test Results in Hydrogenated Steam Environment for Alloy 600: *Yohei Sakakibara*[1]; Ippei Shinozaki[1]; Gen Nakayama[1]; Takashi Nannichi[1]; Tomoyuki Fujii[2]; Yoshinobu Shimamura[2]; Keiichiro Tohgo[2]; [1]IHI Corporation; [2]Shizuoka University

General SCC and SCC Modeling - Part II

Tuesday AM
August 15, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Raj Pathania, Electric Power Research Institute; David Tice, Amec Foster Wheeler; Jean Smith, EPRI

8:20 AM
Protection of the Steel Used for Dry Cask Storage System from Atmospheric Corrosion by TiO2 Coating: *Jing-Ru Yang*[1]; Mei-Ya Wang[1]; Tsung-Kuang Yeh[1]; Peter Chen[2]; [1]National Tsing Hua University; [2]Berlin Co., Ltd.

8:45 AM
Predictive Modeling of Baffle-former Bolt Failures in Pressurized Water Reactors: *Gregory Banyay*[1]; Matthew Kelley[1]; Joshua McKinley[1]; Matthew Palamara[1]; Scott Sidener[1]; Clarence Worrell[1]; [1]Westinghouse Electric Company

9:10 AM
Technical Basis and SCC Growth Rate Data to Develop SCC Disposition Curve for Alloy 82 in BWR Environments: *Katsuhiko Kumagai*[1]; Yusuke Sakai[1]; Takayuki Kaminaga[1]; [1]Tokyo Electric Power Co HD

9:35 AM Break

Irradiation Damage - Nickel Based and Low Alloy

Tuesday AM
August 15, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Mychailo Toloczko, Pacific Northwest National Laboratory; Maxim Gussev, Oak Ridge National Laboratory; Myles Connor, GE-Hitachi

8:20 AM
High Resolution Transmission Electron Microscopy of Irradiation Damage in Inconel X-750: *Colin Judge*[1]; Heygaan Rajakumar[1]; Andreas Korinek[2]; Gianluigi Botton[2]; Jim Cole[3]; James Madden[3]; John Jackson[3]; Paula Freyer[4]; Lucille Giannuzzi[4]; Malcolm Griffiths[1]; [1]Canadian Nuclear Laboratory; [2]McMaster University; [3]Idaho National Laboratory; [4]Westinghouse Electric Company, LCC

8:45 AM
In-situ SEM Push-to-pull Micro-tensile Testing of in Service Inconel X-750 Annulus Spacers: *Cameron Howard*[1]; Colin Judge[2]; James Madden[3]; Malcolm Griffiths[4]; Peter Hosemann[1]; [1]University of California, Berkeley; [2]Canadian Nuclear Laboratories; [3]Idaho National Laboratory; [4]Queen's University

9:10 AM
Microstructural Characterization of Proton-irradiated 316 Stainless Steels by Transmission Electron Microscopy and Atom Probe Tomography: *Yun Soo Lim*[1]; Dong Jin Kim[1]; Seong Sik Hwang[1]; [1]Korea Atomic Energy Research Institute

9:35 AM Break

Poster Session: Irradiation Damage - Nickel Based and Low Alloy

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

G-1: Microstructure and Mechanical Properties of High Dose Self-ion Irradiated Lanthana-bearing Nanostructured Ferritic Steel: *Somayeh Pasebani*[1]; Indrajit Charit[2]; Ankan Guria[2]; Jatuporn Burns[3]; Yaqiao Wu[3]; Lin Shao[4]; Lloyd Price[4]; [1]Oregon State University; [2]University of Idaho; [3]Boise State University ; [4]Boise State University; [4]Texas A&M University

G-2: A Positive Reassessment of Previous Experiments Involving Charged Particle Simulation of Neutron-induced Void Swelling of Austenitic Stainless Steels: *Frank Garner*[1]; Jing Wang[2]; Lin Shao[1]; [1]Texas A&M University; [2]Pacific Northwest National Laboratory

G-3: Use of Back-scatter Electron Imaging and Ultrasonic Time-of-flight Measurements to Guide Destructive Examination and Analysis of Irradiated Austenitic Steels Comprising PWR Internal Components: *Frank Garner*[1]; Paula Freyer[2]; Lucille Giannuzzi[3]; Yoshihiro Isobe[4]; Lin Shao[5]; [1]Radiation Effects Consulting; [2]Westinghouse Electric Company; [3]L.A. Giannuzzi & Associates; [4]Nuclear Fuel Industries; [5]Texas A&M University

PWR Nickel SCC - Initiation - Part II

Tuesday AM
August 15, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Dave Morton, Knolls Atomic Power Laboratory; Ziqing Zhai, Pacific Northwest National Laboratory; Greg Oberson, U.S. Nuclear Regulatory Commission

8:20 AM
The Effect of Surface Condition on Primary Water Stress Corrosion Cracking Initiation of Alloy 600: *Sonya Pemberton*[1]; Mark Chatterton[1]; Adam Griffiths[1]; Stuart Medway[1]; David Tice[1]; Kevin Mottershead[1]; [1]Amec Foster Wheeler

8:45 AM
Microstructural Effects on SCC Initiation in Simulated PWR Primary Water for Cold-worked Alloy 600: *Ziqing Zhai*[1]; Mychailo Toloczko[1]; Stephen Bruemmer[1]; [1]Pacific Northwest National Laboratory

PWR Nickel SCC - Aging Effects

Tuesday AM
August 15, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Tyler Moss, Naval Nuclear Laboratory; Peter Chou, Electric Power Research Institute; Daniel Schreiber, Pacific Northwest National Laboratory

9:35 AM
A Kinetic Study of Order-disorder Transition in Ni-Cr Based Alloys: *Baptiste Stephan*[1]; Damien Jacob[2]; Frederic Delabrouille[1]; Laurent Legras[1]; [1]EDF; [2]Université Lille 1

10:00 AM Break

10:20 AM
The Role of Stoichiometry on Ordering Phase Transformations in Ni-Cr Alloys for Nuclear Applications: *Fei Teng*[1]; Grace Burke[2]; Emmanuelle Marquis[3]; Li-Jen Yu[3]; Octav Ciuca[2]; Julie Tucker[4]; [1]Oregon State University; [2]University of Manchester; [3]University of Michigan, Ann Arbor; [4]Oregon State University

10:45 AM
The Effect of Hardening via Long Range Order on the SCC and LTCP Susceptibility of a Nickel-30Chromium Binary Alloy: Tyler Moss[1]; Catherine Brown[1]; *George Young*[2]; [1]Naval Nuclear Laboratory; [2]Dominion Engineering

11:10 AM
PWSCC Initiation of Alloy 600: Effect of Long-term Thermal Aging and Triaxial Stress: Seung Chang Yoo[1]; Kyoung Joon Choi[1]; *Seunghyun Kim*[1]; Ji-Soo Kim[2]; Byoung Ho Choi[2]; Yun-jae Kim[2]; Jong-sung Kim[3]; Ji Hyun Kim[1]; [1]Ulsan National Institute of Science Technology; [2]Korea University; [3]Sejong University

11:35 AM
Stress Corrosion Cracking Behavior of Alloy 718 Subjected to Various Thermal Mechanical Treatments in Primary Water: *Mi Wang*[1]; Miao Song[1]; Gary Was[1]; Larry Nelson[2]; [1]University of Michigan; [2]JLN Consulting

12:00 PM
Time- and Fluence-to-fracture Studies of Alloy 718 in Reactor: *C. Joseph Long*[1]; [1]Westinghouse Electric Company

12:25 PM
Development of Short-range Order and Intergranular Carbide Precipitation in Alloy 690 TT upon Thermal Aging: *Roman Mouginot*[1]; Teemu Sarikka[1]; Mikko Heikkilä[2]; Mykola Ivanchenko[3]; Unto Tapper[3]; Ulla Ehrnstén[3]; Hannu Hänninen[1]; [1]Aalto University School of Engineering; [2]University of Helsinki; [3]VTT Technical Research Centre of Finland

Poster Session: PWR Nickel SCC - Aging Effects

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

K-1: The Most Susceptible Reason of Low Temperature Mill Annealed (LTMA) Alloy 600 to PWSCC: *SungSoo Kim*[1]; Young Suk Kim[1]; [1]Korea Atomic Energy Research Institute

PWR Oxides and Deposits

Tuesday AM
August 15, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Cecillie Duhamel, MINES ParisTech; Fabio Scenini, The University of Manchester

