Final Program

PVP 2024

2024 Pressure Vessels & Piping Conference

Pressure Vessel and Piping Technologies for a Sustainable World

July 28 – August 2, 2024
Hyatt Regency Bellevue
Bellevue, WA, USA

ASME
SETTING THE STANDARD

WELCOME TO PVP 2024

Welcome to Bellevue, Washington, USA for a new era of the ASME Pressure Vessels & Piping Conference (PVP). The PVP Conference is known to be the outstanding international technical forum for participants to further their knowledge base by being exposed to diverse topics, and exchange opinions and ideas both from industry and academia in a variety of topics related to Pressure Vessels and Piping technologies for the power and process industries. The PVP Conference is a great place to exchange ideas and to meet colleagues as we all work to create and advance Pressure Vessels and Piping technologies for our global community of practice. The PVP Conference is a recognized forum for fruitful exchange of ideas with participants from over 40 countries in Europe, Africa, the Middle East, Asia, the Americas, and the Oceania islands.

The ASME Pressure Vessels & Piping Division is the primary sponsor of this Conference, with additional participation by the ASME Nondestructive Evaluation, Diagnosis and Prognosis Division (NDPD). This year, the Conference Technical Program contains approximately 500 technical papers and presentations organized into approximately 130 technical and panel discussion sessions, three technical tutorials, one special tutorial, an expert workshop on large-scale gaseous hydrogen infrastructure, a special welcome and orientation session for Early Career Engineers and first-time attendees, and our outstanding Rudy Scavuzzo Student Paper Competition. An area dedicated to Technology Exhibits is also organized as part of our Technical Program.

Technical papers presented in this Conference are separated into tracks, according to their technical areas, and are available immediately prior to the Conference in a downloadable format. The program is published on the Conference app, as well as this version that may be printed by the user if desired.

A key component of every PVP Conference is the opportunity to socialize and make new friends—this year's Conference offers several great possibilities. Enjoy the **Bellevue/Seattle City Tour** on Monday—this tour will highlight the area's major attractions and includes a stop at the Pike Place Market. Monday evening, we all meet at the Conference-Wide Reception, which will be held in the Grand Foyer and Exhibit Area. The **Snoqualmie Falls Tour** on Tuesday features the breathtaking views of the 268-foot waterfall. Additional details regarding these tours can be found later in this program.

PVP 2024 PROGRAM LAYOUT

	Sunday **July 28, 2024**	**Monday** **July 29, 2024**	**Tuesday** **July 30, 2024**	**Wednesday** **July 31, 2024**	**Thursday** **August 1, 2024**	**Friday** **August 2, 2024**
7:15 am **8:15 am**	Arrival Registration Opens **(10:00 am – 6:00 pm)**	Authors' Breakfast/Briefing* Registration Open **(7:30 am – 4:00 pm)**	Authors' Breakfast/Briefing* Registration Open **(7:30 am – 4:00 pm)**	Authors' Breakfast/Briefing* Registration Open **(7:30 am – 3:00 pm)**	Authors' Breakfast/Briefing* Registration Open **(7:30 am – 10:00 am)**	Open
8:15 am **10:00 am**	Open	**Block 1.1** Welcome & Orientation Technology Exhibits	**Block 2.1** Technical Sessions Technical Tutorial Technology Exhibits	**Block 3.1** Technical Sessions Technical Tutorial Technology Exhibits	**Block 4.1** Technical Sessions Expert Workshop Conference General Committee Meeting	**Block 5.1** Hydrogen Study Group
10:15 am **12:00 pm**	Open	**Block 1.2** Plenary Session Technology Exhibits	**Block 2.2** Technical Sessions Technical Tutorial Technology Exhibits	**Block 3.2** Technical Sessions Technical Tutorial Technology Exhibits	**Block 4.2** Technical Sessions Expert Workshop Conference Evaluation	**Block 5.2** Hydrogen Study Group
12:00 pm **2:15 pm**	Open	Open	Technical Committee Meetings	Technical Committee Meetings	Open	Open
2:15 pm **4:00 pm**	Open	**Block 1.3** Technical Sessions Technical Tutorial Technology Exhibits	**Block 2.3** Technical Sessions Technical Tutorial Technology Exhibits	**Block 3.3** Technical Sessions Expert Workshop	**Block 4.3** Expert Workshop PVPD Leadership Engagement Forum	**Block 5.3** Hydrogen Study Group
4:15 pm **6:00 pm**	Special Tutorial **(4:15pm – 6:00 pm)**	**Block 1.4** Technical Sessions Technical Tutorial Technology Exhibits	**Block 2.4** Technical Sessions Technology Exhibits	**Block 3.4** Expert Workshop	**Block 4.4** Expert Workshop PVPD Leadership Engagement Forum	**Block 5.4** Hydrogen Study Group
Evening	Open	Conference-Wide Reception **(6:15 – 8:00 pm)**	Open	PVP Division Honors & Awards Assembly/ Dinner **(6:00 pm – 9:00 pm)**	Open	Open

* Author's Breakfast/Briefing open to those Presenting Authors on their scheduled day of presentation.

THE ASME PRESSURE VESSELS AND PIPING DIVISION
58 Years of Cutting-Edge Research

The 2024 Pressure Vessels & Piping Conference marks the 58th Anniversary of the Pressure Vessels & Piping (PVP) Division. The Division's rich history began with the Pressure Vessel Research Committee (PVRC), which was the research arm of ASME. The PVRC united the most experienced members in the design and manufacture of pressure vessels, valves and pumps; and sponsored research programs on thin and thick shell vessels with the cooperation of the Atomic Energy Commission (AEC) and other organizations as early as 1958. Among a number of institutions that participated in the program, Pennsylvania State University dealt with stress analysis of pressure vessels with nozzle inserts with different types of reinforcement pads under combined loading. Donald E. Hardenbergh and Sam Y. Zamrik published their results in WRC Bulletin Nos. 89 and 96 in 1963 and 1964. Contributions to this work were also made by Charles E. Taylor at the University of Illinois using photoelasticity stress analysis, and Everett O. Waters at Yale University using computational analysis. In view of the growing interest in pressure vessel technology and research results, Frank S.G. Williams from Taylor Forge, who was a very active member, spearheaded an organizational meeting at the 1965 ASME Winter Annual Meeting (WAM) in Chicago to form a division dedicated to all technical aspects of pressure vessels and piping. Recommendations were made by Frank S.G. Williams and Dana Young to create the Pressure Vessels and Piping Division. The recommendation passed unanimously, and Dana Young was named the first Division Chair on April 13, 1966.

The PVP Division evolved from a small Division with four Technical Committees to the robust Division it is today with eight Technical Committees and a strong, vital and international membership. The Division leadership in the early years had possessed a global vision: to represent an international membership with industry experts involved in the Division growth. To ensure the achievement of their vision, PVPD leadership established a Mission, Vision, and Core Values to build upon:

- **The Mission** is to serve the pressure vessels and piping community by promoting, sharing, and disseminating state of the art pressure vessels, piping and related technologies, and providing personal and professional development opportunities.
- **The Vision** is to be the preeminent source of knowledge for pressure vessels, piping and related technologies.
- **The Core Values** are to embrace integrity and ethical conduct, and to provide a welcoming climate for a diverse global community of students and engineers to foster creativity, innovation, and intellectual growth.

To disseminate its mission, global conferences were organized to bring the technical community together and to exchange the technology development in the pressure vessels industry. The continued success of PVP Conferences is due to the dedication of our volunteers and the support of their companies.

ASME is truly an international organization and the PVP Division is an appropriate reflection of this worldwide reach. From 1991 to 2000, the number of contributors from outside of North America grew from approximately one-third to more than two-thirds. Our annual conferences continually host attendees from 35 to 42 different countries representing all regions of the globe. Needless to say that the technical content and the quality of PVP Conference sessions have benefited considerably from overseas participation.

To encourage students' active participation in the annual PVP Conference, the Rudy Scavuzzo Student Paper Competition is organized. The PVP Division encourages students and early-career engineers to get involved with the Conference and the Division. PVP Conference attendees are also encouraged to include their spouses in their conference travel plans. This provides and promotes a welcoming atmosphere that further develops friendship, broadens relationships and extends interaction and networking. Our PVPD Senate Operations Committee (and spouses) actively participate in creating and maintaining the "PVP Family" atmosphere that makes our social events successful. The PVP Division is ever grateful for their unwavering commitment.

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The American Society of Mechanical Engineers
Pressure Vessels & Piping Division

PVP 2024 Conference Committees


Yasumasa Shoji
Conference Chair


Ravi Baliga
Technical Program Chair


Douglas A Scarth
Conference Advisor


Sam Y Zamrik
Division Advisor

PVP Technical Program Representatives

Codes & Standards	Pierre Dulieu
	Suresh Kalyanam
Computer Technology & Bolted Joints	Linbo Zhu
	Massimiliano De Agostinis
Design & Analysis	Gys van Zyl
	Andrew Owens
Fluid-Structure Interaction	Atef Mohany
	Marwan Hassan
High-Pressure Technology	Taylor Nyquist
	Sean Berg
Materials & Fabrication	Kevin Mandeville
	Preeti Doddihal
Operations, Applications & Components	Oscar Martinez
	Ciska de Haan de Wilde
Seismic Engineering	Satoru Kai
	Gianluca Quinci
ASME NDPD Division	Vivek Agarwal
	Min Zhang

PVP Division Management Committee (2023-2024)

Clay D. Rodery	Chair
Yasumasa Shoji	Vice Chair
David Gross	Communications Chair
Ravi Baliga	Honors & Awards Chair
Kannan Subramanian	Incoming Honors & Awards Chair

PVP Senate of Past Division Chairs

Andrew J. Duncan	2022–23
Matthew R. Feldman	2021–22
Trevor G. Seipp	2020–21
Hakim A. Bouzid	2019–20
Pierre Mertiny	2018–19
Maher Y.A. Younan	2017–18
Douglas A. Scarth	2016–17
Marina B. Ruggles-Wrenn	2015–16
Daniel T. Peters	2014–15
Michael E. Nitzel	2012–14
Ronald S. Hafner*	2011–12
Young W. Kwon	2010–11
Luc H. Geraets*	2009–10
Artin A. Dermenjian	2008–09
James F. Cory, Jr.	2007–08
Judith A. Todd	2006–07
M. K. Au-Yang*	2005–06
Ismail T. Kisisel	2004–05
William J. Bees	2003–04
Howard H. Chung	2002–03
Joseph Sinnappan	2001–02
A. G. (Jack) Ware	2000–01
Robert F. Sammataro*	1999–00
Thou-Han Liu*	1998–99
William E. Short, II	1997–98
Richard C. Gwaltney*	1996–97
Shoei-Sheng Chen*	1995–96
Greg L. Hollinger	1994–95
Carl E. Jaske	1993–94
Rudy J. Scavuzzo*	1992–93
Sam Y. Zamrik	1991–92
G. E. Otto Widera*	1990–91
Robert H. Mallett	1989–90
Robert W. Swindeman	1988–89
Alexander H. C. Marr	1987–88
Jeffrey T. Fong	1986–87
Don B. Van Fossen	1985–86
James R. Farr*	1984–85
Charles F. Nash	1983–84
Donald S. Griffin	1982–83
Richard H. Gallagher*	1981–82
L. Eugene Hulbert*	1980–81
Robert E. Nickell*	1979–80
Roger F. Reedy*	1978–79
David H. C. Pai*	1977–78
Pedro V. Marcal	1976–77
Harold H. Waite*	1975–76
Robert L. Cloud*	1974–75
Charles V. Moore	1973–74
Irwin Berman*	1972–73
Danos Kallas*	1971–72
Robert J. Cepluch*	1970–71
Charles F. Larson	1969–70
Gunther P. Eschenbrenner*	1968–69
Vito L. Salerno*	1967–68
Dana Young*	1966–67

*Deceased

PVP Division Technical Committee Chairs

Codes & Standards	Valéry Lacroix
Computer Technology & Bolted Joints	Reza Adibi-Asl
Design & Analysis	Alicia C. Avery
Fluid-Structure Interaction	Kazuaki Inaba
High-Pressure Technology	Kumarswamy Karpanan
Materials & Fabrication	Haiyang Qian
Operations, Applications & Components	Alton Reich
Seismic Engineering	Osamu Furuya

PVP Division Administrative Committee Chairs

Membership & Engagement Chair	Vacant
Website & PVPD Newsletter Editor	David Gross
International Coordination	Hubert LeJeune

WELCOME and ORIENTATION

A welcome and orientation session will be held at 8:15 am in the Grand Ballroom E-K. Attendees will be introduced to how the conference is organized into technical sessions, tutorials and workshops, technology exhibits, technical committee meetings, as well as the various networking and social events. The Schedule at a Glance (SAAG) will be explained which, along with the Daily Session Listing, will help attendees to determine which presentations best fit their specific interests. Suggestions will be offered to assist attendees to make the most out of their PVP experience. Attendees will be given the opportunity to ask questions to get a better understanding and equip them for making their PVP experience a success from a personal and professional perspective.

OPENING CEREMONY and PLENARY SESSION

Pressure Vessel and Piping Technologies for a Sustainable World

The Conference opens in the Grand Ballroom E-K on Monday, July 29th at 10:15 am. Representatives of the PVP Division Leadership Team will welcome the attendees. The first plenary presentation will be delivered by John Shingledecker, Principal Technical Executive, Energy Supply & Low-Carbon Resources at EPRI. The second plenary presentation will be delivered by Ron Boninger, Project Manager, Clean Energy Supplier Alliance (CESA).

Plenary Speaker

John Shingledecker
Principal Technical Executive, Energy Supply & Low-Carbon Resources
EPRI, Charlotte, NC, USA

Advanced Energy Systems Needs/Drivers Through 2050

Electricity demand is projected to more than double over the next 25 years and will require deployment and construction of new/replacement assets including advanced energy systems (AES) options such as: advanced nuclear, non-battery bulk energy storage (e.g., molten salts), concentrated solar power (CSP), supercritical CO2 (sCO2) and thermal power plants with carbon capture and storage. This anticipated surge in power plant construction is being driven by a number of carbon initiatives which are being implemented across the globe to achieve Net Zero emissions by 2050. This demand, coupled with competing demands found in aerospace and naval construction, will place considerable strain on the existing worldwide supply chain, and as a result, is forcing industry to explore new alternatives for component production and plant construction methodologies.

This presentation will: 1) discuss potential technologies which will enable Net Zero by 2050, 2) examine infrastructure needs/drivers to achieve Net Zero emissions, 3) highlight planned advanced reactor deployment over the next several years, and 4) investigate several alternatives for a robust supply chain.

Plenary Speaker

Ron Boninger
Project Manager
Clean Energy Supplier Alliance (CESA), Richland, WA, USA

First of a Kind Large Scale Powder Metal - Hot Isostatic Press

There is growing recognition that next generation nuclear power, including advanced and small modular reactors (ARs & SMRs), must be part of our Nation's clean energy generation portfolio. Timely and cost-competitive deployment of nuclear technology, at sufficient scale to meet our needs, requires a robust advanced nuclear supply chain that does not currently exist.

A major challenge in ramping up the necessary supply chain is the critical need for more rapid and cost-effective fabrication of large metallic components and pressure vessels needed for nuclear reactors, as well as for military and other commercial applications.

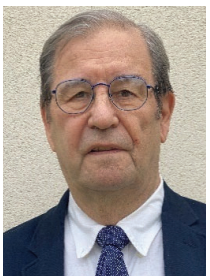
The Clean Energy Supplier Alliance (CESA), located in Washington State, is a member-based organization specifically formed to deploy the advanced manufacturing methods and production capabilities required for next generation nuclear. (cesupplieralliance.com)

The CESA Advanced Technology at Large Scale (ATLAS) PM-HIP Project (ATLAS) is intended to be an overall solution to the large metallic component fabrication challenge. This session will detail the process CESA is undertaking to establish an ATLAS facility in the Tri-Cities, WA. The ATLAS effort involves technical, business demand and financial challenges that are made more difficult because ATLAS will be a first of a kind achievement. To overcome the various challenges of ATLAS, CESA formed the ATLAS Industry Consortium. The Consortium members are global leaders with the capabilities required to build ATLAS in areas including but not limited to finance, HIP design and development, modeling, materials, powdered metal, construction, operating and investment expertise.

HONORS and AWARDS ASSEMBLY AND DINNER

The ASME PVP Division Honors and Awards Assembly and Dinner, during which Division and selected ASME Society awards are presented, will be held on Wednesday, July 31, from 6:00 pm until 9:00 pm, in the Grand Ballroom E-K. The top PVP Division award, the ASME S. Y. Zamrik PVP Medal, will be presented to Dr. Claude Faidy.

ASME S. Y. Zamrik PVP Medal Recipient



Dr. Claude Faidy
Tassin-la-Demi-Lune, France

Dr. Faidy graduated in mechanical and civil engineering ("Mécanique et Génie Civil") at "Ecole Centrale de Nantes - France" and received his PhD in mechanical engineering at Sherbrook University, Quebec, Canada in 1975. He started his engineering career at "Electricity De France" (EDF) in 1976 where he was involved in installation of key components and design and operation of pressure boundary components for the French nuclear power plants, and development of French Nuclear Codes. His expertise includes International Design and Operation Codes, finite element analyses of components, for low and high temperature reactor components, fatigue of reactor components, applications of fracture mechanics, pipe fracture testing and Leak-Before-Break of nuclear piping. He was a consultant to the US Nuclear Regulatory Commission to help ensure safe operation of pressure boundary components in nuclear power plants. He was involved with activities of the ASME Pressure Vessel Research Committee on design rules for low and high temperature reactors over a ten-year period, and contributed to ten Welding Research Council Bulletins.

Dr. Faidy has been a major contributor to the ASME Pressure Vessels and Piping Conference. He has been involved in developing and chairing technical sessions at PVP Conferences for nearly 30 years. He has also presented over 50 technical papers at the Conference and has given three technical tutorials.

Dr. Faidy's accreditations include his professional membership in the American Society of Mechanical Engineers since 1975, including the following Boiler and Pressure Vessel Code Committees and related groups:

- Section XI Subgroup on Evaluation Standards; 2015 - Present
- Section XI Working Group on Flaw Evaluation; 2014 - Present
- Section XI Working Group on Pipe Flaw Evaluation; 2014 - Present
- Section III Working Group Design Methodology; 2014 - Present
- Section III Working Group on Piping; 2014 - Present
- Section III Working Group on Fatigue Strength; 2018 - Present
- Section III Working Group on Environmental Fatigue Evaluation Methods; 2009 - Present
- Section III Special Working Group on HDPE Stakeholders; 2014 - 2023
- Section III Working Group on High Temperature Liquid-Cooled Reactors; 2009 - 2018
- Section III, Divs 1 and 2 Executive Committee on Strategy and Project Management; 2006 - 2014
- France ASME Section, Secretary; 2018 - 2023
- Standards Development Organizations (SDO) Convergence Board; 2023
- International Inter-Society Research Committee on Nuclear Codes and Standards; 2003 - 2010

Dr. Faidy has received several awards from ASME and has authored and co-authored over 70 technical papers that are widely cited in the PVP world.

Dr. Faidy has been involved (up to 2024) in many international professional and scientific societies: ASME International, ASME France (vice-chairman), IAEA, OCDE-NEA, WNA-CORDEL, EPERC (European Pressure Equipment Research Committee), AFCEN (French Codes organization), Codes and Standards in China, IPIRG: (International Piping Integrity Research Group), SFEN (French Society on Nuclear Energy).

At present, Dr. Faidy is a consultant in charge of French and international training courses and different synthesis reports on Nuclear Engineering.

Coffee Breaks and Refreshments

Coffee and refreshments are available throughout the week in the *Grand Ballroom A-D (2nd Floor)*. This hub of activity features exhibit booths and coffee breaks.

TUTORIALS

Tutorials offer both the experienced and early career engineers excellent opportunities to refresh their knowledge and to venture into specific technical areas outside their expertise. Admission to the tutorials is free for Conference Registrants.

Special Tutorial: This is a one-hour or two-hour conference session, held on Sunday afternoon. The session leader will make available the necessary presentation material.

Technical Tutorials: These tutorials are approximately four to six hours in length. Technical Tutorials fill two or three consecutive Conference session blocks and are integrated into the Conference session schedule. The Technical Tutorial notes will be available in electronic format.

Each attendee will receive a Certificate of Attendance, as proof that the attendee has participated in the Special Tutorial, or the Technical Tutorial.

PVP Division will not assign Continuing Education Units (CEUs) on these certificates. However, attendees may negotiate CEU credits with their respective licensing boards.

Outlines of the tutorials for the 2024 PVP Conference are presented below.

SPECIAL TUTORIAL

Benefits of ASME Codes and Standards

Daniel T. Peters, Structural Integrity Associates

Sunday, July 28, 4:15 pm – 6:00 pm
Laurel (3rd Floor)

Have you wondered how the Codes & Standards (C&S) that ASME produces happens? In addition to the benefits gained from membership in the PVP Division and attendance/participation in the ASME PVP Conference, ASME offers benefits to those interested in C&S development. This tutorial explains the:

- Process used in development of ASME C&S; specifically in the area of Pressure Technology Codes & Standards;
- Consensus process used in C&S/ANSI development;
- Benefits to participants in ASME C&S development activities;
- Types of participation in the C&S Committees, qualifications, and the expectations of participants;
- Relationship between the ASME Pressure Vessels & Piping Division and ASME C&S;
- Committee Structure under the Board on Pressure Technology C&S and areas of responsibilities;
- Emerging areas in Pressure Technology including those currently seeking participants; and
- Number of Standards and Codes under ASME and areas affected.

One of ASME's most valuable assets are the relationships with the volunteers who serve on C&S committees. ASME's policy is to afford all interested persons an opportunity to participate in the ASME C&S development process. Membership on a committee normally represents you as an individual, rather than as a representative of your employer or another organization. The Tutorial concludes with an open question and answer session.

TECHNICAL TUTORIALS

ASME B31.3 Process Piping Code

Chuck Becht IV, Becht

Monday, July 29, 2:15 pm – 4:00 pm (Part 1), and 4:15 pm – 6:00 pm (Part 2)
Auditorium (3rd Floor)
This tutorial provides an overview of the rules contained in The Process Piping Code, ASME B31.3. The Code covers a very wide range of services and has separate rules for highly toxic fluids, high pressure fluids, low hazard fluids, nonmetallic systems, and high purity systems. The Code's organizational features and intent are described to help understand the flow of the rules and how they are intended to be applied. The tutorial also provides an update on significant changes that have been made to the Code in recent editions through the latest, 2022 Edition.

Artificial Intelligence in Engineering

Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Nawal Prinja, Jacobs Clean Energy Limited, and Tim Dodwell & Anhad Sandhu, digiLab

Tuesday, July 30, 8:15 am – 10:00 am (Part 1), 10:15 am – 12:00 pm (Part 2), and 2:15 pm – 4:00 pm (Part 3)
Auditorium (3rd Floor)

The artificial intelligence wave has been building up for the last decades and is now at its peak. As the world embraces the transformative power of Artificial Intelligence (AI), the role of mechanical engineers in industry evolution becomes increasingly pivotal. The "Artificial Intelligence in Engineering" tutorial aims to equip mechanical engineers with the knowledge and skills to harness AI technologies for innovation and automation within their field. Mechanical engineering, and more specifically the field of pressure vessels and piping, has recently started exploring AI as a new set of solutions and the potential of its application in the field.

As a summary, this tutorial will delve into the fundamental concepts of AI and its applications in mechanical engineering, providing participants with a comprehensive understanding of how AI can enhance traditional engineering practices.

Additive Manufacturing

Dr. Paul S. Korinko and Dr. Drew Snelling, Savannah River National Laboratory

Wednesday, July 31, 8:15 am – 10:00 am (Part 1), and 10:15 am – 12:00 pm (Part 2)
Auditorium (3rd Floor)

Additive Manufacturing (AM) is becoming more prevalent and accepted as a primary approach to fabricate high value and high consequence components. This tutorial will begin by introducing the various classifications of additive manufacturing: 1) vat photopolymerization, 2) binder jetting, 3) powder bed fusion, 4) material extrusion, 5) material jetting, 6) directed energy deposition, and 7) sheet lamination. Because each AM technology has distinct operating requirements, a brief survey of each classifications including the history processing requirements, and materials capability will be introduced.

The processing requirements for metal AM will be then described in more detail. The AM workflow will be shared and discussed from design, to material selection, to file preparation, to part production.

Characterization of the microstructure and properties of various metal AM processes will be described. Process modifications that can influence structure and properties will be discussed for select alloys.

Finally, process and product qualification requirements and approaches will be discussed. The code case for powder bed fusion qualification and status of the ASME activities will round out the tutorial.

TECHNICAL WORKSHOP

Expert Workshop on

Challenges and Solutions to Implementation and Reliable Operation of Large-Scale Gaseous Hydrogen Infrastructure

Chris San Marchi and Joe Ronevich, Sandia National Laboatories; Michael Gagliano and Jonathan Parker, Electric Power Research Institute

Wednesday, July 31, 2:45 pm – 5:45 pm; and Thursday, August 1, 8:15 am – 5:45 pm
Auditorium (3rd Floor)

As investment in clean energy technology accelerates, hydrogen infrastructure is increasingly considered an important element of a diverse renewable energy portfolio. Large-scale hydrogen infrastructure is an important commodity in developed economies, but the scale required to displace conventional energy storage and transmission technologies will be orders of magnitude larger. The expert workshop on large-scale gaseous hydrogen infrastructure will feature invited presentations from recognized hydrogen experts that explore the emerging needs of the engineering community to deploy hydrogen technologies at scale. The workshop is organized in key topics from storage and transmission of hydrogen to fundamentals of hydrogen-materials interactions and will include time for discussion in each session, The complete listing of workshop topic abstracts, times, and speakers can be found at:
https://event.asme.org/PVP/Program/Expert-Workshop.

TECHNOLOGY EXHIBITS

Monday, July 29, 8:15 am – 6:00 pm; Tuesday, July 30, 8:15 am – 6:00 pm; and Wednesday, July 31, 8:15 am – 2:15 pm
Grand Ballroom A-D (2nd Floor)

The Conference Exhibits will be held from Monday July 29th to Wednesday July 31st. Exhibitors and sponsors will present and discuss their capabilities, equipment, and services in the Grand Ballroom A-D.

NETWORKING RECEPTION

Tuesday, July 30, 5:30 pm – 7:00 pm
Grand Foyer and Exhibit Area of Grand Ballroom A-D (2nd Floor)

A Networking Reception will be held from 5:30 pm to 7:00 pm on Tuesday, July 30. This event brings together industry and academia around a table to discuss possible future collaboration on potential projects. Snacks and a cash bar will be served.

SOCIAL PROGRAMS and TOURS

Conference-Wide Reception
Monday, July 29, 6:15 pm – 8:00 pm
Grand Foyer and Exhibit Area of Grand Ballroom A-D (2nd Floor)

All who registered are invited to attend the Conference Wide Reception. Meet with your colleagues, many of whom you may not have seen for a while. Join with the registrants and guests for a relaxing evening. We will have displays of student paper posters at the reception. All student authors who participate in the 26th Rudy Scavuzzo Student Paper Symposium and Competition are invited to present their posters.

No charge for registered conference participants and guests.

Bellevue/Seattle City Tour
Monday, July 29, 10:00 am (lunch on your own)

Seattle is a cultural mecca where technology, nature, and the arts intersect to produce a rich tapestry of experiences. Starting from the conference hotel, this tour travels through downtown Bellevue, covering its history, passing by the Bravern project, Bellevue Park and old town Bellevue. Continuing to Seattle, highlights include Pioneer Square, Asian community, International District, and the bustling waterfront. The tour stops at the Hiram M. Chittenden Locks and Pike Place Market. This tour is approximately 5 hours in duration and lunch cost and shopping is on your own.

Tickets: $75 per person ($50 for Children under 18 years).
You may go back into your conference registration to add tickets online. Instructions are in your confirmation email or contact.

Snoqualmie Falls Tour

Tuesday, July 30, 10:00 am (lunch on your own)

Take in the breath-taking views at Snoqualmie Falls. On this tour, our guide will bring you out to the 268-foot waterfall for some site seeing along with a stop at the world-famous Boehm's Candies. Highlights of this tour include seeing the Boehm's Candy Kitchen, Edelweiss Chalet (official chalet tour not included, can visit chalet), Snoqualmie Falls, and the gift shop and observation deck of Salish Lodge & Spa. This tour is approximately 4 hours in duration and lunch cost and shopping is on your own.

Tickets: $75 per person ($50 for Children under 18 years).

You may go back into your conference registration to add tickets online.

CONFERENCE INFORMATION

Technical Sessions and Programs

All technical sessions will be held in the meeting area of the hotel. Each room will be equipped with an LCD projector that can be connected to a personal computer for electronic presentations (e.g., Microsoft PowerPoint). Please note that ASME will not provide personal computers. Personal computers are the responsibility of the Session Developer, or presenter. It is strongly recommended that authors provide their materials to the Session Developer or Session Chair at, or before, the Authors' Breakfast, so that all the papers in a session can be loaded onto a single computer. Authors are recommended to transfer their presentation utilizing file sharing methods as opposed to USB devices, for which many companies have restrictions on their use due to security concerns.

The location of the session rooms is shown in the hotel floor plan on the inside back cover of this program.

Rudy Scavuzzo Student Paper Competition

The Rudy Scavuzzo Student Paper Competition was sponsored by the Senate of Past Chairs of the PVP Division for the 2024 Conference. The undergraduate and graduate student papers were judged in two categories: the BS/MS level and the Ph.D. level. Papers were judged and winners were selected prior to the Conference. In each category (i.e., BS/MS and Ph.D.), $2,500 will be awarded to the lead author of the Outstanding Student Paper; $1,500 will be awarded to the lead author of the First Runner-Up Student Paper, and $1,000 will be awarded to the lead author of the Second Runner-Up Student Paper. Students in the competition must attend the Conference. The winners will be announced at the Honors and Awards Assembly and Dinner.

Badge Required for all Events

Please wear your badge for admission to all Conference activities.Your badge also provides a helpful introduction to other Conference attendees.

Technical Committee Meetings

Tuesday, July 30, 12:00 pm – 2:00 pm

Wednesday, July 31, 12:00 pm – 2:00 pm

The Pressure Vessels & Piping Division Technical Committees will meet during the noon breaks on Tuesday, July 30, and Wednesday, July 31. Visitors are encouraged to attend and take an active part in PVP committee activities. All committee meetings, schedules and rooms are listed under PVP 2024 Committee Meetings on page 10.

PVP Division Honors and Awards Assembly and Dinner

Wednesday, July 31, 6:00 pm – 9:00 pm

Grand Ballroom E-K (2nd Floor)

The Honors and Awards Assembly and Dinner, honoring all Division Award Recipients and the 2024 ASME S.Y. Zamrik PVP Medalist, Claude Faidy, will be held on Wednesday, July 31, from 6:00 pm until 9:00 pm, in the Grand Ballroom E-K. One ticket is included in the full Conference registration fee. Additional tickets may be purchased at the Conference Registration desk.

Authors' Breakfast/Briefing

Monday, July 29 – Thursday, August 1, 7:15 am – 8:00 am

Evergreen Ballroom E/F, Lobby Level (1st Floor)

Authors, Panelists, Chairs, and Co-Chairs are required to attend a breakfast briefing in the indicated rooms on Monday through Thursday, at 7:15 am, on the morning of their sessions. Session protocol will be discussed, and the participants will have the opportunity to become better acquainted with one another before their scheduled sessions. Authors are encouraged to place all the presentations for their session on a single computer before or at the Authors' Breakfast.

Registration Hours

Evergreen A, Lobby Level (1st Floor)

Located in Evergreen A, the ASME registration desk will be open during the following hours, to provide advance registrants with their materials, to process on site registrations, and to provide additional Conference information.

Sunday, July 28	10:00 am – 6:00 pm
Monday, July 29	7:30 am – 4:00 pm
Tuesday, July 30	7:30 am – 4:00 pm
Wednesday, July 31	7:30 am – 3:00 pm
Thursday, August 1	7:30 am – 10:00 am

On-Site Registration Fees

For those not registered in advance, the On-Site Registration Fees are as follows:

	Full Registration*	One Day Registration**
ASME Member	$1200	$800
Cooperating Society Member***	$1200	$800
Non-Member****	$1400	$960
ASME Life Member †	$500	$500
ASME Student Member ‡	$500	$350
Student Non-Member ‡	$600	$450
Expert Workshop Only	$350	–
Expert Workshop: Conference Registrant Add-On	$25	–
Extra Ticket Awards Dinner (Wednesday Night)	$75	–

*	Full Registration fees include admission to all technical sessions, coffee breaks, Conference-Wide Reception, one (1) ticket for the Honors and Awards Assembly and Dinner (please RSVP during registration), and online access to the Conference Technical Papers.
**	One Day Registration Fee includes: Admission to all technical sessions, and coffee breaks for the one day.
***	To qualify for discounted registration fees, you must be a member of ASME, or one of the Cooperating Societies. If you are a member of a cooperating society, please contact micelik@asme.org.
****	Anyone paying the non-member fee is eligible to receive 4 month membership to ASME as part of their registration fee.
†	Registration under this category includes admission to all technical sessions, coffee breaks, Conference-Wide Reception, one (1) ticket for the Honors and Awards Assembly and Dinner, and online access to the Conference Technical Papers.
‡	Student Registration Fees include admission to all technical sessions, coffee breaks, Conference-Wide Reception, and online access to the Conference Technical Papers. Students not in the Student Paper Competition will be required to purchase a ticket to attend the Honors and Awards Assembly and Dinner.
‡‡	Guests wishing to attend the Honors and Awards Assembly and Dinner will be required to purchase a ticket.

Cooperating Societies

If you are a member of a Cooperating Society, you may register at the ASME member rate.

Conference App

PVP2024 will utilize a mobile event app, ASME Conferences, in place of a printed program. All registered attendees will receive an email with instructions

for download and use of the app. The subject of the email will be: Log on to PVP2024 and get started with the ASME Conferences App!

The ASME Conferences App allows the user to access event content and connect with other attendees in advance. It also allows for attendees to "build" their own schedule by sessions, individual presentations, networking sessions, committee meetings and more. Schedule sections may be searched by paper number, session number, author, presentation type, track, date, or session organizer.

It is recommended that attendees only download the ASME Conferences app through the official Apple App Store or Google Play Store to avoid counterfeit websites offering mobile apps. Attendees can apply the same login credentials used to activate their ASME profile to access the ASME Conferences app. Attendees should make sure their phone's operating system is up to date and are running the most recent version of the app for the best experience.

Conference Publications

Information on paper titles and authors are included in the Final Program. All attendees registered for the entire Conference (i.e., Full Registration) will receive online access to the Conference Technical Papers presented at the Conference. If you pre-register to the Conference prior to July 19, 2024, you will be able to download the technical papers online at the link that will be sent to you by email prior to the Conference. It is recommended to download the batch file before coming to the Conference. Conference papers will also be available on the Conference app.

Post-conference, papers presented at the Conference will be published as the official Proceedings on the ASME Digital Collection. (http://asmedigitalcollection.asme.org) The official proceedings will also be available post-conference in printed bound volumes of the Official Conference Proceedings. Printed proceedings can be ordered at https://www.proceedings.com/ approximately three to four months after the Conference. All ASME Conference Proceedings are submitted to be indexed in Scopus, Compendex, ISI Conference Proceedings Citations Index, and in multiple other indexing publishers.

Disabled Registrants

Whenever possible, arrangements can be made for disabled registrants, if advance notice is given. Please indicate any special needs on the registration form or contact Kim Miceli at: micelik@asme.org to process your request.

Tax Deductibility

Expenses of attending professional meetings have been held to be tax deductible as ordinary business expenses for U.S. citizens. Please verify the tax regulations in your country to determine whether Conference expenses are deductible.