10:20 AM
Effect of Grain Orientation on Irradiation Assisted Corrosion of 316L Stainless Steel in Simulated PWR Primary Water: *Rigel Hanbury*[1]; Gary Was[1]; [1]University of Michigan

10:45 AM
Finite Element Modelling to Investigate the Mechanisms of CRUD Deposition in PWR: *Jiejie Wu*[1]; Nicholas Stevens[1]; Brian Connolly[1]; [1]The University of Manchester

11:10 AM
Properties of Oxide Films on Ni-Cr-xFe Alloys in a Simulated PWR Water Environment: *Xiangkun Ru*[1]; Zhanpeng Lu[1]; Junjie Chen[1]; Guangdong Han[1]; Jinlong Zhang[1]; Pengfei Hu[1]; Xue Liang[1]; Wenqing Liu[1]; [1]Shanghai University

Special Topics II - Processes

Tuesday AM
August 15, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Ulla Ehrnstén, VTT Technical Research Center of Finland; Tsung-Kuang Yeh, National Tsing Hua University; George Young, Dominion Engineering

10:20 AM
Investigation Of Pitting Corrosion In Sensitized Modified High-Nitrogen 316LN Steel After Neutron Irradiation: *Diana Merezhko*[1]; Mikhail Merezhko[1]; Maxim Gussev[2]; Jeremy Busby[2]; Oleg Maksimkin[1]; Michael Short[3]; Frank Garner[4]; [1]Institute of Nuclear Physics; [2]Oak Ridge National Lab; [3]Massachusetts Institute of Technology; [4]Moscow Engineering Physics Institute, Radiation Effects Consulting

10:45 AM
Quantifying Erosion-corrosion Impacts on Light Water Reactor Piping: *Consuelo Guzman-Leong*[1]; Joseph Cluever[1]; Stephen Gosselin[1]; [1]LPI, Inc.

11:10 AM
Effect of Molybdate Anion Addition on Repassivation of Corroding Crevice in Austenitic Stainless Steel: *Shun Watanabe*[1]; Tomohiro Sekiguchi[1]; Hiroshi Abe[1]; Yutaka Watanabe[1]; [1]Tohoku University

11:35 AM
Effect of pH on Hydrogen Pick-up and Corrosion in Zircaloy-4: James Sayers[1]; *Sergio Lozano-Perez*[1]; Susan Ortner[2]; [1]Oxford Materials; [2]NNL

12:00 PM
Oxidation Kinetics of Austenitic Stainless Steels as SCWR Fuel Cladding Candidate Materials in Supercritical Water: *Hiroshi Abe*[1]; Ryuichi Suzuki[1]; Yutaka Watanabe[1]; [1]Tohoku University

12:25 PM
A Recent Look at CANDU Feeder Cracking: High Resolution Transmission Electron Microscopy and Electron Energy Loss near Edge Structure (ELNES): *Colin Judge*[1]; Suraj Persaud[1]; Andreas Korinek[2]; Michael Wright[1]; [1]Canadian Nuclear Laboratory; [2]McMaster University

Poster Session: Special Topics II: Processes

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

S-1: Image Analysis of SiC-SiC Composites for Quantification of Mechanical Properties under Tensile Loads: *Ian Love*[1]; Brian Bay[1]; Peter Hosemann[2]; Joey Kabel[2]; Christian Deck[3]; Julie Tucker[1]; [1]Oregon State University; [2]University of California, Berkeley; [3]General Atomics

S-2: The Preliminary Study of Initial Oxidation Behavior of Alloy 690 in Hot Water: *Hui Li*[1]; [1]Shanghai University

BWR SCC and Water Chemistry

Wednesday AM
August 16, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Bob Carter, Electric Power Research Institute; Earl Johns, Naval Nuclear Laboratory; Susan Garcia, Electric Power Research Institute

8:20 AM
SCC and Fracture Toughness of XM-19: *Peter Andresen*[1]; Martin Morra[2]; Robert Carter[3]; [1]Andresen Consulting; [2]GE Global Research Center; [3]EPRI

8:45 AM
On the Effect of Preoxidation of Nickel Alloy X-750: *Silvia Tuzi*[1]; Kenneth Göransson[2]; Fang Liu[1]; Mattias Thuvander[1]; Krystyna Stiller[1]; [1]Chalmers University of Technology; [2]Westinghouse Electric Sweden AB

9:10 AM
Microstructures of Oxide Films Formed in Alloy 182 BWR Core Shroud Support Leg Cracks: *Jiaxin Chen*[1]; Daniel Jädernäs[1]; Fredrik Lindberg[2]; Henrik Pettersson[3]; Martin Bjurman[1]; Kwadwo Kese[1]; Anders Jenssen[1]; Massimo Cocco[4]; Hanna Johansson[4]; [1]Studsvik Nuclear AB; [2]Swerea KIMAB AB; [3]Chalmers University of Technology; [4]Forsmark Kraftgrupp AB

9:35 AM
Effect of Chloride Transients on Crack Growth Rates in Low Alloy Steels in BWR Environments: *Xiaoyuan Lou*[1]; Raj Pathania[2]; [1]GE Global Research; [2]Electric Power Research Institute

10:00 AM Break

10:20 AM
Electrochemical Behavior of Platinum Treated Type 304 Stainless Steels in Simulated BWR Environments under Startup Conditions: Chu-Yung Yuan[1]; *Tsung-Kuang Yeh*[1]; Mei-Ya Wang[1]; [1]National Tsing Hua University

10:45 AM
Investigations of the Dual Benefits of Zinc Injection on ^{60}Co Uptake and Oxide Film Formation under Boiling Water Reactor Conditions: *Samuel Holdsworth*[1]; Fabio Scenini[1]; Grace Burke[1]; Giacomo Bertali[1]; Tsuyoshi Ito[2]; Yoichi Wada[2]; Hideyuki Hosokawa[2]; Nobuyuki Ota[3]; Makoto Nagase[3]; [1]University Of Manchester; [2]Hitachi Ltd.; [3]Hitachi-GE Nuclear Energy

11:10 AM
SCC Mitigation in Boiling Water Reactors: Platinum Deposition and Durability on Structural Materials: *Pascal Grundler*[1]; Stefan Ritter[1]; Lyubomira Veleva[1]; [1]Paul Scherrer Institut

11:35 AM
Confirmation of On-line NobleChem™ (OLNC) Mitigation Effectiveness in Operating Boiling Water Reactors (BWRs): *Joe Kopcash*[1]; Hubert Huie[1]; Juan Varela[1]; Susan Garcia[2]; George Depta[1]; [1]GE-Hitachi Nuclear Energy; [2]EPRI

12:00 PM Lunch Break - On Your Own

Poster Session: BWR SCC and Water Chemistry

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

E-1: Development of the Fundamental Multiphysics Analysis Model for Crevice Corrosion Using a Finite Element Method: *Masahiko Tachibana*[1]; Yoichi Wada[1]; Yoshiharu Kikuchi[2]; Takayuki Arakawa[2]; Takehiro Seto[2]; [1]Hitachi, Ltd.; [2]Hitachi-GE Nuclear Energy, Ltd.

E-2: In-situ Electrochemical Study on Crevice Environment of Stainless Steel in High Temperature Water: *Yasutaka Soma*[1]; Chaki Kato[1]; Fumiyoshi Ueno[1]; Masahiro Yamamoto[1]; [1]Japan Atomic Energy Agency

PWR Nickel SCC - Alloy 600 Mechanistic

Wednesday AM
August 16, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Steve Bruemmer, Pacific Northwest National Laboratory; Thierry Couvant, EDF R&D; Tony Horner, Rolls Royce plc

8:20 AM
Diffusion Processes as a Possible Mechanism for Cr Depletion at SCC Crack Tip: Josiane Nguejio[1]; Bogdan Chetroiu[1]; Jérôme Crépin[1]; *Cecilie Duhamel*[1]; Catherine Guerre[2]; François Jomard[3]; Marc Maisonneuve[2]; [1]MINES ParisTech; [2]CEA; [3]Université Versailles Saint-Quentin

8:45 AM
Role of Grain Boundary Cr_5B_3 Precipitates on Intergranular Attack in Alloy 600: *Daniel Schreiber*[1]; Matthew Olszta[1]; Karen Kruska[1]; Stephen Bruemmer[1]; [1]Pacific Northwest National Laboratory

9:10 AM
Advanced Characterization of Oxidation Processes and Grain Boundary Migration in Ni Alloys Exposed to 480 °C Hydrogenated Steam: *Suraj Persaud*[1]; Ali Eskandari[2]; Hao Zhu[2]; Brian Langelier[3]; Gianluigi Botton[3]; Roger Newman[2]; [1]Canadian Nuclear Laboratories (CNL); [2]University of Toronto; [3]Canadian Centre for Electron Microscopy, McMaster University

9:35 AM
Exploring Nanoscale Precursor Reactions in Alloy 600 in H2/N2-H2O Vapor Using In Situ Analytical Transmission Electron Microscopy: *Giacomo Bertali*[1]; Grace Burke[1]; Fabio Scenini[1]; Nicolas Huin[2]; Sarah Haigh[1]; Eric Prestat[1]; [1]University of Manchester; [2]AREVA

10:00 AM Break

10:20 AM
Electrochemical and Microstructural Characterization of Alloy 600 in Low Pressure H_2-Steam: *Liberato Volpe*[1]; Giacomo Bertali[1]; Michele Curioni[1]; M. Grace Burke[1]; Fabio Scenini[1]; [1]University of Manchester

10:45 AM
Effect of Dissolved Hydrogen on the Crack Growth Rate and Oxide Film Formation at the Crack Tip of Alloy 600 Exposed to Simulated PWR Primary Water: Johan Stjärnsäter[1]; *Jiaxin Chen*[1]; Fredrik Lindberg[2]; Peter Ekström[3]; Pål Efsing[4]; [1]Studsvik Nuclear AB; [2]Swerea Kimab AB; [3]Swedish Radiation Safety Authority; [4]Ringhals AB

11:10 AM
A Mechanistic Study of the Effect of Temperature on Crack Propagation in Alloy 600 under PWR Primary Water Conditions: *Zhao Shen*[1]; Sergio Lozano-Perez[1]; [1]University of Oxford

11:35 AM Break - Lunch on own

Poster Session: PWR Nickel SCC - Alloy 600 Mechanistic

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

J-1: First Principles Modeling of Charge and Ion Transport in NiO: *Jianguo Yu*[1]; [1]Idaho National Laboratory

Zirconium and Fuel Cladding

Wednesday AM
August 16, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Jacki Stevens, AREVA Inc; Evan Dolley, GE Global Research; George Jiao, University of Michigan

8:20 AM
Corrosion Fatigue Crack Initiation in Zr-2.5Nb: *Heidi Nordin*[1]; Andrew Phillion[1]; Torill Karlsen[2]; Suraj Persaud[1]; [1]Canadian Nuclear Laboratories; [2]Institute for Energy Technology

8:45 AM
Cluster Dynamics Model for the Hydride Precipitation Kinetics in Zirconium Cladding: *Donghua Xu*[1]; [1]Oregon State University

9:10 AM
Modeling of Oxidation Kinetics of Zirconium Alloys in Loss of Coolant Accident (LOCA): *Léo Borrel*[1]; Adrien Couet[1]; [1]University of Wisconsin-Madison

9:35 AM
Progressing Zirconium-alloy Corrosion Models Using Synchrotron XANES: *Michael Moorehead*[1]; Adrien Couet[1]; Jing Hu[2]; Zhonghou Cai[3]; [1]University of Wisconsin - Madison; [2]University of Oxford; [3]Argonne National Laboratory

10:00 AM Break

10:20 AM
Advanced Characterization of Hydrides in Zirconium Alloys: *Sean Hanlon*[1]; Suraj Persaud[1]; Fei Long[2]; Mark Daymond[2]; [1]Canadian Nuclear Laboratories; [2]Queen's University

10:45 AM
Influence of Alloying Elements and Effect of Stress on Anisotropic Hydrogen Diffusion in Zr-based Alloys Predicted by Accelerated Kinetic Monte Carlo Simulations: Jianguo Yu[1]; Chao Jiang[1]; *Yongfeng Zhang*[1]; [1]Idaho National Laoratory

11:10 AM Lunch Break - On Your Own

Poster Session: Zirconium and Fuel Cladding

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

A-1: Effects of In-situ UV Irradiation on Corrosion Mechanism of Zirconium Alloy: *Yalong He*[1]; Adrien Couet[1]; [1]University of Wisconsin Madison

A-2: Fundamental Study of Irradiation Effects on Corrosion of ZrNb Alloys: *Zefeng Yu*[1]; Adrien Couet[1]; [1]University of Wisconsin, Madison

PWR Nickel SCC - Alloy 690 Mechanistic

Wednesday PM
August 16, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Stuart Medway, Amec Foster Wheeler; Matthew Olszta, Pacific Northwest National Laboratory; Hannu Hänninen, Aalto University School of Science and Technology

1:20 PM
Grain Boundary Damage Evolution and SCC Initiation of Cold-worked Alloy 690 in Simulated PWR Primary Water: *Ziqing Zhai*[1]; Mychailo Toloczko[1]; Karen Kruska[1]; Daniel Schreiber[1]; Stephen Bruemmer[1]; [1]Pacific Northwest National Laboratory

1:45 PM
Effect of Cold Work and Grain Boundary Carbides on PWSCC Susceptibility of Alloy 690: *Takaharu Maeguchi*[1]; [1]Mitsubishi Heavy Industries, Ltd.

2:10 PM
Relationship among Dislocation Density, Local Strain Distribution, and PWSCC Susceptibility of Alloy 690: Tae-Young Ahn[1]; Sung-Woo Kim[1]; Seong Sik Hwang[1]; *Hong Pyo Kim*[1]; [1]Korea Atomic Energy Research Institute

2:35 PM
Morphology Evolution of Grain Boundary Carbides Precipitated near Triple Junctions in Highly Twinned Alloy 690: *Hui Li*[1]; Wenqing Liu[1]; [1]Shanghai University

3:00 PM
A Mechanistic Study on the Stress Corrosion Crack Propagation for Heavily Cold Worked TT Alloy 690 in Simulated PWR Primary Water: *Toshio Yonezawa*[1]; Masashi Watanabe[1]; Atsushi Hashimoto[2]; [1]Tohoku University; [2]Kobe Material Testing Laboratory Co. Ltd.

3:25 PM
Microstructural Study on the Stress Corrosion Cracking of Alloy 690 in Simulated Pressurized Water Reactor Primary Environment: Wenjun Kuang[1]; Miao Song[1]; Chad Parish[2]; Gary Was[1]; [1]University of Michigan; [2]Oak Ridge National Laboratory

3:50 PM Break

Poster Session: PWR Nickel SCC - Alloy 690 Mechanistic

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

M-1: Cavity Nucleation and Growth in Cold-worked Alloy 690 in Simulated PWR Primary Water: *Karen Kruska*[1]; Ziqing Zhai[1]; Mychailo Toloczko[1]; Stephen Bruemmer[1]; [1]Pacific Northwest National Laboratory

Stainless Steel Aging and CASS

Wednesday PM
August 16, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Steve Fyfitch, AREVA NP Inc.; Jeremy Busby, Oak Ridge National Laboratory; Thak Sang Byun, Pacific Northwest National Laboratory

1:20 PM
Influence of δ-Ferrite Content on Thermal Aging Induced Mechanical Property Degradation in Cast Stainless Steels: *Thak Sang Byun*[1]; Timothy Lach[1]; Ying Yang[2]; Changheui Jang[3]; [1]Pacific Northwest National Laboratory; [2]Oak Ridge National Laboratory; [3]Korea Advanced Institute of Science & Technology

1:45 PM
Microstructure and Deformation Behavior of Thermally Aged Cast Austenitic Stainless Steels: *Yiren Chen*[1]; C. Xu[2]; X Zhang[1]; W-Y Chen[1]; J-S Park[1]; J Almer[1]; M Li[1]; Z Li[2]; Y Yang[2]; A. S. Rao[3]; B Alexandreanu[1]; K Natesan[1]; [1]Argonne National Laboratory; [2]University of Florida; [3]Nuclear Regulatory Commission

2:10 PM
Microstructural Evolution of Cast Austenitic Stainless Steels under Accelerated Thermal Aging: *Timothy Lach*[1]; Thak Byun[1]; [1]Pacific Northwest National Laboratory