Guest/Family Programs

Guests and family members of registrants are welcome to the Guest Programs that include the Bellevue/Seattle City Tour (Monday), the Conference Wide Reception in the Grand Foyer and Grand Ballroom A-D (Monday evening), and the Snoqualmie Falls Tour (Tuesday). Tickets are required for admission to the tours. Please also note that some tours have an associated fee for participants. Early registration is strongly recommended for the events that require fees, as they are available only on a first-come, first-served basis.

Childcare Services

We are pleased to offer childcare reimbursement for attendees of PVP2024. For those who need childcare services, ASME will reimburse up to a total of $250/per registered attendee for services incurred by a licensed service provider in Bellevue, Washington. This offering will be available from July 28 – August 2, 2024, during the hours of days in which technical presentations are offered.

To be reimbursed, you must complete the ASME Volunteer Travel Expense Contribution form, which may be found at the following link: https://event.asme.org/Events/media/library/resources/Volunteer-Expense-Reimbursment-Report-2022.xlsx

All requests for reimbursements must be received by ASME, with itemized receipts, no later than TWO WEEKS FROM LAST DAY OF CONFERENCE.

If you have questions related to this benefit, please contact Krishna Hernandez at hernandezk@asme.org.

NOTE: ASME suggests you may wish to consult with your local hotel concierge for licensed service provider suggestions.

Professional Development Hours Available

Professional Development Hours are available for your attendance at the PVP Conference. Simply stop by the Registration Desk and fill out a certificate request form with the sessions that you have attended. The certificates will be sent to the emails specified on the forms.

Publishing Conference Papers in the ASME Journal of Pressure Vessel Technology

Technical papers presented at PVP2024 are published in the form of the ASME Conference Proceedings. Publication of papers in these proceedings does not preclude authors from publishing their papers in ASME archival journals, such as the ASME Journal of Pressure Vessel Technology (JPVT), which is the technical voice of the Pressure Vessels & Piping Division. Authors are encouraged to submit their papers to the Journal.

The Journal is edited by Dr. Spyros A. Karamanos, and manuscripts should be submitted to him through the URL address: https://journaltool.asme.org/home/JournalDescriptions.cfm?JournalID=14&Journal=PVT. Manuscripts should be prepared according to the ASME Journals author resources, which can be found in the link: https://journaltool.asme.org/home/AuthorResources.cfm

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PVP2024 COMMITTEE MEETINGS

Date/Time	Meeting	Room	Responsible Person
Saturday, July 27, 2024			
4:00 pm – 6:00 pm	PVPD Senate Operations Committee	Regency Ballroom E	M. Feldman
Sunday, July 28, 2024			
8:30 am – 12:00 pm	PVP Division Leadership Team	Cottonwood	C. Rodery
Monday, July 29, 2024			
8:15 am – 10:00 am	PVPD Professional Development	Executive Boardroom	M. Younan
Tuesday, July 30, 2024			
8:00 am – 4:00 pm	ASME BPV Code Subgroup on High Pressure Vessels	Madrona	K. Subramanian/A. Dinizulu
10:15 am – 12:00 pm	PVP2025 Program Committee	Juniper	R. Baliga
12:00 pm – 2:00 pm	PVPD Codes and Standards Technical Committee	Auditorium	V. Lacroix
12:00 pm – 2:00 pm	PVPD Operations, Applications and Components Technical Committee	Maple	A. Reich
12:00 pm – 2:00 pm	PVPD High Pressure Technology Technical Committee	Madrona	K. Karpanan
12:00 pm – 2:00 pm	PVPD Design and Analysis Technical Committee	Juniper	A. Avery
2:15 pm – 4:00 pm	PVPD International Coordination Committee	Juniper	H. Lejeune
4:15 pm – 6:00 pm	PVPD Honors and Awards Committee (CLOSED MEETING)	Juniper	R. Baliga
Wednesday, July 31, 2024			
8:15 am – 10:00 am	PVPD Communications Committee	Juniper	D. Gross
12:00 pm – 2:00 pm	PVPD Materials and Fabrication Technical Committee	Auditorium	H. Qian/M. Uddin
12:00 pm – 2:00 pm	PVPD Seismic Engineering Technical Committee	Maple	O. Furuya
12:00 pm – 2:00 pm	PVPD Fluid-Structure Interaction Technical Committee	Madrona	K. Inaba
12:00 pm – 2:00 pm	PVPD Computer Technology and Bolted Joints Technical Committee	Juniper	R. Adibi-Asl
4:15 pm – 5:30 pm	PVPD Early Career Engineers Forum Session	Juniper	N. Barkley
Thursday, August 1, 2024			
8:15 am – 10:00 am	PVPD General Committee	Juniper	Y. Shoji
10:15 am – 12:00 pm	PVPD Conference Evaluation	Juniper	P. Mertiny/M. Feldman
10:15 am – 12:00 pm	JPVT Editors	Madrona	S. Karamanos
12:15 pm – 6:00 pm	PVP Division Leadership Engagement Forum	Juniper	C. Rodery
Friday, August 2, 2024			
8:15 am – 6:00 pm	Study Group on Materials Testing & Qualification for H2 Service	Auditorium	C. San Marchi
8:15 am – 12:00 pm	PVP Division Leadership Team	Cedar Ballroom A	Y. Shoji

CALL FOR PAPERS

2025 ASME Pressure Vessels & Piping Conference

ABSTRACTS DUE – OCTOBER 14, 2024

JOIN US AT THE 2025 ASME PVP CONFERENCE
JULY 20 – 25, 2025, AT THE HOTEL BONAVENTURE
MONTREAL, QUEBEC, CANADA

PRESSURE VESSEL AND PIPING TECHNOLOGIES IN A RAPIDLY CHANGING WORLD

Join us in Montreal, Quebec, Canada for the 2025 ASME Pressure Vessels & Piping Conference, as we contribute to supporting a rapidly changing world by advancements in Pressure Vessels & Piping Technologies. The PVP Conference is the ideal platform to keep up with new technologies, network and interact with experts, practitioners, and peers in the Pressure Vessels & Piping area. The PVP Conference is a recognized international forum with participants from more than 40 countries in Europe, Africa, the Middle East, Asia, the Americas and the Oceania islands. The ASME Pressure Vessels & Piping Division sponsors the PVP Conference with participation by the ASME NDPD Division.

PAPER & PANEL SESSIONS

More than 160 paper and panel sessions are planned, including tutorials, workshops, and Technology Exhibits. General topics will include:

- Codes & Standards
- Computer Technology & Bolted Joints
- Design & Analysis
- Fluid-Structure Interaction
- High-Pressure Technology
- Materials & Fabrication
- Operations, Applications & Components
- Seismic Engineering
- Non-Destructive Examination

SCHEDULE FOR SUBMISSION [TENTATIVE]*

October 14, 2024	Abstracts are due
November 11, 2024	Abstract Accept/Reject Notification
January 20, 2025	Submission of Full-Length Paper for Review
March 3, 2025	Peer Review Comments Returned
April 17, 2025	Copyright Agreement Form (for each paper) due
April 21, 2025	Final Manuscripts in ASME format for publication due

**All final manuscripts must be submitted in the standard ASME format for publication. All presented technical papers will be published as citable documents available post-conference.*

FOR MORE INFORMATION

PVP Conference Chair
Ravi Baliga
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SESSION TITLES BY SESSION BLOCK

Sessions are arranged in Session Blocks in the format X.YZ, where: X indicates the Day, Y indicates the Session Block, and Z indicates the Conference Session Room. Conference Session Rooms are as follows: A = Evergreen Ballroom G; B = Evergreen Ballroom H; C = Evergreen Ballroom I; D = Cottonwood; E = Cedar Ballroom A; F =Laurel; G = Regency Ballroom A; H = Regency Ballroom B; I = Regency Ballroom C; J = Regency Ballroom E; K = Regency Ballroom F; L = Regency Ballroom G; M = Cedar Ballroom B; N = Larch; O = Auditorium; P = Grand Ballroom A-D; Q = Grand Ballroom E-K. The parenthetical designations are the Technical Committee session references.

The Technical Committee and other acronyms used are shown below:

- CS = Codes & Standards
- CT = Computer Technology & Bolted Joints
- DA = Design & Analysis
- FSI = Fluid–Structure Interaction
- HT = High Pressure Technology
- MF = Materials & Fabrication
- NDPD = ASME NDE, Diagnosis and Prognosis Division
- OAC = Operations Applications, & Components
- PS = Plenary Session
- SE = Seismic Engineering
- TE = Technology Exhibits
- TW = Technical Tutorials
- WO = Welcome and Orientation Session

All sessions are sponsored by the indicated Technical Committee unless specifically noted in the daily listing of individual sessions beginning on page 15.

Sunday, July 28, 2024

Block 0.4: Sunday, July 28, 2024 (4:15 pm – 6:00 pm)

0.4F (TW-1-1) SPECIAL TUTORIAL–BENEFITS OF ASME CODES AND STANDARDS

Monday, July 29, 2024

Block 1.1: Monday, July 29, 2024 (8:15 am – 10:00 am)

1.1R (WO-01-01) WELCOME AND ORIENTATION
1.1P (TE-01-01) TECHNOLOGY EXHIBITS – 1

Block 1.2: Monday, July 29, 2024 (10:15 am – 12:00 pm)

1.2R (PS-01-01) OPENING CEREMONY AND PLENARY LECTURES
1.2P (TE-01-02) TECHNOLOGY EXHIBITS – 2

Block 1.3: Monday, July 29, 2024 (2:15 pm – 4:00 pm)

1.3A (MF-02-01) MATERIALS FOR HYDROGEN SERVICE–POLYMERS 1
1.3B (MF-02-04) MATERIALS FOR HYDROGEN SERVICE–HIGH ALLOY MATERIALS 1
1.3C (DA-03-01) FATIGUE 1–RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS
1.3D (SE-02-01) SEISMIC ISOLATION AND STRUCTURAL DYNAMICS–1
1.3F (CS-08-01) ASME CODE SECTION XI ACTIVITIES–1
1.3G (CS-06-01) THE MARTIN PRAGER MEMORIAL SESSION ON API 579/ASME CODE FITNESS–FOR–SERVICE ACTIVITIES
1.3H (OAC-01-01) SAFETY, RELIABILITY, AND RISK MANAGEMENT
1.3I (HT-05-01) PANEL SESSION ON THE APPLICATION AND FUTURE OF LARGE SCALE HOT ISOSTATIC PRESSING IN THE ENERGY INDUSTRY AND BEYOND
1.3J (DA-01-01) DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS–1
1.3K (MF-03-01) WELD RESIDUAL STRESS AND DISTORTION
1.3L (FSI-01-01) THERMAL HYDRAULIC PHENOMENA WITH VESSELS, PIPING AND COMPONENTS–1
1.3O (TW-2-1) TECHNICAL TUTORIAL–ASME B31.3 PROCESS PIPING CODE–PART 1
1.3P (TE-01-03) TECHNOLOGY EXHIBITS–3

Block 1.4: Monday, July 29, 2024 (4:15 pm – 6:00 pm)

1.4A (MF-02-03) MATERIALS FOR HYDROGEN SERVICE–POLYMERS 2
1.4B (HT-07-01) DESIGN AND ANALYSIS OF HIGH PRESSURE HYDROGEN EQUIPMENT–1
1.4C (DA-03-02) FATIGUE 2–RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS
1.4D (SE-02-02) SEISMIC ISOLATION AND STRUCTURAL DYNAMICS–2
1.4F (CS-08-02) ASME CODE SECTION XI ACTIVITIES–2
1.4G (CS-23-01) IMPROVEMENT OF FLAW ASSESSMENT PROCEDURES IN FITNESS–FOR–SERVICE CODES
1.4H (OAC-07-01) OAC AGEING AND PLANT LIFE MANAGEMENT
1.4I (DA-09-01) PIPING AND EQUIPMENT DYNAMICS AND DYNAMIC RESPONSE ANALYSIS–1
1.4J (DA-01-02) DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS–2
1.4K (MF-12-01) LEAK BEFORE BREAK
1.4L (FSI-01-02) THERMAL HYDRAULIC PHENOMENA WITH VESSELS, PIPING AND COMPONENTS–2
1.4O (TW-2-2) TECHNICAL TUTORIAL–ASME B31.3 PROCESS PIPING CODE–PART 2
1.4P (TE-01-04) TECHNOLOGY EXHIBITS–4

Tuesday, July 30, 2024

Block 2.1: Tuesday, July 30, 2024 (8:15 am – 10:00 am)

2.1A (MF-02-05) MATERIALS FOR HYDROGEN SERVICE–HIGH ALLOY MATERIALS 2
2.1B (MF-02-02) MATERIALS FOR HYDROGEN SERVICE–EFFECT OF GAS IMPURITIES
2.1C (MF-22-01) 3D CRACK GROWTH SIMULATION USING FEA
2.1D (SE-01-01) EARTHQUAKE RESISTANCE AND SEISMIC MARGIN
2.1E (MF-01-01) APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT
2.1F (CS-20-01) MASTER CURVE METHOD AND APPLICATIONS
2.1G (MF-05-01) FITNESS–FOR–SERVICE AND FAILURE ASSESSMENT–1
2.1H (OAC-06-01) CONTINUED SAFE OPERATION OF EXISTING ASSETS–1
2.1I (DA-09-02) PIPING AND EQUIPMENT DYNAMICS AND DYNAMIC RESPONSE ANALYSIS–2
2.1J (DA-01-03) DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS–3
2.1K (MF-20-01) MATERIAL QUALITY AND FAILURE ANALYSIS–1
2.1L (FSI-02-01) THE DAVID S. WEAVER MEMORIAL SESSION ON FLOW INDUCED VIBRATION: TUBE ARRAYS
2.1M (MF-24-01) MATLS & FABRICATION FOR REFINING–TOUGHNESS ISSUES IN ALLOYS AS ELEVATED TEMPERATURES
2.1N (CT-01-01) DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS–1
2.1O (TW-3-1) TECHNICAL TUTORIAL–ARTIFICIAL INTELLIGENCE IN ENGINEERING–PART 1
2.1P (TE-02-01) TECHNOLOGY EXHIBITS–5

Block 2.2: Tuesday, July 30, 2024 (10:15 am – 12:00 pm)

2.2A (CS-02-01) HYDROGEN EFFECTS ON MATERIAL BEHAVIOR FOR STRUCTURAL INTEGRITY ASSESSMENT–ASSESSMENT OF PIPELINES
2.2B (DA-21-01) DESIGN AND ANALYSIS OF HYDROGEN PRESSURE EQUIPMENT
2.2C (CS-16-01) FATIGUE AND RATCHETING ISSUES IN PRESSURE VESSEL AND PIPING DESIGN
2.2D (SE-04-01) MACHINE LEARNING FOR SEISMIC ANALYSIS OF INDUSTRIAL FACILITIES
2.2E (CS-19-01) SMALL SCALE MECHANICAL TESTING

2.2G (MF-05-02) FITNESS–FOR–SERVICE AND FAILURE ASSESSMENT–2
2.2H (OAC-06-02) CONTINUED SAFE OPERATION OF EXISTING ASSETS–2
2.2I (DA-04-01) INELASTIC, NONLINEAR, AND LIMIT LOAD ANALYSIS
2.2J (DA-01-04) DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS–4
2.2K (MF-20-02) MATERIAL QUALITY AND FAILURE ANALYSIS–2
2.2L (FSI-02-02) ACOUSTICS
2.2M (MF-24-02) MATLS & FABRICATION FOR REFINING–DESIGN & FABRICATION ISSUES AFFECTING DESIGN LIFE
2.2N (CT-01-02) DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS–2
2.2O (TW-3-2) TECHNICAL TUTORIAL–ARTIFICIAL INTELLIGENCE IN ENGINEERING–PART 2
2.2P (TE-02-02) TECHNOLOGY EXHIBITS–6

Block 2.3: Tuesday, July 30, 2024 (2:15 pm – 4:00 pm)

2.3A (MF-02-06) MATERIALS FOR HYDROGEN SERVICE–TEST METHODS 1
2.3B (CS-15-01) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF)–1
2.3C (CS-17-01) ENVIRONMENTAL FATIGUE ISSUES (JOINT WITH M&F)–1
2.3D (SE-06-01) THE T.H. LIU MEMORIAL SYMPOSIUM ON THE SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEMS–1
2.3E (CS-19-02) EUROPEAN PROJECTS FOR SMALL SCALE TESTING–1
2.3F (CS-21-01) CONSTRAINT EFFECTS ON C&S
2.3G (DA-08-02) VIBRATION OF SMALL–BORE PIPING CONNECTIONS
2.3H (OAC-03-01) MONITORING, DIAGNOSTICS & INSPECTION–1
2.3I (MF-10-01) PIPELINE INTEGRITY
2.3J (DA-01-05) DESIGN AND ANALYSIS OF HEAT EXCHANGERS AND COMPONENTS
2.3K (CS-07-01) RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS–1
2.3L (FSI-02-03) VORTEX SHEDDING
2.3M (MF-24-03) MATLS & FABRICATION FOR REFINING–MECHANICAL ALLOY PROPERTIES AS A FUNCTION OF FABRICATION
2.3N (CT-04-01) ASSEMBLY OF BOLTED JOINTS–1
2.3O (TW-3-3) TECHNICAL TUTORIAL–ARTIFICIAL INTELLIGENCE IN ENGINEERING–PART 3
2.3P (TE-02-03) TECHNOLOGY EXHIBITS–7

Block 2.4: Tuesday, July 30, 2024 (4:15 pm – 6:00 pm)

2.4A (MF-02-07) MATERIALS FOR HYDROGEN SERVICE–TEST METHODS 2
2.4B (CS-15-02) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF)–2
2.4C (CS-17-02) ENVIRONMENTAL FATIGUE ISSUES (JOINT WITH M&F)–2
2.4D (SE-06-02) THE T.H. LIU MEMORIAL SYMPOSIUM ON THE SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEMS–2
2.4E (CS-19-03) EUROPEAN PROJECTS FOR SMALL SCALE TESTING–2
2.4F (HT-07-02) DESIGN AND ANALYSIS OF HIGH PRESSURE HYDROGEN EQUIPMENT–2
2.4G (DA-08-01) FRACTURE MECHANICS IN FFS ASSESSMENT
2.4H (OAC-03-02) THE MILAN BRUMOVSKÝ MEMORIAL SESSION ON MONITORING, DIAGNOSTICS & INSPECTION–2
2.4I (MF-04-01) EUROPEAN PROGRAMS IN STRUCTURAL INTEGRITY–NUCOBAM PROJECT
2.4J (DA-02-01) DESIGN AND ANALYSIS OF PIPING COMPONENTS–1
2.4K (CS-07-02) RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS–2
2.4L (FSI-03-01) SHOCK AND BLAST
2.4M (MF-24-04) MATLS & FABRICATION FOR REFINING–EVALUATION OF DESIGN PARAMETERS IN PRESSURE EQUIPMENT AND TANKS
2.4N (CT-09-01) SPECIAL APPLICATION OF BOLTED FLANGED JOINTS
2.4O (MF-13-01) COMPOSITE AND NON–METALLIC SYSTEMS FOR PRESSURE VESSELS AND PIPING (JOINT WITH D&A)
2.4P (TE-02-04) TECHNOLOGY EXHIBITS–8

Wednesday, July 31, 2024

Block 3.1: Wednesday, July 31, 2024 (8:15 am – 10:00 am)

3.1A (MF-02-08) MATERIALS FOR HYDROGEN SERVICE–PIPELINE INFRASTRUCTURE 1
3.1B (MF-06-01) MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS–1
3.1C (MF-15-01) FATIGUE AND FRACTURE OF WELDS AND HEAT AFFECTED ZONES
3.1D (SE-07-01) SEISMIC EVALUATION OF SYSTEMS, STRUCTURES AND COMPONENTS
3.1E (MF-09-01) MECHANISTIC MODELLING OF DEFORMATION AND FRACTURE–1
3.1F (NDE-01-01) EMERGING NON–DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS–1
3.1G (DA-08-03) DEVELOPMENTS IN FFS ASSESSMENT
3.1H (OAC-04-01) STORAGE AND TRANSPORTATION OF RADIOACTIVE MATERIALS–1
3.1I (CS-24-01) PROBABILISTIC AND RISK–INFORMED METHODS FOR STRUCTURAL INTEGRITY ASSESSMENT–1
3.1J (DA-02-02) DESIGN AND ANALYSIS OF PIPING COMPONENTS–2
3.1K (CS-07-03) RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS–3
3.1L (HT-02-01) IMPULSIVELY LOADED VESSELS
3.1M (DA-15-01) 8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 1–COKE DRUM SKIRT INTEGRITY
3.1N (DA-10-01) DESIGN AND ANALYSIS OF BOLTED JOINTS
3.1O (TW-4-1) TECHNICAL TUTORIAL–ADDITIVE MANUFACTURING–PART 1
3.1P (TE-03-01) TECHNOLOGY EXHIBITS–9

Block 3.2: Wednesday, July 31, 2024 (10:15 am – 12:00 pm)

3.2A (MF-02-09) PIPELINE INFRASTRUCTURE 2
3.2B (MF-06-02) MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS–2
3.2C (MF-16-01) CREEP AND CREEP–FATIGUE INTERACTION–1
3.2D (SE-09-01) ADVANCED SEISMIC EVALUATION AND CODE (JOINT W/ CS–26)–1
3.2E (MF-09-02) MECHANISTIC MODELLING OF DEFORMATION AND FRACTURE–2
3.2F (NDE-01-02) EMERGING NON–DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS–2
3.2G (DA-08-04) FFS ASSESSMENT APPLICATIONS
3.2H (OAC-04-02) STORAGE AND TRANSPORTATION OF RADIOACTIVE MATERIALS–2
3.2I (CS-24-02) PROBABILISTIC AND RISK–INFORMED METHODS FOR STRUCTURAL INTEGRITY ASSESSMENT–2
3.2J (DA-02-03) DESIGN AND ANALYSIS OF PIPING COMPONENTS–3
3.2K (CS-07-04) RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS–4
3.2L (HT-02-02) DYNAMICALLY LOADED STRUCTURES
3.2M (DA-15-02) 8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 2–COKE DRUM RELIABILITY, REPAIR, AND REPLACEMENT
3.2N (DA-10-02) BOLTED JOINT INTERNATIONAL LIAISON SESSION #1 (PANEL SESSION)
3.2O (TW-4-2) TECHNICAL TUTORIAL–ADDITIVE MANUFACTURING–PART 2

3.2P (TE-03-02) TECHNOLOGY EXHIBITS–10

Block 3.3: Wednesday, July 31, 2024 (2:15 pm – 4:00 pm)

3.3A (DA-17-01) COMPOSITE MATERIALS AND STRUCTURES
3.3B (MF-06-03) MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS–3
3.3C (MF-16-02) CREEP AND CREEP–FATIGUE INTERACTION–2
3.3D (SE-09-02) ADVANCED SEISMIC EVALUATION AND CODE (JOINT W/ CS–26)–2
3.3E (DA-12-01) FRACTURE 1–ADVANCES IN FRACTURE ANALYSIS
3.3F (NDE-02-01) NDE TECHNIQUES AND APPLICATIONS FOR PETROCHEMICAL AND POWER PLANT COMPONENTS–1
3.3G (DA-07-01) THERMAL STRESSES AND ELEVATED TEMPERATURE DESIGN
3.3H (OAC-04-03) STORAGE AND TRANSPORTATION OF RADIOACTIVE MATERIALS–3
3.3I (CS-01-01) STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS
3.3J (DA-02-04) DESIGN AND ANALYSIS OF PIPING COMPONENTS–4
3.3K (CS-07-05) THE GUIDO G. KARCHER MEMORIAL SESSION ON WHAT'S NEW IN ASME SECTION VIII DIVISIONS 1 AND 2?
3.3L (HT-01-01) DESIGN, ANALYSIS AND LIFE PREDICTION OF HIGH–PRESSURE VESSELS AND EQUIPMENT
3.3M (DA-15-03) 8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 3–COKE DRUM STANDARDS, RESEARCH, AND ASSESSMENT
3.3O (EPRI/SNL-1) EXPERT WORKSHOP–CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE–SCALE GASEOUS HYDROGEN INFRASTRUCTURE–PART 1 [NOTE START TIME: 2:45 PM]

Block 3.4: Wednesday, July 31, 2024 (4:10 pm – 5:45 pm)

3.4O (EPRI/SNL-2) EXPERT WORKSHOP–CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE–SCALE GASEOUS HYDROGEN INFRASTRUCTURE–PART 2

Thursday, August 1, 2024

Block 4.1: Thursday, August 1, 2024 (8:15 am – 10:00 am)

4.1B (MF-29-01) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH CS)
4.1C (CT-07-01) COMPUTATIONAL APPLICATIONS IN FATIGUE, FRACTURE, AND DAMAGE MECHANICS–1
4.1E (DA-12-02) FRACTURE 2–FRACTURE PREDICTION AND EVALUATION
4.1F (NDE-03-01) NDE RELIABILITY–MODELING AND EXPERIMENTAL ANALYSIS
4.1G (MF-17-01) ADVANCED AND ADDITIVE MANUFACTURING AND MATERIAL TECHNOLOGIES (JOINT WITH D&A)–1
4.1J (DA-02-05) DESIGN AND ANALYSIS OF PIPING COMPONENTS–5
4.1K (CS-10-01) RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS
4.1L (HT-06-01) DESIGN AND ANALYSIS OF HIGH–PRESSURE EQUIPMENT FOR OIL AND GAS EXPLORATION AND PRODUCTION
4.1M (DA-15-04) 8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 4–FORUM SESSION–WHAT'S NEXT FOR THE INDUSTRY?
4.1O (EPRI/SNL-3) EXPERT WORKSHOP–CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE–SCALE GASEOUS HYDROGEN INFRASTRUCTURE–PART 3

Block 4.2: Thursday, August 1, 2024 (10:15 am – 12:00 pm)

4.2C (CT-07-02) COMPUTATIONAL APPLICATIONS IN FATIGUE, FRACTURE, AND DAMAGE MECHANICS–2
4.2F (NDE-04-01) PREDICTIVE NON–DESTRUCTIVE EVALUATION AND STRUCTURAL HEALTH MONITORING OF COMPLEX MATERIALS AND STRUCTURES
4.2G (MF-17-02) ADVANCED AND ADDITIVE MANUFACTURING AND MATERIAL TECHNOLOGIES (JOINT WITH D&A)–2
4.2J (DA-02-06) DESIGN AND ANALYSIS OF PIPING COMPONENTS–6
4.2K (CS-12-01) HIGH TEMPERATURE CODES AND STANDARDS
4.2L (HT-06-02) FATIGUE AND FRACTURE MECHANICS BASED LIFE ESTIMATION OF HPHT OIL AND GAS EQUIPMENT
4.2M (MF-33-01) GENERAL PAPERS
4.2O (EPRI/SNL-4) EXPERT WORKSHOP–CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE–SCALE GASEOUS HYDROGEN INFRASTRUCTURE–PART 4

Block 4.3: Thursday, August 1, 2024 (2:30 pm – 3:30 pm)

4.3O (EPRI/SNL-5) EXPERT WORKSHOP–CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE–SCALE GASEOUS HYDROGEN INFRASTRUCTURE–PART 5

Block 4.4: Thursday, August 1, 2024 (3:45 pm – 5:45 pm)

4.4O (EPRI/SNL-6) EXPERT WORKSHOP–CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE–SCALE GASEOUS HYDROGEN INFRASTRUCTURE–PART 6

DAILY SESSION LISTING

Sessions are arranged in Session Blocks in the format X.YZ, where: X indicates the Day, Y indicates the Session Block, and Z indicates the Conference Session Room. Conference Session Rooms are as follows: A = Evergreen Ballroom G; B = Evergreen Ballroom H; C = Evergreen Ballroom I; D = Cottonwood; E = Cedar Ballroom A; F =Laurel; G = Regency Ballroom A; H = Regency Ballroom B; I = Regency Ballroom C; J = Regency Ballroom E; K = Regency Ballroom F; L = Regency Ballroom G; M = Cedar Ballroom B; N = Larch; O = Auditorium; P = Grand Ballroom A-D; Q = Grand Ballroom E-K. The parenthetical designations are the Technical Committee session references.

The Technical Committee and other acronyms used are shown below:

- CS = Codes & Standards
- CT = Computer Technology & Bolted Joints
- DA = Design & Analysis
- FSI = Fluid–Structure Interaction
- HT = High Pressure Technology
- MF = Materials & Fabrication
- NDPD = ASME NDE, Diagnosis and Prognosis Division
- OAC = Operations Applications, & Components
- PS = Plenary Session
- SE = Seismic Engineering
- TE = Technology Exhibits
- TW = Technical Tutorials
- WO = Welcome and Orientation Session

Note: Unless specifically listed in the individual sessions below, all sessions are sponsored by the indicated Technical Committee.

Papers and presentations for which a video presentation has been submitted are designated by the following symbol: ▼

SUNDAY, JULY 28

Block 0.4: Sunday, July 28, 2024 (4:15 pm – 6:00 pm)

SESSION 0.4F (TW-1-1)

Sunday, July 28, 4:15 pm – 6:00 pm, Laurel (3rd Floor)

SPECIAL TUTORIAL-BENEFITS OF ASME CODES AND STANDARDS

Developed by: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA
Chair: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA
Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presented by: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA

MONDAY, JULY 29

Block 1.1: Monday, July 29, 2024 (8:15 am – 10:00 am)

SESSION 1.1Q (WO-01-01)

Monday, July 29, 8:15 am – 10:00 am, Grand Ballroom E-K (2nd Floor)

WELCOME AND ORIENTATION

Developed by: Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan; Ravi Baliga, Advent Energy Consultants, Inc., Redwood City, CA, USA
Presented by: Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan; Ravi Baliga, Advent Energy Consultants, Inc., Redwood City, CA, USA; Clay D. Rodery, C&S Technology LLC, League City, TX, USA

SESSION 1.1P (TE-01-01)

Monday, July 29, 8:15 am – 10:00 am, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 1

Block 1.2: Monday, July 29, 2024 (10:15 am – 12:00 pm)

SESSION 1.2Q (PS-01-01)

Monday, July 29, 10:15 am – 12:00 pm, Grand Ballroom E-K (2nd Floor)

OPENING CEREMONY AND PLENARY LECTURES

Developed by: Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan
Chair: Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan
Co-Chair: Ravi Baliga, Advent Energy Consultants, Inc., Redwood City, CA, USA

A BRIEF HISTORY OF THE BIRTH AND GROWTH OF THE PVP DIVISION WITH OPPORTUNITIES FOR THE FUTURE

Douglas A. Scarth, Kinectrics, Inc., Toronto, ON, Canada; Sam Y. Zamrik, Pennsylvania State University, State College, PA, USA

ADVANCED ENERGY SYSTEMS NEEDS/DRIVERS THROUGH 2050

David W. Gandy, EPRI, Charlotte, NC, USA

FIRST OF A KIND LARGE SCALE POWDER METAL - HOT ISOSTATIC PRESS

Ron Boninger, Clean Energy Supplier Alliance (CESA), Richland, WA, USA

SESSION 1.2P (TE-01-02)

Monday, July 29, 10:15 am – 12:00 pm, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 2

Block 1.3: Monday, July 29, 2024 (2:15 pm – 4:00 pm)

SESSION 1.3A (MF-02-01)

Monday, July 29, 2:15 pm – 4:00 pm, Evergreen Ballroom G (Lobby Level)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

MATERIALS FOR HYDROGEN SERVICE-POLYMERS 1

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Kevin Simmons, Pacific Northwest National Laboratory, Richland, WA, USA
Co-Chair: Michael Leveille, Sandia National Laboratories, San Jose, CA, USA

PVP2024-121918: IN-SITU WEAR BEHAVIORS OF ACRYLONITRILE BUTADIENE RUBBER (NBR) AND ETHYLENE-PROPYELEN-DIENE MONOMER(EPDM) IN LOW-PRESSURE HYDROGEN ENVIRONMENTS (Presentation Only)

Byeonglyul Choi, Byoung-Ho Choi, Korea University, Seoul, Republic of Korea; Un Bong Baek, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

PVP2024-122705: INVESTIGATION OF THE EFFECT OF HIGH-PRESSURE HYDROGEN EXPOSURE ON THE TENSILE BEHAVIOR OF ACRYLONITRILLE BUTADIENE RUBBER (Presentation Only)

Sang Min Lee, Korea University, Seongbuk-gu, Republic of Korea; Byeong-Lyul Choi, Byoung-Ho Choi, Korea University, Seoul, Republic of Korea; Un Bong Baek, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

PVP2024-123049: ELASTOMERIC MATERIALS FOR HYDROGEN SERVICES (Presentation Only)
Wenbin Kuang, Kevin Simmons, Seunghyun Ko, Ethan Nickerson, Pacific Northwest National Laboratory, Richland, WA, USA
PVP2024-124249: THE DURABILITY EVALUATION OF O-RING REPEATEDLY EXPOSED TO HIGH-PRESSURE HYDROGEN (Presentation Only)
Sang Koo Jeon, Nak Kwan Chung, Un Bong Baek, Seung Hoon Nahm, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

SESSION 1.3B (MF-02-04)

Monday, July 29, 2:15 pm – 4:00 pm, Evergreen Ballroom H (Lobby Level)
MATERIALS FOR HYDROGEN SERVICE-HIGH ALLOY MATERIALS 1
Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Hisao Matsunaga, Kyushu University, Fukuoka, Japan
Co-Chair: Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA
PVP2024-123397: THE MECHANICAL BEHAVIOR OF CORROSION RESISTANT ALLOYS AT ELEVATED TEMPERATURE WITH INTERNAL HYDROGEN
Joe Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA; Santosh Narasimhachary, Siemens Technology, Charlotte, NC, USA; Frans Palmert, Siemens Energy AB, Finspang, Sweden; Shilun Sheng, Stefan Wanjura, Siemens Energy, Muelheim an der Ruhr, Germany
PVP2024-123457: TENSILE, FATIGUE AND NANO-INDENTATION BEHAVIOR OF HYDROGEN-CHARGED 304 STAINLESS STEELS (Presentation Only)
Ting Yang, Ming Dao, Massachusetts Institute of Technology, Cambridge, MA, USA; T. A. Venkatesh, Stony Brook University, Stony Brook, NY, USA
PVP2024-121708: ASSESSMENT OF MICROSTRUCTURE INFLUENCE ON TENSILE PROPERTIES OF AUSTENITIC STAINLESS-STEEL TUBING WITH INTERNAL HYDROGEN AND TRITIUM (Presentation Only)
Natalie Wieber, Battelle Savannah River Alliance - Savannah River National Laboratory, Augusta, GA, USA; Tim Krentz, Savannah River National Laboratory, Aiken, SC, USA; Joe Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA
PVP2024-121921: THE INFLUENCE OF ELECTROCHEMICAL AND GASEOUS HYDROGEN ENVIRONMENTS ON THE MECHANICAL AND FRACTURE BEHAVIOR OF DUPLEX AND AUSTENITIC STEELS (Presentation Only)
Lawrence Cho, Yuran Kong, John Speer, Kip Findley, Colorado School of Mines, Golden, CO, USA; Milan Agnani, Joseph Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA

SESSION 1.3C (DA-03-01)

Monday, July 29, 2:15 pm – 4:00 pm, Evergreen Ballroom I (Lobby Level)
FATIGUE 1-RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS
Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees
Developed by: Shunji Kataoka, JGC Corporation, Yokohama, Japan; Kevin Mandeville, Jr, DNV, Katy, TX, USA; Andrew Owens, TerraPower, Round Rock, TX, USA
Chair: Kevin Mandeville, Jr, DNV, Katy, TX, USA
Co-Chair: Andrew Owens, TerraPower, Round Rock, TX, USA
PVP2024-121251: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS - TEST PLAN AND SUMMARY OF OUTCOMES -
Seiji Asada, Mitsubishi Heavy Industries, Ltd, Kobe, Japan; Akihiko Hirano, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Japan; Masao Itatani, Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Mikata-gun, Japan; Takeshi Ogawa, Aoyama Gakuin University, Sagamihara-shi, Japan
PVP2024-121365: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS - SURFACE FINISHING EFFECT FOR NOTCHED SPECIMENS OF CARBON STEEL -
Masahiro Takanashi, IHI Corporation, Yokohama, Japan; Yun Wang, Hitachi, Ltd., Omika, Japan; Akihiko Hirano, Hitachi-GE Nuclear Energy, Ltd, Hitachi, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Mikatagun, Japan
PVP2024-124661: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS - SURFACE FINISHING EFFECT FOR NOTCHED SPECIMENS OF LOW ALLOY STEEL -
Yuichiro Nomura, Daiki Takagoshi, Mitsubishi Heavy Industries, Ltd, Takasago, Japan; Seiji Asada, Mitsubishi Heavy Industries, Ltd, Kobe, Japan; Atsushi Sugeta, Hiroshima University, Higashihiroshima, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Osaka, Japan
PVP2024-122843: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS -MEAN STRESS EFFECT FOR NOTCHED SPECIMENS OF CARBON STEEL-
Yun Wang, Hitachi, Ltd., Hitachi, Japan; Motoki Nakane, Akihiko Hirano, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Japan; Masahiro Takanashi, IHI Corporation, Yokohama, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Mihama-cho, Japan

SESSION 1.3D (SE-02-01)

Monday, July 29, 2:15 pm – 4:00 pm, Cottonwood (3rd Floor)
SEISMIC ISOLATION AND STRUCTURAL DYNAMICS-1
Developed by: Osamu Furuya, Satoshi Fujita, Tokyo Denki University, Tokyo, Japan; Taichi Matsuoka, Meiji University, Kawasaki, Japan
Chair: Osamu Furuya, Tokyo Denki University, Tokyo, Japan
Co-Chair: Atsuhiko Shintani, Osaka Metropolitan University, Sakai, Japan
PVP2024-121899: RESEARCH AND DEVELOPMENT OF THREE-DIMENSIONAL ISOLATION SYSTEM FOR SODIUM COOLED FAST REACTOR: PART 9 EVALUATING SEISMIC ISOLATION PERFORMANCE THROUGH SEISMIC RESPONSE ANALYSIS
Tsuyoshi Fukasawa, Satoshi Fujita, Tokyo Denki University, Adachi-ku, Japan; Takahiro Somaki, Masaki Yukawa, Obayashi Corporation, Minato-ku, Japan; Tomoyuki Hirayama, Mitsubishi FBR Systems, Kobe, Japan; Tomoyoshi Watakabe, Tomohiko Yamamoto, Masashi Miyazaki, Japan Atomic Energy Agency, Oarai, Japan; Shigeki Okamura, Takayuki Miyagawa, Japan Atomic Energy Agency, Chiyoda-ku, Japan; Masato Uchita, Japan Atomic Power Company, Taito-ku, Japan
PVP2024-122430: RESEARCH AND DEVELOPMENT OF THREE-DIMENSIONAL ISOLATION SYSTEM FOR SODIUM COOLED FAST REACTOR: PART 7 DEVELOPMENT SUMMARY OF THREE-DIMENSIONAL ISOLATION SYSTEM
Tomoyoshi Watakabe, Tomohiko Yamamoto, Masashi Miyazaki, Japan Atomic Energy Agency, Higashi-ibaraki-gun, Japan; Shigeki Okamura, Takayuki Miyagawa, Japan Atomic Energy Agency, Chiyoda-ku, Japan; Masato Uchita, Japan Atomic Power Company, Taito-ku, Japan; Tomoyuki Hirayama, Mitsubishi FBR Systems, Inc., Kobe, Japan; Takahiro Somaki, Masaki Yukawa, Obayashi Corporation, Minato-ku, Japan; Tsuyoshi Fukasawa, Satoshi Fujita, Tokyo Denki University, Adachi-ku, Japan
PVP2024-123003: SENSOR-LESS SEMIACTIVE DAMPER THAT AUTOMATICALLY SWITCHES DAMPING FORCE USING 3-PHASE MOTOR AND RELAY
Taichi Matsuoka, Meiji University, Kawasaki, Japan
PVP2024-124495: RESEARCH AND DEVELOPMENT OF THREE-DIMENSIONAL ISOLATION SYSTEM FOR SODIUM-COOLED FAST REACTOR PART 8 ASSEMBLY STATIC TEST RESULTS OF THREE-DIMENSIONAL ISOLATED DEVICE BY BI-AXIAL LOADINGS
Takahiro Somaki, Masaki Yukawa, Obayashi Corporation, Tokyo, Japan; Tsuyoshi Fukasawa, Satoshi Fujita, Tokyo Denki University, Tokyo, Japan; Tomoyuki Hirayama, Mitsubishi FBR Systems, Inc., Kobe, Japan; Masato Uchita, Takayuki Miyagawa, Shigeki Okamura, Japan Atomic Energy Agency, Tokyo, Japan; Tomohiko Yamamoto, Tomoyoshi Watakabe, Masashi Miyazaki, Japan Atomic Energy Agency, Higashiibaraki-gun, Japan

SESSION 1.3F (CS-08-01)

Monday, July 29, 2:15 pm – 4:00 pm, Laurel (3rd Floor)

ASME CODE SECTION XI ACTIVITIES-1

Developed by: Russell Cipolla, Intertek AIM, Santa Clara, CA, USA; Daniel Miro-Quesada, ASME, New York, NY, USA; Doug Scarth, Kinectrics, Inc., Toronto, ON, Canada
Chair: Russell Cipolla, Intertek AIM, Santa Clara, CA, USA
Co-Chair: Daniel Miro-Quesada, ASME, New York, NY, USA

PVP2024-121858: REVIEW OF ORIGINAL CALCULATIONS AND PC-PRAISE SOURCE CODE USED TO DEVELOP ASME CODE SECTION XI APPENDIX L EQUIVALENT SINGLE CRACK TABLES

Steven Xu, Doug Scarth, Kinectrics, Inc., Toronto, ON, Canada; Nate Glunt, EPRI, Charlotte, NC, USA; Do Jun Shim, EPRI, Palo Alto, CA, USA; Gary Stevens, Consultant, Charlotte, NC, USA

PVP2024-125010: TECHNICAL BASIS FOR PROPOSED ASME SECTION XI CODE CASE ON EVALUATION REQUIREMENTS FOR A STATIC OVER-PRESSURE EVENT IN CLASS 2 OR 3 PIPING SYSTEM

Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Mark Moenssens, Westinghouse Electric Company, Madison, PA, USA; George Antaki, Becht, Aiken, SC, USA; Raymond Pace, Imperia Engineering Partners, Milford, MA, USA

PVP2024-122614: FATIGUE CRACK GROWTH RATES OF AUSTENITIC STAINLESS STEELS IN AIR UNDER NEGATIVE STRESS RATIO R FOR ASME CODE SECTION XI

Martin Negyesi, Centre for Advanced and Innovative Technologies – VŠB-Technical University of Ostrava, Ostrava, Czech Republic; Yoshihito Yamaguchi, Kunio Hasegawa, Japan Atomic Energy Agency, Tokaimura, Japan; Valéry Lacroix, Tractebel Engie, Brussels, Belgium; Andrew Morley, Rolls-Royce plc, Derby, United Kingdom

PVP2024-123490: EFFECT OF TEMPERATURE ON THE FATIGUE CRACK GROWTH RATES OF AUSTENITIC STAINLESS STEELS IN AN AIR ENVIRONMENT FOR ASME CODE SECTION XI

Andrew Morley, Rolls-Royce plc, Derby, United Kingdom; Martin Negyesi, Centre for Advanced and Innovative Technologies – VŠB-Technical University of Ostrava, Ostrava, Czech Republic; Kunio Hasegawa, Japan Atomic Energy Agency, Ibaraki-ken, Japan

SESSION 1.3G (CS-06-01)

Monday, July 29, 2:15 pm – 4:00 pm, Regency Ballroom A (2nd Floor)

THE MARTIN PRAGER MEMORIAL SESSION ON API 579/ASME CODE FITNESS-FOR-SERVICE ACTIVITIES

Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

Developed by: Phillip Prueter, The Equity Engineering Group, Inc., Shaker Heights, OH, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Do Jun Shim, EPRI, Palo Alto, CA, USA; Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; Yinsheng Li, Japan Atomic Energy Agency, Tokai, Japan; Qin Ma, Walla Walla University, College Place, WA, USA
Chair: Phillip Prueter, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Co-Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-122400: EVALUATION OF THE API 579-1/ASME FFS-1 KSTC STRESS INTENSITY FACTORS

Steven Altstadt, Becht, Fargo, ND, USA; Scott Leakey, Becht, Calgary, AB, Canada

PVP2024-123511: REVIEW OF SHOCK CHILLING CRITERIA IN API 579-1/ASME FFS-1

Clifford Hay, ExxonMobil Technology and Engineering Company, Shenandoah, TX, USA

PVP2024-123513: ASSESSMENT OF ASME VIII-1 UG-20(F) USING FRACTURE MECHANICS PER API 579-1/ASME FFS-1 (2021)

Thomas Finn, Julian Bedoya, Greger Pioszak, ExxonMobil Technology and Engineering Company, Spring, TX, USA; Clifford Hay, ExxonMobil Technology and Engineering Company, Shenandoah, TX, USA

PVP2024-122536: A NEW STRESS-INTENSITY FACTOR SOLUTION FOR AN INTERNAL SURFACE CRACK IN SPHERES

James Sobotka, Yi-Der Lee, Joseph Cardinal, R. Craig Mcclung, Southwest Research Institute, San Antonio, TX, USA

SESSION 1.3H (OAC-01-01)

Monday, July 29, 2:15 pm – 4:00 pm, Regency Ballroom B (2nd Floor)

SAFETY, RELIABILITY, AND RISK MANAGEMENT

Developed by: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA; Sarah Suffield, Pacific Northwest National Laboratory, Richland, WA, USA
Chair: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA
Co-Chair: Sarah Suffield, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2024-121299: KNOWLEDGE GRAPH-BASED DECISION MODEL FOR GAS PIPELINE EMERGENCY RESPONSE ▼

Xu Houjia, Shuai Jian, China University of Petroleum Beijing, Beijing, China

PVP2024-122058: A STANDARDIZED APPROACH TO SAFETY & RISK MANAGEMENT FOR ELECTROLYSERS (Presentation Only)

Jitesh Panicker, Electric Hydrogen, San Carlos, CA, USA

PVP2024-122930: RESEARCH AND APPLICATION OF CRUDE OIL STORAGE TANK INTEGRITY MANAGEMENT ▼

Sheng Qi, Jian Shuai, Yuntao Li, Yuan Mei, Wei Ren, China University of Petroleum, Beijing, China; Lei Shi, SINOPEC Dalian Research Institute of Petroleum and Petrochemicals Co., Ltd, Dalian, China

PVP2024-123405: DEVELOPMENT AND VALIDATION OF AN EFFECTIVE SCREENING PROCESS FOR THERMAL-HYDRAULIC PHENOMENA WITH RELEVANCE TO THERMAL LOADS IN NUCLEAR POWER PLANTS PIPING SYSTEMS

Luciana Rudolph, Richard Trewin, Robert Buettner, Thomas Fuchs, Framatome GmbH, Erlangen, Germany

SESSION 1.3I (HT-05-01)

Monday, July 29, 2:15 pm – 4:00 pm, Regency Ballroom C (2nd Floor)

PANEL SESSION ON THE APPLICATION AND FUTURE OF LARGE SCALE HOT ISOSTATIC PRESSING IN THE ENERGY INDUSTRY AND BEYOND

Developed by: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA
Chair: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA
Co-Chair: Erick Ritter, Structural Integrity Associates, Inc., Littleton, CO, USA
Panelists: Cliff Orcutt, American Isostatic Presses, Inc., Columbus, OH, USA
Doug Puerta, Stack Metallurgical Group, Portland, OR, USA
Petrik Ziebeil, Quintus Technologies, Vasteras, Sweden
Victor Samarov, Synertech PM, Inc., Garden Grove, CA, USA
Ron Boninger, Clean Energy Supplier Alliance (CESA), Richland, WA, USA
John Shingledecker, EPRI, Charlotte, NC, USA

SESSION 1.3J (DA-01-01)

Monday, July 29, 2:15 pm – 4:00 pm, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS-1

Developed by: Nathan Barkley, Becht, New Albany, MS, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Roy Darby, Jaan Taagepera, Chevron, Richmond, CA, USA; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Nathan Barkley, Becht, New Albany, MS, USA
Co-Chair: Roy Darby, Chevron, Houston, TX, USA

PVP2024-121054: DESIGN AND ANALYSIS OF PRESSURE VESSEL USING ABAQUS CAE AND ANSYS (Presentation Only)

Abhisek Mallick, National Institute of Technology Raipur, Jatni, India

PVP2024-120788: REWRITING THE RATCHETING STRESS LIMITS

Trevor Seipp, Becht, Calgary, AB, Canada

PVP2024-122693: EVALUATION OF STRESSES IN SADDLE (Q-LIP) TYPE NOZZLES WITH WEAKER MATERIAL STRENGTH COMPARED TO THE PRESSURE VESSEL SHELL

Koray Kuscu, Mandeep Singh, Chicago Bridge & Iron, Plainfield, IL, USA

PVP2024-123549: STEPS IN APPLICATION OF THE ALTERNATIVE NOZZLE REINFORCEMENT RULES FOR GASKETED PLATE HEAT EXCHANGERS

Milan Nikic, Canadian Natural Resources Limited, Calgary, AB, Canada; Djordje Srnic, Alberta Boilers Safety Association, Edmonton, AB, Canada

SESSION 1.3K (MF-03-01)

Monday, July 29, 2:15 pm – 4:00 pm, Regency Ballroom F (2nd Floor)

WELD RESIDUAL STRESS AND DISTORTION

Developed by: Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; David Rudland, US Nuclear Regulatory Commission, Rockville, MD, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom; Harry Coules, University of Bristol, Bristol, United Kingdom; Vincent Robin, EDF R&D, Département PRISME, Lyon, France; Vincent Robin, EDF R&D, Département PRISME, Lyon, France; Ben Pellereau, Rolls-Royce, Loughborough, United Kingdom

Chair: David Rudland, US Nuclear Regulatory Commission, Rockville, MD, USA

Co-Chair: Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2024-123470: RESIDUAL STRESS MODELLING IN PWR REACTOR PRESSURE VESSEL WELDED JOINTS

Vincent Robin, Lucas Breder Teixeira, David Albrecht, EDF DT Design and Technology Branch, Lyon, France; Sofiane Hendili, Sami Hilal, Pablo Pereira Alvarez, Josselin Delmas, EDF R&D, Chatou, France; Lionel Depradeux, EC2 Modelisation, Villeurbanne, France; Mike Smith, Anastasia Vasileiou, University of Manchester, Manchester, United Kingdom

PVP2024-123545: RESIDUAL STRESS MEASUREMENTS AND MODELLING OF CLAD-WELD INTERFACES

Benjamin Pellereau, Rolls-Royce, Loughborough, United Kingdom; Robert Greensmith, Atkins (Retired), Derby, United Kingdom; David Tanner, Ministry of Defence, London, United Kingdom; Mark Goulding, Kent plc, Bristol, United Kingdom

PVP2024-125218: RESIDUAL STRESSES IN LAYERED PRESSURE VESSEL NOZZLES

Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Upper Arlington, OH, USA

PVP2024-125081: FULL SCALE THREE-DIMENSIONAL MOVING ARC WELD ANALYSES OF CONTROL ROD DRIVE MECHANISM J-GROOVE WELDS AND IMPLICATIONS ON CRACKING

Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Upper Arlington, OH, USA; Ed Punch, Elizabeth Twombly, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

SESSION 1.3L (FSI-01-01)

Monday, July 29, 2:15 pm – 4:00 pm, Regency Ballroom G (2nd Floor)

THERMAL HYDRAULIC PHENOMENA WITH VESSELS, PIPING AND COMPONENTS-1

Developed by: Arris Tijsseling, Eindhoven University of Technology, Eindhoven, Netherlands; Thorsten Neuhaus, TUEV Nord, Hamburg, Germany; Jong Chull Jo, Nuclear Safety Technology and Standards Research, Busan, Republic of Korea; Kazuaki Inaba, Ji Ming, Tokyo Institute of Technology, Meguro, Japan; Su Ziyi, Nagoya Institute of Technology, Nagoya, Japan

Chair: Arris Tijsseling, Eindhoven University of Technology, Eindhoven, Netherlands

Co-Chair: Scott Lang, Applied Flow Technology, Colorado Springs, CO, USA

PVP2024-125095: COMPUTATIONAL FLUID DYNAMICS APPROACH TO EVALUATE JET IMPINGEMENT LOADS DUE TO RUPTURE OF HIGH ENERGY PIPES IN NUCLEAR REACTORS ▼

Ali M. M. I. Qureshy, M. Safy Hassan, Assem Elzaabalawy, Mohamed Aboulella, Qasim Khan, Waleed Mekky, Next Structural Integrity Inc., Burlington, ON, Canada

PVP2024-123460: A REVIEW OF RELIEF VALVES IN UNSTEADY FLOW - BEHAVIOR, ANALYSIS, AND DESIGN

Mark Dudley, Devin Rorabaugh, Scott Lang, Applied Flow Technology, Colorado Springs, CO, USA; Jans Schreuder, Mokveld Valves, Gouda, Netherlands; Dylan Witte, Brown and Caldwell, Lakewood, CO, USA

PVP2024-122657: A REVIEW OF CHECK VALVES IN UNSTEADY FLOW - BEHAVIOR, ANALYSIS, AND DESIGN

Scott Lang, Mark Dudley, Applied Flow Technology, Colorado Springs, CO, USA; Jans Schreuder, Mokveld Valves, Gouda, Netherlands; Dylan Witte, Brown and Caldwell, Lakewood, CO, USA

PVP2024-122879: STUDY ON THE DISCHARGE CHARACTERISTICS OF MULTI-HOLE NOZZLES AND FEASIBILITY VERIFICATION FOR BUILT-IN NOZZLE FLAPPER IN AIR SPINDLE

Peimin Xu, Kazuaki Inaba, Hisami Takeishi, Toshiharu Kagawa, Tokyo Institute of Technology, Meguro, Japan

SESSION 1.3O (TW-2-1)

Monday, July 29, 2:15 pm – 4:00 pm, Auditorium (3rd Floor)

TECHNICAL TUTORIAL-ASME B31.3 PROCESS PIPING CODE-PART 1

Developed by: Chuck Becht IV, Becht, Liberty Corner, NJ, USA

Chair: Chuck Becht IV, Becht, Liberty Corner, NJ, USA

Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt

Presented by: Chuck Becht IV, Becht, Liberty Corner, NJ, USA

SESSION 1.3P (TE-01-03)

Monday, July 29, 2:15 pm – 4:00 pm, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 3

Block 1.4: Monday, July 29, 2024 (4:15 pm – 6:00 pm)

SESSION 1.4A (MF-02-03)

Monday, July 29, 4:15 pm – 6:00 pm, Evergreen Ballroom G (Lobby Level)

MATERIALS FOR HYDROGEN SERVICE-POLYMERS 2

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France

Chair: Nalini Menon, Sandia National Laboratory, Livermore, CA, USA

Co-Chair: Un Bong Baek, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

PVP2024-123520: IN SITU AND EX SITU STUDIES ON THE MORPHOLOGY CHANGES OF POLYMER PIPELINE MATERIALS FOR USE IN HYDROGEN AND HYDROGEN-NATURAL GAS ENVIRONMENTS

Kevin Simmons, Seunghyun Ko, Wenbin Kuang, Yao Qiao, Yongsoon Shin, Kee Sung Han, Pacfic Northwest National Laboratory, Richland, WA, USA; Nalini Menon, Sandia National Laboratory, Livermore, CA, USA

PVP2024-123861: INVESTIGATING IN-SITU FRACTURE BEHAVIORS OF POLYMER PIPELINE MATERIALS IN HYDROGEN AND HYDROGEN-METHANE BLENDED GAS ENVIRONMENTS

Seunghyun Ko, Yao Qiao, Ethan Nickerson, Yongsoon Shin, Kee Sung Han, Wenbin Kuang, Kevin Simmons, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2024-123905: EVALUATION OF COMMON THERMOPLASTIC POLYMERS IN HIGH-PRESSURE CYCLING HYDROGEN UNDER AMBIENT AND COLD ENVIRONMENTS APPLICABLE TO THE HYDROGEN INFRASTRUCTURE

Nalini C. Menon, April Nissen, Keri Mcarthur, Bernice Mills, Fitzjames Ryan, Sandia National Laboratories, Livermore, CA, USA; Kevin Simmons, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2024-123528: EXPERIMENTS ON INFLUENCE OF DEPRESSURIZATION RATES AND TEST TEMPERATURES ON POLYMERS IN HIGH- AND LOW-PRESSURE CYCLING HYDROGEN ENVIRONMENTS AS APPLICABLE TO THE HYDROGEN INFRASTRUCTURE

Nalini C. Menon, April Nissen, Keri Mcarthur, James Mcnair, Bernice Mills, Sandia National Laboratories, Livermore, CA, USA; Kevin Simmons, Pacific Northwest National Laboratory, Richland, WA, USA

SESSION 1.4B (HT-07-01)

Monday, July 29, 4:15 pm – 6:00 pm, Evergreen Ballroom H (Lobby Level)

DESIGN AND ANALYSIS OF HIGH PRESSURE HYDROGEN EQUIPMENT-1

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

Developed by: Sean Berg, Becht, Adkins, TX, USA; Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA; Mo Nourani, Elite Professional Engineering, Vancouver, BC, Canada; David Gross, Dominion Engineering, Reston, VA, USA; Matthew Edel, Jihui Geng, BakerRisk, San Antonio, TX, USA; Robert Leishear, Leishear Engineering LLC, Aiken, SC, USA; Megan Tribble, Sandia National Laboratory, Albuquerque, NM, USA; Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France

Chair: Sean Berg, Becht, Adkins, TX, USA

Co-Chair: Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA

PVP2024-122991: INFLUENCE OF THE REPEATED CYCLES OF HIGH-PRESSURE HYDROGEN EXPOSURE ON RUBBER MATERIALS (Presentation Only)

Nak-Kwan Chung, Ye Won Kim, Sangkoo Jeon, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

PVP2024-123027: DAMAGE ASSESSMENT OF LIQUID NITROGEN CYCLING ON TYPE iii PRESSURE VESSEL IN CRYO-COMPRESSED HYDROGEN STORAGE CYLINDER

Zhoutian Ge, Peiyu Hu, Liangliang Qi, Jianfeng Shi, Zhejiang University, Hangzhou, China; Guoying Wang, Jiangkun Bai, Shandong Auyan New Energy Technology Corp. Ltd., Weifang City, China;

PVP2024-123544: A REVIEW : THE EFFECT OF LAMINATE PARAMETERS ON THE PERFORMANCE OF FIBRE-REINFORCED COMPOSITE PRESSURE VESSEL

Haoyu Wu, Hunan University of Science and Technology, Xiangtan, China; Zhiwei Chen, Fang Ji, Xiaoliang Jia, Jinhui Wang, China Special Equipment Inspection & Research Institute, Beijing, China

SESSION 1.4C (DA-03-02)

Monday, July 29, 4:15 pm – 6:00 pm, Evergreen Ballroom I (Lobby Level)

FATIGUE 2-RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

Developed by: Shunji Kataoka, JGC Corporation, Yokohama, Japan; Kevin Mandeville, Jr, DNV, Katy, TX, USA; Andrew Owens, TerraPower, Round Rock, TX, USA

Chair: Andrew Owens, TerraPower, Round Rock, TX, USA

Co-Chair: Kevin Mandeville, Jr, DNV, Katy, TX, USA

PVP2024-122454: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS - MEAN STRESS EFFECT FOR NOTCHED SPECIMENS OF LOW ALLOY STEEL -

Yuichiro Nomura, Daiki Takagoshi, Mitsubishi Heavy Industries, Ltd, Takasago, Japan; Seiji Asada, Mitsubishi Heavy Industries, Ltd, Kobe, Japan; Atsushi Sugeta, Hiroshima University, Higashihiroshima, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Osaka, Japan

PVP2024-122032: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS (5) - APPLICATION OF ELASTIC-PLASTIC FE ANALYSES FOR NOTCHED SPECIMENS OF CARBON STEEL -

Motoki Nakane, Akihiko Hirano, Hitachi-Ge Nuclear Energy, Ltd., Hitachi, Japan; Yun Wang, Hitachi, Ltd., Hitachi, Japan; Masahiro Takanashi, IHI Corporation, Yokohama, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Mikata-gun, Japan

PVP2024-121952: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS - APPLICATION OF ELASTIC-PLASTIC FE ANALYZES FOR NOTCHED SPECIMENS OF LOW ALLOY STEEL-

Daiki Takagoshi, Yuichiro Nomura, Mitsubishi Heavy Industries, Ltd., Takasago, Japan; Seiji Asada, Mitsubishi Heavy Industries, Ltd., Kobe, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Osaka, Japan

PVP2024-123111: RESEARCH ON EFFECTS OF SURFACE FINISHING AND MEAN STRESS ON FATIGUE LIVES OF NOTCHED SPECIMENS -DEFINITION OF FATIGUE LIFE OF NOTCHED SPECIMEN USING CRACK GROWTH ANALYSIS -

Masao Itatani, Takuya Ogawa, Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan; Masahiro Takanashi, IHI Corporation, Yokohama, Japan; Yun Wang, Hitachi, Ltd., HItachi, Japan; Yuichiro Nomura, Mitsubishi Heavy Industries, Ltd., Takasago, Japan; Yoshihide Kitamura, The Kansai Electric Power Co., Inc., Mihama-cho, Japan

SESSION 1.4D (SE-02-02)

Monday, July 29, 4:15 pm – 6:00 pm, Cottonwood (3rd Floor)

SEISMIC ISOLATION AND STRUCTURAL DYNAMICS-2

Developed by: Osamu Furuya, Satoshi Fujita, Tokyo Denki University, Tokyo, Japan; Taichi Matsuoka, Meiji University, Kawasaki, Japan; Katsuhisa Fujita, Osaka City University, Osaka, Japan; Kiyoshi Aida, Mitsubishi Heavy Industries, Kure-Shi, Japan

Chair: Satoru Kai, IHI Corporation, Yokohama, Japan

Co-Chair: Taichi Matsuoka, Meiji University, Kawasaki, Japan

PVP2024-125212: VERIFICATION OF EARTHQUAKE SIMULATION CAPABILITIES FOR SMALL MODULAR REACTOR (SMR) FLOATING SEISMIC ISOLATION SYSTEMS

Maryam Tabbakhha, Lawrence Berkeley National Laboratory, Walnut Creek, CA, USA; David Mccallen, Mamun Miah, Lawrence Berkeley National Laboratory, Berkeley, CA, USA; Jinsuo Nie, Weijun Wang, Vladimir Graizer, Jose Pires, Laurel Bauer, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2024-121826: STUDY ON VERTICAL SLOSHING LOAD ACTING ON ROOF OF CYLINDRICAL TANKS UNDER SEISMIC WAVE EXCITATION

Shunichi Ikesue, Mitsubishi Heavy Industries, Ltd., Nagasaki, Japan; Akihisa Iwasaki, Mitsubishi Heavy Industries, Ltd., Takasago, Japan; Hiromi Sago, Shinobu Yokoi, Mitsubishi Heavy Industries, Ltd., Kobe, Japan; Tomohiko Yamamoto, Japan Atomic Energy Agency, Higashi-ibaraki-gun, Japan

PVP2024-122347: EXPERIMENTAL STUDY ON APPLICABILITY OF TRIBOELECTRIC FILM SENSORS FOR INTEGRITY MONITORING OF SHEAR BOLTED JOINTS

Chu Wang, Nanako Miura, Motoaki Hiraga, Arata Masuda, Kyoto Institude of Technology, Kyoto, Japan

SESSION 1.4F (CS-08-02)

Monday, July 29, 4:15 pm – 6:00 pm, Laurel (3rd Floor)

ASME CODE SECTION XI ACTIVITIES-2

Developed by: Russell Cipolla, Intertek AIM, Santa Clara, CA, USA; Daniel Miro-Quesada, ASME, New York, NY, USA; Doug Scarth, Kinectrics, Inc., Toronto, ON, Canada; Jonathan Tatman, EPRI, Charlotte, NC, USA; Steven McCracken, EPRI, Harrisburg, NC, USA

Chair: Daniel Miro-Quesada, ASME, New York, NY, USA

Co-Chair: Doug Scarth, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-122733: ANALYSES OF STRESS INTENSITY FACTOR SOLUTIONS FOR SUBSURFACE FLAWS IN FLAT PLATES

Suo Li, Yinsheng Li, Japan Atomic Energy Agency, Naka-Gun , Japan; Kai Lu, Fuzhou University, Fuzhou, China; Valéry Lacroix, Tractebel Engie, Brussels, Belgium; Pierre Dulieu, Tractebel Engineering S.A., Brussels, Belgium

PVP2024-125188: STRESS INTENSITY FACTOR SOLUTION COMPARISON FOR VERY LONG CIRCUMFERENTIAL FLAWS IN CYLINDERS USING FINITE ELEMENT ANALYSIS

Nathan Glunt, Electric Power Research Institute, Palo Alto, CA, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Russell Cipolla, Intertek, Santa Clara, CA, USA

PVP2024-125234: SMALL A/L RATIOS AND THE USE OF ASME SECTION XI APPENDIX A STRESS INTENSITY FACTOR COEFFICIENTS FOR

CIRCUMFERENTIAL ID SURFACE FLAWS IN CYLINDERS (Presentation Only)
Darrell Lee, BWX Technologies, Barberton, OH, USA; Sureshkumar Kalyanam, Westinghouse, Cranberry Township, PA, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada
PVP2024-123337: PROPOSED NEW GUIDANCE FOR THE DESIGN OF FILLET WELDED PATCHES
Seetha Ramudu Kummari, The Equity Engineering Group, Inc., Hyderabad, India; Brian Macejko, Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA; Ryan Jones, Canatus Engineering Group Ltd, Calgary, AB, Canada

SESSION 1.4G (CS-23-01)

Monday, July 29, 4:15 pm – 6:00 pm, Regency Ballroom A (2nd Floor)
IMPROVEMENT OF FLAW ASSESSMENT PROCEDURES IN FITNESS-FOR-SERVICE CODES
Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
Developed by: Pierre Dulieu, Valery Lacroix, Kaveh Samadian, Tractebel Engie, Brussels, Belgium; Kunio Hasegawa, Consultant, Tokyo, Japan
Chair: Valery Lacroix, Tractebel Engie, Brussels, Belgium
Co-Chair: Pierre Dulieu, Tractebel Engie, Brussels, Belgium
PVP2024-122092: ALLOWABLE CIRCUMFERENTIAL FLAW SIZES BASED ON CODE GIVEN AND ACTUAL MEASURED FLOW STRESSES FOR HIGH TOUGHNESS DUCTILE PIPES SUBJECTED TO BENDING AND TENSILE LOADS
Martin Negyesi, Centre for Advanced and Innovative Technologies – VŠB-Technical University of Ostrava, Ostrava, Czech Republic; Yoosung Ha, Kunio Hasegawa, Japan Atomic Energy Agency, Tokaimura, Japan; Valery Lacroix, Tractebel Engineering, Brussels, Belgium
PVP2024-122902: PROPOSAL OF A NEW FLAW-TO-SURFACE PROXIMITY RULE FOR THE RE-CHARACTERIZATION OF A SUBSURFACE FLAW INTO A SURFACE FLAW
Valery Lacroix, Pierre Dulieu, Tractebel Engie, Brussels, Belgium; Kunio Hasegawa, Japan Atomic Energy Agency, Tokai-mura, Japan
PVP2024-122432: ALLOWABLE STRESS AND ALLOWABLE FLAW SIZES ESTIMATED BY CONVERTED TENSILE PROPERTIES FROM HARDNESS FOR AUSTENITIC STAINLESS STEEL PIPE
Yoosung Ha, Yoshihito Yamaguchi, Kunio Hasegawa, Japan Atomic Energy Agency, Naka-gun, Japan; Martin Negyesi, Centre for Advanced and Innovative Technologies – VŠB-Technical University of Ostrava, Ostrava, Czech Republic
PVP2024-122801: ASSESSMENT OF CIRCUMFERENTIAL CRACK-LIKE FLAWS IN PIPING ACCOUNTING FOR PARTIAL COMPRESSIVE ZONE USING CONTACT ELEMENTS
Pierre Dulieu, Antoine Van Ende, Tractebel, Namur, Belgium; Valéry Lacroix, Tractebel, Brussels, Belgium

SESSION 1.4H (OAC-07-01)

Monday, July 29, 4:15 pm – 6:00 pm, Regency Ballroom B (2nd Floor)
OAC AGEING AND PLANT LIFE MANAGEMENT
Developed by: Ciska de Haan de Wilde, NRG, Petten, Netherlands; Georges Bezdikian, Consultant, Le Vésinet, France; Ayman Cheta, Shell Global Solutions US, Inc., Houston, TX, USA; Takuyo Kaida, Sumitomo Chemical, Tokyo, Japan; Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan; Junya Takahashi, Sumitomo Chemical, Niihama City, Japan
Chair: Ciska de Haan de Wilde, NRG, Petten, Netherlands
Co-Chair: Georges Bezdikian, Consultant, Le Vésinet, France
PVP2024-123067: FAILURE ANALYSIS AND MATERIALS DEGRADATION PROPERTIES ASSESSMENTS IN AN AGED HYDROPROCESSING 347H AUSTENITIC STAINLESS PIPING
Jorge Penso, Shell Projects and Technology, Houston, TX, USA; Jorge Hau, Eric Caldwell, Mitul Dalal, Shell Global Solutions (US) Inc., Houston, TX, USA; Kevin Batts, Shell Geismar Plant, Geismar, LA, USA
PVP2024-130053: SEALING OF HYDROGEN: AN OVERVIEW OF PUBLISHED DATA
Stephen Bond, Flexitallic, Houston, TX, USA
PVP2024-121885: NUCLEAR ENERGY AGENCY'S PERSPECTIVE FOR INTERNATIONAL COOPERATION ON PLANT OPERATING LIFE EXTENSION THROUGH EFFICIENT AGEING MANAGEMENT (Presentation Only)
Keiko Chitose, Didier Jacquemain, OECD Nuclear Energy Agency, Paris, France
PVP2024-122236: CONCRETE CRACKING MODELLING DUE TO REINFORCEMENT BAR CORRISION
Wesley Jarvis, Kelvin Browning, F.H.E. De Haan - De Wilde, NRG, Petten, Netherlands

SESSION 1.4I (DA-09-01)

Monday, July 29, 4:15 pm – 6:00 pm, Regency Ballroom C (2nd Floor)
PIPING AND EQUIPMENT DYNAMICS AND DYNAMIC RESPONSE ANALYSIS-1
Developed by: Pieter Van Beek, TNO, The Hague, Netherlands; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: Pieter Van Beek, TNO, The Hague, Netherlands
PVP2024-122131: ANALYSIS AND TREATMENT OF PIPELINE VIBRATION IN CENTRIFUGAL COMPRESSORS
Chengwen Wang, Wuhuan Engineering Co., Ltd., Wuhan, China
PVP2024-122851: A FINITE ELEMENT METHOD TO SIMULATE NON-DESTRUCTIVE EVALUATION TESTING OF DOWNHOLE TOOLS SUBJECT TO SHOCK AND RANDOM VIBRATION
Pritha Ghosh, Ryan Sisak, Schlumberger (SLB), Sugar Land, TX, USA
PVP2024-122867: LIFT-OFF SIMULATION AND REVISION OF THE FLUID-DRIVEN MFL PIPELINE INSPECTION ROBOT UNDER OBSTACLE EXCITATION
Minghao Chen, Xinna Shi, Tong Pang, Xiaoying Zhang, Hang Zhang, China University of Petroleum, Beijing, China
PVP2024-122959: MECHANICAL RESPONSES AND ASSESSMENT OF FATIGUE LIFE FOR SUBMARINE SUSPENDED PIPELINES
Yi Zhang, Jian Shuai, Yi Shuai, Zhiyang Lv, China University of Petroleum, Beijing, China; Qianqian Liu, PipeChina Engineering Technology Innovation Co.Ltd, Tianjin, China; Lei Shi, Sinopec (Dalian) Research Institute of Petroleum and Petrochemicals Co. Ltd, Dalian, China; Lumeng Jiang, China National Oil and Gas Exploration and Development Co. Ltd, Beijing, China; Yuanliang Jiang, Sino-Pipeline International Co. Ltd, Beijing, China