2:35 PM
Electrochemical Characteristics of Delta Ferrite in Thermally Aged Austenitic Stainless Steel Weld: *Gokul Obulan Subramanian*[1]; Sunghoon Hong[1]; Ho Jung Lee[1]; Byeong Seo Kong[1]; Kyung-Soo Lee[2]; Thak Sang Byun[3]; Changheui Jang[1]; [1]KAIST; [2]KHNP/CRI; [3]PNNL

3:00 PM
Effect of Long-term Thermal Aging on SCC Initiation Susceptibility in Low Carbon Austenitic Stainless Steels: *So Aoki*[1]; Keietsu Kondo[1]; Yoshiyuki Kaji[1]; Masahiro Yamamoto[1]; [1]Japan Atomic Energy Agency

3:25 PM
Crack Growth Rate and Fracture Toughness of CF3 Cast Stainless Steel at ~3 dpa: *Yiren Chen*[1]; W-Y Chen[1]; B Alexandreanu[1]; K Natesan[1]; A. S. Rao[2]; [1]Argonne National Laboratory; [2]Nuclear Regulatory Commission

3:50 PM Break

4:10 PM
Effects of Thermal Aging and Low Dose Neutron Irradiation on the Ferrite Phase in a 308L Weld: Zhangbo Li[1]; Yiren Chen[2]; Appajosula Rao[3]; *Yong Yang*[1]; [1]University of Florida; [2]Argonne National Laboratory; [3]US Nuclear Regulatory Commission

4:35 PM
Microstructural Evolution of Welded Stainless Steels on Integrated Effect of Thermal Aging and Low Flux Irradiation: *Martin Bjurman*[1]; Kristina Lindgren[2]; Mattias Thuvander[3]; Peter Ekström[4]; Pål Efsing[5]; [1]Studsvik Nuclear AB / Royal Institute of Technology (KTH); [2]Chalmers University of Technology; [3]Chalmers University of Technology,; [4]Swedish Radiation Safety Authority; [5]Ringhals AB / Royal Institute of Technology (KTH)

Welds, Weld Metals, and Weld Assessments

Wednesday PM
August 16, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Catherine Guerre, CEA; Bryan Miller, Naval Nuclear Laboratory; Hans-Peter Seifert, Paul Scherrer Institute

1:20 PM
The Use of Tapered Specimens to Evaluate the SCC Initiation Susceptibility in Alloy 182 in BWR and PWR Environments: *Juxing Bai*[1]; Stefan Ritter[1]; Hans-Peter Seifert[1]; Marc Vankeerberghen[2]; Rik-Wouter Bosch[2]; [1]Paul Scherrer Institute; [2]SCK-CEN

1:45 PM
Effect of Thermal Aging on Fracture Mechanical Properties and Crack Propagation Behavior of Alloy 52 Narrow-gap Dissimilar Metal Weld: *Matias Ahonen*[1]; Sebastian Lindqvist[1]; Teemu Sarikka[2]; Jari Lydman[1]; Roman Mouginot[2]; Ulla Ehrnstén[1]; Pekka Nevasmaa[1]; Hannu Hänninen[2]; [1]VTT; [2]Aalto University

2:10 PM
Distribution and Characteristics of Oxide Films Formed on Stainless Steel Cladding on Low Alloy Steel in PWR Primary Water Environments: *Qi Xiong*[1]; Hongjuan Li[1]; Zhanpeng Lu[1]; Junjie Chen[1]; Qian Xiao[1]; Jiarong Ma[1]; Xiangkun Ru[1]; Xue Liang[1]; [1]Shanghai University

2:35 PM
Microstructural Characterization of Alloy 52 Narrow-gap Dissimilar Metal Weld after Aging: *Teemu Sarikka*[1]; Roman Mouginot[1]; Matias Ahonen[2]; Sebastian Lindqvist[2]; Ulla Ehrnstén[2]; Pekka Nevasmaa[2]; Hannu Hänninen[1]; [1]Aalto University School of Engineering; [2]VTT Technical Research Centre of Finland LTD

3:00 PM
A Statistical Analysis on Modeling Uncertainty through Crack Initiation Tests: *Jae Phil Park*[1]; Chanseok Park[1]; Chi Bum Bahn[1]; [1]Pusan National University

3:25 PM Break

Poster Session: Welds, Weld Metals and Weld Assessments

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

T-1: Residual Stress Measurements in Prototypic Type 304 Stainless Steel Dry Storage Canister Welds: *Ronald Ballinger*[1]; Ronald Rogge[2]; [1]MIT; [2]Canadian Nuclear Laboratories

T-2: Hot Cell Laser Welding of Neutron Irradiated Type 304 Stainless Steel: *Jonathan Tatman*[1]; Paula Freyer[2]; Greg Frederick[1]; Benjamin Sutton[1]; Frank Gift[2]; Frank Garner[3]; [1]Electric Power Research Institute; [2]Westinghouse Electric Company LLC; [3]Radiation Effects Consulting

T-3: Higher Susceptibility to Primary Water Stress Corrosion Cracking (PWSCC) of Weld Alloy 182: *Young Suk Kim*[1]; SungSoo Kim[1]; [1]Korea Atomic Energy Research Institute

PWR Stainless Steel SCC and Fatigue - SCC - Part I

Wednesday PM
August 16, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Gabriel Ilevbare, Electric Power Research Institute; Keith Leonard, Oak Ridge National Laboratory; Elaine West, Knolls Atomic Power Laboratory

4:10 PM
Microstructural Effects on Stress Corrosion Initiation in Austenitic Stainless Steel in PWR Environments: *David Tice*[1]; Venugopal Addepalli[1]; Kevin Mottershead[1]; M Grace Burke[2]; Fabio Scenini[2]; John Lindsay[2]; Sergio Lozano-Perez[3]; Gemma Pimentel[3]; Joao Quinta da Fonseca[2]; [1]Amec Foster Wheeler; [2]The University of Manchester; [3]University of Oxford

4:35 PM
Oxidation and SCC Initiation Studies of Type 304L SS in PWR Primary Water: Fabio Scenini[1]; John Lindsay[1]; Litao Chang[1]; Yong Liang Wang[1]; Grace Burke[1]; Sergio Lozano-Perez[2]; Gemma Pimentel[2]; David Tice[3]; Kevin Mottershead[3]; Venugopal Addepalli[3]; [1]The University of Manchester; [2]Oxford University; [3]Amec Foster Wheeler

5:00 PM
SCC Initiation in the Machined Austenitic Stainless Steel 316L in Simulated PWR Primary Water: *Litao Chang*[1]; Jonathan Duff[1]; M. Grace Burke[1]; Fabio Scenini[1]; [1]The University of Manchester

Poster Session: PWR Stainless Steel SCC and Fatigue - SCC

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

Q-1: SCC Initiation Test of Austenitic Stainless Steels at High Applied Stress in Simulated PWR Environment: *Tatsuya Kubo*[1]; Yoshinori Katayama[1]; Mikiro Ito[1]; [1]Toshiba

Q-2: Effects of Grain Boundary Character on Intergranular Stress Corrosion Cracking Initiation in a 316 Stainless Steel: *Shuang Xia*[1]; Qin Bai[1]; Bangxin Zhou[1]; [1]Shanghai University

Q-3: Effects of Sensitization and Cold Work on Stress Corrosion Cracking of 316L Stainless Steel in Simulated PWR Primary Water: *Junjie Chen*[1]; Zhanpeng Lu[1]; Qian Xiao[1]; [1]Shanghai University

Special Topics I - Materials - Part I

Wednesday PM
August 16, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Pål Efsing, Ringhals AB; Rory Kennedy, Idaho National Laboratory; Peter Hosemann, University of California Berkeley

4:10 PM
Evaluation of Additively Manufactured Materials for Use as Nuclear Plant Components: *Ron Horn*[1]; Myles Connor[1]; David Webber[1]; Fran Bolger[1]; John Jackson[1]; [1]GE Hitachi

4:35 PM
Hot Cell Tensile Testing of Neutron Irradiated Additively Manufactured Type 316L Stainless Steel: *Paula Freyer*[1]; William Cleary[1]; Elaine Ruminski[1]; C. Joseph Long[1]; Peng Xu[1]; [1]Westinghouse Electric Company LLC

5:00 PM
Computational and Experimental Studies on Novel Materials for Fission Gas Capture: Shenli Zhang[1]; Haoyan Sha[1]; Erick Yu[1]; Maria Perez-Page[2]; Ricardo Castro[1]; Pieter Stroeve[1]; Joseph Tringe[3]; *Roland Faller*[1]; [1]University of California, Davis; [2]University of Manchester; [3]Lawrence Livermore National Laboratory

Poster Session: Special Topics I: Materials

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

U-1: Feasibility Study of the Internal Zr/ZrO2 Reference Electrodes in Supercritical Water Environments: *Yu-Hsuan Li*[1]; Mei-Ya Wang[1]; Tsung-Kuang Yeh[1]; [1]National Tsing Hua University

U-2: Error in the Literature for the Nitrogen Specification in Alloy 800NG: *Maria-Lynn Komar*[1]; G. Goszczynski[1]; A. MacIntosh[1]; [1]Kinectrics Inc.