SESSION 1.4J (DA-01-02)

Monday, July 29, 4:15 pm – 6:00 pm, Regency Ballroom E (2nd Floor)
DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS-2
Developed by: Nathan Barkley, Becht, New Albany, MS, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Roy Darby, Jaan Taagepera, Chevron, Richmond, CA, USA; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Roy Darby, Chevron, Houston, TX, USA
Co-Chair: Nathan Barkley, Becht, New Albany, MS, USA
PVP2024-122818: RESEARCH ON DETERMINATION OF OBROUND SHELL THICKNESS
Yao Jin, Propak Systems Ltd., Airdrie, AB, Canada
PVP2024-121933: RESEARCH ON STRESS AND DISPLACEMENT DISTRIBUTION OF OBROUND SHELL
Yao Jin, Propak Systems Ltd., Airdrie, AB, Canada
PVP2024-123399: ANALYTICAL AND NUMERICAL SOLUTIONS FOR THE ELASTOPLASTIC BUCKLING ANALYSIS OF SHELLS OF REVOLUTION
Gwladys Belone, Philippe Le Grognec, ENSTA Bretagne, Brest, France; Samir Assaf, Philippe Rohart, CETIM Centre Technique des Industries Mécaniques, Senlis, France
PVP2024-123472: ELASTIC MODELING AND ANALYSIS OF ATMOSPHERIC LIQUID STORAGE TANKS UNDER HYDROSTATIC LOADS
Mingxin Zhao, Consultant, Houston, TX, USA

SESSION 1.4K (MF-12-01)

Monday, July 29, 4:15 pm – 6:00 pm, Regency Ballroom F (2nd Floor)

LEAK BEFORE BREAK

Developed by: John Sharples, Peter James, Jacobs, Warrington, United Kingdom; David Rudland, US Nuclear Regulatory Commission, Rockville, MD, USA; Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; Peter Gill, Office for Nuclear Regulation, Bootle, United Kingdom

Chair: Peter James, Jacobs, Warrington, United Kingdom

Co-Chair: Adam Cooper, Jacobs, Warrington, United Kingdom

PVP2024-125301: EFFECT OF PIPE RESTRAINT ON CRACK OPENING DISPLACEMENT FOR LEAK-BEFORE BREAK ANALYSIS (Presentation Only)

Deepak Somasundaram, Xinjian Duan, Daniel Leary, Min Wang, Candu Energy Inc, Mississauga, ON, Canada

PVP2024-127787: EFFECT OF END-RESTRAINT CONDITION ON LEAK BEFORE BREAK EVALUATION (Presentation Only)

Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; Garivalde Dominguez, Dilip Dedhia, Structural Integrity Associates, Inc., San Jose, CA, USA

PVP2024-130937: PIPING END RESTRAINT AND LEAK-BEFORE-BREAK ANALYSIS

Robert Tregoning, Jay Wallace, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2024-129960: LEAK-BEFORE-BREAK BENCHMARK ANALYSES BY KIWA (Presentation Only)

Daniel Mångård, Andrey Shipsha, Petter Von Unge, Peter Dillström, Kiwa Technical Consulting AB, Solna, Sweden

SESSION 1.4L (FSI-01-02)

Monday, July 29, 4:15 pm – 6:00 pm, Regency Ballroom G (2nd Floor)

THERMAL HYDRAULIC PHENOMENA WITH VESSELS, PIPING AND COMPONENTS-2

Developed by: Arris Tijsseling, Eindhoven University of Technology, Eindhoven, Netherlands; Thorsten Neuhaus, TUEV Nord, Hamburg, Germany; Jong Chull Jo, Nuclear Safety Technology and Standards Research, Busan, Republic of Korea; Shunji Kataoka, JGC Corporation, Yokohama, Japan

Chair: Scott Lang, Applied Flow Technology, Colorado Springs, CO, USA

Co-Chair: Arris Tijsseling, Eindhoven University of Technology, Eindhoven, Netherlands

PVP2024-123592: A COMPREHENSIVE DISCUSSION OF SONIC CHOKING IN PIPE SYSTEMS FOR STEADY, COMPRESSIBLE FLOW

Trey Walters, Applied Flow Technology, Colorado Springs, CO, USA

PVP2024-123054: TILTING MANHOLE COVER: A NONLINEAR SPRING-MASS SYSTEM

Niels Van De Meulenhof, Arris Tijsseling, Eindhoven University of Technology, Eindhoven, Netherlands; Jose Vasconcelos, Auburn University, Auburn, AL, USA; Qingzhi Hou, Tianjin University, Tianjin, China; Zafer Bozkuş, Middle East Technical University, Ankara, Türkiye

PVP2024-121367: COMPUTATIONAL FLUID DYNAMICS MODEL OF GRAVITY-INDUCED SLURRY FLOW

William R. Broz, Engineering Systems Inc. (ESI), Irvine, CA, USA; Sebastian Chialvo, Engineering Systems, Inc. (ESI), Conroe, TX, USA; Sandipan K. Das, Indian Institute of Technology (ISM), Dhanbad, India; Amy Gray, Engineering Systems, Inc (ESI), Miami, FL, USA

PVP2024-124779: FLUID CHARACTERISTICS AND DROPLET EVAPORATION SIMULATION OF T-JUNCTION PIPE WITH FOULING LAYERS

Chenfeng Guan, Sunting Yan, Ping Tang, Yonggui Chen, Mao Cheng, Yangji Tao, Zhejiang Academy of Special Equipment Science, Hangzhou, China; Yanbin Cheng, Zhejiang Petrochemical Co., Ltd, Hangzhou, China

SESSION 1.4O (TW-2-2)

Monday, July 29, 4:15 pm – 6:00 pm, Auditorium (3rd Floor)

TECHNICAL TUTORIAL-ASME B31.3 PROCESS PIPING CODE-PART 2

Developed by: Chuck Becht IV, Becht, Liberty Corner, NJ, USA

Chair: Chuck Becht IV, Becht, Liberty Corner, NJ, USA

Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt

Presented by: Chuck Becht IV, Becht, Liberty Corner, NJ, USA

SESSION 1.4P (TE-01-04)

Monday, July 29, 4:15 pm – 6:00 pm, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 4

TUESDAY, JULY 30

Block 2.1: Tuesday, July 30, 2024 (8:15 am – 10:00 am)

SESSION 2.1A (MF-02-05)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

Tuesday, July 30, 8:15 am – 10:00 am, Evergreen Ballroom G (Lobby Level)

MATERIALS FOR HYDROGEN SERVICE-HIGH ALLOY MATERIALS 2

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France

Chair: Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA

Co-Chair: Kevin Nibur, Hy-Performance Materials Testing, LLC., Bend, OR, USA

PVP2024-123293: EFFECTS OF TEMPERATURE AND HYDROGEN ON FATIGUE PROPERTIES OF AUSTENITIC STAINLESS STEELS

Romain Chochoy, Denis Bertheau, Guillaume Benoit, Gilbert Hénaff, Institut Pprime, Chasseneuil-du-Poitou, France; Pierre Osmond, Daniella Guedes Sales, Gouenou Girardin, CETIM, Nantes, France

PVP2024-121158: EFFECT OF TEMPERATURE ON HYDROGEN ASSISTED FATIGUE CRACK GROWTH RATE OF AUSTENITIC STAINLESS STEEL

Thorsten Michler, Igor Varfolomeev, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Germany

PVP2024-122356: HYDROGEN EFFECT ON FATIGUE-LIFE PROPERTIES OF COLD-ROLLED, METASTABLE AUSTENITIC STAINLESS STEELS WITH ARTIFICIAL DEFECTS

Junichiro Yamabe, Kento Hashiguchi, Fukuoka University, Fukuoka, Japan; Kentaro Wada, National Institute for Materials Science (NIMS), Ibaraki, Japan

PVP2024-121855: FATIGUE CRACK GROWTH PROPERTIES OF MARTENSITIC STAINLESS STEELS IN HIGH PRESSURE HYDROGEN GAS (Presentation Only)

Nobuyuki Takahashi, Daido Steel Co., Ltd., Nagoya, Japan; Hisao Matsunaga, Kyushu University, Nishi-ku, Japan

SESSION 2.1B (MF-02-02)

Tuesday, July 30, 8:15 am – 10:00 am, Evergreen Ballroom H (Lobby Level)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

MATERIALS FOR HYDROGEN SERVICE-EFFECT OF GAS IMPURITIES

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France

Chair: Robert Wheeler, Sandia National Laboratories, Livermore, CA, USA

Co-Chair: Paolo Bortot, Tenaris, Dalmine, Italy

PVP2024-123469: NON-CONSERVATIVE FRACTURE TOUGHNESS MEASUREMENTS DUE TO TRACE OXYGEN IMPURITIES IN HYDROGEN GAS

Kevin Nibur, Hy-Performance Materials Testing, LLC., Bend, OR, USA

PVP2024-125124: EFFECT OF HYDROGEN AS AN IMPURITY ON THE FRACTURE TOUGHNESS AND FATIGUE PERFORMANCE OF STEELS FOR CO2 PIPELINES FOR CCS

Hyun Jo Jun, Neeraj Thirumalai, ExxonMobil Technology and Engineering Company, Annandale, NJ, USA; Chih-Hsiang Kuo, Brian Newbury, ExxonMobil Technology and Engineering Company, Spring, TX, USA; Ramgopal Thodla, DNV, Dublin, OH, USA

PVP2024-122291: EFFECT OF OXYGEN IMPURITIES ON SUBCRITICAL CRACK GROWTH IN HIGH-PRESSURE HYDROGEN ENVIRONMENTS (Presentation Only)

Robert Wheeler, Joseph Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA

PVP2024-123331: FATIGUE CRACK GROWTH PROPERTIES OF PIPELINE STEEL X60 IN HYDROGEN GAS WITH OXYGEN IMPURITY AT VARIOUS TEMPERATURES (Presentation Only)

Naoyuki Osada, Masanobu Kubota, Hisao Matsunaga, Kyushu University, Fukuoka, Japan; Yukinori Yanase, Toshiyuki Sunaba, Material & Corrosion Group, Technical Research Center, INPEX, Tokyo, Japan

SESSION 2.1C (MF-22-01)

Tuesday, July 30, 8:15 am – 10:00 am, Evergreen Ballroom I (Lobby Level)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

3D CRACK GROWTH SIMULATION USING FEA

Developed by: Do Jun Shim, EPRI, Palo Alto, CA, USA; Gary Dominguez, Structural Integrity Associates, Inc., San Jose, CA, USA; Suresh Kalyanam, Westinghouse Electric Company, Cranberry Township, PA, USA; Yifan Huang, AtkinsRéalis, Mississauga, ON, Canada; Yinsheng Li, Japan Atomic Energy Agency, Tokai, Japan; Kevin Mandeville, Jr, DNV, Katy, TX, USA; Shunji Kataoka, JGC Corporation, Yokohama, Japan; Andrew Owens, TerraPower, Round Rock, TX, USA

Chair: DJ Shim, EPRI, Palo Alto, CA, USA

Co-Chair: Suresh Kalyanam, Westinghouse Electric Company, Cranberry Township, PA, USA

PVP2024-123083: DEVELOPMENT OF A PROGRAM BASED ON RE-MESHING FOR NATURAL CRACK GROWTH OF MULTIPLE CRACKS

Gi-Bum Lee, Chan-Gi Hong, Seok-Jun Yoon, Nam-Su Huh, Seoul National University of Science and Technology, Seoul, Republic of Korea; Sung-Hoon Park, VENG Co., Ltd., Seongnam-si, Republic of Korea

PVP2024-123343: APPLICABILITY OF ASME CODE, SECTION XI TO FATIGUE CRACK GROWTH CALCULATION OF FLAWS IN PIPE-TO-ELBOW WELDS

Chan-Gi Hong, Seok-Jun Yoon, Gi-Bum Lee, Nam-Su Huh, Seoul National University of Science and Technology, Nowon-gu, Republic of Korea; Do-Jun Shim, EPRI, Palo Alto, CA, USA

PVP2024-123354: A SIMPLIFIED APPROACH USED TO EVALUATE EQUIPMENT NOZZLES FOR OFFSHORE CYCLIC WAVE CONDITIONS

Kenneth Kirkpatrick, Barry Millet, Bryan Mosher, James Lu, Fluor Corporation, Sugar Land, TX, USA; George Miller, Fluor Corporation, Colton, NY, USA

PVP2024-122643: CIRCUMFERENTIAL AND OFF-AXIS CRACK FATIGUE GROWTH SUSCEPTIBILITY IN BURIED STEEL PIPELINES

Lyndon Lamborn, Enbridge LP, Sherwood Park, AB, Canada; James Hogan, University of Alberta, Edmonton, AB, Canada; James Ferguson, Stantec Energy, Calgary, AB, Canada; Jason Skow, Integral Engineering, Edmonton, AB, Canada

SESSION 2.1D (SE-01-01)

Tuesday, July 30, 8:15 am – 10:00 am, Cottonwood (3rd Floor)

EARTHQUAKE RESISTANCE AND SEISMIC MARGIN

Developed by: Tomoyo Taniguchi, Tottori University, Tottori, Japan; Akira Maekawa, Osaka Sangyo University, Osaka, Japan; Izumi Nakamura, Tokyo City University, Setagata, Japan; Akemi Nishida, Japan Atomic Energy Agency, Shirakata, Japan; Satoru Kai, IHI Corporation, Yokohama, Japan

Chair: Taichi Matsuoka, Meiji University, Kawasaki, Japan

Co-Chair: Osamu Furuya, Tokyo Denki University, Tokyo, Japan

PVP2024-123215: INELASTIC RESPONSE ANALYSIS OF 2DOFS TO EARTHQUAKE MOTIONS BASED ON SUPERPOSITION OF ELASTOPLASTIC RESPONSE OF EACH MODE

Tomoyo Taniguchi, Tottori University, Tottori, Japan; Yasumasa Shoji, YS Corporation, Mushashino, Japan; Yukinobu Kimura, Kagoshima University, Kagoshima, Japan

PVP2024-123232: STATIC INCREMENTAL ANALYSIS WITH MODAL INERTIA FORCE TAKING INTO ACCOUNT THE ELASTOPLASTIC NATURE TO ESTIMATE ELASTOPLASTIC DISPLACEMENTS OF STRUCTURES

Tomoyo Taniguchi, Takumi Kaieda, Tottori University, Tottori, Japan

PVP2024-123380: SEISMIC SLIDING IN STORAGE TANKS: AN IN-DEPTH ANALYSIS AND DESIGN INSIGHTS
Vivek Manjrekar, Bechtel Energy, Richmond, TX, USA; Neville Stokes, Bechtel Energy, Houston, Houston, TX, USA; Junho Choi, Wood plc, Houston, TX, USA
PVP2024-122284: SEISMIC EVALUATION OF STORAGE TANKS UNDER NEW STATE REGULATIONS (Presentation Only)
Yangyang Wu, Roundtable Engineering Solutions, Colorado Springs, CO, USA

SESSION 2.1E (MF-01-01)

Tuesday, July 30, 8:15 am – 10:00 am, Cedar Ballroom A (2nd Floor)
Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees
APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT
Developed by: Preeti Doddihal, Doug Scarth, Kinectrics, Inc., Toronto, ON, Canada; Abdel Hamid Ismail Mourad, United Arab Emirates University, Al-Ain, United Arab Emirates; Abilio Jesus, University of Porto, Porto, Portugal; Gustavo Donato, FEI, São Bernardo do Campo, Brazil; Harry Coules, University of Bristol, Bristol, United Kingdom; Harry Coules, University of Bristol, Bristol, United Kingdom; Jessica Lam, Ontario Power Generation, Toronto, ON, Canada; Kiminobu Hojo, Mitsubishi Heavy Industries Ltd., Kobe, Japan; Suresh Kalyanam, Westinghouse Electric Company, Cranberry Township, PA, USA; Darren Pinto, Schenck Process, Sabetha, KS, USA
Chair: Preeti Doddihal, Kinectrics, Inc., Toronto, ON, Canada
Co-Chair: Jessica Lam, Ontario Power Generation, Toronto, ON, Canada
PVP2024-121407: EFFECT OF SPECIMEN ROTATION ON CRACK SIZE ESTIMATION IN J-R CURVE TESTING USING COMPACT TENSION SPECIMEN
Kuk-Cheol Kim, Jeon-Young Song, Young-Wha Ma, Doosan Enerbility, Changwon, Republic of Korea
PVP2024-123037: DUCTILE FRACTURE CRITERION PARAMETER CALIBRATION AND ANALYSIS:X80 PIPE STEEL ▼
Xueming Zhu, Zhiyang Lv, Jian Shuai, China University of Petroleum, Beijing, China; Lei Shi, Sinopec (Dalian) Research Institute of Petroleum and Petrochemicals Co., Ltd, Dalian, China; Shengyang Yu, Gang Xia, China National Oil and Gas Exploration and Development Co, Beijing, China
PVP2024-123259: BRITTLE FRACTURE ASSESSMENT FOR COLD-STAMPED ELLIPSOIDAL HEADS MADE OF Q345R ▼
Xiao Guo, Keming Li, Jinyang Zheng, Zhejiang University, Hangzhou, China
PVP2024-123315: DELAYED HYDRIDE CRACKING INITIATION EVALUATION OF A FRETTING FLAW IN A CANDU REACTOR ZR-NB PRESSURE TUBE WITH CONSIDERATION OF FINITE LENGTH OF THE FLAW AND FLAW SHIELDING EFFECT
Douglas Scarth, Steven Xu, Preeti Doddihal, Kinectrics, Inc., Toronto, ON, Canada; Dennis Kawa, Kedward Kawa & Associates Ltd., Winnipeg, MB, Canada; Monique Ip, Bruce Power, Toronto, ON, Canada

SESSION 2.1F (CS-20-01)

Tuesday, July 30, 8:15 am – 10:00 am, Laurel (3rd Floor)
MASTER CURVE METHOD AND APPLICATIONS
Developed by: Mark Kirk, Phoenix Engineering Associates Inc., Yokosuka, Japan; Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan; William Server, ATI Consulting, Black Mountain, NC, USA
Chair: William Server, ATI Consulting, Black Mountain, NC, USA
Co-Chair: Florian Obermeier, Framatome GmbH, Erlangen, Germany
PVP2024-120918: IMPACT OF INTERRUPTING MASTER CURVE FRACTURE TOUGHNESS TESTS FOR THE MATERIAL EXHIBITING DUCTILE CRACK GROWTH AT THE KJC BETWEEN KJCLIMIT AND THE FINAL KJC AT THE TEST TERMINATION
Masato Yamamoto, Mark Kirk, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan
PVP2024-128727: SURVEILLANCE SPECIMEN DESIGN RECOMMENDATIONS FOR HFIR VESSEL LONG TERM OPERATION (Presentation Only)
Mikhail Sokolov, Henry Kmieciak, Oak Ridge National Laboratory, Oak Ridge, TN, USA; William Server, ATI Consulting, Black Mountain, NC, USA; J. Brian Hall, WEC, Churchill, PA, USA
PVP2024-125225: AN EXAMINATION OF MARGINS NEEDED TO ENSURE CONSERVATIVE APPLICATION OF T0 TO RPV FRACTURE TOUGHNESS
J. Brian Hall, Westinghouse, Churchill, ID, USA; Brian Golchert, Derek Simpson, Westinghouse, Cranberry Township, PA, USA

SESSION 2.1G (MF-05-01)

Tuesday, July 30, 8:15 am – 10:00 am, Regency Ballroom A (2nd Floor)
Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
FITNESS-FOR-SERVICE AND FAILURE ASSESSMENT-1
Developed by: Marvin Cohn, Intertek Engineering Consulting, Santa Clara, CA, USA; Qin Ma, Walla Walla University, College Place, WA, USA; Bruce Wiersma, Savannah River National Laboratory, Aiken, SC, USA; Carl Jaske, HSI Group, Inc., Columbus, OH, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom
Chair: Marvin Cohn, Intertek Engineering Consulting, Santa Clara, CA, USA
Co-Chair: Carl Jaske, HSI Group, Inc., Columbus, OH, USA
PVP2024-122348: APPLICATION OF CRYSTAL PLASTICITY FINITE ELEMENT IN UPDATING INDUSTRIAL INTEGRITY ASSESSMENT PRACTICES.
Edward Horton, Mahmoud Mostafavi, David Knowles, University of Bristol, Bristol, United Kingdom; Marc Chevalier, EDF Energy, Gloucester, United Kingdom
PVP2024-121913: STRUCTURAL INTEGRITY EVALUATION OF 3D PRINTED GRAPHENE-REINFORCED PLA NOTCHED PLATES USING FAILURE ASSESSMENT DIAGRAMS
Sergio Cicero, Sergio Arrieta, Marcos Sánchez, University of Cantabria, Santander, Spain
PVP2024-121895: FITNESS-FOR-SERVICE ANALYSIS OF REACTOR COMPONENTS UNDER COMPLEX OPERATING CONDITIONS
Minh Tran, Ondrej Muransky, Australian Nuclear Science and Technology Organisation, Lucas Heights, Australia; Benjamin Spencer, Idaho National Laboratory, Idaho Falls, ID, USA
PVP2024-123271: REVIEW OF SECONDARY STRESS TREATMENT IN THE R6 FRACTURE ASSESSMENT PROCEDURE
Peter James, Jacobs, Warrington, United Kingdom

SESSION 2.1H (OAC-06-01)

Tuesday, July 30, 8:15 am – 10:00 am, Regency Ballroom B (2nd Floor)
CONTINUED SAFE OPERATION OF EXISTING ASSETS-1
Developed by: Ayman Cheta, Shell Global Solutions US, Inc., Houston, TX, USA; Takuyo Kaida, Sumitomo Chemical, Tokyo, Japan; Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan; Junya Takahashi, Sumitomo Chemical, Niihama City, Japan
Chair: Ayman Cheta, Shell Global Solutions US, Inc., Houston, TX, USA
Co-Chair: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA
PVP2024-122087: HELICAL PIPE INNER SURFACE PEENING USING ACOUSTIC CAVITATION (Presentation Only)
Sunghwan Jung, Prabhu Murugesan, Dankook University, Yongin-si, Republic of Korea; Hyungyil Lee, Sogang University, Seoul, Republic of Korea
PVP2024-122096: BULK METAL CRACK TIP PEENING USING ACOUSTIC CAVITATION (Presentation Only)
Sunghwan Jung, Murugesan Prabhu, Dankook University, Yongin-si, Republic of Korea; Hyungyil Lee, Sogang University, Seoul, Republic of Korea
PVP2024-122685: BOLT LOAD RELAXATION AS A RESULT OF ELEVATED TEMPERATURE, SPECIALTY WASHERS AND PRE-LOADING METHODS (Presentation Only)
Michael Dolan, Hytorc Corporation, Manasquan, NJ, USA; Emmanuel Derillac, Hytorc Corporation, Hudson, OH, USA
PVP2024-123064: EMBRITTLEMENT OF 347H STAINLESS STEEL WELDS IN 538 °C (1000 °F) SERVICE
Jorge Penso, Shell Projects and Technology, Houston, TX, USA; Jorge Hau, Mitul Dalal, Shell Global Solutions (US) Inc., Houston, TX, USA

SESSION 2.1I (DA-09-02)

Tuesday, July 30, 8:15 am – 10:00 am, Regency Ballroom C (2nd Floor)

PIPING AND EQUIPMENT DYNAMICS AND DYNAMIC RESPONSE ANALYSIS-2

Developed by: Pieter Van Beek, TNO, The Hague, Netherlands; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Pieter Van Beek, TNO, The Hague, Netherlands
Co-Chair: Qi Li, T.D. Williamson, Houston, TX, USA

PVP2024-122678: USING ASME B31J STRESS INTENSIFICATION FACTORS (SIFS) TO IMPROVE A BS 7608 FATIGUE ANALYSIS

Chris Harper, Wood, Calgary, AB, Canada; Lyle Breaux, Stress Engineering Services, Inc., Metairie, LA, USA

PVP2024-122624: AN APPLICATION OF RANDOM RESPONSE ANALYSIS FOR ANALYZING VIBRATION FATIGUE FAILURES DUE TO LIQUID IMPINGEMENT LOADS

Seetha Ramudu Kummari, The Equity Engineering Group, Inc., Hyderabad, India; Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA; Derek Rinas, The Equity Engineering Group, Inc., Leduc County, AB, Canada; Hassan Ishtiaque, K+S Potash Canada, Bethune, SK, Canada

PVP2024-122972: RELIABILITY AND EFFICIENCY IMPROVEMENTS USING LONG TERM VIBRATION MONITORING DATA

Gernot Wally, Campbell Mckee, Xodus Group Ltd., Glasgow, United Kingdom; Peter Sharpe, Xodus Group Ltd., London, United Kingdom

PVP2024-124142: EXPERIMENTAL STUDY ON MECHANICAL RESPONSE OF URBAN GAS PIPELINE CONTAINING SINGLE DEFECT SUBJECTED TO HEAVY TRUCK LOAD

Fei Ren, Yi Shuai, Zhiyang Lv, Yuan Mei, Dong Xie, China University of Petroleum, Beijing, China; Lu Jiang, Anhui Special Equipment Institute, Hefei, China; Lumeng Jiang, Shengyang Yu, China National Oil and Gas Exploration and Development Co., Beijing, China

SESSION 2.1J (DA-01-03)

Tuesday, July 30, 8:15 am – 10:00 am, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS-3

Developed by: Nathan Barkley, Becht, New Albany, MS, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Roy Darby, Jaan Taagepera, Chevron, Richmond, CA, USA; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Nathan Barkley, Becht, New Albany, MS, USA
Co-Chair: Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-123581: CASE STUDY: INSTALLATION AND OPERATION OF NON-ASME STAMPED PRESSURE VESSELS IN THE UNITED STATES

Nathan Barkley, Becht, New Albany, MS, USA; Everett Chatham, Becht, Pearland, TX, USA; Kevin Baquero, Becht, Hoboken, NJ, USA

PVP2024-123217: PRESSURE VESSEL DESIGN WITH STRAIN RATE SENSITIVE MATERIALS: LESSONS FROM A REFRACTORY MATERIAL

Farideh HajyAkbary, ASML, Eindhoven, Netherlands; Maarten Hoeijmakers, Rahul Kapadia, AML, Veldhoven, Netherlands; Daniel Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA; Ian Richardson, IR Welding Consultancy, Berkel en Rodenrijs, Netherlands; Harald Koestenbauer, Plansee SE, Reutte, Austria

PVP2024-123110: HYDROGEN VESSEL WELD POROSITY STRESS ANALYSIS USING CT SCAN DATA

Hao Jiang, Drew Winder, Douglas Armitage, Nick Summerlot, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-124392: RESEARCH ON SEMI-EMPIRICAL CALCULATION FORMULA OF BURSTING PRESSURE FOR DESIGN OF ULTRA-HIGH PRESSURE BURSTING DISC

Chao Yang, Hui Luo, Ke Bo, China Special Equipment Inspection and Research Institute, Beijing, China; Hu Hui, East China University of Science and Technology, Shanghai, China

SESSION 2.1K (MF-20-01)

Tuesday, July 30, 8:15 am – 10:00 am, Regency Ballroom F (2nd Floor)

MATERIAL QUALITY AND FAILURE ANALYSIS-1

Developed by: Kang Xu, Linde, Tonawanda, NY, USA; Grzegorz Lesiuk, Wrocław University of Science and Technology, Wrocław, Poland; Jorge Penso, Shell Projects and Technology, Houston, TX, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Kang Xu, Linde, Tonawanda, NY, USA
Co-Chair: Kevin Mandeville, DNV, Katy, TX, USA

PVP2024-122390: THE INFLUENCE OF SECONDARY DAMAGE MECHANISMS ON THE SUITABILITY OF THE SINGLE SPECIMEN UNLOADING COMPLIANCE TECHNIQUE TO ASSESS THE FRACTURE TOUGHNESS OF SA508 GR. 4N AND A533 B NUCLEAR PRESSURE VESSEL STEEL

Adam Cooper, Andrew Harrison, Andrew Wisbey, Jacobs, Warrington, United Kingdom; Ronnie Woodward, Rolls-Royce SMR, Warrington, United Kingdom

PVP2024-123473: CASE STUDY ON METALLURGICAL CRACKING FAILURE IN UNS N06693 WELD FOR STEAM GENERATOR APPLICATIONS

Timothy Pickle, Zhenzhen Yu, Colorado School of Mines, Golden, CO, USA; Kok-Theng Kho, Shell Global Solutions Inc.-Shell MDS Sdn Bhd, Bintulu, Malaysia; Jorge Penso, Shell Global Solutions (US) Inc., Houston, TX, USA

PVP2024-123088: EVALUATION OF MECHANICAL AND CORROSION PROPERTIES OF STAINLESS-STEEL WELDMENT USING GMAW MODIFIED WAVEFORM SHORT CIRCUIT WELDING PROCESS WITHOUT BACKING GAS

Dishoo Randhawa, Fluor, Calgary, AB, Canada; Jorge Penso, Shell Projects and Technology, Houston, TX, USA; Shahab Soltaninia, Fluor, Aliso Viejo, CA, USA; Sivakumar Chiluvuri, LNG Canada, Kitimat, BC, Canada

PVP2024-123342: HYDROGEN PERMEATION BEHAVIOR AND ITS IMPLICATIONS ON MECHANICAL PROPERTIES OF THE LINER OF TYPE IV HYDROGEN STORAGE CYLINDERS UNDER TYPICAL SERVICE CONDITIONS

Zhipeng Qi, Hao Shi, Zhengli Hua, Miaomiao Yang, Wenzhu Peng, Zhejiang University, Hangzhou, China

SESSION 2.1L (FSI-02-01)

Tuesday, July 30, 8:15 am – 10:00 am, Regency Ballroom G (2nd Floor)

Symposium on Flow-Induced Vibration—Sponsored by the Fluid-Structure Interaction Technical Committee

THE DAVID S. WEAVER MEMORIAL SESSION ON FLOW INDUCED VIBRATION: TUBE ARRAYS

Developed by: Marwan Hassan, University of Guelph, Guelph, ON, Canada; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada
Chair: Marwan Hassan, University of Guelph, Guelph, ON, Canada
Co-Chair: Atef Mohany, Ontario Tech University, Oshawa, ON, Canada

PVP2024-122923: THE IMPACT OF TUBE ARRAY COMPACTNESS ON THE GENERATION OF ACOUSTIC RESONANCE

Rasha Noufal, Hossam Kishawy, Atef Mohany, Ontario Tech University, Oshawa, ON, Canada

PVP2024-125307: GEOMETRICAL EFFECT OF NORMAL SQUARE ARRAY ON PREDICTION OF FLUIDELASTIC INSTABILITY– SINGLE PHASE AIR FLOW

Amro Elhelaly, Marwan Hassan, University of Guelph, Guelph, ON, Canada

PVP2024-123360: A MODEL FOR FLUIDELASTIC INSTABILITY OF TUBE ARRAYS SUBJECTED TO TWO-PHASE FLOW

Hossein Farani Sani, Marwan Hassan, University of Guelph, Guelph, ON, Canada; Joaquin Moran, Sheridan College, Oakville, ON, Canada

PVP2024-123006: EFFECT OF TEMPERATURE ON FRETTING WEAR AND CORROSION OF 316L STAINLESS STEEL IN THE LIQUID LEAD-BISMUTH EUTECTIC(LBE)

Hui Chen, Shengzan Zhan, Wei Tan, Guorui Zhu, Tianjin University, Tianjin, China

SESSION 2.1M (MF-24-01)

Tuesday, July 30, 8:15 am – 10:00 am, Cedar Ballroom B (2nd Floor)

MATLS & FABRICATION FOR REFINING-TOUGHNESS ISSUES IN ALLOYS AT ELEVATED TEMPERATURES

Developed by: **Richard Colwell, Bechtel, Houston, TX, USA; Jorge Penso, Mitul Dalal, Shell Projects and Technology, Houston, TX, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France**
Chair: **Richard Colwell, Bechtel, Houston, TX, USA**
Co-Chair: **Mitul Dalal, Shell Projects and Technology, Houston, TX, USA**

PVP2024-121725: FRACTURE TOUGHNESS OF COLD FORMED HEAVY WALL PLATES IN 2 1/4 CR 1 MO 1/4 V

Marco Palombo, Istituto Italiano Saldatura, Genova, Italy; Giorgia Doni, Fausto Fusari, Belleli Energy CPE, Mantova, Italy; Stefano Sandon, IIS Service srl, Genova, Italy

PVP2024-122452: AGING EMBRITTLEMENT OF 1¼CR–½MO–SI AND 1CR–½MO STEELS

Mikihiro Sakata, JGC Corporation, Yokohama, Japan; Charles Le Nevé, TotalEnergies, Harfleur, France

PVP2024-123135: NEW EXPERTISE ON HIGH-TEMPERATURE HYDROGEN ATTACK DEGRADED SAMPLES BY TOTALENERGIES AND THE FRENCH ATOMIC ENERGY AND ALTERNATIVE ENERGY COMMISSION

Charles Le Neve, Raphael Goti, TotalEnergies, Harfleur, France; Eric Andrieu, INP-ENSIACET, Toulouse, France; Olivier Gillia, Camille Flament, Nicolas Chevreux, The French Atomic Energy and Alternative Energy Commission, Grenoble, France

PVP2024-122714: DE-EMBRITTLEMENT OF 1¼CR-½MO STEELS

Kazuki Suda, Mikihiro Sakata, JGC Corporation, Yokohama, Japan

SESSION 2.1N (CT-01-01)

Tuesday, July 30, 8:15 am – 10:00 am, Larch (3rd Floor)

Symposium on Bolted Joints—Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees

DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS-1

Developed by: Toshiyuki Sawa, Hiroshima University, Koto-city, Japan; Manfred Schaaf, AMTEC, Lauffen, Germany; Stefano Fini, University of Bologna, Bologna, Italy; Abdelgader Abdelgalil, SABIC, Jubail, Saudi Arabia

Chair: Bhaskar Shitole, Wood, Calgary, AB, Canada

Co-Chair: Hubert Lejeune, CETIM, Nantes, France

PVP2024-120836: A COMPARATIVE STUDY BETWEEN ASME B16.5 AND EN1092-1 STANDARD FLANGES

Hakim Bouzid, Ecole Supérieure de Technologie, Montreal, QC, Canada; Sofiane Bouzid, WSP Global Inc., Montreal, QC, Canada

PVP2024-122806: EXPANDED PTFE GASKET MATERIAL PERFORMANCE VARIATION WITH THICKNESS

Anita Bausman, VSP Technologies, Kingsport, TN, USA; Jeffery Wilson, VSP Technologies, Prince George, VA, USA

PVP2024-124123: A SIMPLE METHOD FOR CALCUALTING ACCURATE GASKET STRESSES FOR OCTAGONAL RING JOINTS

David Clover, LGG Industrial, Valleyford, WA, USA

PVP2024-123349: ASME B16.20 COMPRESSION VALIDATION FOR LARGE SPIRAL WOUND GASKETS

Tommie Bao, C. Von Hugo, Lamons, Houston, TX, USA

SESSION 2.1O (TW-3-1)

Tuesday, July 30, 8:15 am – 10:00 am, Auditorium (3rd Floor)

TECHNICAL TUTORIAL-ARTIFICIAL INTELLIGENCE IN ENGINEERING-PART 1

Developed by: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain

Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain

Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt

Presented by: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain; Nawal Prinja, Jacobs Clean Energy Limited, Knutsford, United Kingdom; Tim Dodwell, Anhad Sandhu, digiLab, Exeter, United Kingdom

SESSION 2.1P (TE-02-01)

Tuesday, July 30, 8:15 am – 10:00 am, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 5

Block 2.2: Tuesday, July 30, 2024 (10:15 am – 12:00 pm)

SESSION 2.2A (CS-02-01)

Tuesday, July 30, 10:15 am – 12:00 pm, Evergreen Ballroom G (Lobby Level)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

HYDROGEN EFFECTS ON MATERIAL BEHAVIOR FOR STRUCTURAL INTEGRITY ASSESSMENT-ASSESSMENT OF PIPELINES

Developed by: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France; David Cho, Bruce Power, Toronto, ON, Canada; Jinyang Zheng, Zhejiang University, Hangzhou, China; Michael Martin, Rolls-Royce, Portsmouth, United Kingdom

Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

Co-Chair: Shane Finneran, DNV, Columbus, OH, USA

PVP2024-122689: FEASIBILITY JOURNEY – FITNESS FOR SERVICE ASSESSMENT OF PIPELINE MATERIALS IN REPURPOSING EXISTING NATURAL GAS PIPELINES TO TRANSPORT HYDROGEN – NATURAL GAS BLENDS

Saba Esmaeely, Thomas Joseph Prewitt, Shane Finneran, DNV, Columbus, OH, USA

PVP2024-125226: UTILIZING PROBABILISTIC ANALYSES TO EXPLORE PERFORMANCE MARGINS OF NATURAL GAS INFRASTRUCTURE FOR THE TRANSPORT AND DELIVERY OF HYDROGEN AND HYDROGEN BLENDS

Benjamin Schroeder, Michael Devin, Sandia National Laboratories, Albuquerque, NM, USA; Chris San Marchi, Joseph Ronevich, Sandia National Laboratories, Livermore, CA, USA; Joshua Duell, Williams, Tulsa, OK, USA; Steve Potts, Williams, Salt Lake City, UT, USA

PVP2024-123446: LEARNING FROM THE PAST TO SHAPE THE FUTURE: NATURAL GAS TO HYDROGEN (Presentation Only)

Timothy Harris, Entrust Solutions Group, Dallas, GA, USA; Jo Ellen Scott, Entrust Solutions Group, Houston, TX, USA

PVP2024-123584: HYDROGEN-ASSISTED FATIGUE IN PIPELINE STEELS: MODELING AND RISK ASSESSMENT (Presentation Only)

Kaushik Kethamukkala, Yongming Liu, Arizona State University, Tempe, AZ, USA

SESSION 2.2B (DA-21-01)

Tuesday, July 30, 10:15 am – 12:00 pm, Evergreen Ballroom H (Lobby Level)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

DESIGN AND ANALYSIS OF HYDROGEN PRESSURE EQUIPMENT

Developed by: Warren Brown, Integrity Engineering Solutions, Dunsborough, Australia; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Bhaskar Shitole, Wood, Calgary, AB, Canada; Forrest Gu, Becht, Calgary, AB, USA; Forrest Gu, Becht, Calgary, AB, USA; TJ Prewitt, DNV, Columbus, OH, USA

Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada

Co-Chair: Forrest Gu, Becht, Calgary, AB, USA

PVP2024-123478: HYDROGEN STORAGE PIPELINE LIFECYCLE ASSESSMENT

Thomas Prewitt, DNV, Columbus, OH, USA; Saba Esmaeely, DNV, Dublin, OH, USA

PVP2024-123074: EFFECT OF WINDING TENSION ON THE MECHANICAL PROPERTIES OF TYPE IV HIGH-PRESSURE HYDROGEN STORAGE VESSEL

Yunxiao Zhang, Zhichao Fan, Xuedong Chen, Hefei General Machinery Research Institute, Hefei, China

PVP2024-123121: PREDICTION OF BURST PRESSURE FOR TYPE IV HIGH-PRESSURE HYDROGEN STORAGE VESSEL BASED ON ADAPTIVE MESHING METHOD

Fanding Li, University of Science and Technology of China, Hefei, China; Xuedong Chen, Zhichao Fan, Peng Xu, Jiahui Tao, Zhe Wang, Hefei General Machinery Research Institute Co., Ltd., Hefei, China

PVP2024-123179: OPTIMIZATION ON CARBON EMISSION REDUCTION OF NON-METALLIC COMPOSITE PIPELINE FOR TRANSPORTATION OF HYDROGEN ▼

Jianfeng Shi, Ruoxi Xia, Jinyang Zheng, Zhongzhen Wang, Xinyu Zheng, Riwu Yao, Zhejiang University, Hangzhou, China

SESSION 2.2C (CS-16-01)

Tuesday, July 30, 10:15 am – 12:00 pm, Evergreen Ballroom I (Lobby Level)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

FATIGUE AND RATCHETING ISSUES IN PRESSURE VESSEL AND PIPING DESIGN

Developed by: Steven Xu, Reza Adibi-Asl, Kinectrics, Inc., Toronto, ON, Canada
Chair: Don Metzger, AtkinsRealis, Mississauga, ON, Canada
Co-Chair: Adrian Baniak, AtkinsRealis, Mississauga, ON, Canada

PVP2024-121778: INVESTIGATION OF THE VERY HIGH CYCLE FATIGUE (VHCF) BEHAVIOR OF AISI 347 AND 304 AUSTENITIC STAINLESS STEELS INCLUDING THEIR WELDS FOR REACTOR INTERNALS AT AMBIENT AND OPERATING TEMPERATURE

Juergen Rudolph, Udo Fischer, Michael Grimm, Framatome GmbH, Erlangen, Germany; Georg Veile, Stefan Weihe, Materialprüfungsanstalt Universität Stuttgart (MPA), Stuttgart, Germany; Elen Regitz, Marek Smaga, Tilman Beck, Rheinland-Pfälzische Technische Universität Kaiserslautern Landau (RPTU), Kaiserslautern, Germany

PVP2024-122943: ASME CC N900 REVISION DISCUSSION（NO1）EFFECT OF TRIAXIALITY FACTOR ON ALLOWABLE TRUE STRAIN AMPLITUDE

Kenichi Shibukuwa, Masahiro Takanashi, IHI Corporation, Yokohama, Japan; Jie Wen, Jensenhurghes, Independence, OH, USA; Kenji Funasaki, Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan

PVP2024-122947: ASME CC N900 REVISION DISCUSSION（NO.2） REVISIT OF FABRICATION STRAIN LIMITATION OF PIPE FITTINGS

Kenichi Shibukuwa, Masahiro Takanashi, IHI Corporation, Yokohama, Japan; Jie Wen, Jensenhughes, Independence, OH, USA; Kenji Funasaki, Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan

PVP2024-123541: INVESTIGATION INTO THE EFFECTS OF CLADDING IN THERMAL FATIGUE EVALUATIONS OF NUCLEAR PRESSURE VESSELS AND COMPONENTS

Ben Pellereau, Rolls-Royce plc, Loughborough, United Kingdom; Meyrick Hockly, Rolls-Royce SMR, Derby, United Kingdom; Wolf Reinhardt, Candu Energy Ltd, Mississauga, ON, Canada

SESSION 2.2D (SE-04-01)

Tuesday, July 30, 10:15 am – 12:00 pm, Cottonwood (3rd Floor)

MACHINE LEARNING FOR SEISMIC ANALYSIS OF INDUSTRIAL FACILITIES

Developed by: Oreste Bursi, University of Trento, Trento, Italy; Fabrizio Paolacci, Gianluca Quinci, Roma Tre University, Rome, Italy
Chair: Gianluca Quinci, Roma Tre University, Rome, Italy
Co-Chair: Fabrizio Paolacci, Roma Tre University, Rome, Italy

PVP2024-122434: STRUCTURAL HEALTH MONITORING USING TIME-AUGMENTED RESPONSE SPECTRUM AND DEEP LEARNING

Takaki Aeba, Tsuyoshi Fukasawa, Tokyo Denki University, Adachi-ku, Japan

PVP2024-123237: STATE-DEPENDENT SEISMIC FRAGILITY FUNCTIONS FOR BOLTED-FLANGE JOINTS ON SPECIAL-RISK INDUSTRIAL SUBSTRUCTURES

Chiara Nardin, Oreste Salvatore Bursi, Marco Broccardo, University of Trento, Trento, Italy; Stefano Marelli, ETH Zürich, Zurich, Switzerland

PVP2024-123479: SEISMIC RISK ASSESSMENT OF NON-STRUCTURAL COMPONENTS IN HAZARDOUS FACILITIES THROUGH A NOVEL ANN-BASED TECHNIQUE

Gianluca Quinci, Fabrizio Paolacci, University of Roma Tre, Rome, Italy; Michalis Fragiadakis, National Technical University of Athens, Zografou, Greece

SESSION 2.2E (CS-19-01)

Tuesday, July 30, 10:15 am – 12:00 pm, Cedar Ballroom A (2nd Floor)

Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees

SMALL SCALE MECHANICAL TESTING

Developed by: Mark Kirk, Phoenix Engineering Associates Inc., Yokosuka, Japan; Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan; William Server, ATI Consulting, Black Mountain, NC, USA; Noel O'Dowd, University of Limerick, Limerick, Ireland; Petra Klatovská, UJV REZ, Prague, Czech Republic; Marek Adamech, David Slnek, VJUE, Trnava, Slovakia
Chair: Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan
Co-Chair: William Server, ATI Consulting, Black Mountain, NC, USA

PVP2024-123048: TENSILE TESTING FOR DETERMINATION OF MECHANICAL PROPERTIES OF RECYCLED PET-G PLASTICS

Avianna Alvarez, Qin Ma, Janice Mckenzie, Walla Walla University, College Place, WA, USA

PVP2024-123330: IMPROVED ANALYSIS OF MINIATURE IMPACT TOUGHNESS TESTS

Pentti Arffman, VTT Technical Research Centre of Finland, Helsinki, Finland

PVP2024-122615: FRACTURE TOUGHNESS TESTS ON WESTERN RPV STEELS USING SMALL SCALE SPECIMEN TECHNIQUE – EVALUATION OF RESULTS

Florian Obermeier, Hieronymus Hein, Johannes May, Framatome GmbH, Erlangen, Germany; Eberhard Altstadt, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; Aniruddh Das, Technische Universität Dresden, Dresden, Germany

SESSION 2.2G (MF-05-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Regency Ballroom A (2nd Floor)

Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

FITNESS-FOR-SERVICE AND FAILURE ASSESSMENT-2

Developed by: Marvin Cohn, Intertek Engineering Consulting, Santa Clara, CA, USA; Qin Ma, Walla Walla University, College Place, WA, USA; Bruce Wiersma, Savannah River National Laboratory, Aiken, SC, USA; Carl Jaske, HSI Group, Inc., Columbus, OH, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom
Chair: Qin Ma, Walla Walla University, College Place, WA, USA
Co-Chair: Marvin Cohn, Intertek Engineering Consulting, Santa Clara, CA, USA

PVP2024-123421: LOAD CARRYING CAPACITIES OF SMALL-DIAMETER PIPE BENDS UNDER INTERNAL PRESSURE: ANALYTICAL AND COMPUTATIONAL PREDICTIONS

Nick Robinson, Xin Wang, Carleton University, Ottawa, ON, Canada; Bogdan Wasiluk, Canadian Nuclear Safety Commission, Ottawa, ON, Canada

PVP2024-124319: REMAINING USEFUL CREEP LIFE EVALUATIONS OF THREE MAIN STEAM PIPING SYSTEMS WITH GIRTH WELD CRACKS

Marvin Cohn, Intertek, Santa Clara, CA, USA

PVP2024-124960: USING COMPUTATIONAL FRACTURE MECHANICS WITH THE API 579-1/ASME FFS-1 ANNEX 9H PROCEDURE

Daniel Blanks, Quest Integrity, Varsity Lakes, Australia

PVP2024-125166: STATISTICAL ANALYSIS OF MULTIPLE ENCODED ULTRASONIC TESTING DATA SETS

Eric Houston, Industrial Inspection & Analysis, San Antonio, TX, USA; Stephen Parker, Dominion Engineering, Inc., Reston, VA, USA; Doug Keene, Industrial Inspection & Analysis, Irving, TX, USA

SESSION 2.2H (OAC-06-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Regency Ballroom B (2nd Floor)

CONTINUED SAFE OPERATION OF EXISTING ASSETS-2

Developed by: Ayman Cheta, Shell Global Solutions US, Inc., Houston, TX, USA; Takuyo Kaida, Sumitomo Chemical, Tokyo, Japan; Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan; Junya Takahashi, Sumitomo Chemical, Niihama City, Japan
Chair: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA
Co-Chair: Ayman Cheta, Shell Global Solutions US, Inc., Houston, TX, USA

PVP2024-123081: ASSESSING A HYDROPROCESSING REACTOR AFTER A HIGH TEMPERATURE EXCURSION

Kevin Batts, Shell - Geismar Plant, Geismar, LA, USA; Jorge Penso, Shell Projects and Technology, Houston, TX, USA; Jorge Hau, Mitul Dalal, Shell Global Solutions (US) Inc., Houston, TX, USA

PVP2024-123385: RECENT DYNAMIC EVENTS IN MODERN LARGE GT-CC PLANTS – CASE STUDIES, FINDINGS & CORRECTIVE ACTIONS
Anita Johny, Barrie Mollitor, Peter Jackson, Tetra Engineering, Weatogue, CT, USA
PVP2024-123580: CRITICAL STRAIN IN CARBON STEEL PIPES WITH LOCAL WALL THINNING SUBJECTED TO LARGE BENDING IN SOIL LIQUEFACTION-INDUCED LATERAL SPREADING
Tomoka Homma, Shoma Onuki, Masaki Mitsuya, Tokyo Gas Co., Ltd., Yokohama, Japan; Yasuhito Imai, Tokyo Gas Network Co., Ltd., Minato-ku, Japan
PVP2024-125425: PARAMETRIC EVALUATION OF FILLET WELDED PATCHES WITH REINFORCING PLUG WELDS FOR PRESSURE VESSELS USING FINITE ELEMENT ANALYSIS
Ahmed Alian, Ahmed Moussa, Luat Nguyen, Sadath Malik, Next Structural Integrity Inc, Burlington, ON, Canada

SESSION 2.2I (DA-04-01)

Tuesday, July 30, 10:15 am – 12:00 pm, Regency Ballroom C (2nd Floor)
INELASTIC, NONLINEAR, AND LIMIT LOAD ANALYSIS
Developed by: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Roy Darby, Chevron, Houston, TX, USA; Andrew Owens, TerraPower, Round Rock, TX, USA
Chair: Roy Darby, Chevron, Houston, TX, USA
Co-Chair: Qi Li, T.D. Williamson, Houston, TX, USA
PVP2024-122912: AUXETIC DOMES UNDER EXTERNAL PRESSURE
Jan Blachut, University of Liverpool, Liverpool, United Kingdom; Sala Dariusz, AGH - University of Science and Technology; Faculty of Management, Krakow, Poland
PVP2024-129762: AN EFFICIENT PREDICTION METHOD FOR CRITICAL BUCKLING COMPRESSION AXIAL LOAD OF CORRODED PIPELINES
Yuran Fan, Tieyao Zhang, Yi Shuai, Jian Shuai, China University of Petroleum, Beijing, China; Lei Shi, Sinopec (Dalian) Research Institute of Petroleum and Petrochemicals Co., Ltd., Liaoning, China; Xingtao Li, China National Oil and Gas Exploration and Development Co., Beijing, China; Haipeng Liu, Sino-Pipeline International Company Limited, Beijing, China
PVP2024-123233: METHOD FOR SHAPE IMPERFECTION CONTROL IN BUCKLING OF ELLIPSOIDAL HEADS USING A 3D LASER SCANNER
Tao Shen, Keming Li, Jinyang Zheng, Zhejiang University, Hangzhou, China
PVP2024-122939: STRESS AND STRAIN ANALYSIS OF LEATHER BOWL WITH INTERNAL GROOVE OF PIG IN DENTED OIL AND GAS PIPELINE
Luming Wang, Shaohua Dong, Yong Li, Guanyi Liu, Hang Zhang, Cheng Tian, China University of Petroleum, Beijing, China

SESSION 2.2J (DA-01-04)

Tuesday, July 30, 10:15 am – 12:00 pm, Regency Ballroom E (2nd Floor)
DESIGN AND ANALYSIS OF PRESSURE VESSELS AND COMPONENTS-4
Developed by: Nathan Barkley, Becht, New Albany, MS, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Roy Darby, Jaan Taagepera, Chevron, Richmond, CA, USA; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Trevor Seipp, Becht, Calgary, AB, Canada
Chair: Nathan Barkley, Becht, New Albany, MS, USA
Co-Chair: Roy Darby, Chevron, Houston, TX, USA
PVP2024-122532: LARGE OPENINGS ON CYLINDRICAL SHELLS SUBJECT TO AXIAL COMPRESSION
James Lu, Barry Millet, Kenneth Kirkpatrick, Bryan Mosher, Jacob Hundl, Fluor Corporation, Sugar Land, TX, USA
PVP2024-121095: COMPARISON OF THREE DESIGN ASSESSMENT APPROACHES FOR A 2-LITER CONTAINMENT VESSEL OF A PLUTONIUM AIR TRANSPORT PACKAGE
John Bignell, Sandia National Laboratories, Arvada, CO, USA; Lindsay Gilkey, Gregg Flores, Douglas Ammerman, Michael Starr, Sandia National Laboratories, Albuquerque, NM, USA
PVP2024-121989: STRUCTURAL ANALYSIS OF A LIGHT WATER SMALL MODULAR REACTOR UNDER COOLANT RECIRCULATION CONDITIONS
Dong-Hyeon Choi, Yoon-Suk Chang, Kyung Hee University, Yongin-si, Republic of Korea

SESSION 2.2K (MF-20-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Regency Ballroom F (2nd Floor)
MATERIAL QUALITY AND FAILURE ANALYSIS-2
Developed by: Kang Xu, Linde, Tonawanda, NY, USA; Grzegorz Lesiuk, Wrocław University of Science and Technology, Wrocław, Poland; Jorge Penso, Shell Projects and Technology, Houston, TX, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France; Kevin Mandeville, DNV, Katy, TX, USA; Cathleen Shargay, Fluor, Irvine, CA, USA
Chair: Kevin Mandeville, DNV, Katy, TX, USA
Co-Chair: Kang Xu, Linde, Tonawanda, NY, USA
PVP2024-125453: ANALYSES, MITIGATIONS AND REFLECTIONS FROM HYDROGEN EMBRITTLEMENT FAILURE OF A DUPLEX STAINLESS STEEL REACTOR EFFLUENT AIR COOLER (REAC) IN HYDROCRACKER SERVICE
Allie Hosack, Oluwaseun Idowu, Jordan Barrass, Shell Canada Ltd, Fort Saskatchewan, AB, Canada; Jorge Penso, Wesley Pudwill, Mitul Dalal, Shell Global Solution (US) Inc., Houston, TX, USA
PVP2024-122574: FLANGE FACE DAMAGES AND ITS MANAGEMENT FOR PLANT CONSTRUCTION IN OIL AND GAS INDUSTRIES
Koichi Yamazaki, Atsushi Takahashi, Masahiro Kawai, Takahiro Tsuda, JGC Corporation, Yokohama, Japan
PVP2024-123551: MICROSTRUCTURAL EFFECT ON HYDROGEN EMBRITTLEMENT OF LINE PIPE STEEL AND ITS WELDMENT UNDER HIGH-PRESSURE HYDROGEN GAS (Presentation Only)
Kang-Mook Ryu, POSCO, Pohang-si, Republic of Korea
PVP2024-125505: METALLURGICAL AND FRACTURE TOUGHNESS VARIABILITY CHARACTERIZATION OF 2.25CR 1 MO PLATE STEEL FOR HYDROPROCESSING REACTORS
Andres Acuna, Ohio State University, Columbus, OH, USA; Teresa Melfi, Lincoln Electric, Cleveland, OH, USA; Bennik Wim, Shell Sarnia Manufacturing Center, Sarnia, ON, Canada; Jorge Penso, Shell Global Solutions (US) Inc, Houston, TX, USA

SESSION 2.2L (FSI-02-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Regency Ballroom G (2nd Floor)
Symposium on Flow-Induced Vibration—Sponsored by the Fluid-Structure Interaction Technical Committee
ACOUSTICS
Developed by: Marwan Hassan, University of Guelph, Guelph, ON, Canada; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada
Chair: Atef Mohany, Ontario Tech University, Oshawa, ON, Canada
Co-Chair: Marwan Hassan, University of Guelph, Guelph, ON, Canada
PVP2024-123184: INFLUENCE OF RESONANT ACOUSTIC MODE SHAPE ON SOURCE AND SINK PATTERNS IN THE WAKE OF A SINGLE CYLINDER
Mahmoud Shaaban, Nile University, Sheikh Zayed City, Egypt; Mostafa Rashed, Modern University for Technology and Information, El Mokattam, Egypt; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada
PVP2024-122654: BENCHMARKING SCREENING METHODS FOR ACOUSTICALLY INDUCED VIBRATION
Rob Swindell, Wood plc, Southampton, United Kingdom; Itsuro Hayashi, Chiyoda Corporation, Yokohama, Japan; Denis Karczub, Energy Institute, London, United Kingdom; J. Adin Mann, Wood plc, Houston, TX, USA; Nick Horder, Xodus Group, Edinburgh, United Kingdom
PVP2024-123531: PREDICTION METHOD FOR ACOUSTICALLY INDUCED VIBRATION OF PROCESS PIPING GENERATED BY A RESTRICTION ORIFICE
Itsuro Hayashi, Shun Maeda, Kazuya Yamaguchi, Hisao Izuchi, Chiyoda Corporation, Yokohama, Japan
PVP2024-122684: PREDICTING ACOUSTICALLY VIBRATION INDUCED RESONANCE FROM MODAL ANALYSIS
Raj Arjunan, KBR, Houston, TX, USA; Yaying Niu, KBR, Breinigsville, PA, USA; Arindam Ghosh, KBR, Cypress, TX, USA; Denis Karzcub, Energy Institute, London, United Kingdom

SESSION 2.2M (MF-24-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Cedar Ballroom B (2nd Floor)
MATLS & FABRICATION FOR REFINING-DESIGN & FABRICATION ISSUES AFFECTING DESIGN LIFE
Developed by: Richard Colwell, Bechtel, Houston, TX, USA; Jorge Penso, Mitul Dalal, Shell Projects and Technology, Houston, TX, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France; Kang Xu, Linde,

Tonawanda, NY, USA; Jan-Willem Rensman, Fluor Netherlands, Hoofddorp, Netherlands
Chair: Richard Colwell, Bechtel, Houston, TX, USA
Co-Chair: Deepak Mankar, Fluor Corporation, Houston, TX, USA

PVP2024-120785: CHARACTERIZATION OF DETACLAD™ INTERFACE WITH SIMULATED WELD OVERLAY REPAIR: A POSITIVE ASSESSMENT FOR COST AND TIME SAVINGS IN EQUIPMENT LIFECYCLE
Olivier Sarrat, Chris E. Wilson, NobelClad, Broomfield, CO, USA; Philipp Stolz, Sulzer Chemtech GmbH, Krefeld, Germany; Tim Delahanty, Nobelclad, Mt. Braddock, PA, USA

PVP2024-123239: ENABLING THE USE OF CARBON STEEL FOR CO2 TRANSPORT, PROCESSING, AND INTERMEDIATE STORAGE
Jan-Willem Rensman, Fluor BV, Hoofddorp, Netherlands; Alfons Krom, N.V. Nederlandse Gasunie, Groningen, Netherlands

PVP2024-122443: EVALUATION OF CORROSION RESISTANCE OF STAINLESS STEEL PIPING WITH FILLET WELD ON EXTERNAL SIDE IN COMPARISON TO BACK SHIELDING CONDITION
Atsushi Takahashi, Takahiro Tsuda, JGC Corporation, Yokohama, Japan

PVP2024-121075: HIGH STRENGTH ALLOYS SA537CL2 AND SA533TPC/ECL2 FOR PRESSURE VESSELS APPLICATIONS WITH SOUR SERVICE REQUIREMENTS (Presentation Only)
Sylvain Pillot, Industeel, Le Creusot, France; Ngomo Valéry, Industeel, Chateauneuf, France

SESSION 2.2N (CT-01-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Larch (3rd Floor)

Symposium on Bolted Joints—Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees
DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS-2
Developed by: Toshiyuki Sawa, Hiroshima University, Koto-city, Japan; Manfred Schaaf, AMTEC, Lauffen, Germany; Stefano Fini, University of Bologna, Bologna, Italy; Abdelgader Abdelgalil, SABIC, Jubail, Saudi Arabia; Carlos Girão, Teadit, Itatiba, Brazil; Jeffery Wilson, VSP Technologies, Prince George, VA, USA; Satoshi Nagata, Toyo Engineering Corporation, Narashino, Japan; Hakim A. Bouzid, Ecole Supérieure de Technologie, Montreal, QC, Canada; Hubert Lejeune, CETIM, Nantes, France
Chair: Stefano Fini, University of Bologna, Bologna, Italy
Co-Chair: Jeffery Wilson, VSP Technologies, Prince George, VA, USA

PVP2024-122810: EXPANDED PTFE GASKET MATERIAL PERFORMANCE VARIATION COMPARING SOLID TO JOINTED CONSTRUCTIONS
Anita Bausman, VSP Technologies, Kingsport, TN, USA; Jeffery Wilson, VSP Technologies, Prince George, VA, USA

PVP2024-124252: FLANGE DEFORMATIONS INDUCED BY RING JOINTS: AN FEA AND EXPERIMENTAL APPROACH
Leonardo De La Roca, Carlos D. Girão, Jose C. Veiga, TEADIT, Itatiba, Brazil

PVP2024-124331: INVESTIGATION AND MODELLING OF STATIC O-RING SEALING PERFORMANCE AFTER AGEING
Oscar Péta, Benoît Omnès, Hubert Lejeune, CETIM, Nantes, France; Vincent Le Saux, Yann Marco, ENSTA Bretagne, Brest, France

PVP2024-124104: EFFECT OF TEMPERATURE ON THE CREVICE CORROSION PROPAGATION ON FLANGE FACES
Soroosh Hakimian, Hakim A. Bouzid, Lucas A. Hof, École de technologie supérieure, Montreal, QC, Canada

SESSION 2.2O (TW-3-2)

Tuesday, July 30, 10:15 am – 12:00 pm, Auditorium (3rd Floor)

TECHNICAL TUTORIAL-ARTIFICIAL INTELLIGENCE IN ENGINEERING-PART 2
Developed by: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain
Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain
Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presented by: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain; Nawal Prinja, Jacobs Clean Energy Limited, Knutsford, United Kingdom; Tim Dodwell, Anhad Sandhu, digiLab, Exeter, United Kingdom

SESSION 2.2S (TE-02-02)

Tuesday, July 30, 10:15 am – 12:00 pm, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 6

Block 2.3: Tuesday, July 30, 2024 (2:15 pm – 4:00 pm)

SESSION 2.3A (MF-02-06)

Tuesday, July 30, 2:15 pm – 4:00 pm, Evergreen Ballroom G (Lobby Level)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
MATERIALS FOR HYDROGEN SERVICE-TEST METHODS 1
Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Junichiro Yamabe, Fukuoka University, Fukuoka, Japan
Co-Chair: Matthew Connolly, National Institute of Standards and Technology (NIST), Boulder, CO, USA

PVP2024-122079: STUDY OF CRACK INITIATION AND FRACTURE TOUGHNESS EVALUATION ON JIC TESTING OF LINEPIPE STEEL IN GASEOUS HYDROGEN ENVIRONMENT
Yoshihiro Nishihara, Hiroshi Okano, JFE Steel Corporation, Kawasaki, Japan; Ryuichi Inoue, Takahiro Sakimoto, JFE Steel Corporation, Chiba, Japan

PVP2024-123160: EFFECT OF TEST METHOD AND TEST CONDITION ON FRACTURE TOUGHNESS OF CR-MO STEELS UNDER HIGH-PRESSURE HYDROGEN GAS (Presentation Only)
Jaeyeong Park, Kyung-Oh Bae, Seung Hoon Nahm, Un Bong Baek, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

PVP2024-122165: EFFECT OF THE LOADING RATE ON FRACTURE TOUGHNESS OF AN ULTRA-HIGH STRENGTH STEEL SHEET IN HIGH-PRESSURE HYDROGEN ENVIRONMENT (Presentation Only)
Yuya Tanaka, Naoki Hirakawa, Hisao Matsunaga, Kyushu University, Fukuoka, Japan; Akinobu Shibata, Research Center for Structural Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan

PVP2024-122190: PERFORMANCE OF REGULATOR VALVE STEELS IN HYDROGEN AND HYDROGEN/NATURAL GAS BLENDS (Presentation Only)
Zhili Feng, Oak Ridge National Laboratory, Knoxville, TN, USA; Yong Chae Lim, Yanli Wang, Yiyu Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Steven Kung, EPRI, Charlotte, NC, USA

SESSION 2.3B (CS-15-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Evergreen Ballroom H (Lobby Level)

Symposium on Mechanical Properties of Nuclear Materials—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees
MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF)-1
Developed by: Ting-Leung (Sam) Sham, Joe Bass, US Nuclear Regulatory Commission, Rockville, MD, USA; David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada
Chair: David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA
Co-Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-123401: STRUCTURAL INTEGRITY ASSESSMENTS OF NUCLEAR GRAPHITE: FEATURE STRENGTH (Presentation Only)
Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom; Richard Gray, Daniel Kent, Mark Joyce, Frazer-Nash Consultancy, Warrington, United Kingdom

PVP2024-121465: A FATIGUE EVALUATION APPROACH FOR GRAPHITE CORE COMPONENTS USING A REDUCED DATA SET
Jaime Cano, Jasmine Wang, X-Energy, Rockville, MD, USA

PVP2024-125257: ASME BPVC TREATMENT OF DISPARATE FLAWS IN GRAPHITE

Michael Saitta, MPR Associates, Inc., Alexandria, VA, USA

PVP2024-123395: RELIABILITY-BASED DESIGN: SEMI-PROBABILISTIC APPROACHES IN STRUCTURAL RELIABILITY USED TO QUALIFY NUCLEAR GRAPHITE COMPONENTS USING ASME BPVC METHODS

Andrea Mack, William Hoffman, Idaho National Laboratory, Idaho Falls, ID, USA

SESSION 2.3C (CS-17-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Evergreen Ballroom I (Lobby Level)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

ENVIRONMENTAL FATIGUE ISSUES (JOINT WITH M&F)-1

Developed by: Seiji Asada, Mitsubishi Heavy Industries Ltd., Kobe, Japan; Thomas Damiani, EPRI, Palo Alto, CA, USA; Shunji Kataoka, JGC Corporation, Yokohama, Japan; Andrew Owens, TerraPower, Round Rock, TX, USA; Kevin Mandeville, Jr, DNV, Katy, TX, USA

Chair: Seiji Asada, Mitsubishi Heavy Industries Ltd., Kobe, Japan

Co-Chair: Thomas Damiani, EPRI, Palo Alto, CA, USA

PVP2024-122459: THIRD-GENERATION TEST FACILITY FOR STRAIN-CONTROLLED EAF

Tommi Seppänen, Esko Arilahti, Jouni Alhainen, Juho Juvalainen, Pekka Moilanen, Jussi Solin, VTT Technical Research Centre of Finland Ltd, Espoo, Finland

PVP2024-123082: ENVIRONMENTAL EFFECT ON FATIGUE LIFE OF STAINLESS STEEL FOR SUPERIMPOSED WAVEFORM SIMULATING HIGH-CYCLE THERMAL FATIGUE

Masayuki Kamaya, Institute of Nuclear Safety System, Inc., Fukui, Japan

PVP2024-123298: LOW CYCLE FATIGUE OF ALLOY 690 IN THE PWR ENVIRONMENT

Kushal Gowda Jayaram, Joseph Huret, Jonathan Quibel, Walter-John Chitty, Institute for Radiation Protection and Nuclear Safety (IRSN), Saint-Paul-lez-Durance, France; Gilbert Henaff, Institut Pprime, Futuroscope-Chasseneuil, France

PVP2024-125533: EAF COMPONENT TEST BENCHMARKING AND NDE QUALIFICATION (Presentation Only)

Thomas Damiani, EPRI, Palo Alto, CA, USA; Ronald Kalnas, Fluor Marine Propulsion, LLC, West Mifflin, PA, USA; Andrew Morley, Rolls-Royce Submarines Limited, Derby, United Kingdom; Sam Cuvillez, EDF – DIPNN – Direction Technique, Lyon, France

SESSION 2.3D (SE-06-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Cottonwood (3rd Floor)

THE T.H. LIU MEMORIAL SYMPOSIUM ON THE SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEMS-1

Developed by: Izumi Nakamura, Tokyo City University, Setagata, Japan; Xu Chen, Tianjin University, Tianjin, China

Chair: Izumi Nakamura, Tokyo City University, Setagata, Japan

Co-Chair: Satoru Kai, IHI Corporation, Yokohama, Japan

PVP2024-121443: DESIGN APPLICATION METHOD OF FLOOR RESPONSE SPECTRUM METHOD ASSISTED BY TIME HISTORY ANALYSIS FOR MULTIPLY SUPPORTED PIPING SYSTEM

Ayaka Yoshida, Yoshihiro Takayama, Toshiyuki Tsushima, Hiroaki Hioki, Hiromichi Shudo, Mitsubishi Heavy Industries, Ltd., Kobe, Japan

PVP2024-122980: LABORATORY TESTING OF BURIED PIPELINES SUBJECTED TO GROUND DISPLACEMENT DUE TO SEISMIC MOTION

Che-Yu Chang, Hsuan-Chih Yang, Wei-Kuang Chang, National Center for Research on Earthquake Engineering, Taipei, Taiwan

PVP2024-123571: EFFECT OF FRICTION AND GAPS ON ELASTIC-PLASTIC PIPING SUPPORTS

Wataru Kobayashi, Akihito Otani, Satoru Kai, IHI Corporation, Yokohama, Japan

PVP2024-122090: FUNDAMENTAL STUDY ON PASSIVE SAFETY CHARACTERISTICS OF PIPING SYSTEM AGAINST EXCESSIVE EARTHQUAKE

Riku Horinouchi, The University of Tokyo, Kitaku, Japan; Yotaro Yamamoto, Naoto Kasahara, The University of Tokyo, Bunkyoku, Japan

SESSION 2.3E (CS-19-02)

Tuesday, July 30, 2:15 pm – 4:00 pm, Cedar Ballroom A (2nd Floor)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

EUROPEAN PROJECTS FOR SMALL SCALE TESTING-1

Developed by: Mark Kirk, Phoenix Engineering Associates Inc., Yokosuka, Japan; Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan; William Server, ATI Consulting, Black Mountain, NC, USA

Chair: Sergio Cicero, University of Cantabria, Santander, Spain

Co-Chair: Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan

PVP2024-122258: PRESENT STATUS OF THE FRACTESUS PROJECT: NUMERICAL AND EXPERIMENTAL ROUND ROBINS ON IRRADIATED AND UNIRRADIATED MATERIALS

Giovanni Bonny, Inge Uytdenhouwen, SCK CEN, Mol, Belgium; Eberhard Altstadt, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, Germany; Pentti Arffman, VTT, Espoo, Finland; Sergio Cicero, University of Cantabria, Santander, Spain; Florian Obermeier, Framatome GmbH, Erlangen, Germany; Tom Petit, Pierrick François, Benoît Tanguy, Université Paris-Saclay, CEA, Gif-sur-Yvette, France; Helen Swan, Hannah Wilcox, National Nuclear Laboratory Limited-NNL, Abingdon, United Kingdom

PVP2024-122646: FRACTESUS PROJECT: FRACTURE TOUGHNESS ROUND ROBIN ON A HIGH COPPER WELD USING MINIATURE C(T) SPECIMENS – RESULTS AND DISCUSSION