Plant Operating Experience

Thursday AM
August 17, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Maria-Lynn Komar, Kinectrics Inc.; Peter King, PJKing Consulting, Inc.

8:20 AM
Laboratory Analysis of a Leaking Letdown Cooler from Oconee Unit 3: *James Hyres*[1]; Rocky Thompson[2]; Jim Batton[2]; [1]BWX Technologies, Inc.; [2]Duke Energy, Inc.

8:45 AM
Root Cause Analysis of Cracking in Alloy 182 BWR Core Shroud Support Leg Cracks: *Martin Bjurman*[1]; Daniel Jädernäs[2]; Kwadwo Kese[1]; Anders Jenssen[1]; Jiaxin Chen[1]; Massimo Cocco[3]; Hannah Johansson[3]; [1]Studsvik Nuclear AB; [2]Studsvik Nuclear AB (presently Idaho National Laboratory); [3]Forsmarks Kraftgrupp AB

9:10 AM
Microbially Induced Corrosion in Fire Fighting Systems - Experience and Remedies: *Ulla Ehrnstén*[1]; Leena Carpén[2]; Kimmo Tompuri[3]; [1]VTT Technical Research Centre of Finland Ltd; [2]VTT Technical Research Centre of Finland Ltd; [3]Teollisuuden Voima

9:35 AM
Managing the Ageing Degradation of Concealed Safety Relevant Cooling Water Piping in European S/KWU LWRs: *Martin Widera*[1]; Gerd Ahlers[2]; Bernd Gruhne[3]; Thomas Wermelinger[4]; [1]RWE Power AG; [2]PressenElektra GmbH; [3]EnBW Kernkraft GmbH; [4]Kernkraftwerk Goesgen Daeniken AG

10:00 AM Break

Poster Session: Plant Operating Experience

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

F-1: Identification of PWR Stainless Steel Piping Safety Significant Locations Susceptible to Stress Corrosion Cracking: *Ryan Hosler*[1]; Andrew Kulp[1]; Paul Stevenson[2]; Steve Petro[3]; [1]AREVA NP; [2]Westinghouse; [3]AEP

PWR Stainless Steel SCC and Fatigue - SCC - Part II

Thursday AM
August 17, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Gabriel Ilevbare, Idaho National Laboratory; Keith Leonard, Oak Ridge National Laboratory; Elaine West, Knolls Atomic Power Laboratory

8:20 AM
High-resolution Characterisation of Austenitic Stainless Steel in PWR Environments: Effect of Strain and Surface Finish on Crack Initiation and Propagation: *Gemma Pimentel*[1]; S. Lozano-Perez[1]; D.R. Tice[2]; V. Addepalli[2]; K.J. Mottershead[2]; M.G. Burke[3]; F. Scenini[3]; J. Lindsay[3]; Y.L. Wang[3]; [1]University of Oxford; [2]Amec Foster Wheeler; [3]University of Manchester

8:45 AM
SCC of Austenitic Stainless Steels under Off-normal Water Chemistry and Surface Conditions Part I: Surface Conditions and Baseline Tests in Nominal PWR Primary Environment: *Nicolas Huin*[1]; Olivier Calonne[1]; Matthias Herbst[2]; Renate Kilian[2]; [1]AREVA NP; [2]AREVA GmbH

9:10 AM
SCC of Austenitic Stainless Steels under Off-normal Water Chemistry and Surface Conditions Part II: Off Normal Chemistry – Long Term Oxygen Conditions and Oxygen Transients: *Matthias Herbst*[1]; Renate Kilian[1]; Nicolas Huin[2]; Olivier Calonne[2]; [1]AREVA GmbH; [2]AREVA NP SAS

9:35 AM
The Effect of Microchemistry on the Crack Response of Lightly Cold Worked Dual Certified Type 304/304L Stainless Steel after Sensitizing Heat Treatment: *Kevin Fisher*[1]; Bryan Miller[2]; Earl Johns[2]; Robert Hermer[2]; Catherine Brown[2]; Emmanuelle Marquis[1]; [1]University of Michigan; [2]Naval Nuclear Laboratory

10:00 AM Break

Special Topics I - Materials - Part II

Thursday AM
August 17, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Pål Efsing, Ringhals AB; Rory Kennedy, Idaho National Laboratory; Peter Hosemann, University of California Berkeley

8:20 AM
Hydrogen Assisted Cracking Studies of a 12% Chromium Martensitic Stainless Steel – Influence of Hardness, Stress and Environment: *Tony Horner*[1]; [1]Rolls Royce plc

8:45 AM
Investigation of Flow Accelerated Corrosion Models to Predict the Corrosion Behavior of Coated Carbon Steels in Secondary Piping Systems: *Seunghyun Kim*[1]; Ji Hyun Kim[1]; [1]Ulsan National Institute of Science and Technology

9:10 AM
Effect of High-Temperature Water Environment on the Fracture Behaviour of Low-alloy RPV Steels: *Zaiqing Que*[1]; Hans-Peter Seifert[1]; Philippe Spaetig[1]; Gorja Sudhakar Rao[1]; Stefan Ritter[1]; [1]Paul-Scherrer Institut

9:35 AM
Corrosion Fatigue Testing of Low Alloy Steel in Water Environments with Low Levels of Oxygen and Varied Load Dwell Times: *Cybele Gabris*[1]; [1]National Nuclear Laboratory

10:00 AM Break

Cables and Concrete Aging and Degradation - Cables

Thursday AM
August 17, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Leo Fifield, Pacific Northwest National Laboratory; Robert Duckworth, Oak Ridge National Laboratory; David Rouison, Kinectrics Inc

10:20 AM
Simultaneous Thermal and Gamma Radiation Aging of Electrical Cable Polymers: *Leonard Fifield*[1]; [1]Pacific Northwest National Laboratory

10:45 AM
Principal Component Analysis (PCA) as a Statistical Tool for Identifying Key Indicators of Nuclear Power Plant Cable Insulation Degradation: *Chamila De Silva*[1]; Scott Beckman[2]; Shuaishuai Liu[1]; Nicola Bowler[1]; [1]Iowa State University; [2]Washington State University

11:10 AM
How Can Material Characterization Support Cable Aging Management?: David Rouison[1]; *Marzieh Riahinezhad*[1]; [1]Kinectrics Inc

11:35 AM
Aqueous Degradation in Harvested Medium Voltage Cables in Nuclear Power Plants: *Robert Duckworth*[1]; Brian Hinderliter[2]; Elizabeth Hill[2]; Melissa Maurer-Jones[2]; [1]Oak Ridge National Laboratory; [2]University of Minnesota-Duluth

12:00 PM Lunch Break - On Your Own

1:20 PM
Frequency Domain Reflectometry Modeling and Measurement for Nondestructive Evaluation of Nuclear Power Plant Cables: *Samuel Glass*[1]; Leonard Fifield[1]; A. Jones[1]; [1]Pacific Northwest National Laboratory

1:45 PM
Aging Mechanisms and Nondestructive Aging Indicator of Filled Cross-linked Polyethylene (XLPE) Exposed to Simultaneous Thermal and Gamma Radiation: *Shuaishuai Liu*[1]; Leonard Fifield[2]; Nicola Bowler[1]; [1]Iowa State University; [2]Pacific Northwest National Laboratory

2:10 PM
Successful Detection of Insulation Degradation in Cables by Frequency Domain Reflectometry: *Yoshimichi Ohki*[1]; Naoshi Hirai[1]; [1]Waseda University

2:35 PM
Capacitive Nondestructive Evaluation of Aged Cross-Linked Polyethylene (XLPE) Cable Insulation Material: *Zhihui Shao*[1]; Nicola Bowler[1]; [1]Iowa State University

Poster Session: Cables and Concrete Aging and Degradation - Cables

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

C-1: Medium Voltage Cables Insulation for Nuclear Power Plants: An Approach to Sample Preparation: *Elizabeth Hill*[1]; Brian Hinderliter[1]; Melissa Maurer-Jones[1]; Robert Duckworth[2]; [1]University of Minnesota Duluth; [2]Oak Ridge National Laboratory

C-2: Tracking of Nuclear Cable Insulation Polymer Structural Changes using the Gel Fraction and Uptake Factor Method: *Miguel Correa*[1]; Qian Huang[1]; Leonard Fifield[1]; [1]Pacific Northwest National Laboratory

C-3: Effects of Accelerated Thermal and Radiation Aging on Harvested Hypalon/CSPE Jacket and Insulation: *Robert Duckworth*[1]; Michelle Kidder[1]; Tolga Aytug[1]; Sarah Davis[2]; Kevin Simmons[3]; Leo Fifield[3]; [1]Oak Ridge National Laboratory; [2]University of Tenneesee-Knoxville; [3]Pacific Northwest National Laboratory

C-4: Degradation of Silicone Rubber Analyzed by Instrumental Analyses and Dielectric Spectroscopy: *Yoshimichi Ohki*[1]; Naoshi Hirai[1]; Daomin Min[2]; Liuqing Yang[2]; Shengtao Li[2]; [1]Waseda University; [2]Xi'an Jiaotong University

IASCC Testing - Characterization

Thursday AM
August 17, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Anders Jenssen, Studsvik Nuclear AB; Masato Koshiishi, NFD; Michael McMurtrey, Idaho National Laboratory

10:20 AM
On the Use of Density-based Algorithms for the Analysis of Solute Clustering in Atom Probe Tomography Data: Emmanuelle Marquis[1]; *Peter Chou*[2]; Aurianne Etienne[3]; Svetlana Fedotova[4]; Katsuhiko Fujii[5]; Koji Fukuya[5]; Evgenia Kuleshova[4]; Annabelle Legrand-Lopez[6]; Andrew London[7]; Sergio Lozano-Perez[7]; Yasuyoshi Nagai[8]; Kenji Nishida[9]; Vicente Araullo-Peters[1]; Bertrand Radiguet[3]; Daniel Schreiber[10]; Naoki Soneda[9]; Mattias Thuvander[11]; Takeshi Toyama[8]; Faiza Sefta[12]; Yan Dong[1]; [1]University of Michigan; [2]Electric Power Research Institute; [3]Université de Rouen; [4]Kurchatov Institute; [5]Institute of Nuclear Safety System; [6]Commissariat à l'Energie Atomique (CEA); [7]University of Oxford; [8]Tohoku University; [9]Central Research Institute of Electric Power Industry,; [10]Pacific Northwest National Laboratory; [11]Chalmers University of Technology; [12]EDF Lab Les Renardières

10:45 AM
Comparative Study on Short Time Oxidation of Un-irradiated and Protons Pre-irradiated 316L Stainless Steel in Simulated PWR Water: *Marylou Boisson*[1]; Eric Andrieu[2]; Lydia Laffont[2]; Laurent Legras[3]; Florence Carrette[3]; Olivier Wendling[4]; Thierry Sauvage[4]; Aurélien Bellamy[4]; Pierre Desgardin[4]; [1]EDF/CIRIMAT; [2]CIRIMAT-ENSIACET; [3]EDF R&D; [4]CNRS - CEMHTI

11:10 AM
Hydrogen Trapping by Irradiation-induced Defects in 316L Stainless Steel: *Anne-Cécile Bach*[1]; Frantz Martin[1]; Cécilie Duhamel[2]; Stéphane Perrin[3]; François Jomard[4]; Jérôme Crépin[2]; [1]CEA Saclay - DEN/DANS/DPC/SCCME - Laboratoire d'Etude de la Corrosion Aqueuse; [2]MINES ParisTech, PSL Research University, MAT- Centre des matériaux, CNRS UMR 7633; [3]CEA Marcoule - DEN/DE2D/SEAD - Laboratoire d'étude des Ciments et Bitumes pour le Conditionnement; [4]Groupe d'Etude de la Matière Condensée, CNRS, UVSQ

11:35 AM
Grain Boundary Oxidation of Neutron Irradiated Stainless Steels in Simulated PWR Water: Takuya Fukumura[1]; *Koji Fukuya*[1]; Katsuhiko Fujii[1]; Terumitsu Miura[1]; Yuji Kitsunai[2]; [1]Institute of Nuclear Safety System, Inc.; [2]Nippon Nuclear Fuel Development Co., ltd

12:00 PM Lunch Break - On Your Own

1:20 PM
Irradiation Assisted Stress Corrosion Cracking (IASCC) of Nickel-base Alloys in Light Water Reactors Environments Part I: Microstructure Characterization: *Miao Song*[1]; Mi Wang[1]; Gary Was[1]; Larry Nelson[2]; Raj Pathania[3]; [1]University of Michigan; [2]JNL Consulting; [3]EPRI

1:45 PM
Irradiation Assisted Stress Corrosion Cracking (IASCC) of Nickel-base Alloys in Light Water Reactor Environments Part II: Stress Corrosion Cracking Behavior: *Mi Wang*[1]; Miao Song[1]; Gary Was[1]; Larry Nelson[2]; Rajeshwar Pathania[3]; [1]University of Michigan; [2]JLN Consulting; [3]Electric Power Research Institute

Poster Session: IASCC Testing - Characterization

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

O-1: A Micro-mechanical Study for Grain Boundary Fracture of Neutron-irradiated Stainless Steels: *Terumitsu Miura*[1]; Katsuhiko Fujii[1]; Koji Fukuya[1]; [1]Institute of Nuclear Safety System, Incorporated

O-2: Solute Clustering in As-irradiated and Post-irradiation Annealed 304 Stainless Steel: Yimeng Chen[1]; *Peter Chou*[2]; Zhijie Jiao[1]; Gary Was[1]; Emmanuelle Marquis[1]; [1]University of Michigan; [2]Electric Power Research Institute

PWR Stainless Steel SCC and Fatigue - Fatigue

Thursday AM
August 17, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Denise Paraventi, Naval Nuclear Laboratory; Barry Gordon, Structural Integrity Associates, Inc.; Renate Kilian, AREVA Inc.

10:20 AM
The Effect of Load Ratio on the Fatigue Crack Growth Rate of Type 304 Stainless Steels in Air and High Temperature Water at 482\176F: *Denise Paraventi*[1]; Catherine Brown[1]; Lindsay O'Brien[1]; Brian McGraw[2]; [1]Naval Nuclear Laboratory; [2]Formerly NNL, currently Dawar Technologies

10:45 AM
Electrical Potential Drop Observations of Fatigue Crack Closure: *Elaine West*[1]; David Morton[1]; [1]Naval Nuclear Laboratory

11:10 AM
The Effect of Environment and Material Chemistry on Single-Effects Creep Testing of Austenitic Stainless Steels: *Lindsay O'Brien*[1]; Bryan Miller[1]; [1]Naval Nuclear Laboratory - Bechtel Marine Propulsion Corporation

11:35 AM
Corrosion Fatigue Behavior of Austenitic Stainless Steel in Pure D2O Environment: *Ronald Ballinger*[1]; Lun Yu[1]; Xuejun Huang[1]; Lindsay O'Brien[2]; Denise Paraventi[2]; Martin Morra[3]; Peter Stahle[1]; Vincent Smentkowski[3]; [1]MIT; [2]Naval Nuclear Laboratory; [3]GE-Global Research Center

12:00 PM Lunch Break - On Your Own

1:20 PM
Mechanistic Understanding of Environmentally Assisted Fatigue Crack Growth of Austenitic Stainless Steels in PWR Environments: *Stuart Medway*[1]; Norman Platts[1]; David Tice[1]; Gabriel Ilevbare[2]; Raj Pathania[2]; [1]Amec Foster Wheeler; [2]EPRI

1:45 PM
Study on Hold-Time Effects in Environmental Fatigue Lifetime of Low-alloy Steel and Austenitic Stainless Steel in Air and under Simulated PWR Primary Water Conditions: *Matthias Herbst*[1]; Armin Roth[1]; Juergen Rudolph[1]; [1]AREVA GmbH