Florian Obermeier, Framatome GmbH, Erlangen, Germany; Inge Uytdenhouwen, Giovanni Bonny, SCK CEN, Mol, Belgium; Eberhard Altstadt, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; Sergio Cicero, Marcos Sánchez, University of Cantabria, Santander, Spain; John Echols, United Kingdom Atomic Energy Authority, Abingdon, United Kingdom

PVP2024-122781: VALIDITY OF TOUGHNESS MEASUREMENTS FROM MINIATURE SPECIMENS FAILING IN DIFFERENT FRACTURE MODES

Susan Ortner, National Nuclear Laboratory, Abingdon, United Kingdom; Marcos Sanchez, Sergio Cicero, University of Cantabria, Santander, Spain; John Echols, UKAEA, Abingdon, United Kingdom; Paul Chekhonin, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

PVP2024-121961: SIMULATION OF CRACK GROWTH IN MINI-C(T) FRACTURE TESTS IN THE DUCTILE-TO-BRITTLE TRANSITION USING A COHESIVE ZONE MODEL: APPLICATION TO REACTOR PRESSURE VESSEL STEELS

Audrey Somera, Frédéric Péralès, Saint-Paul-lez-Durance, France; Pierre-Guy Vincent, Institute for Radiation Protection and Nuclear Safety (IRSN), Saint-Paul-lez-Durance, France

SESSION 2.3F (CS-21-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Laurel (3rd Floor)

CONSTRAINT EFFECTS ON C&S

Developed by: Kiminobu Hojo, Mitsubishi Heavy Industries Ltd., Kobe, Japan; Stéphane Marie, Framatome, Courbevoie, France; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

Chair: Kiminobu Hojo, Mitsubishi Heavy Industries, Kobe, Japan

Co-Chair: Olivier Ancelet, Framatome, Courbevoie, France

PVP2024-123136: BIAXIAL CONSTRAINT EFFECT ON FRACTURE TOUGHNESS EVALUATION OF REACTOR PRESSURE VESSEL UNDER PRESSURIZED THERMAL SHOCK EVENTS

Masaki Shimodaira, Yoshihito Yamaguchi, Keiko Iwata, Jinya Katsuyama, Yasuhiro Chimi, Japan Atomic Energy Agency, Naka-gun, Japan

PVP2024-123672: CONSIDERATION OF CONSTRAINT EFFECT IN FRACTURE MECHANICS ASSESSMENT FOR A VESSEL LOW ALLOY STEEL

Jules Louerat, Framatome, Arcueil, France; Olivier Ancelet, Stephane Marie, Framatome, Courbevoie, France; Stephane Chapuliot, Anna Dahl, EDF, Ecuelles, France

PVP2024-123456: FRACTURE MECHANICS ASSESSMENT OF THE STEAM-GENERATOR TUBE-SHEET PLATE THROUGH A MODIFIED GLOBAL APPROACH TO CONSIDER THE GEOMETRICAL EFFECT ON FRACTURE

Olivier Ancelet, Stéphane Marie, Framatome, Courbevoie, France; Stéphane Chapuliot, Aurore Parrot, EDF, Moret sur Loing, France

PVP2024-123140: PLASTIC CONSTRAINT CORRECTION FACTOR X FOR WES STANDARD ON BRITTLE FRACTURE IN DUCTILE-BRITTLE TRANSITION TEMPERATURE REGION

Kiminobu Hojo, Takatoshi Hirota, Yasuto Nagoshi, Mitsubishi Heavy Industries, Kobe, Japan; Takuya Fukahori, Mitsubishi Heavy Industries, Nagasaki, Japan; Kazuma Shimizu, Mitsuru Ohata, Osaka University, Suita, Japan; Masaki Shimodaira, Japan Atomic Enegy Agency, Nakagun, Japan; Takuya Ogawa, Toshiba Energy Sysems, Yokohama, Japan; Kenji Yasirodai, Hitachi, Ltd., Tokyo, Japan; Fumiyoshi Minami, Osaka University, Izumisano, Japan

SESSION 2.3G (DA-08-02)

Tuesday, July 30, 2:15 pm – 4:00 pm, Regency Ballroom A (2nd Floor)

Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

VIBRATION OF SMALL-BORE PIPING CONNECTIONS

Developed by: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Bhaskar Shitole, Wood, Calgary, AB, Canada; Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia; Ali Ok, Air Products, Allentown, PA, USA; Pieter Van Beek, TNO, The Hague, Netherlands; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Chair: Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia

Co-Chair: Pieter Van Beek, TNO, The Hague, Netherlands

PVP2024-123554: FITNESS-FOR-SERVICE OF IN-SERVICE THERMOWELLS VIA EXPERIMENTAL DAMPING TESTS

Michael Bifano, The Equity Engineering Group, Inc., Novelty, OH, USA; Thomas Calko, The Equity Engineering Group, Inc., Shaker Heights, OH, USA

PVP2024-122699: PARAMETRIC STUDY ON THE VIBRATION OF SMALL-BORE PIPING BRANCH CONNECTIONS-UPDATE

Gysbert Van Zyl, Richard Brodzinski, Integrity Engineering Solutions, Dunsborough, Australia; Rob Swindell, Wood plc, Southampton, United Kingdom; Gernot Wally, Xodus Group Ltd., Glasgow, United Kingdom

PVP2024-122729: EVALUATING THE EFFECTIVENESS OF BRACING DESIGNS IN REDUCING THE VULNERABILITY OF SMALL BORE PIPING CONNECTIONS TO VIBRATION

Gernot Wally, Xodus Group Ltd., Glasgow, United Kingdom; Ian Bottomley, BP Exploration, Sunbury on Thames, United Kingdom

PVP2024-124807: THE USE OF TUNED MASS DAMPERS IN MITIGATING SMALL-BORE PIPING VIBRATION

Ian Ty Cheong, Shell, Brisbane, Australia

SESSION 2.3H (OAC-03-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Regency Ballroom B (2nd Floor)

MONITORING, DIAGNOSTICS & INSPECTION-1

Developed by: Radim Kopriva, UJV Rez, A. S., Husinec, Czech Republic; Jana Petzova, VUJE a.s., Trnava, Slovakia

Chair: Jana Petzova, VUJE a.s., Trnava, Slovakia

Co-Chair: Radim Kopriva, UJV Rez, A. S., Husinec, Czech Republic

PVP2024-122247: RADIAL DISPLACEMENT MEASUREMENT OF HYDROGEN STORAGE CYLINDERS UNDER INTERNAL PRESSURE BASED ON FRINGE PROJECTION PROFILOMETRY

Kaidi Ying, Li Ma, Zhejiang University of Technology, Hangzhou, China; Ange Wen, Zhejiang University, Hangzhou, China

PVP2024-122834: APPLICATIONS AND CONSIDERATIONS OF FITNESS-FOR-SERVICE METHODS TO REAL-WORLD ENVIRONMENTS OF CRACK NETWORKS

Robert Rosario, Tetra Engineering Group, Lake Worth, FL, USA; Barrie Mollitor, Peter Jackson, Tetra Engineering Group, Weatogue, CT, USA

PVP2024-122862: RESEARCH ON INTELLIGENT MONITORING SYSTEMS OF HIGH VOLTAGE DIRECT CURRENT INTERFERENCE IN OIL AND GAS PIPELINES

Guanyi Liu, Shao Hua Dong, Zi Tao Jiang, Lu Ming Wang, Geng Sheng Chen, Jiu Zhen Wang, Xing Liu, China University of Petroleum, Beijing, China

PVP2024-122944: GDDM: A SOLUTION FOR CROSS-DOMAIN CLASS IMBALANCE AND ITS APPLICATION IN FAULT DIAGNOSIS

Xiaoxuan Fan, Lixiang Duan, China University of Petroleum, Beijing, China; Lumeng Jiang, Shengyang Yu, China National Oil and Gas Exploration and Development Co., Ltd, Beijing, China

SESSION 2.3I (MF-10-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Regency Ballroom C (2nd Floor)

Symposium on Structural Integrity—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

PIPELINE INTEGRITY

Developed by: Xian-Kui Zhu, Savannah River National Laboratory, Aiken, SC, USA; Dong-Yeob Park, CanMetMaterials, Calgary, AB, Canada; Gang Tao, C-FER Technologies, Edmonton, AB, Canada

Chair: Dong-Yeob Park, CanMetMaterials, Calgary, AB, Canada

Co-Chair: Gang Tao, C-FER Technologies, Edmonton, AB, Canada

PVP2024-123471: EXPERIMENTAL VALIDATION OF THEORETICAL BURST STRENGTH SOLUTION FOR DEFECT-FREE THICK-WALLED PIPES

Xian-Kui Zhu, Savannah River National Laboratory, Aiken, SC, USA

PVP2024-122376: TENSILE STRAIN CHARACTERISTICS OF SMALL-SCALE FRACTURE TOUGHNESS TEST SPECIMENS UNDER LOADING

Dong-Yeob Park, CanmetMATERIALS, Calgary, AB, Canada; Jie Liang, James Gianetto, CanmetMATERIALS, Hamilton, ON, Canada; Takahiro Sakimoto, Hisakazu Tajika, Satoshi Igi, JFE Steel Corporation, Chiba, Japan

PVP2024-122422: VALIDATION OF A NEW FAILURE CRITERION FOR BURST PRESSURE PREDICTION OF CORRODED PIPES IN FINITE ELEMENT ANALYSIS

Gang Tao, C-FER Technologies (1999) Inc., Edmonton, AB, Canada

PVP2024-122811: TENSILE STRAIN CAPACITY OF AN X70 PIPE WITH INTERNAL AND EXTERNAL SEMI-ELLIPTICAL CRACK UNDER BENDING AND TENSION

Xinping Yu, Xin Wang, Carleton University, Ottawa, ON, Canada; Dong-Yeob Park, CanmetMATERIALS, Calgary, AB, Canada

SESSION 2.3J (DA-01-05)

Tuesday, July 30, 2:15 pm – 4:00 pm, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF HEAT EXCHANGERS AND COMPONENTS

Developed by: Nathan Barkley, Becht, New Albany, MS, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Roy Darby, Jaan Taagepera, Chevron, Richmond, CA, USA; Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Chair: Hao Jiang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Co-Chair: Nathan Barkley, Becht, New Albany, MS, USA

PVP2024-123508: CASE STUDY: LIP SEAL HEAT EXCHANGER RETROFIT

Louis Pasnik, Becht, Missouri City, TX, USA; Forrest Gu, Becht, Calgary, AB, Canada; Trevor Seipp, Becht, Okotoks, AB, Canada

PVP2024-123468: CASE STUDY: TUBE PLUGGING EVALUATION USING FINITE ELEMENT ANALYSIS METHOD FOR WASTE HEAT BOILER

Forrest Gu, Becht, Calgary, AB, Canada; Louis Pasnik, Becht, Missouri City, TX, USA; Derrick Pease, Becht, Chino Valley, AZ, USA; Trevor Seipp, Becht, Okotoks, AB, Canada

PVP2024-122732: INTERPRETATION OF PROGRESSIVE DEFORMATION IN TUBE PLATES (TP)

Billon François, ONET Technologies, Euville, France; Jourden Erwan, ONET Technologies, Guilers, France

PVP2024-123267: PLASTIC COLLAPSE AND SHAKEDOWN ANALYSIS OF PCHE CORE WITH CHANNEL MISALIGNMENT

Xuanye Chen, Qianyu Shi, Mingbao Zhang, Fei Wang, Peng Liu, Harbin Boiler Company Limited., Harbin, China

SESSION 2.3K (CS-07-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Regency Ballroom F (2nd Floor)

Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee

RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS-1

Developed by: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA; Mark Messner, Argonne National Laboratory, Plainfield, IL, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Chair: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA

Co-Chair: Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-123483: PRESERVICE INSPECTION RULES AND NUCLEAR SAFETY

Michael Benson, US Nuclear Regulatory Commission, Rockville, MD, USA; John Honcharik, David Rudland, U.S. Nuclear Regulatory Commission, Washington, DC, USA

PVP2024-123448: SAFETY EQUIVALENCY EVALUATION OF 1992 AND 2023 EDITIONS OF THE ASME BOILER AND PRESSURE VESSEL CODE

Mark Lower, Oak Ridge National Laboratory, Knoxville, TN, USA; Charles Oland, XCEL Engineering, Knoxville, TN, USA

PVP2024-122795: SUBSTANTIATING THE DESIGN OF A U-TUBE HEAT EXCHANGER'S TUBE-TO-TUBESHEET JOINT: DEMONSTRATING CONFORMANCE IN ACCORDANCE WITH THE PRINCIPLES OF ASME BPVC III CLASS 1 NUCLEAR COMPONENTS AND TEMA

William Shore, Rolls-Royce plc, Derby, United Kingdom; Alexander Morris, Rolls-Royce plc, Leicester, United Kingdom

PVP2024-123439: OVERPRESSURE PROTECTION REQUIREMENTS FOR PRESSURE VESSEL

Mark Lower, Oak Ridge National Laboratory, Knoxville, TN, USA; Charles Oland, XCEL Engineering, Knoxville, TN, USA

SESSION 2.3L (FSI-02-03)

Tuesday, July 30, 2:15 pm – 4:00 pm, Regency Ballroom G (2nd Floor)

Symposium on Flow-Induced Vibration—Sponsored by the Fluid-Structure Interaction Technical Committee

VORTEX SHEDDING

Developed by: Marwan Hassan, University of Guelph, Guelph, ON, Canada; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada
Chair: Stefan Belfroid, TNO, The Hague, Netherlands
Co-Chair: Joaquin Moran, Sheridan College, Oakville, ON, Canada

PVP2024-123311: FLOW INDUCED PULSATION IN JET – HEADER CONFIGURATION

Stefan Belfroid, Ronald Driessen, Nestor Gonzalez-Diez, Bart Van De Krol, TNO, Delft, Netherlands

PVP2024-121986: WAKE FLOW STUDY ON TWO TANDEM CIRCULAR CYLINDERS: SPACING RATIO AND REYNOLDS NUMBER EFFECTS

Patrick Batista Habowski, Adriane Prisco Petry, Sergio Viçosa Möller, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada

PVP2024-123101: STUDY ON VORTEX SHEDDING CHARACTERISTICS OF CONCENTRIC CIRCULAR ROD BUNDLE ARRANGEMENTS

Zhengfeng Huang, Hong Lv, China Nuclear Power Engineering Co., Ltd., Shenzhen, China; Heng Wang, Zhejiang Institute of Tianjin University, Ningbo, China; Guorui Zhu, Tianjin University, Tianjin, China

PVP2024-122896: IN-SITU ELECTROCHEMICAL INVESTIGATION OF FRETTING CORROSION SYNERGISTIC DAMAGE MECHANISM OF 316L STAINLESS STEEL WITH DIFFERENT TEMPERATURE

Shengzan Zhang, Liyan Liu, Wenjie Pei, Wei Tan, Guorui Zhu, Tianjin University, Tianjin, China

SESSION 2.3M (MF-24-03)

Tuesday, July 30, 2:15 pm – 4:00 pm, Cedar Ballroom B (2nd Floor)

MATLS & FABRICATION FOR REFINING-MECHANICAL ALLOY PROPERTIES AS A FUNCTION OF FABRICATION

Developed by: Richard Colwell, Bechtel, Houston, TX, USA; Jorge Penso, Mitul Dalal, Shell Projects and Technology, Houston, TX, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Richard Colwell, Bechtel, Houston, TX, USA
Co-Chair: Deepak Mankar, Fluor Corporation, Houston, TX, USA

PVP2024-122446: EVALUATION WELDABILITY AND MECHANICAL PROPERTIES OF CR-MO STEELS WELDS BY GAS TUNGSTEN ARC WELDING WITH HIGH SILICON CONTAINED SOLID FILLER ROD TO OMIT BACK SHIELDING

Koki Mori, Atsushi Takahashi, Bin Zhou, JGC Corporation, Yokohama, Japan; Shinya Isono, Hideaki Takauchi, Kobe Steel, Fujisawa, Japan

PVP2024-122575: IMPLEMENTATION OF NON-BACKING GAS GTAW WELDING FOR STAINLESS STEEL PROCESS PIPING IN OIL AND GAS INDUSTRIES

Bin Zhou, Atsushi Takahashi, JGC Corporation, Yokohama, Japan

PVP2024-123433: STRESS RELAXATION CRACKING (SRC) SUSCEPTIBILITY COMPARISON IN UNS S34709 AND UNS S34751 STAINLESS STEEL WELDS FOR PETROCHEMICAL PIPING APPLICATIONS

Timothy Pickle, Zhenzhen Yu, Colorado School of Mines, Golden, CO, USA; Jean Fuenmayor, Shell Global Solutions (US) Inc.-Shell Norco Manufacturing Complex, Norco, LA, USA; Jorge Penso, Shell Global Solution (US) Inc., Houston, TX, USA

SESSION 2.3N (CT-04-01)

Tuesday, July 30, 2:15 pm – 4:00 pm, Larch (3rd Floor)

Symposium on Bolted Joints—Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees

ASSEMBLY OF BOLTED JOINTS-1

Developed by: Anita Bausman, VSP Technologies, Kingsport, TN, USA; Jerry Waterland, Consultant, Prince George, VA, USA; Linbo Zhu, Xi'an Jiaotong University, Xi'an, China; Jeffery Wilson, VSP Technologies, Prince George, VA, USA
Chair: Anita Bausman, VSP Technologies, Kingsport, TN, USA
Co-Chair: Massimiliano De Agostinis, University of Bologna, Bologna, Italy

PVP2024-121883: THE TRUTH ABOUT DOUBLE NUTTING

Brett Thibodeaux, Citgo Petroleum, Iowa, LA, USA

PVP2024-122701: A NOVEL OPTIMIZATION METHOD TO MINIMIZE THE INITIAL UNBALANCE OF AERO-ENGINE ROTOR USING GENETIC ALGORITHMS

Linbo Zhu, Xiaobo Yu, Hanwen Zhang, Junbing Liu, Jun Hong, Xi'an Jiaotong University, Xi'an, China; Hakim A. Bouzid, Ecole de technologie supérieure, Montreal, QC, Canada

PVP2024-123417: A CONTINUATION OF BEST PRACTICES FOR TIGHTENING BOLTED FLANGE CONNECTIONS UTILIZING A TORQUE WRENCH WITH AN EXTENSION

Aidan Berrios, Ben Waterland, VSP Technologies, Prince George, VA, USA

PVP2024-124346: ACCURACY AND REPEATABILITY OF LUBRICANTS ACROSS FASTENER DIAMETER, MATERIAL, AND TEMPERATURE

Brandon Bounds, Yuqing Liu, Ismat Eljaouhari, Bechtel Energy Inc., Houston, TX, USA; Barrett Meigs, VSP Technologies, Prince George, VA, USA

SESSION 2.3O (TW-3-3)

Tuesday, July 30, 2:15 pm – 4:00 pm, Auditorium (3rd Floor)

TECHNICAL TUTORIAL-ARTIFICIAL INTELLIGENCE IN ENGINEERING-PART 3

Developed by: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain
Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain
Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presented by: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain; Nawal Prinja, Jacobs Clean Energy Limited, Knutsford, United Kingdom; Tim Dodwell, Anhad Sandhu, digiLab, Exeter, United Kingdom

SESSION 2.3P (TE-02-03)

Tuesday, July 30, 2:15 pm – 4:00 pm, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 7

Block 2.4: Tuesday, July 30, 2024 (4:15 pm – 6:00 pm)

SESSION 2.4A (MF-02-07)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

Tuesday, July 30, 4:15 pm – 6:00 pm, Evergreen Ballroom G (Lobby Level)

MATERIALS FOR HYDROGEN SERVICE-TEST METHODS 2

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Thorsten Michler, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Germany
Co-Chair: Tim Krentz, Savannah River National Laboratory, Aiken, SC, USA

PVP2024-123011: EFFECT OF HYDROGEN PRESSURE ON HYDROGEN EMBRITTLEMENT BEHAVIOR OF 23CR2NI4MOV HIGH STRENGTH STEEL
Hao Yang, Xuedong Chen, Zhichao Fan, Yu Zhou, Hefei General Machinery Research Institute Co., Ltd, Hefei, China
PVP2024-121908: EFFECT OF FATIGUE PRE-CRACKING CONDITIONS IN FATIGUE CRACK GROWTH RATE AND FRACTURE BEHAVIOR OF CR-MO STEEL UNDER HIGH-PRESSURE HYDROGEN GAS (Presentation Only)
Un Bong Baek, Jae-Yeoung Park, Kyung-Oh Bae, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea; Thanh Tuan Nguyen, Hanoi University of Science and Technology, Hanoi, Vietnam
PVP2024-123697: MECHANICAL CHARACTERIZATION OF HYDROGEN EMBRITTLEMENT IN A GASEOUS ENVIRONMENT: AN INNOVATIVE TEST SETUP USING SUB-SIZE SPECIMENS (Presentation Only)
Yazid Madi, Luciano Meirelles Santana, Said Belkacemi, Vincent Farrugia, Jacques Besson, Mines Paris, PSL University, Centre des Matériaux (MAT), Evry, France
PVP2024-123028: EXPERIMENTAL AND NUMERICAL CALCULATION OF RELATIVE NOTCH TENSILE STRENGTH (RNTS) USING NOTCHED SMALL PUNCH SPECIMEN FOR SCREENING HYDROGEN EMBRITTLEMENT SUSCEPTIBILITY OF FERRITIC STEELS (Presentation Only)
Hyung-Seop Shin, Gellieca Dullas, Richard Pascua, Andong National University, Andong, Republic of Korea; Kyung-O Bae, Jaeyoung Park, Un-Bong Baek, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea

SESSION 2.4B (CS-15-02)

Tuesday, July 30, 4:15 pm – 6:00 pm, Evergreen Ballroom H (Lobby Level)
Symposium on Mechanical Properties of Nuclear Materials—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees
MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF)-2
Developed by: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA; David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada
Chair: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA
PVP2024-123396: PHYSICS INFORMED GRAPHITE MODEL
Michael Saitta, MPR Associates, Inc., Alexandria, VA, USA; Floris-Jan Van Zanten, Samuel Baylis, X-energy, Rockville, MD, USA
PVP2024-123465: EVALUATION OF THE SIMPLIFIED ASSESSMENT PEAK EQUIVALENT STRESS DESIGN LIMIT PROBABILITY OF FAILURE
Adam Walker, Westinghouse Electric Company, Cranberry Township, PA, USA; Andrea Mack, Idaho National Laboratory, Idaho Falls, ID, USA
PVP2024-124790: STUDY OF FATIGUE PROPERTIES OF GRAPHITE MATERIALS UNDER FOUR-POINT BENDING
Junjie Zhou, Tianhao Wu, Libin Sun, Li Shi, Xiaoxin Wang, Tsinghua University, Beijing, China
PVP2024-125016: STANDARD DISC COMPRESSION TEST ON SMALL SIZE NUCLEAR GRAPHITE SAMPLES WITH VARIOUS THICKNESSES (Presentation Only)
Lianshan Lin, Jose Arregui-Mena, Nidia Gallego, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Cristian Contescu, Oak Ridge National Laboratory, Knoxville, TN, USA; James Spicer, Whiting School of Engineering, Baltimore, MD, USA;

SESSION 2.4C (CS-17-02)

Tuesday, July 30, 4:15 pm – 6:00 pm, Evergreen Ballroom I (Lobby Level)
Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees
ENVIRONMENTAL FATIGUE ISSUES (JOINT WITH M&F)-2
Developed by: Seiji Asada, Mitsubishi Heavy Industries Ltd., Kobe, Japan; Thomas Damiani, EPRI, Palo Alto, CA, USA; Peter Gill, Office for Nuclear Regulation, Bootle, United Kingdom; Juergen Rudolph, Framatome GmbH, Erlangen, Germany; Timothy Gilman, Structural Integrity Associates, Inc., San Jose, CA, USA
Chair: Thomas Damiani, EPRI, Palo Alto, CA, USA
Co-Chair: Seiji Asada, Mitsubishi Heavy Industries Ltd., Kobe, Japan
PVP2024-123450: ENVIRONMENTAL FATIGUE – EARLY RESULTS REVISITED
Jussi Solin, VTT, Espoo, Finland
PVP2024-121861: INFLUENCE OF HIGH TEMPERATURE WATER ON AISI 304 AND ER 347 REGARDING THEIR THRESHOLD VALUE
Georg Veile, Stefan Weihe, MPA - University of Stuttgart, Stuttgart, Germany; Michael Grimm, Juergen Rudolph, Framatome GmbH, Erlangen, Germany
PVP2024-123437: EAF, TRANSFERABILITY TO OPERATION AND IMPROVING PROSPECTS
Jussi Solin, Tommi Seppänen, VTT, Espoo, Finland
PVP2024-122136: ADVANCED VIBRATIONAL FATIGUE MONITORING APPROACHES WITH VARIED TECHNICAL APPLICATION FIELDS
Jürgen Rudolph, Rainer Ziegler, Milan Kopinec, Florian Bruckmüller, Framatome GmbH, Erlangen, Germany

SESSION 2.4D (SE-06-02)

Tuesday, July 30, 4:15 pm – 6:00 pm, Cottonwood (3rd Floor)
THE T.H. LIU MEMORIAL SYMPOSIUM ON THE SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEMS-2
Developed by: Izumi Nakamura, Tokyo City University, Setagata, Japan; Xu Chen, Tianjin University, Tianjin, China
Chair: Tomoyo Taniguchi, Tottori University, Tottori, Japan
Co-Chair: Osamu Furuya, Tokyo Denki University, Tokyo, Japan
PVP2024-122949: PIPING SEISMIC DESIGN METHOD BY ASME CC N900
Kenichi Shibukuwa, IHI Corporation, Yokohama, Japan; Jie Wen, Jensenhughes, Independence, OH, USA; Kenji Funasaki, Toshiba, Kawasaki, Japan
PVP2024-121747: SEISMIC EVALUATION METHOD OF PIPING SYSTEMS BY INELASTIC RESPONSE SPECTRUM ANALYSIS: PART 2 —FATIGUE ANALYSIS
Satoshi Iida, Ichiro Tamura, Yorihisa Ishimaru, The Chugoku Electric Power Co., Inc., Hiroshima, Japan; Masayuki Kamaya, Institute of Nuclear Safety System, Inc., Mihama, Japan
PVP2024-123190: THEORETICAL ANALYSIS OF NATURAL FREQUENCIES AND MODE SHAPES OF PIPING SYSTEMS WITH TEES
Shinji Tamura, Shimane University, Matsue-shi, Japan
PVP2024-123304: DESIGN MARGINS OF FATIGUE LIFE OF CARBON STEEL ELBOWS AND TEES SUBJECTED TO REVERSING DYNAMIC LOADS
Kisaburo Azuma, Keita Fujiwara, Nuclear Regulation Authority, Minato-ku, Japan; Satoru Kai, Akihito Otani, IHI Corporation, Yokohama, Japan; Osamu Furuya, Tokyo Denki University, Hiki-gun, Japan

SESSION 2.4E (CS-19-03)

Tuesday, July 30, 4:15 pm – 6:00 pm, Cedar Ballroom A (2nd Floor)
Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees
EUROPEAN PROJECTS FOR SMALL SCALE TESTING-2
Developed by: Mark Kirk, Phoenix Engineering Associates Inc., Yokosuka, Japan; Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan; William Server, ATI Consulting, Black Mountain, NC, USA
Chair: Giovanni Bonny, SCK CEN, Mol, Belgium
Co-Chair: Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan
PVP2024-122502: ON THE POSSIBILITY OF EXTENDING THE CRACK LENGTH CRITERION IN THE MASTER CURVE METHODOLOGY
Marcos Sánchez, Sergio Cicero, University of Cantabria, Santander, Spain; Florian Obermeier, Framatome, Erlangen, Germany; Marta Serrano, CIEMAT, Madrid, Spain; Yu-Lung Chiu, University of Birmingham, Birmingham, United Kingdom; Eberhard Altstadt, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany
PVP2024-122633: SMALL PUNCH TESTS TO EVALUATE THE TENSILE PROPERTIES OF HIGHLY IRRADIATED LYRA-10 RPV MODEL STEELS
Frideriki Naziris, Viviam Marques Pereira, Theo Bakker, Murthy Kolluri, NRG, Petten, Netherlands; Marek Adamech, VUJE, Trnava, Slovakia; Oliver Martin, European Commission, Joint Research Centre (JRC), Petten, Netherlands
PVP2024-122265: EVALUATION OF MECHANICAL PROPERTIES OF LYRA-10 SPECIMENS USING SPT METHOD WITHIN THE STRUMAT-LTO PROJECT (Presentation Only)
Marek Adamech, Jana Petzova, VUJE, a.s., Trnava, Slovakia

SESSION 2.4F (HT-07-02)

Tuesday, July 30, 4:15 pm – 6:00 pm, Laurel (3rd Floor)

DESIGN AND ANALYSIS OF HIGH PRESSURE HYDROGEN EQUIPMENT-2

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; David Cho, Bruce Power, Toronto, ON, Canada; Jinyang Zheng, Zhejiang University, Hangzhou, China; Michael Martin, Rolls-Royce, Portsmouth, United Kingdom; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA; Melanie Sarzynski, Becht, Houston, TX, USA; Erick Ritter, Structural Integrity Associates, Inc., Littleton, CO, USA; Nathan Barkley, Becht, New Albany, MS, USA; Mandar Kulkarni, Stress Engineering Services, Cincinnati, OH, USA; Sam Lee, Technip FMC, Houston, TX, USA; Rahul Kapadia, ASML,Veldhoven, Netherlands

Chair: Sean Berg, Becht, Adkins, TX, USA

Co-Chair: Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA

PVP2024-124630: QUANTITATIVE CHARACTERIZATION OF HYDRIDE MORPHOLOGY IN SUPPORT OF IMPROVING COHESIVE-ZONE FRACTURE TOUGHNESS MODEL FOR ZR-2.5NB PRESSURE TUBES

Cheng Liu, Kinectrics Inc., Toronto, ON, Canada

PVP2024-122002: HIGH GRAVIMETRIC HYDROGEN STORAGE EFFICIENCY OF TYPE 5 PRESSURE VESSEL BY DRY FILAMENT WINDING-INFUSION PROCESS

Raimund Grothaus, Oliver Scholtyschik, Thomas Schmidt, EAST-4D Carbon Technology GmbH, Dresden, Germany

PVP2024-122737: INVESTIGATION OF THE FRACTURE OF AUSTENITIC STAINLESS STEEL AFTER HIGH-PRESSURE HYDROGEN CHARGING DURING TENSILE TESTING USING ACOUSTIC EMISSION MONITORING ▼

Zhengli Hua, Xi Shen, Zhejiang University, Hangzhou, China; Chen Sun, Meng Xu, Xing Li, Wentao Yu, State Power Investment Corporation Research Institute Co., Ltd., Beijing, China

SESSION 2.4G (DA-08-01)

Tuesday, July 30, 4:15 pm – 6:00 pm, Regency Ballroom A (2nd Floor)

Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

FRACTURE MECHANICS IN FFS ASSESSMENT

Developed by: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Bhaskar Shitole, Wood, Calgary, AB, Canada; Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia; Ali Ok, Air Products, Allentown, PA, USA

Chair: Bhaskar Shitole, Wood, Calgary, AB, Canada

Co-Chair: Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia

PVP2024-122388: INVESTIGATION OF THE API 579-1/ASME FFS-1 KPTC STRESS INTENSITY FACTOR FOR BENDING STRESS

Steven Altstadt, Becht, Fargo, ND, USA; Sharon Mellings, Ryan Butchers, CM Beasy, Billerica, MA, USA; Scott Bouse, Wiss, Janney, Elstner Associates, Inc., Houston, TX, USA

PVP2024-121777: ELASTIC-PLASTIC FINITE ELEMENT ANALYSIS UTILIZING DETAILED CRACK PROFILES

Ryan Holloman, Quest Integrity, Spring, TX, USA; Daniel Blanks, Quest Integrity, Varsity Lakes, Australia; Miguel Martinez, Greg Thorwald, Michael Turnquist, Quest Integrity, Boulder, CO, USA

PVP2024-122298: EXPANDING THE API 579-1/ASME FFS-1 STRESS INTENSITY FACTOR SOLUTION FOR A 360 DEGREE SURFACE CRACKED BAR (KBSCL))

Steven Altstadt, Becht, Fargo, ND, USA; Melanie Sarzynski, Becht, Houston, TX, USA

PVP2024-122035: FITNESS-FOR-SERVICE ASSESSMENT OF A HYDROGEN-INDUCED CRACK IN AN INLET GAS SEPARATOR PRESSURE VESSEL USING COMPUTATIONAL MODELLING (Presentation Only)

Shahab Zangeneh, Razi University, Kermanshah, Iran

SESSION 2.4H (OAC-03-02)

Tuesday, July 30, 4:15 pm – 6:00 pm, Regency Ballroom B (2nd Floor)

THE MILAN BRUMOVSKÝ MEMORIAL SESSION ON MONITORING, DIAGNOSTICS & INSPECTION-2

Developed by: Radim Kopriva, UJV Rez, A. S., Husinec, Czech Republic; Jana Petzova, VUJE a.s., Trnava, Slovakia; Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA; Sarah Suffield, Pacific Northwest National Laboratory, Richland, WA, USA

Chair: Radim Kopriva, UJV Rez, A. S., Husinec, Czech Republic

Co-Chair: Jana Petzova, VUJE a.s., Trnava, Slovakia

PVP2024-122965: FAILURE MONITORING OF LIQUID HYDROGEN STORAGE TANKS BASED ON DISTRIBUTED TEMPERATURE MONITORING AND DIGITAL TWIN TECHNOLOGY

Chaoyuan Li, Hong Yang, Jiacheng Xue, Haotian Zhang, Shouhua Zhang, Wuhan Institute of Technology, Wuhan, China; Xiang Li, China Special Equipment Inspection & Research Institute, Beijing, China;

PVP2024-123146: ANALYSIS OF SURFACE CORROSION AND EFFECTS OF DEPOSITS ON THE OUTER SURFACE OF RPV NPP BOHUNICE IN SLOVAKIA (Presentation Only)

Marek Adamech, Dávid Slnek, Jana Petzová, VUJE, a.s., Trnava, Slovakia

PVP2024-124432: DEVELOPMENT AND APPLICATION OF DYNAMIC MONITORING SYSTEM FOR LARGE VOLUME WINDING CYLINDER TUBE TRAILERS

Chao Yang, Laiming Zhang, Hui Luo, Tong Li, Yue Yu, Sen Chai, Xiang Li, China Special Equipment Research Institute, Beijing, China

PVP2024-122758: RAPID FAULT DIAGNOSIS OF LNG RECEIVING TERMINAL PIPELINE TRANSPORTATION OPERATION PROCESS BASED ON SOM-KPCA

Shangrui Xiao, Jinqiu Hu, Laibin Zhang, China University of Petroleum, Beijing, China

SESSION 2.4I (MF-04-01)

Tuesday, July 30, 4:15 pm – 6:00 pm, Regency Ballroom C (2nd Floor)

Symposium on Structural Integrity—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

EUROPEAN PROGRAMS IN STRUCTURAL INTEGRITY-NUCOBAM PROJECT

Developed by: Peter James, Jacobs, Warrington, United Kingdom; Tomas Nicak, Framatome, Erlangen, Germany

Chair: Peter James, Jacobs, Warrington, United Kingdom

Co-Chair: Florian Obermeier, Framatome GmbH, Erlangen, Germany

PVP2024-122057: NUCOBAM PROJECT, NUCLEAR COMPONENTS BASED ON ADDITIVE MANUFACTURING

Gaëlle Leopold, EDF, Orvanne, France; Myriam Bourgeois, CEA, Gif-Sur-Yvette, France

PVP2024-123276: SOME CHALLENGES REGARDING QUALIFICATION OF ADDITIVE MANUFACTURING COMPONENTS FOR A NUCLEAR USE – NUCOBAM PROJECT

Myriam Bourgeois, Cécile Petesch, CEA, Gif-Sur-Yvette, France; Romain Verlet, EDF Lab Les Renardières, Écuelles, France; Roxane Misler, Tractebel Engie, Bruxelles, Belgium

PVP2024-123236: PERFORMANCE ASSESSMENT OF ADDITIVE MANUFACTURING COMPONENTS FOR AN EX-CORE NUCLEAR USER : VALVE COMPONENT – NUCOBAM PROJECT

Roxane Misler, Tractebel Engie, Bruxelles, Belgium; Rebeca Hernandez, Antonio Fernandez-Viña, CIEMAT, Madrid, Spain; Steve Nardone, Benjamin Hary, ENGIE Laborelec, Linkebeek, Belgium; Norman Bertelle, EDF Lab Les Renardières, Écuelles, France

PVP2024-123296: FATIGUE BEHAVIOR IN AIR OF 316L STAINLESS STEEL OBTAINED BY ADDITIVE MANUFACTURING IN THE FRAME OF THE NUCOBAM EUROPEAN PROJECT.