Poster Session: PWR Stainless Steel SCC and Fatigue - Fatigue

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

R-1: Wear Mechanisms of Stainless Steel in Simulated Pressurized Water Reactor Conditions Studied by Transmission Electron Microscopy: *Laurent Legras*[1]; Guillaume Perillat[1]; [1]EDF R&D

IASCC Testing - Initiation and Growth

Thursday PM
August 17, 2017

Room: Salon E
Location: Portland Marriott Downtown Waterfront

Session Chairs: Peter Andresen, Andresen Consulting; Yiren Chen, Argonne National Laboratory; Colin Judge, CNL

2:10 PM
Irradiation-Assisted Stress Corrosion Cracking Initiation Screening Criteria for Stainless Steels in PWR Systems: *Stephen Fyfitch*[1]; Sarah Davidsaver[1]; Kyle Amberge[2]; [1]AREVA Inc.; [2]EPRI

2:35 PM
Novel Technique for Quantitative Measurement of Localized Stresses Near Dislocation Channel – Grain Boundary Interaction Sites in Irradiated Stainless Steel: *Drew Johnson*[1]; Bryan Kuhr[2]; Diana Farkas[2]; Rigen Mo[3]; Ian Robertson[3]; Gary Was[1]; [1]University of Michigan; [2]Virginia Tech; [3]University of Wisconsin

3:00 PM
IASCC Susceptibility of 304L Stainless Steel Irradiated in a BWR and Subjected to Post Irradiation Annealing: *Justin Hesterberg*[1]; Zhijie Jiao[1]; Gary Was[1]; [1]University of Michigan

3:25 PM
Irradiation Assisted Stress Corrosion Cracking Susceptibility of Alloy X750 Exposed to BWR Environments: *Sebastien Teysseyre*[1]; John Jackson[1]; Peter Andresen[2]; Peter Chou[3]; Bob Carter[3]; [1]Idaho National Laboratory; [2]Andresen Consulting; [3]EPRI

3:50 PM Break

4:10 PM
Evaluation of Crack Growth Rates and Microstructures near the Crack Tip of Neutron-irradiated Austenitic Stainless Steels in Simulated BWR Environment: *Yasuhiro Chimi*[1]; Shigeki Kasahara[1]; Hitoshi Seto[2]; Yuji Kitsunai[2]; Kazuhiro Chatani[2]; Masato Koshiishi[2]; Yutaka Nishiyama[1]; [1]Japan Atomic Energy Agency; [2]Nippon Nuclear Fuel Development

4:35 PM
Effect of Specimen Size on the Crack Growth Rate Behavior of Irradiated Type 304 Stainless Steel: *Anders Jenssen*[1]; Peter Chou[2]; Cem Topbasi[2]; [1]Studsvik Nuclear AB; [2]Electric Power Research Institute

5:00 PM
Plastic Deformation Processes Accompanying Stress Corrosion Crack Propagation in Irradiated Austenitic Steels: *Maxim Gussev*[1]; Gary Was[2]; Jeremy Busby[1]; Keith Leonard[1]; [1]Oak Ridge National Laboratory; [2]University of Michigan

Poster Session: IASCC Testing - Initiation and Growth

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

P-1: Effect of Swelling on Irradiation Assisted Stress Corrosion Cracking Crack Propagation Rate: *Sebastien Teysseyre*[1]; Peter Hosemann[2]; [1]Idaho National Laboratory; [2]University of California Berkeley

PWR Secondary Side

Thursday PM
August 17, 2017

Room: Salon A-B
Location: Portland Marriott Downtown Waterfront

Session Chairs: Ian de Curières, IRSN; Jared Smith, Canadian Nuclear Laboratories; Brent Capell, EPRI

2:35 PM
Effect of Applied Potential and Inhibitors on PbSCC of Alloy 690TT: *Brent Capell*[1]; Jesse Lumsden[2]; Michael Calabrese[2]; Rick Eaker[3]; [1]EPRI; [2]Teledyne Scientific and Imaging Company; [3]HKA Enterprises

3:00 PM
Corrosion of SG Tube Alloys in Typical Secondary Side Local Chemistries Derived from Operating Experience: *Ian de Curières*[1]; [1]IRSN

3:25 PM
Investigation on the Effect of Lead (Pb) on the Degradation Behaviour of Passive Films on Alloy 800: *Jaganathan Ulaganathan*[1]; Hung Ha[1]; [1]Canadian Nuclear Laboratories

3:50 PM Break

4:10 PM
Influence of Alloying on a-a' Phase Separation in Duplex Stainless Steels: David Garfinkel[1]; Jonathan Poplawsky[2]; Wei Guo[2]; George Young[3]; *Julie Tucker*[1]; [1]Oregon State University; [2]Oak Ridge National Laboratory; [3]Elysium Industries Limited

4:35 PM
Stress Corrosion Crack Growth Rate of Alloy 800NG in an Acidic Secondary Side Crevice Environment: *Maria-Lynn Komar*[1]; [1]Kinectrics Inc.

5:00 PM
Using Modern Microscopy to "Fingerprint" Secondary Side SCC in Ni-Fe Alloys: *Suraj Persaud*[1]; Jared Smith[1]; Colin Judge[1]; Mariusz Bryk[2]; Roger Newman[2]; Grace Burke[3]; Ian de Curières[4]; Brent Capell[5]; Mike Wright[1]; [1]Canadian Nuclear Laboratories (CNL); [2]University of Toronto; [3]The University of Manchester; [4]Institut de radioprotection et de Sûreté Nucléaire; [5]Electric Power Research Institute (EPRI)

Cables and Concrete Aging and Degradation - Concrete

Thursday PM
August 17, 2017

Room: Salon C-D
Location: Portland Marriott Downtown Waterfront

Session Chairs: Thomas Rosseel, Oak Ridge National Laboratory; Joe Wall, Electric Power Research Institute

3:00 PM
Automated Detection of Alkali-silica Reaction in Concrete Using Linear Array Ultrasound Data: *Dwight Clayton*[1]; Hector Santos-Villalobos[1]; Dianne Ezell[1]; Joseph Clayton[1]; Justin Baba[1]; [1]Oak Ridge National Laboratory

3:25 PM
Non-destructive Techniques to Evaluate Degradation of Concrete Structures Due to Alkali-silica Reaction in Nuclear Power Plants: *Vivek Agarwal*[1]; Sankaran Mahadevan[2]; Kyle Neal[2]; Douglas Adams[2]; [1]Idaho National Laboratory; [2]Vanderbilt University

3:50 PM Break

4:10 PM
Coupled Physics Simulation of Expansive Reactions in Concrete with the Grizzly Code: *Benjamin Spencer*[1]; Hai Huang[1]; [1]Idaho National Laboratory

4:35 PM
Overview of EPRI Long Term Operations Work on Nuclear Power Plant Concrete Structures: *James Wall*[1]; Sam Johnson[1]; [1]EPRI

5:00 PM
The Effects of Neutron Irradiation on the Mechanical Properties of Mineral Analogues of Concrete Aggregates: *Thomas Rosseel*[1]; Maxim Gussev[1]; Luis Mora[1]; [1]Oak Ridge National Laboratory

Poster Session: Cables and Concrete Aging and Degradation - Concrete

Wednesday PM
August 16, 2017

Room: Ballroom Foyer
Location: Portland Marriott Downtown Waterfront

D-1: The Evaluation of the Effects of Neutron Irradiation on Mineral Analogues of Concrete Aggregates: *Chinthaka Silva*[1]; Thomas Rosseel[1]; [1]Oak Ridge National Laboratory

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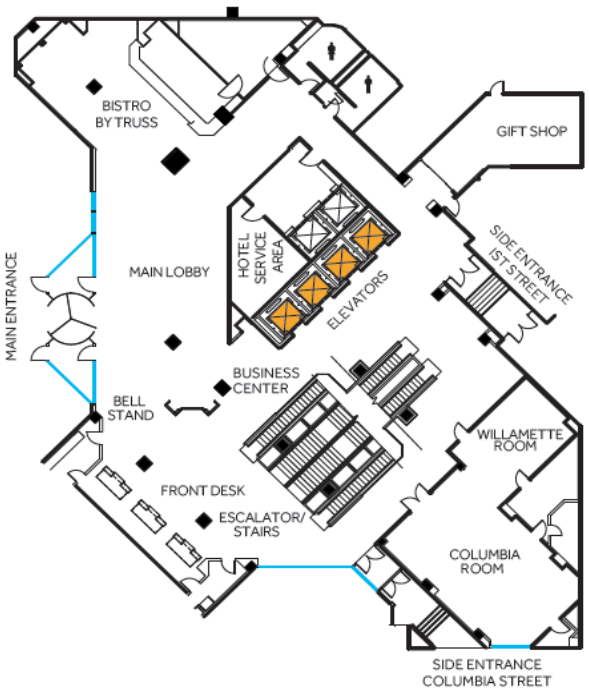

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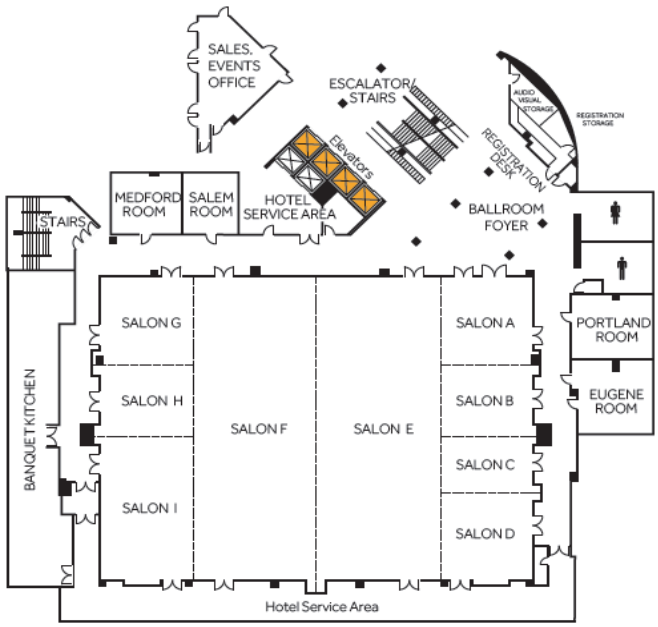

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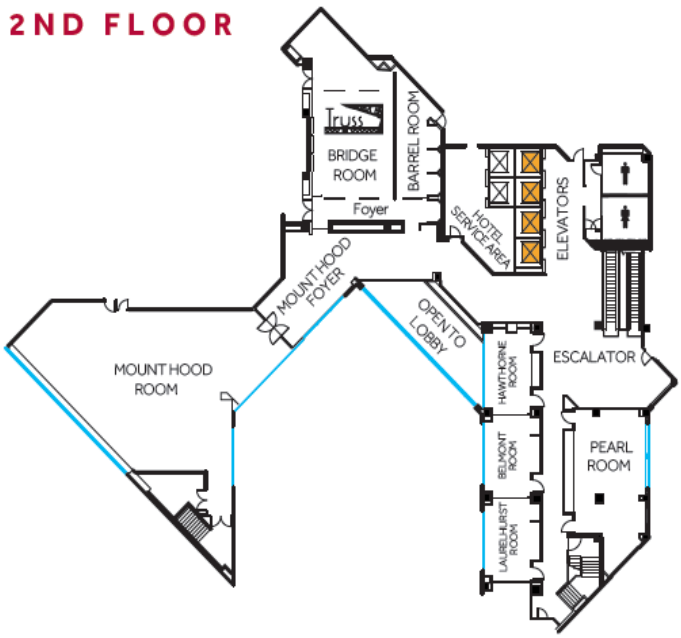

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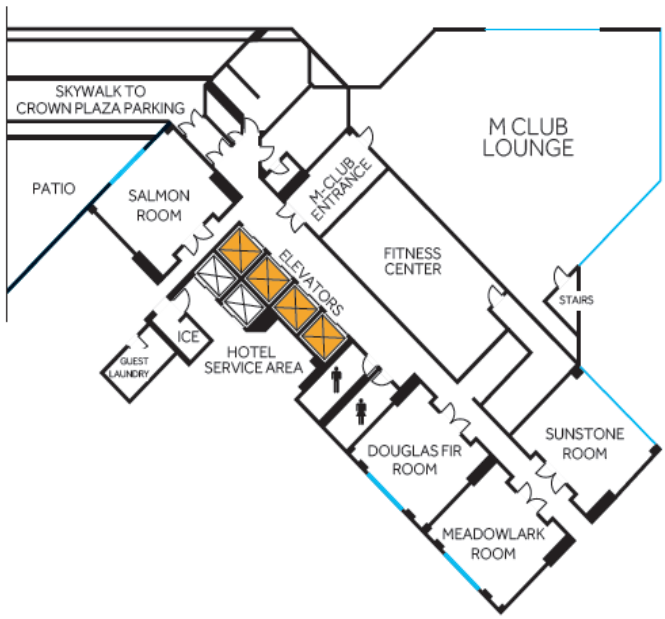

SCHEDULE-AT-A-GLANCE

Sunday, August 13		
Registration	4:00 p.m. to 7:30 p.m.	*Ballroom Foyer, Lower Level 1*
Session Chair Meeting	4:30 p.m. to 5:00 p.m.	*Columbia Room, Main Lobby Level*
Welcome Reception	5:30 p.m. to 7:30 p.m.	*Mt. Hood, 2nd Floor*
Monday, August 14		
Registration	7:00 a.m. to 5:30 p.m.	*Ballroom Foyer, Lower Level 1*
Plenary Session	8:00 a.m. to 9:40 a.m.	*Salon E, Lower Level 1*
Exhibition Set-up	8:00 a.m. to 9:30 a.m.	*Ballroom Foyer, Lower Level 1*
Exhibition	9:30 a.m. to 5:30 p.m.	*Ballroom Foyer, Lower Level 1*
Break	9:40 a.m. to 10:20 a.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	10:20 a.m. to Noon	*Salons A-E, Lower Level 1*
Lunch	Noon to 1:20 p.m.	*On Your Own*
Technical Sessions	1:20 p.m. to 3:50 p.m.	*Salons A-E, Lower Level 1*
Break	3:50 p.m. to 4:10 p.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	4:10 p.m. to 5:30 p.m.	*Salons A-E, Lower Level 1*
Tuesday, August 15		
Registration	7:30 a.m. to 12:30 p.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	8:20 a.m. to 10:00 a.m.	*Salons A-E, Lower Level 1*
Exhibition	9:30 a.m. to 1:30 p.m.	*Ballroom Foyer, Lower Level 1*
Break	10:00 a.m. to 10:20 a.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	10:20 a.m. to 1:30 p.m.	*Salons A-E, Lower Level 1*
Lunch/Free Afternoon	1:30 p.m. to 5:30 p.m.	*On Your Own*
Wednesday, August 16		
Registration	7:30 a.m. to 6:30 p.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	8:20 a.m. to 10:00 a.m.	*Salons A-E, Lower Level 1*
Exhibition	9:30 a.m. to 6:30 p.m.	*Ballroom Foyer, Lower Level 1*
Break	10:00 a.m. to 10:20 a.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	10:20 a.m. to Noon	*Salons A-E, Lower Level 1*
Lunch	Noon to 1:20 p.m.	*On Your Own*
Technical Sessions	1:20 p.m. to 3:50 p.m.	*Salons A-E, Lower Level 1*
Break	3:50 p.m. to 4:10 p.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	4:10 p.m. to 5:30 p.m.	*Salons A-E, Lower Level 1*
Poster Viewing and Reception	5:30 p.m. to 6:30 p.m.	*Ballroom Foyer, Lower Level 1*
Banquet	6:30 p.m. to 9:00 p.m.	*Salons F-I, Lower Level 1*
Exhibition Dismantle	After 6:30 p.m.	*Ballroom Foyer, Lower Level 1*
Tribute to Roger Washburne Staehle	7:00 p.m. to 7:30 p.m.	*Salons F-I, Lower Level 1*
Thursday, August 17		
Registration	7:30 a.m. to 5:00 p.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	8:20 a.m. to 10:00 a.m.	*Salons A-E, Lower Level 1*
Break	10:00 a.m. to 10:20 a.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	10:20 a.m. to Noon	*Salons A-E, Lower Level 1*
Lunch	Noon to 1:20 p.m.	*On Your Own*
Committee Lunch	Noon to 2:00 p.m.	*Eugene Room, Lower Level 1*
Technical Sessions	1:20 p.m. to 3:50 p.m.	*Salons A-E, Lower Level 1*
Break	3:50 p.m. to 4:10 p.m.	*Ballroom Foyer, Lower Level 1*
Technical Sessions	4:10 p.m. to 5:30 p.m.	*Salons A-E, Lower Level 1*