Séverine Guilbert, Walter-John Chitty, Jonathan Quibel, Institute for Radiation Protection and Nuclear Safety (IRSN), Saint-Paul-lez-Durance, France; Luc Doremus, Framatome Technical Center, Le Creusot, France; Alexandre Hermant, Naval Group Technocampus Océan, Bouguenais, France

SESSION 2.4J (DA-02-01)

Tuesday, July 30, 4:15 pm – 6:00 pm, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PIPING COMPONENTS-1

Developed by: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA; Bhaskar Shitole, Wood, Calgary, AB, Canada; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Kannan

Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA
Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA

Chair:
Co-Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-121313: ANALYTICAL ASSESSMENT AND MITIGATION STRATEGIES FOR VIBRATION IN HIGH-PRESSURE AND TEMPERATURE PIPING SUBJECTED TO WALL THINNING
Sameer Abdul Rehman, Ahmed Alian, Anis Abbas, Qasim Khan, Waleed Mekky, Next Structural Integrity, Burlington, ON, Canada

PVP2024-121419: FORMULA-BASED THERMAL STRATIFICATION ANALYSIS OF HOTLEG SAFETY INJECTION PIPING USING PROBABILISTIC APPROACH TO MEASURED-TEMPERATURE DATA
Bonghee Lee, Ilkwun Nam, Sangyun Park, Hyeongwook Kim, KEPCO Engineering and Construction Company, Gimcheon-Si, Republic of Korea

PVP2024-121030: FRP PIPING STRESS ANALYSIS USING THE AUTOPIPE SOFTWARE WITH ASME NM.2 AND NM.3.3
Mehdi Fathi, Kiewit Engineering Group Inc., Lenexa, KS, USA

PVP2024-121240: KEY LEARNINGS FROM LARGE-BORE COMPRESSOR PIPING DESIGN OF A CARBON CAPTURE SYSTEM
John Fernando, Luke Chan, Henry Kwok, Zachry Integrity Engineering Ltd, Calgary, AB, Canada; Simon Yuen, Suncor Energy Inc, Calgary, AB, Canada; Steven Roberts, Shell Global Solutions (US) Inc., Houston, TX, USA

SESSION 2.4K (CS-07-02)

Tuesday, July 30, 4:15 pm – 6:00 pm, Regency Ballroom F (2nd Floor)

Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee

RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS-2

Developed by: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA; Mark Messner, Argonne National Laboratory, Plainfield, IL, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: Mark Messner, Argonne National Laboratory, Plainfield, IL, USA

PVP2024-121389: A STANDARD FORM FOR CYCLIC PLASTICITY MODELS USED WITH THE ASME SECTION III, DIVISION 5 RULES
Mark Messner, Argonne National Laboratory, Plainfield, IL, USA

PVP2024-122148: AN IMPROVED VERSION OF CODE CASE N-862: SECTION III, DIVISION 5, CLASS A CREEP-FATIGUE EVALUATION USING AN ELASTIC-PERFECTLY PLASTIC ANALYSIS (Presentation Only)
Mark Messner, Argonne National Laboratory, Plainfield, IL, USA

PVP2024-122300: DESIGN BY ANALYSIS RULES FOR ASME SECTION III, DIVISION 5, CLASS B COMPONENTS
Heramb Mahajan, Ting-Leung Sham, Idaho National Laboratory, Idaho Falls, ID, USA Robert Jetter, R. I. Jetter Consulting, Pleasanton, CA, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-122908: TIME DEPENDENT ALLOWABLE STRESSES FOR THE NEW ASME SECTION III, DIVISION 5 DESIGN BY ANALYSIS RULES FOR CLASS B COMPONENTS (Presentation Only)
Ting-Leung Sham, Idaho National Laboratory, Idaho Falls, ID, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 2.4L (FSI-03-01)

Tuesday, July 30, 4:15 pm – 6:00 pm, Regency Ballroom G (2nd Floor)

Symposium of Structures Under Extreme Loading Conditions—Sponsored by the Fluid-Structure Interaction and High-Pressure Technology Technical Committees

SHOCK AND BLAST

Developed by: Jihui Geng, Matthew Edel, BakerRisk, San Antonio, TX, USA; David Gross, Dominion Engineering, Reston, VA, USA; Robert Leishear, Leishear Engineering LLC, Aiken, SC, USA; Megan Tribble, Sandia National Laboratory, Albuquerque, NM, USA; Marwan Hassan, University of Guelph, Guelph, ON, Canada; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada
Chair: Jihui Geng, BakerRisk, San Antonio, TX, USA
Co-Chair: David Gross, Dominion Engineering, Reston, VA, USA

PVP2024-123106: DEPENDENCE OF BLAST SHIELDING ON STAND-OFF DISTANCE
Jihui Geng, Kelly Thomas, BakerRisk, San Antonio, TX, USA

PVP2024-123507: ROOT CAUSE ANALYSIS OF EXPANSION JOINT INTERNAL SLEEVE FAILURE UNDER REVERSE FLOW USING COMPUTATIONAL MODELLING
Chase Harris, Wood VDN, Madison, WI, USA; Ahmed Bayram, Mehdi Sanati, Chris Harper, Wood VDN, Calgary, AB, Canada; Jose Rivas, US Bellows, Houston, TX, USA

PVP2024-122533: BLAST-INDUCED FAILURE ANALYSIS OF LIQUID AMMONIA STORAGE TANK
Derek Slovenec, The Equity Engineering Group, Inc., Pittsford, NY, USA; Joan Wood, Seetha Ramudu Kummari, Phillip Prueter, The Equity Engineering Group, Inc., Shaker Heights, OH, USA

PVP2024-123238: THE USE OF A CARBON FIBRE REINFORCEMENT SYSTEM FOR THE MITIGATION OF ACOUSTICALLY INDUCED VIBRATION
Chris Middleton, Rob Swindell, Gordon Borland, Wood plc, Southampton, United Kingdom; Ole Holstad, Equinor ASA, Fornebu, Norway; Kari Van Der Kooij, Aibel AS, Kokstad, Norway

SESSION 2.4M (MF-24-04)

Tuesday, July 30, 4:15 pm – 6:00 pm, Cedar Ballroom B (2nd Floor)

MATLS & FABRICATION FOR REFINING-EVALUATION OF DESIGN PARAMETERS IN PRESSURE EQUIPMENT AND TANKS

Developed by: Richard Colwell, Bechtel, Houston, TX, USA; Jorge Penso, Mitul Dalal, Shell Projects and Technology, Houston, TX, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Richard Colwell, Bechtel, Houston, TX, USA
Co-Chair: Deepak Mankar, Fluor Corporation, Houston, TX, USA

PVP2024-122882: USING ZERO ADDED CORROSION ALLOWANCE FOR API 650 TANK COMPONENTS FOR VARIOUS REFINING SERVICES
Zesan Belle Ardaniel, Fluor Corporation, Muntinlupa, Philippines; Cathleen Shargay, Michael Basic, Shahab Soltaninia, Fluor Corporation, Aliso Viejo, CA, USA

PVP2024-123524: DUPLEX STAINLESS STEEL BOLTS FOR FLANGE BOLTING
Anilkumar Panchal, PVA Systems, Mumbai, India; Kazim Naqvi, Linde Engineering North America LLC, Allentown, PA, USA; Kuntak Daru, Air Products and Chemicals, Inc., Sugar Land, TX, USA; Punita Gala, Reliance Industries, Navi Mumbai, India

PVP2024-123527: EVALUATION OF SERVICE REMOVED HP40-MODIFIED REFORMER TUBES AND DEVELOPMENT OF MULTI-AXIAL PRESSURIZATION TESTING IN FULL-SIZE COMPONENTS
Alex Bridges, EPRI, Concord, NC, USA; Eeva Griscom, Michael Gagliano, John Siefert, EPRI, Charlotte, NC, USA; Jorge Penso, Shell Global Solutions (US) Inc, Houston, TX, USA; Jordan Barrass, Shell Canada Limited, Fort Saskatchewan, AB, Canada

SESSION 2.4N (CT-09-01)

Tuesday, July 30, 4:15 pm – 6:00 pm, Larch (3rd Floor)

Symposium on Bolted Joints—Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees

SPECIAL APPLICATION OF BOLTED FLANGED JOINTS

Developed by: Jerry Waterland, Consultant, Prince George, VA, USA; Massimiliano De Agostinis, Stefano Fini, University of Bologna, Bologna, Italy
Chair: Anita Bausman, VSP Technologies, Kingsport, TN, USA
Co-Chair: Massimiliano De Agostinis, University of Bologna, Bologna, Italy

PVP2024-123201: ANALYSIS OF THE TRIBOLOGICAL BEHAVIOUR OF TITANIUM FASTENERS UNDER DIFFERENT TIGHTENING STRATEGIES
Massimiliano De Agostinis, Dario Croccolo, Stefano Fini, Mattia Mele, Giorgio Olmi, Chiara Scapecchi, University of Bologna, Bologna, Italy; Jacopo Martini, Ferrari Spa, Maranello, Italy

PVP2024-123377: A STUDY ON THE DEGRADATION OF PRE-APPLIED THREADLOCKERS UNDER EXTENDED EXPOSURE TO SEVERE HYGRO-THERMAL CONDITIONS.
Stefano Fini, Dario Croccolo, Massimiliano De Agostinis, Mattia Mele, Giorgio Olmi, Chiara Scapecchi, Muhammad Hassaan Bin Tariq, University of Bologna, Bologna, Italy

PVP2024-122126: VALIDATION PROGRAM FOR SEALS AND FLANGE GASKETS IN HYDROGEN AND HYDROGEN-METHANE BLENDS APPLICATIONS
Hubert Lejeune, Jérémy Felten, CETIM, Nantes, France
PVP2024-121032: QUALIFICATION OF RTJ(RING-TYPE JOINT) FLANGE TIGHTENING IN A HIGH PRESSURE PROCESS (Presentation Only)
Sangmo Lee, Seho Lee, SK Energy, Ulsan, Republic of Korea

SESSION 2.4O (MF-13-01)

Tuesday, July 30, 4:15 pm – 6:00 pm, Auditorium (3rd Floor)
Symposium on Composite Materials—Co-Sponsored by the Design & Analysis and Materials & Fabrication Technical Committees
COMPOSITE AND NON-METALLIC SYSTEMS FOR PRESSURE VESSELS AND PIPING (JOINT WITH D&A)

Developed by: Jianfeng Shi, Zhejiang University, Hangzhou, China; Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; Noel O'Dowd, University of Limerick, Limerick, Ireland; Pierre Mertiny, University of Alberta, Edmonton, AB, Canada; Qin Ma, Walla Walla University, College Place, WA, USA; Qin Ma, Walla Walla University, College Place, WA, USA; Suresh Kalyanam, Westinghouse Electric Company, Cranberry Township, PA, USA; Sushma Pothana, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
Chair: Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA
Co-Chair: Pierre Mertiny, University of Alberta, Edmonton, AB, Canada

PVP2024-122540: STUDIES ON PIPELINE POLYETHYLENES IN HYDROGEN GAS ENVIRONMENTS USING IN-SITU AND EX-SITU CHARACTERIZATION METHODS
Michael Leveille, Sandia National Laboratories, San Jose, CA, USA; Debasis Banerjee, April Nissen, Nalini Menon, Sandia National Laboratories, Livermore, CA, USA; Christopher Crain, Nicholas Strange, SLAC National Accelerator Laboratory, Menlo Park, CA, USA; Yongsoon Shin, Kevin Simmons, Pacific Northwest National Laboratory, Richland, WA, USA; Anthony Mcdonald, Zachary Piontkowski, Sandia National Laboratories, Albuquerque, NM, USA
PVP2024-123175: PREPARATION AND PROPERTIES OF THE LOW-COST HEAT-RESISTANT RUBBER MATERIAL FOR TRENCHLESS REHABILITATION OF THERMAL PIPELINES
Zhongzhen Wang, Sohail Yasin, Peiyu Hu, Liang Zhang, Jianfeng Shi, Zhejiang University, Hangzhou, China; Yao Li, Ce Zheng, Beijing Heating Municipal Engineering Construction Co., Ltd, Beijing, China
PVP2024-122933: STUDY ON INDUSTRIAL COMPUTED TOMOGRAPHY DETECTION AND IDENTIFICATION OF INCLUSION DEFECTS IN THICK-WALL POLYETHYLENE PIPE BUTT FUSION JOINT WITHIN NUCLEAR POWER PLANT ▼
Yan Shi, Yangji Tao, Zitao Shen, Cunjian Miao, Ping Tang, Weican Guo, Zhejiang Academy of Special Equipment Science, Hangzhou, China; Jianfeng Shi, Zhejiang University, Hangzhou, China

SESSION 2.4P (TE-02-04)

Tuesday, July 30, 4:15 pm – 6:00 pm, Grand Ballroom A-D (2nd Floor)
TECHNOLOGY EXHIBITS – 8

WEDNESDAY, JULY 31

Block 3.1: Wednesday, July 31, 2024 (8:15 am – 10:00 am)

SESSION 3.1A (MF-02-08)

Wednesday, July 31, 8:15 am – 10:00 am, Evergreen Ballroom G (Lobby Level)

Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

MATERIALS FOR HYDROGEN SERVICE-PIPELINE INFRASTRUCTURE 1

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France; David Cho, Bruce Power, Toronto, ON, Canada; Jinyang Zheng, Zhejiang University, Hangzhou, China; Michael Martin, Rolls-Royce, Portsmouth, United Kingdom

Chair: Milan Agnani, Sandia National Laboratories, Livermore, CA, USA

Co-Chair: Matteo Ortolani, Tenaris, Dalmine, Italy

PVP2024-123711: FRACTURE TOUGHNESS TEST METHODS FOR MATERIAL QUALIFICATION IN GASEOUS HYDROGEN

Bostjan Bezensek, Shell, Laurencekirk, United Kingdom; Sarah Hopkin, Tom Martin, Wim Guijt, Shell, Amsterdam, Netherlands; Taylor Shie, Shell, Houston, TX, USA

PVP2024-124195: EPRG FULL SCALE FATIGUE CRACK GROWTH AND FRACTURE TEST ON A MODERN LINEPIPE IN HIGH PRESSURE HYDROGEN GAS

Bostjan Bezensek, Shell, Laurencekirk, United Kingdom; Otto Jan Huising, Gasunie, Gronningen, Netherlands; Luca Bacchi, Snam ReteGas, Milan, Italy; Paul Roovers, Fluxys, Ghent, Belgium; Emanuele Bertelli, RINA Consulting – CSM S.p.A., Rome, Italy

PVP2024-123383: MICROSTRUCTURE AND MECHANICAL PERFORMANCE OF X120 LINEPIPE STEEL IN HIGH-PRESSURE HYDROGEN GAS

Yiyu Wang, Zhili Feng, Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Joseph Ronevich, Milan Agnani, Chris San Marchi, Sandia National Laboratory, Livermore, CA, USA

PVP2024-122545: HYDROGEN EMBRITTLEMENT SUSCEPTIBILITY AND FRACTURE TOUGHNESS MEASUREMENTS OF WELDED X65M PIPELINE STEELS

Newell Moser, Zachary Buck, Nicholas Derimow, May L. Martin, Damian Lauria, Enrico Lucon, Peter Bradley, Matthew Connolly, National Institute of Standards and Technology (NIST), Boulder, CO, USA

SESSION 3.1B (MF-06-01)

Wednesday, July 31, 8:15 am – 10:00 am, Evergreen Ballroom H (Lobby Level)

Symposium on Mechanical Properties of Nuclear Materials—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS-1

Developed by: Weiju Ren, Xiang Chen, Yiyu Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Murthy Kolluri, NRG, Petten, Netherlands

Chair: Yiyu (Jason) Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Co-Chair: Xiang (Frank) Chen, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-123063: STRAIN-RATE-DEPENDENT PARAMETERS OF LITHIUM AS A PLASMA FACING MATERIAL FOR MAGNETIZED TARGET FUSION APPLICATION

Yu Miao, Michael Sexsmith, Soegiarto Hartono, Claire Preston, Benjamin Tsai, Jean-Sebastien Dick, Nick Sirmas, General Fusion, Richmond, BC, Canada

PVP2024-122146: EFFECT OF TEMPERING TEMPERATURE ON FRACTURE TOUGHNESS PROPERTIES OF THE CNA STEEL (Presentation Only)

Xiang (Frank) Chen, Weicheng Zhong, Ying Yang, Mikhail Sokolov, Yutai Katoh, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-123229: INVESTIGATION OF FRACTURE TOUGHNESS OF THE HIGH FLUX REACTOR VESSEL SURVEILLANCE TEST SPECIMEN 2023 (Presentation Only)

M. Kolluri, F. Naziris, M.A.L. Laot, H.H.S.P. Bregman, S. P. A. Hageman, F. H. E. De Haan - De Wilde, NRG, Petten, Netherlands

SESSION 3.1C (MF-15-01)

Wednesday, July 31, 8:15 am – 10:00 am, Evergreen Ballroom I (Lobby Level)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

FATIGUE AND FRACTURE OF WELDS AND HEAT AFFECTED ZONES

Developed by: Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; Adam Cooper, Jacobs, Warrington, United Kingdom; David Rudland, US Nuclear Regulatory Commission, Rockville, MD, USA; Do Jun Shim, EPRI, Palo Alto, CA, USA; Yiyu Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Yiyu Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Chair: Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA

Co-Chair: DJ Shim, EPRI, Palo Alto, CA, USA

PVP2024-122260: REDISTRIBUTION OF WELD RESIDUAL STRESSES DURING COMPACT TENSION FATIGUE CRACK GROWTH TESTS (Presentation Only)

Simon Mckendrey, Hugh Dorward, Xavier van Heule, Harry Coules, Mahmoud Mostafavi, University of Bristol, Bristol, United Kingdom; Ranggi Ramadhan, ISIS Neutron and Muon Source, Didcot, United Kingdom; Clementine Jacquemoud, CEA Paris-Saclay, Gif-Sur-Yvette, France

PVP2024-122582: EFFECT OF DYNAMIC RECRYSTALLISATION ON THE FATIGUE LIFE OF THE OUT-OF-PLANE GUSSET WELDED JOINT TREATED BY ULTRASONIC IMPACT TREATMENT

Atsushi Yamaguchi, Takashi Honda, Tetsuya Sasaki, National Institute of Occupational Safety and Health, Kiyose, Japan; Yu Togasaki, Idemitsu Kosan Co., Ltd, Chiba, Japan

PVP2024-122703: RELIABILITY ASSESSMENT OF HIGH TEMPERATURE/PRESSURE STEAM TUBE DISSIMILAR METAL WELDING AND EXPERIMENTAL VALIDATION

Jae Cheol Kim, Jong Jin Park, Jegal Hoon, Jong Ho Hong, Doosan Enerbility, Changwon, Republic of Korea; Ian Perrin, Triaxis Power Consulting, LLC, Iron Station, NC, USA

PVP2024-121394: PREVENTING STRESS RELAXATION CRACKING: CURRENT DESIGN PRACTICES AND RECOMMENDATIONS (Presentation Only)

Bipul Barua, Mark Messner, Argonne National Laboratory, Lemont, IL, USA; Jeff Poehler, U.S. Nuclear Regulatory Commission, Washington, DC, USA

SESSION 3.1D (SE-07-01)

Wednesday, July 31, 8:15 am – 10:00 am, Cottonwood (3rd Floor)

SEISMIC EVALUATION OF SYSTEMS, STRUCTURES AND COMPONENTS

Developed by: Satoru Kai, IHI Corporation, Yokohama, Japan; Akemi Nishida, Japan Atomic Energy Agency, Shirakata, Japan; Satoru Kai, IHI Corporation, Yokohama, Japan;

Chair: Satoru Kai, IHI Corporation, Yokohama, Japan

Co-Chair: Gianluca Quinci, Roma Tre University, Rome, Italy

PVP2024-123750: NUMERICAL STUDY ON FAILURE LENGTH EVALUATION OF BURIED CONTINUOUS PIPELINES CROSSING STRIKE-SLIP FAULTS

Wei-Hung Hsu, Juin-Fu Chai, Hsuan-Chih Yang, Che-Yu Chang, Wei-Kuang Chang, National Center for Research on Earthquake Engineering, NARLabs, Taipei, Taiwan

PVP2024-123964: LOW COMPUTATIONAL COST ONLINE ACCELERATION COMPENSATION METHOD FOR HIGH-FREQUENCY VIBRATION AND EXPERIMENTAL VERIFICATION ON A 6-DEGREE-OF-FREEDOM SHAKING TABLE

Ryo Hosoda, Solutions inc., Koganei-shi, Japan; Yasutaka Tagawa, Tokyo University of Agriculture and Technology, Koanei-shi, Japan

PVP2024-125200: EXPLORATION OF THE EFFECTS OF RESPONSE SPECTRUM MATCHING ON POWER SPECTRAL DENSITY FUNCTIONS
Jinsuo R. Nie, U.S. Nuclear Regulatory Commission, Washington, DC, USA
PVP2024-133076: EXPERIMENTAL VALIDATION OF SHEAR CAPACITY CONSIDERING CONCRETE VOIDS OF RC SHEAR WALL (Presentation Only)
Hyemin Shin, Yongmoon Hwang, Jae-Wook Jung, Junhee Park, Korea Atomic Energy Research Institute (KAERI), Yuseong-gu, Republic of Korea

SESSION 3.1E (MF-09-01)

Wednesday, July 31, 8:15 am – 10:00 am, Cedar Ballroom A (2nd Floor)
Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees
MECHANISTIC MODELLING OF DEFORMATION AND FRACTURE-1
Developed by: Peter James, Jacobs, Warrington, United Kingdom; Harry Coules, University of Bristol, Bristol, United Kingdom; Noel O'Dowd, University of Limerick, Limerick, Ireland; Sergio Cicero, University of Cantabria, Santander, Spain
Chair: Peter James, Jacobs, Warrington, United Kingdom
Co-Chair: Sergio Cicero, University of Cantabria, Santander, Spain
PVP2024-122509: CONTINUUM AND CRYSTAL PLASTICITY COUPLED FINITE ELEMENT MODELLING TO EXPLORE COMPLEX LOADING CONDITIONS
Christopher Allen, Harry Coules, Christopher Truman, University of Bristol, Bristol, United Kingdom
PVP2024-124294: MODELLING THE EFFECT OF RESIDUAL STRESSES ON DAMAGE ACCUMULATION USING A COUPLED CRYSTAL PLASTICITY PHASE FIELD FRACTURE APPROACH
Michael Salvini, Nicolò Grilli, Mahmoud Mostafavi, Parsa Esmati, Christopher Truman, University of Bristol, Bristol, United Kingdom; David Knowles, Henry Royce Institute, Manchester, United Kingdom; Maria S. Yankova, Thomas F. Flint, Anastasia N. Vasileiou University of Manchester, Manchester, United Kingdom, Nicolas O. Larrosa, Tecnalia, Donostia-San Sebastian, Spain
PVP2024-123071: HYDROGEN EFFECTS ON THE DEFORMATION BEHAVIOR OF SINGLE CRYSTAL AUSTENITIC STAINLESS STEEL 316L (Presentation Only)
Fernando Daniel León-Cázares, Josh Sugar, Xiaowang Zhou, Coleman Alleman, Joseph Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA; Brian Kagay, MPA University of Stuttgart, Stuttgart, Germany

SESSION 3.1F (NDE-01-01)

Wednesday, July 31, 8:15 am – 10:00 am, Laurel (3rd Floor)
EMERGING NON-DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS-1
Developed by: Vivek Agarwal, Idaho National Laboratory, Idaho Falls, ID, USA; Min Zhang, Praxair, a Linde Company, Tonawanda, NY, USA
Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain
Co-Chair: Heramb Mahajan, Idaho National Laboratory, Idaho Falls, ID
PVP2024-122460: PIPELINE WELD RADIOGRAPHS DEFECT DETECTION BASED ON IMPROVED YOLO V8
Qingying Ren, Shaohua Dong, Weichao Qian, China University of Petroleum, Beijing, China
PVP2024-122983: ULTRASONIC PHASED ARRAY LINEAR-NONLINEAR FUSION IMAGING METHOD FOR MICROCRACKS IN PRESSURE EQUIPMENT
Jingwei Cheng, Zhichao Fan, Xuedong Chen, Wei Chen, Zhe Wang, Yangguang Bu, Hefei General Machinery Research Institute Co., Ltd, Hefei, China
PVP2024-123224: ULTRASONIC PHASED ARRAY AUTOMATIC DETECTION ON WELD SEAMS OF PLASTIC LINER IN TYPE IV HYDROGEN CYLINDER ▼
Cunjian Miao, Haijian Zhong, Guoyang Teng, Weican Guo, Ping Tang, Jiansheng Hu, Yangji Tao, Zhejiang Academy of Special Equipment Science, Hangzhou, China
PVP2024-123346: ULTRASONIC EXAMINATION OF WELDS IN CAST AUSTENITIC STAINLESS STEEL PWR REACTOR COOLANT SYSTEM PIPING
John Hayden, Structural Integrity Associates, Lynchburg, VA, USA; Jason Van Velsor, Structural Integrity Associates, State College, PA, USA

SESSION 3.1G (DA-08-03)

Wednesday, July 31, 8:15 am – 10:00 am, Regency Ballroom A (2nd Floor)
Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
DEVELOPMENTS IN FFS ASSESSMENT
Developed by: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Bhaskar Shitole, Wood, Calgary, AB, Canada; Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia; Ali Ok, Air Products, Allentown, PA, USA
Chair: Lorenzo Scano, S.S.I. s.r.l. - Studio Scano, Udine, Italy
Co-Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia
PVP2024-123393: THE IMPACT OF FEA MODELING TECHNIQUES FOR LEVEL 3 DENT ENGINEERING CRITICAL ASSESSMENT: SHELL VS. SOLID ELEMENTS
Alex Brust, David Kemp, DNV, Dublin, OH, USA; Luyao Xu, DNV, Calgary, AB, Canada
PVP2024-121682: ON THE REQUIRED DISTANCE TO MAJOR STRUCTURAL DISCONTINUITY FROM LOCAL METAL LOSS AREA
Yoichi Ishizaki, Hiroyasu Ameya, Idemitsu Kosan Co.Ltd., Chiba, Japan
PVP2024-122263: EVALUATION OF STORAGE TANK BOTTOM SETTLEMENT
Chithranjan Nadarajah, Becht, Mclean, Virginia, VA, USA
PVP2024-124240: A CALCULATION METHOD OF PIPELINE BENDING STRAIN BASED ON IMU DATA OF PIPELINE INTERNAL DETECTION
Dong Xie, Yi Shuai, Jian Shuai, Fei Ren, China University of Petroleum, Beijing, China; Cuicui Chen, PipeChina West Pipeline Company Limited, Urumqi, China; Yuanliang Jiang, Haipeng Liu, Sino-Pipeline International Company Limited, Beijing, China

SESSION 3.1H (OAC-04-01)

Wednesday, July 31, 8:15 am – 10:00 am, Regency Ballroom B (2nd Floor)
STORAGE AND TRANSPORTATION OF RADIOACTIVE MATERIALS-1
Developed by: Mike Weber, Steffan Komann, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany; David Tamburello, Steve Hensel, Savannah River National Laboratory, Aiken, SC, USA; Mustafa Hadj-Nacer, University of Reno, Reno, NV, USA; Nicholas Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA; Oscar Martinez, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Zenghu Han, Argonne National Laboratory, Lemont, IL, USA
Chair: Oscar Martinez, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: David Tambuerello, Savannah River National Laboratory, Aiken, SC, USA
PVP2024-122598: TRANSPORT OF LARGE NUCLEAR POWER PLANT COMPONENTS – NEW SCO-III REGULATIONS AND MECHANICAL DESIGN ASSESSMENT
Steffen Komann, Frank Wille, Konrad Linnemann, Bundesanstalt fuer Materialforschung und -pruefung (BAM), Berlin, Germany; Jeff Ramsay, Canadian Nuclear Safety Commission (CNSC), Ottawa, ON, Canada; Ingo Reiche, BASE, Berlin, Germany
PVP2024-123120: THE SAFETY ASSESSMENT OF TANKER TRUCK DUE TO COLLISION IN ROLLOVER ACCIDENTS
Heyi Feng, Xiaodong Xu, Guide Deng, Xiaopeng Kang, Yongquan Li, Guodong Jia, China Special Equipment Inspection & Research Institute, Beijing, China
PVP2024-123797: CONSEQUENCES OF AN IMPERFECTLY MOUNTED REINFORCEMENT CAGE IN A GENERICAL CYLINDRICAL CONCRETE CONTAINER DURING MECHANICAL SPECIMEN TESTS
Mike Weber, Holger Völzke, Gregor Nieslony, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany
PVP2024-125165: STRUCTURAL MODELING TO SUPPORT POST-YIELD ACCEPTANCE CRITERIA FOR SPENT NUCLEAR FUEL CLADDING
Nicholas Klymyshyn, Peter Sakalaukus, Kevin Kadooka, Pacific Northwest National Laboratory, Richland, WA, USA

SESSION 3.1I (CS-24-01)

Wednesday, July 31, 8:15 am – 10:00 am, Regency Ballroom C (2nd Floor)

Symposium on Structural Integrity—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

PROBABILISTIC AND RISK-INFORMED METHODS FOR STRUCTURAL INTEGRITY ASSESSMENT-1

Developed by: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA; Yinsheng Li, Japan Atomic Energy Agency, Tokai, Japan

Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

Co-Chair: David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA

PVP2024-121559: RISK-INFORMED ASSESSMENT OF FRENCH STRESS CORROSION CRACKING OPERATIONAL EXPERIENCE RELATIVE TO THE FLEET OF PRESSURIZED WATER REACTORS IN THE UNITED STATES OF AMERICA

David Rudland, US Nuclear Regulatory Commission, Frederick, MA, USA; Matthew Leech, Mathew Homiack, Christopher Nellis, US Nuclear Regulatory Commission, Rockville, MA, USA

PVP2024-124330: TECHNICAL BASIS FOR INSPECTION OPTIMIZATION AND DEFERRAL OF PWR PRESSURIZER COMPONENT EXAMINATIONS

Nathaniel G. Cofie, Structural Integrity Associates, Morgan Hill, CA, USA; Dilip Dedhia, Scott T. Chesworth, Structural Integrity Associates, San Jose, CA, USA; Do Jun Shim, EPRI, Palo Alto, CA, USA; Robert Grizzi, EPRI, Charlotte, NC, USA

PVP2024-124562: A NOVEL APPLICATION TO ASSESS THE STRUCTURAL INTEGRITY CODES OF PRESSURE COMPONENTS

Haowen Sun, Lingyun Guo, Hohai University, Nanjing, China

PVP2024-124585: A MULTIPLE-CRITERIA DECISION APPLICATION FOR EVALUATING THE PROBABILISTIC INTEGRITY CODES

Niu Hanyi, Lingyun Guo, Hohai University, Nanjing, China

SESSION 3.1J (DA-02-02)

Wednesday, July 31, 8:15 am – 10:00 am, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PIPING COMPONENTS-2

Developed by: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA; Bhaskar Shitole, Wood, Calgary, AB, Canada; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

Chair: Bhaskar Shitole, Wood, Calgary, AB, Canada

Co-Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-121900: TESTING FRACTURE TOUGHNESS OF COMPOSITE REPAIR BONDING

Abdullah Al-Shabibi, Abdul-Majeed Al Ismaili, Mohammed Al Ghatrifi, Hisham Al Kindi, Hussam Al Mashrafi, Sultan Qaboos University, Al Khoud, Oman

PVP2024-122808: ANALYSIS AND TREATMENT OF PIPELINE VIBRATION DRIVEN BY TURBINE-DRIVEN BOILER FEED WATER PUMP

Chengwen Wang, Wuhuan Engineering Co., Ltd., Wuhan, China

PVP2024-122803: STRESS ANALYSIS OF EXPLOSION-WELDED STAINLESS STEEL TO ALUMINUM CRYOGENIC TRANSITION JOINTS

Ali Ok, Air Products and Chemicals, Allentown, PA, USA

PVP2024-123193: DESIGN AND EVALUATION OF POLYETHYLENE ELECTROFUSION JOINTS BASED ON STRESS CLASSIFICATION

Xinwei Zong, Riwu Yao, Jianfeng Shi, Zhejiang University, Hangzhou, China

SESSION 3.1K (CS-07-03)

Wednesday, July 31, 8:15 am – 10:00 am, Regency Ballroom F (2nd Floor)

Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee

RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS-3

Developed by: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA; Mark Messner, Argonne National Laboratory, Plainfield, IL, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Chair: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA

Co-Chair: Mark Messner, Argonne National Laboratory, Plainfield, IL, USA

PVP2024-122006: ASME BPVC SECTION III DIVISION 4 FUSION CONSTRUCTION CODE ROADMAP (Presentation Only)

Thomas P. Davis, Oxford Sigma, Didcot, United Kingdom

PVP2024-129182: COMPARISON OF UK GENERIC DESIGN ASSESSMENT WITH PLANT SYSTEMS DESIGN STANDARD (PSD-1)

Paul Donavin, Becht, Eau Claire, MI, USA; Arnold Feldman, JJDS Environmental, Doylestown, PA, USA; Benjamin Pellereau, Rolls-Royce, Derby, United Kingdom

PVP2024-125197: CMC COMPONENTS FOR HTR'S DESIGN AND QUALIFICATION TESTING

Josina Geringer, Oak Ridge National Laboratory, Knoxville, TN, USA; William Windes, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2024-123351: EXPERIMENTAL AND ANALYTICAL VERIFICATION OF ASME SECTION III, DIVISION 5 CREEP-FATIGUE DESIGN RULES

Yanli Wang, Oak Ridge National Laboratory, Knoxville, TN, USA; Robert Jetter, R. I. Jetter Consulting, Pleasanton, CA, USA; Ting-Leung Sham, Idaho National Laboratory, Idaho Falls, ID, USA

SESSION 3.1L (HT-02-01)

Wednesday, July 31, 8:15 am – 10:00 am, Regency Ballroom G (2nd Floor)

Symposium of Structures Under Extreme Loading Conditions—Sponsored by the Fluid-Structure Interaction and High-Pressure Technology Technical Committees

IMPULSIVELY LOADED VESSELS

Developed by: Matthew Edel, Jihui Geng, BakerRisk, San Antonio, TX, USA; David Gross, Dominion Engineering, Reston, VA, USA; Robert Leishear, Leishear Engineering LLC, Aiken, SC, USA; Megan Tribble, Sandia National Laboratory, Albuquerque, NM, USA

Chair: Megan Tribble, Sandia National Laboratory, Albuquerque, NM, USA

Co-Chair: David Gross, Dominion Engineering, Reston, VA, USA

PVP2024-123517: ALLOY EFFECTS IN STEELS FOR EXPLOSIVE CONTAINMENT VESSELS

Joshua Mueller, Michigan Technological University, Houghton, MI, USA; Joshem Gibson, Melissa Thrun, Los Alamos National Laboratory, Los Alamos, NM, USA

PVP2024-122773: VISUALIZATION OF COMBINED DECOMPOSITION AND RELIEF PROCESSES IN HIGH-PRESSURE SYSTEMS

Aaron Röblitz, Jarne Berning, Markus Busch, TU Darmstadt, Darmstadt, Germany

PVP2024-123890: COMPARISON OF MEASURED AND PREDICTED VESSEL HOOP STRAINS AND DOOR DISPLACEMENTS FOR THE EXPLOSIVE DESTRUCTIVE SYSTEM V31 VESSEL

John Ludwigsen, Jerome Stofleth, Megan Tribble, Sandia National Laboratories, Albuquerque, NM, USA; Robert Crocker, Sandia National Laboratories, Livermore, CA, USA

PVP2024-124096: QUALIFICATION OF AN IMPULSIVELY-LOADED CONFINEMENT VESSEL FOR PROTON RADIOGRAPHY OF SMALL-SCALE SHOCK PHYSICS EXPERIMENTS

Dusan Spernjak, Joshem Gibson, Matthew Fister, Devin Cardon, Kevin Fehlmann, Matthew Lakey, Heidi Reichert, Thomas Venhaus, Los Alamos National Laboratory, Los Alamos, NM, USA

SESSION 3.1M (DA-15-01)

Wednesday, July 31, 8:15 am – 10:00 am, Cedar Ballroom B (2nd Floor)

Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee

8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 1-COKE DRUM SKIRT INTEGRITY

Developed by: Antonio Seijas, P66, Houston, TX, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA; Jana Petzova, VUJE a.s., Trnava, Slovakia; Radim Kopriva, UJV Rez, A. S., Husinec, Czech Republic

Chair: Antonio Seijas, P66, Houston, TX, USA

Co-Chair: Julian Bedoya, ExxonMobil Technology and Engineering Company, Spring, TX, USA

PVP2024-122531: T-SLOT DESIGN AND FATIGUE LIFE ASSESSMENT OF COKE DRUM SKIRT TO CONE KNUCKLE WELD JOINT

Anthony Scandroli, Omar Nassif, WSI, Suwanee, GA, USA

PVP2024-122838: OPTIMIZING COKE DRUM KEYHOLE DIMENSIONS USING STATISTICAL MODELING
John Fernando, Henry Kwok, Luke Chan, Zachry Integrity Engineering Ltd, Calgary, AB, Canada; Jorge Penso, Shell Global Solutions (US) Inc, Houston, TX, USA
PVP2024-123402: COKE DRUM SKIRT LIFE-CYCLE MANAGEMENT
Antonio Seijas, P66, Katy, TX, USA; Alex Berry, Phillips 66 Limited, London, United Kingdom
PVP2024-125231: ADVANCING HEAT TRANSFER ANALYSIS OF COKE DRUM SKIRTS USING DEEP LEARNING AND SURROGATE MODELS
Balaji Srinivasan, Engineers India Limited, Gurugram, India; Srinivasan Venkataraman, Indian Institute of Technology Delhi, New Delhi, India

SESSION 3.1N (DA-10-01)

Wednesday, July 31, 8:15 am – 10:00 am, Larch (3rd Floor)
Symposium on Bolted Joints—Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees
DESIGN AND ANALYSIS OF BOLTED JOINTS
Developed by: Warren Brown, Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Clay Rodery, C&S Technology LLC, League City, TX, USA; Nathan Barkley, Becht, New Albany, MS, USA; Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia
Chair: Hubert Lejeune, CETIM, Nantes, France
Co-Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia
PVP2024-122878: EVALUATION OF SINGLE STUD REPLACEMENT IN STANDARD PIPING FLANGES
Warren Brown, Darryl Godfrey, Gysbert Van Zyl, Integrity Engineering Solutions, Dunsborough, Australia
PVP2024-122793: METALLIC SEAL RING REUSABILITY
Reza Payvar, Freudenberg Oil & Gas Technologies, Stoney Creek, ON, Canada
PVP2024-123355: OPTIMIZING PRELOAD IN A HPHT API 6BX FLANGE WHEN SUBJECT TO THERMAL LOADING
Ruth Owen, Peter Ward, Richard Farnell, Andrew Christie, PDL Solutions (Europe) Ltd, Hexham, United Kingdom

SESSION 3.1O (TW-4-1)

Wednesday, July 31, 8:15 am – 10:00 am, Auditorium (3rd Floor)
TECHNICAL TUTORIAL-ADDITIVE MANUFACTURING-PART 1
Developed by: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA
Chair: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA
Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presented by: Paul Korinko, Drew Snelling, Savannah River National Laboratory, Aiken, SC, USA

SESSION 3.1P (TE-03-01)

Wednesday, July 31, 8:15 am – 10:00 am, Grand Ballroom A-D (2nd Floor)
TECHNOLOGY EXHIBITS – 9

Block 3.2: Wednesday, July 31, 2024 (10:15 am – 12:00 pm)

SESSION 3.2A (MF-02-09)

Wednesday, July 31, 10:15 am – 12:00 pm, Evergreen Ballroom G (Lobby Level)
Symposium on Materials for Hydrogen Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
PIPELINE INFRASTRUCTURE 2
Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Kevin Mandeville, DNV, Katy, TX, USA; Laurent Briottet, French Alternative Energies & Atomic Energy Commission, Grenoble, France; Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Bostjan Bezensek, Shell, Laurencekirk, United Kingdom
Co-Chair: Ramgopal Thodla, DNV, Dublin, OH, USA
PVP2024-123477: COMPARISON BETWEEN FATIGUE AND FRACTURE BEHAVIOR OF PIPELINE STEELS IN PURE AND BLENDED HYDROGEN WITH EQUIVALENT FUGACITY
Milan Agnani, Joseph Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA
PVP2024-122754: FRACTURE AND FATIGUE PROPERTIES OF HIGH STRENGTH FERRITIC STEELS WELDS IN HIGH PRESSURE HYDROGEN
Matteo Ortolani, Paolo Bortot, Tenaris, Dalmine, Italy; Matthew Connolly, Zack Buck, National Instutute of Standards and Technology (NIST), Boulder, CO, USA
PVP2024-122529: TECHNICAL BASIS FOR FATIGUE CRACK GROWTH RULES IN GASEOUS HYDROGEN FOR ASME B31.12 CODE CASE 220 AND FOR REVISION OF ASME VIII-3 CODE CASE 2938-1
Chris San Marchi, Joseph Ronevich, Sandia National Laboratories, Livermore, CA, USA; Paolo Bortot, Matteo Ortolani, TenarisDalmine, Dalmine, Italy; Kang Xu, Linde Inc, Tonawanda, NY, USA; Mahendra Rana, Consultant, Niantic, CT, USA
PVP2024-122557: EFFECT OF STRENGTH AND MICROSTRUCTURE ON HYDROGEN COMPATIBILITY OF LINEPIPE STEELS
Hikaru Imayama, Daichi Izumi, Junji Shimamura, JFE Steel Corporation, Fukuyama-shi, Japan; Yoshihiro Nishihara, Hiroshi Okano, JFE Steel Corporation, Kawasaki-shi, Japan

SESSION 3.2B (MF-06-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Evergreen Ballroom H (Lobby Level)
Symposium on Mechanical Properties of Nuclear Materials—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees
MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS-2
Developed by: Weiju Ren, Xiang Chen, Yiyu Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Murthy Kolluri, NRG, Petten, Netherlands
Chair: Xiang (Frank) Chen, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: Yiyu (Jason) Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
PVP2024-123077: FORMULATION OF STRESS CORROSION CRACK GROWTH RATE BASED ON THEORETICAL STRAIN RATE MODEL FOR LIGHT WATER REACTORS
Masato Koshiishi, Dan Akazawa, Yasufumi Miura, Kenji Kako, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan
PVP2024-123284: IMPACT OF TEXTURE ON MECHANICAL PROPERTIES OF STAINLESS STEEL (SS316) MATERIAL USING A POLYNOMIAL CHAOS-BASED SURROGATE MODEL WITH CRYSTAL PLASTICITY SIMULATIONS
Dinesh Kumar, Paul Wilcox, David Knowles, Mahmoud Mostafavi, University of Bristol, Bristol, United Kingdom
PVP2024-122917: THE EFFECTS OF MODEL THICKNESS ON THE VARIATION OF LOCALISED STRESS FIELDS IN FOUR-POINT BENDING TESTS: A CPFE STUDY
Brandon Kuo, Masoud Taherijam, Hamidreza Abdolvand, The University of Western Ontario, London, ON, Canada
PVP2024-129804: AUTOMATI VALIDATION OF THE PHASED-ARRAY ULTRASONIC TEST OUTPUT APPLIED TO WELDS IN THE ITER VACUUM VESSEL MANUFATURING (Presentation Only)
Maria Ortiz De Zuniga, Fusion for Energy - UNED, Barcelona, Spain; Nawal Prinja, Prinja & Partners, Gatley, United Kingdom; Andres Dans, Fusion for Energy, Barcelona, Spain; Tito Megna, Independent Professional, Parma, Italy; Ana María Camacho, Alvaro Rodriguez-Prieto, UNED, Madrid, Spain

SESSION 3.2C (MF-16-01)

Wednesday, July 31, 10:15 am – 12:00 pm, Evergreen Ballroom I (Lobby Level)
Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees
CREEP AND CREEP-FATIGUE INTERACTION-1
Developed by: Catrin Mair Davies, Imperial College London, London, United Kingdom; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Haiyang Qian, GE Gas Power, Hartford, CT, USA; Mark Messner, Argonne

National Laboratory, Plainfield, IL, USA; Michael McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA; Michael McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Yun-Jae Kim, Korea University, Seoul, Republic of Korea

Chair: Catrin Mair Davies, Imperial College London, London, United Kingdom

Co-Chair: Mark Messner, Argonne National Laboratory, Plainfield, IL, USA

PVP2024-122116: LONG-TERM CREEP STRENGTH EVALUATION OF WELDED JOINT OF ASME GRADE 91 TYPE STEEL

Masatsugu Yaguchi, Central Research Institute of Electric Power Industry, Yokosuka, Japan

PVP2024-122999: REVISION OF LONG-TERM CREEP STRENGTH EVALUATION OF BASE METAL OF ASME GRADE 91 TYPE STEEL

Kazuhiro Kimura, National Institute for Materials Science, Tsukuba, Japan; Masatsugu Yaguchi, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan

PVP2024-122915: A CONTINUUM DAMAGE COUPLED UNIFIED CONSTITUTIVE MODEL FOR CREEP-FATIGUE DAMAGE EVALUATION OF MODIFIED GRADE 91 TUBE SHEET STRUCTURES UNDER FLEXIBLE LOADING CONDITIONS

Nazrul Islam, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh; Md Sumon Hossain, Geotech and Structures Ltd, Dhaka, Bangladesh

SESSION 3.2D (SE-09-01)

Wednesday, July 31, 10:15 am – 12:00 pm, Cottonwood (3rd Floor)

ADVANCED SEISMIC EVALUATION AND CODE (JOINT W/ CS-26)-1

Developed by: Akira Maekawa, Osaka Sangyo University, Osaka, Japan; Akihito Otani, IHI Corporation, Yokohama, Japan; Izumi Nakamura, Tokyo City University, Setagata, Japan

Chair: Atsuhiko Shintani, Osaka Metropolitan University, Sakai, Japan

Co-Chair: Izumi Nakamura, Tokyo City University, Setagata, Japan

PVP2024-122303: SIMPLIFIED FRAGILITY ASSESSMENT METHOD FOR PIPING SYSTEMS IN SEISMIC PRA

Yohei Ono, Masato Nakajima, Michiya Sakai, Ryuya Shimazu, Central Research Institute of Electric Power Industry (CRIEPI), Abiko-shi, Japan

PVP2024-122635: INVESTIGATION ON THE INFLUENCE OF ANALYSIS PARAMETERS IN 3-DIMENSIONAL ELASTO-PLASTIC FINITE ELEMENT ANALYSIS OF A GATE TYPE PIPING SUPPORT STRUCTURE

Kiyotaka Takito, Yukihiko Okuda, Akemi Nishida, Yinsheng Li, Japan Atomic Energy Agency, Shirakata, Japan

PVP2024-122723: NEW EVALUATION METHOD BASED ON CAV FOR SEISMIC FATIGUE DAMAGE OF PLANT PIPELINE (APPLICABILITY TO THE Z-BEND PIPELINE)

Fumio Inada, Tokyo Electric Power Company Holdings, Inc., Minato-ku, Japan; Michiya Sakai, Ryo Morita, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Japan; Ichiro Tamura, Willow TechSolutions, Ltd., Hiroshima, Japan

PVP2024-123075: BENCHMARK ANALYSIS ON PIPE SUPPORT STRUCTURES FOR ESTABLISHING INELASTIC SEISMIC DESIGN

Izumi Nakamura, Tokyo City University, Setagata, Japan; Kiyotaka Takito, Japan Atomic Energy Agency, Naka-gun, Japan; Ryuya Shimazu, Michiya Sakai, Central Research Institute of Electric Power Industry (CRIEPI), Abiko, Japan; Yukihiko Okuda, Japan Atomic Energy Agency, Tokai-mura, Japan; Akihito Otani, IHI Corporation, Yokohama, Japan; Tomoyoshi Watakabe, Takahiro Okuda, Japan Atomic Energy Agency, Higashi-ibaraki-gun, Japan; Tadahiro Shibutani, Masaki Shiratori, Yokohama National University, Yokohama, Japan

SESSION 3.2E (MF-09-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Cedar Ballroom A (2nd Floor)

Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees

MECHANISTIC MODELLING OF DEFORMATION AND FRACTURE-2

Developed by: Peter James, Jacobs, Warrington, United Kingdom; David Rudland, US Nuclear Regulatory Commission, Rockville, MD, USA; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom; Harry Coules, University of Bristol, Bristol, United Kingdom; Vincent Robin, EDF R&D, Département PRISME, Lyon, France; Ben Pellereau, Rolls-Royce, Loughborough, United Kingdom; Noel O'Dowd, University of Limerick, Limerick, Ireland; Sergio Cicero, University of Cantabria, Santander, Spain

Chair: Sergio Cicero, University of Cantabria, Santander, Spain

Co-Chair: Peter James, Jacobs, Warrington, United Kingdom

PVP2024-123363: PREDICTION OF MECHANICAL PROPERTIES OF ELECTRON BEAM WELDED SS316L USING CRYSTAL PLASTICITY FRAMEWORK

Farhan Ashraf, Mehdi Mokhtarishirazabad, Mahmoud Mostafavi, David Knowles, University of Bristol, Bristol, United Kingdom; Eralp Demir, University of Oxford, Oxford, United Kingdom

PVP2024-123313: BAYESIAN OPTIMISATION OF DIFFUSION BONDED PRESSURE VESSEL WINDOWS (Presentation Only)

Greg Nelson, Brett Friskney, Frazer-Nash Consultancy, Burton on Trent, United Kingdom; Martin Cuddy, Michael Kovari, UK Atomic Energy Authority, Abingdon, United Kingdom

PVP2024-122731: EFFECTS OF WELDING AND CONSTRAINT CONDITIONS ON THE WELDING RESIDUAL STRESS AND HARDNESS OF TYPE 316 STAINLESS STEEL PIPE

Suo Li, Yoshihito Yamaguchi, Jinya Katsuyama, Yinsheng Li, Japan Atomic Energy Agency, Naka-Gun, Japan

SESSION 3.2F (NDE-01-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Laurel (3rd Floor)

EMERGING NON-DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS-2

Developed by: Vivek Agarwal, Idaho National Laboratory, Idaho Falls, ID, USA; Min Zhang, Praxair, a Linde Company, Tonawanda, NY, USA

Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain

Co-Chair: Heramb Mahajan, Idaho National Laboratory, Idaho Falls, ID

PVP2024-122885: INTELLIGENT DEFECT RECOGNITION OF PIPELINE WELDS BASED ON DEEP LEARNING FOR PHASED ARRAY ULTRASONIC TESTING IMAGES

Ruyun Zhang, Shaohua Dong, Laibin Zhang, China University of Petroleum, Beijing, China

PVP2024-123023: A LIGHTWEIGHT MODEL OF AUTOMATIC PIXEL-LEVEL DETECTION FOR WELD DEFECTS

Weichao Qian, Shaohua Dong, Qingying Ren, Lin Chen, China University of Petroleum, Beijing, China

PVP2024-124236: RESEARCH ON PITTING EVALUATION OF PROCESS PIPELINE BASED ON EXTREME VALUE DISTRIBUTION MODEL

Liangchao Chen, Hao-Peng Li, Beijing University of Chemical Technology, Beijing, China; Xinyuan Lu, China Special Equipment Inspection and Research Institute, Beijing, China

SESSION 3.2G (DA-08-04)

Wednesday, July 31, 10:15 am – 12:00 pm, Regency Ballroom A (2nd Floor)

Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees

FFS ASSESSMENT APPLICATIONS

Developed by: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Bhaskar Shitole, Wood, Calgary, AB, Canada; Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia; Ali Ok, Air Products, Allentown, PA, USA

Chair: Ali Ok, Air Products, Allentown, PA, USA

Co-Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia

PVP2024-122541: PROBABILISTIC CRITICAL INITIAL FLAW SIZE ANALYSIS IN THE CIRCUMFERENTIAL WELDS OF LAYERED PRESSURE VESSELS

Matthew Kirby, David Riha, Joseph Cardinal, Southwest Research Institute, San Antonio, TX, USA; Joel Hobbs, Brian Stoltz, NASA Marshall Space Flight Center, Huntsville, AL, USA

PVP2024-122786: IMPACT OF GENERAL AND LOCAL METAL LOSS ON THE API 579-1 OMEGA-METHOD CREEP ANALYSIS

Lorenzo Scano, Francesco Piccini, Salvatore Palomba, S.S.I. s.r.l. - Studio Scano, Udine, Italy

PVP2024-122832: DERIVATION OF INPUT DISTRIBUTIONS FOR PROBABILISTIC EVALUATION OF PT/CT CONTACT IN CANDU REACTORS

Eric Nadeau, Adrian Baniak, AtkinsRealis, Mississauga, ON, Canada

PVP2024-123209: NON-LINEAR BUCKLING ANALYSIS OF THIN-WALLED CYLINDRICAL SHELL HAVING LARGE OPENINGS

Muhammad Raheel Rafique, Petrokemya Arabian Petrochemical Co., SABIC affiliate., Jubail, Saudi Arabia

SESSION 3.2H (OAC-04-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Regency Ballroom B (2nd Floor)

STORAGE AND TRANSPORTATION OF RADIOACTIVE MATERIALS-2

Developed by: Mike Weber, Steffan Komann, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany; David Tamburello, Steve Hensel, Savannah River National Laboratory, Aiken, SC, USA; Mustafa Hadj-Nacer, University of Reno, Reno, NV, USA; Nicholas Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA; Oscar Martinez, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Zenghu Han, Argonne National Laboratory, Lemont, IL, USA

Chair: Mike Weber, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany

Co-Chair: Zenghu Han, Argonne National Laboratory, Lemont, IL, USA

PVP2024-121762: EXPERIMENTAL AND NUMERICAL ANALYSES FOR THE EVALUATION OF HEAT FLUXES OF A FIRE REFERENCE TEST

Tobias Gleim, Martin Feldkamp, Thomas Quercetti, Frank Wille, Federal Institute for Materials Research and Testing (BAM), Berlin, Germany

PVP2024-121996: PRETEST MODELING A SPENT NUCLEAR FUEL SEISMIC SHAKE TEST

Nicholas Klymyshyn, Kevin Kadooka, Nathan Barrett, Casey Spitz, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2024-122610: EXPERIMENTAL AND NUMERICAL ANALYSES FOR THE EVALUATION OF HYDROGEN AS AN ENERGY SOURCE FOR THERMAL TESTING OF TRANSPORT PACKAGES OF RADIOACTIVE MATERIAL

Maximilian Naster, Tobias Gleim, Frank Wille, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany

PVP2024-125133: THERMAL MODELING OF HANFORD CESIUM AND STRONTIUM CANISTERS DURING SIMULATED LOADING

Dina Carpenter-Graffy, Pacific Northwest National Laboratory, Madison, WI, USA; Sarah Suffield, Nicholas Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA

SESSION 3.2I (CS-24-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Regency Ballroom C (2nd Floor)

Symposium on Structural Integrity—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

PROBABILISTIC AND RISK-INFORMED METHODS FOR STRUCTURAL INTEGRITY ASSESSMENT-2

Developed by: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada; David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA; Yinsheng Li, Japan Atomic Energy Agency, Tokai, Japan; Do Jun Shim, EPRI, Palo Alto, CA, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom; Liqing Wei, Zhejiang University, Hangzhou, China; Anees Udyawar, Westinghouse Electric Company, Cranberry Township, PA, USA; Yogendra Garud, SIMRAND, LLC, San Jose, CA, USA

Chair: David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA

Co-Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-123934: A MATHEMATICAL ITERATIVE METHOD TO VALIDATE PROBABILISTIC INTEGRITY ASSESSMENT CODES WITH EXPERIMENTAL DATABASE

Lingyun Guo, Qionglin Liang, Hohai University, Nanjing, China

PVP2024-122880: RELIABILITY-BASED SAFETY FACTOR FOR PRESSURIZED COMPONENTS CONSIDERING CREEP-FATIGUE FAILURE

Xiaoxiao Wang, Haofeng Chen, Weiling Luan, East China University of Science and Technology, Shanghai, China

PVP2024-124520: EVOLUTION OF PROCESS-ZONE-BASED PROBABILISTIC MODEL FOR RESISTANCE TO CRACK INITIATION DUE TO HYDRIDED REGION OVERLOADS IN CANDU PRESSURE TUBES (Presentation Only)

Leonid Gutkin, Douglas Scarth, Kinectrics Inc., Toronto, ON, Canada

PVP2024-123443: A MULTI-SCALE MINIMUM TIME-TO-FAILURE RELIABILITY MODEL FOR CREEP, CREEP CRACK INITIATION, AND CREEP CRACK GROWTH OF A 2-1/4-CR-1-MO STEEL AT 565°C AND A BK-7 GLASS AT 20°C

Jeffrey Fong, National Institute of Standards & Techology (NIST), San Bruno, CA, USA; Stephen W. Freiman, Freiman Consulting, Potomac, MA, USA; Marvin J. Cohn, Intertek, AIM, Santa Clara, CA, USA; N. Alan Heckert, National Instutute of Standards and Technology (NIST), Gaithersburg, MA, USA

SESSION 3.2J (DA-02-03)

Wednesday, July 31, 10:15 am – 12:00 pm, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PIPING COMPONENTS-3

Developed by: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA; Bhaskar Shitole, Wood, Calgary, AB, Canada; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada

Co-Chair: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA

PVP2024-123358: LEAKAGE RATE MODELS FOR CRACKED PIPES

F. Brigante, Fabio Pasti, F.H.E. De Haan – De Wilde, NRG, Petten, Netherlands

PVP2024-123387: ALTERNATING STRESS AND STRESS LINEARIZATION ANALYSIS OF PIPE UNDER HIGH-FREQUENCY ULTRASONICS CLEANING DEVICES

Ashkan Eslaminejad, Structural Integrity Associates, Highlands Ranch, CO, USA; Andrew Crompton, Structural Integrity Associates, Englewood, CO, USA

PVP2024-123429: A METHODOLOGY FOR USING MECHANICAL COMPRESSION JOINT FITTINGS ON ASME SECTION III SMALL BORE PIPEWORK

James Wilson, Oliver Greenwood, Rolls-Royce, Derby, United Kingdom

PVP2024-123390: TOTAL ROTATIONAL CAPACITY OF THREADED CONNECTIONS IN PIPE-FITTING ASSEMBLIES

Cameron Rusnak, Sherif Elfass, Allen Rivas, University of Nevada, Reno, Reno, NV, USA

SESSION 3.2K (CS-07-04)

Wednesday, July 31, 10:15 am – 12:00 pm, Regency Ballroom F (2nd Floor)

Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee

RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS-4

Developed by: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA; Mark Messner, Argonne National Laboratory, Plainfield, IL, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Peter James, John Sharples, Jacobs, Warrington, United Kingdom; Valery Lacroix, Tractebel Engie, Brussels, Belgium; Claude Faidy, CF Integrity Engineering, Tassin-la-Demi-Lune, France

Chair: Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Co-Chair: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA

PVP2024-123021: AN OVERVIEW OF CODES AND STANDARDS FOR ELECTROLYZER APPLICATIONS

Karen Quackenbush, FCHEA, Browns Mills, NJ, USA; Jitesh Panicker, Electric Hydrogen, San Carlos, CA, USA

PVP2024-121884: DEVELOPMENT OF ASME SECTION VIII DIVISION 1 CODE CASE 3078 ON ELECTROCHEMICAL CELL STACKS FOR ELECTROLYSIS

Kang Xu, Linde, Tonawanda, NY, USA

PVP2024-123202: MASTERING CRITICAL FACTORS AFFECTING TOUGHNESS DEGRADATION IS KEY TO EFFECTIVE USE OF DUPLEX STAINLESS STEEL IN PRESSURE VESSELS

Claes Tigerstrand, Johan Pilhagen, Jan Y Jonsson, Outokumpu Stainless AB, Avesta, Sweden

PVP2024-123464: DESIGN OF JACKETED PRESSURE VESSELS: INTRODUCTION TO AN INNOVATIVE METHODOLOGY BASED ON FORMULAE

Philippe Rohart, Cetim, Senlis, France

SESSION 3.2L (HT-02-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Regency Ballroom G (2nd Floor)

Symposium of Structures Under Extreme Loading Conditions—Sponsored by the Fluid-Structure Interaction and High-Pressure Technology Technical Committees

DYNAMICALLY LOADED STRUCTURES

Developed by: Matthew Edel, Jihui Geng, BakerRisk, San Antonio, TX, USA; David Gross, Dominion Engineering, Reston, VA, USA; Robert Leishear, Leishear Engineering LLC, Aiken, SC, USA; Megan Tribble, Sandia National Laboratory, Albuquerque, NM, USA

Chair: Matt Edel, BakerRisk, San Antonio, TX, USA

Co-Chair: David Gross, Dominion Engineering, Reston, VA, USA

PVP2024-123182: COMMISSIONING AND SCALABILITY OF A HIGH-PRESSURE MULTI-ZONE AUTOCLAVE FOR POLYMER SYNTHESIS

Nicola Schreiner, Christoph Weigel, Julian Kirsch, Lena Gockel, Markus Busch, Technical University of Darmstadt, Darmstadt, Germany

PVP2024-123079: ELECTROMAGNETIC LITHIUM RING COMPRESSION FOR MAGNETIZED TARGET FUSION APPLICATION: SHELL BUCKLING

Fatemeh Edalatfar, Lemuel Santos, Hashem Jayhooni, General Fusion, Richmond, BC, Canada; Jean-Sebastien Dick, General Fusion Inc., Vancouver, BC, Canada

PVP2024-123749: NUMERICAL SIMULATION OF HIGH ENERGY PIPE BREAK

Derrick Pease, George Antaki, Becht, Liberty Corner, NJ, USA

PVP2024-133077: EVALUATION OF WEAK AREA IN REINFORCEMENT CONCRETE WALLS OF CONTAINMENT BUILDING BY OVER-PRESSURE ANALYSIS (Presentation Only)

Hyemin Shin, Tae-Hyun Kwon, Minkyu Kim, KAERI (Korea Atomic Energy Research Institute), Yuseong-gu, Republic of Korea

SESSION 3.2M (DA-15-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Cedar Ballroom B (2nd Floor)

Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee

8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 2-COKE DRUM RELIABILITY, REPAIR, AND REPLACEMENT

Developed by: Antonio Seijas, P66, Houston, TX, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

Chair: Antonio Seijas, P66, Houston, TX, USA

Co-Chair: Julian Bedoya, ExxonMobil Technology and Engineering Company, Spring, TX, USA

PVP2024-122815: COKE DRUM REPLACEMENT WITH BULGE-INDUCED DAMAGE

Egler Araque, Vessel Inspection and Assessment Corp - VIAAC, Mississauga, ON, Canada; Stephen Park, Vessel Inspection and Assessment Corp - VIAAC, Hamilton, ON, Canada

PVP2024-122825: COKE DRUM REPAIRS FOR DRUMS OF ADVANCED AGE (Presentation Only)

Brent Ray, Marathon Petroleum Company, Catlettsburg, KY, USA; Chris Bennett, MPC - Los Angeles Refining, Wilmington, CA, USA

PVP2024-123495: STUDY OF HIGH TEMPERATURE STRAIN GAGES AS THEY APPLY TO ASSET LIFE MANAGEMENT PROGRAMS

Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA; Andrew Crompton, Structural Integrity Associates, Inc., Centennial, CO, USA; Roland Horvath, Horvath Research, Aurora, CO, USA

PVP2024-129290: INVESTIGATION OF COKE DRUM WASHER PLATE LOOSENING AND TOP NOZZLE DEFORMATION

Dave Dewees, Becht, Medina, OH, USA; Nick Baden, Cenovus Toledo Refinery, Oregon, OH, USA

SESSION 3.2N (DA-10-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Larch (3rd Floor)

Symposium on Bolted Joints—Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees

BOLTED JOINT INTERNATIONAL LIAISON SESSION #1 (PANEL SESSION)

Developed by: Warren Brown, Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia; Clay Rodery, C&S Technology LLC, League City, TX, USA; Nathan Barkley, Becht, New Albany, MS, USA; Abdelgader Abdegalil, SABIC, Jubail, Saudi Arabia

Chair: Hubert Lejeune, CETIM, Nantes, France

Co-Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, Australia

SESSION 3.2O (TW-4-2)

Wednesday, July 31, 10:15 am – 12:00 pm, Auditorium (3rd Floor)

TECHNICAL TUTORIAL-ADDITIVE MANUFACTURING-PART 2

Developed by: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA

Chair: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA

Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt

Presented by: Paul Korinko, Drew Snelling, Savannah River National Laboratory, Aiken, SC, USA

SESSION 3.2P (TE-03-02)

Wednesday, July 31, 10:15 am – 12:00 pm, Grand Ballroom A-D (2nd Floor)

TECHNOLOGY EXHIBITS – 10

Block 3.3: Wednesday, July 31, 2024 (2:15 pm – 4:00 pm)

SESSION 3.3A (DA-17-01)

Wednesday, July 31, 2:15 pm – 4:00 pm, Evergreen Ballroom G (Lobby Level)

Symposium on Composite Materials—Co-Sponsored by the Design & Analysis and Materials & Fabrication Technical Committees

COMPOSITE MATERIALS AND STRUCTURES

Developed by: Pierre Mertiny, University of Alberta, Edmonton, AB, Canada; Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; Bhaskar Shitole, Wood, Calgary, AB, Canada; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

Chair: Pierre Mertiny, University of Alberta, Edmonton, AB, Canada

Co-Chair: Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA

PVP2024-123122: ELASTIC PROPERTIES OF RANDOMLY ORIENTED FIBER REINFORCED COMPOSITES USING ANSYS MATERIAL DESIGNER

Luke Graham, Qin Ma, Walla Walla University, College Place, WA, USA

PVP2024-123338: FAILURE CRITERIA OF CARBON FIBER REINFORCED COMPOSITES IN CRYOGENIC ENVIRONMENTS BASED ON MULTISCALE ANALYSIS METHOD ▼

Zhuangzhuang Cao, Bingjie Fu, Jinyang Zheng, Jianfeng Shi, Zhejiang University, Hangzhou, China; Jiangkun Bai, Guoying Wang, Shandong Auyan New Energy Technology Corp. Ltd., Weifang City, China

PVP2024-124763: NUMERICAL ANALYSIS OF RESIDUAL BURST PRESSURE FOR TYPE III COMPOSITE CYLINDERS WITH EXTERNAL SURFACE CUT

Can Jin, Yimin Zhao, Qinan Li, Zhengli Hua, Chaohua Gu, Sheng Zeng, Zhejiang University, Hangzhou, China

PVP2024-123726: PEEL STRENGTH OF MULTILAYER POLYMER-BASED PIPES

Mahima Dua, Pierre Mertiny, University of Alberta, Edmonton, AB, Canada; Ahmed Hammami, Mattr Infrastructure Technologies, Calgary, AB, Canada

SESSION 3.3B (MF-06-03)

Wednesday, July 31, 2:15 pm – 4:00 pm, Evergreen Ballroom H (Lobby Level)

Symposium on Mechanical Properties of Nuclear Materials—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS-3

Developed by: Weiju Ren, Xiang Chen, Yiyu Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Murthy Kolluri, NRG, Petten, Netherlands

Chair: Yiyu (Jason) Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Co-Chair: Xiang (Frank) Chen, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-123322: TOWARDS A DATA-DRIVEN EVOLUTIONARY MODEL OF THE CYCLIC BEHAVIOUR OF AUSTENITIC STEELS

Hugh Dorward, David Knowles, Mahmoud Mostafavi, Matthew Peel, University of Bristol, Bristol, United Kingdom

PVP2024-123509: LIFE PREDICTION WITH MATERIAL HARDENING MODELS FOR HIGH TEMPERATURE CYCLIC LOADINGS

Ryan Mcguire, Virginia Commonwealth University, Richmond, VA, USA; Ramesh Rajasekaran, Hsu-Kuang Ching, David Bankston, TerraPower, Bellevue, WA, USA

PVP2024-121942: SIMULATING NEUTRON IRRADIATION EFFECT ON STAINLESS STEEL BY NON-IRRADIATION METHOD (Presentation Only)

Hyeonjie Ryoo, Ulsan National Institute of Science and Technology, Ulsan, Republic of Korea

PVP2024-122276: MICROSTRUCTURE AND CREEP PERFORMANCE OF WIRE ARC ADDITIVE MANUFACTURED GRADE 91 STEEL

Yiyu Wang, Wei Zhang, Yanli Wang, Zhili Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 3.3C (MF-16-02)

Wednesday, July 31, 2:15 pm – 4:00 pm, Evergreen Ballroom I (Lobby Level)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

CREEP AND CREEP-FATIGUE INTERACTION-2

Developed by: Catrin Mair Davies, Imperial College London, London, United Kingdom; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Haiyang Qian, GE Gas Power, Hartford, CT, USA; Mark Messner, Argonne National Laboratory, Plainfield, IL, USA; Michael McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA; Michael McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA; Rita Kirchhofer, Exponent, Golden, CO, USA; Yun-Jae Kim, Korea University, Seoul, Republic of Korea

Chair: Catrin Mair Davies, Imperial College London, London, United Kingdom

Co-Chair: Mark Messner, Argonne National Laboratory, Plainfield, IL, USA

PVP2024-122668: HIGH TEMPERATURE TENSILE AND CREEP STRAIN MEASUREMENT USING EDGE IMAGE ANALYSIS

Catrin Mair Davies, Chloe Parker, Jorge De Andres, Chen Liu, Imperial College London, London, United Kingdom

PVP2024-123166: MICROSTRUCTURAL EVOLUTION AND CREEP BEHAVIOR OF T92/HR3C DISSIMILAR WELDS USED IN CHINA PLANTS

Chang Che, Jianming Yu, Xinzhong Chen, China Special Equipment Inspection and Research Institute, Beijing, China; Yu Cong, Hao Wang, University of Science and Technology Beijing, Beijing, China

PVP2024-121293: CREEP-RUPTURE PREDICTION OF INCONEL 617 USING A PYTHON-BASED MACHINE LEARNING APPROACH

Mohammad Shafinul Haque, Angelo State Univeristy, San Angelo, TX, USA; Zakia Al Kadri, Independent Researcher, San Angelo, TX, USA

SESSION 3.3D (SE-09-02)

Wednesday, July 31, 2:15 pm – 4:00 pm, Cottonwood (3rd Floor)

ADVANCED SEISMIC EVALUATION AND CODE (JOINT W/ CS-26)-2

Developed by: Akira Maekawa, Osaka Sangyo University, Osaka, Japan; Akihito Otani, IHI Corporation, Yokohama, Japan; Izumi Nakamura, Tokyo City University, Setagata, Japan

Chair: Izumi Nakamura, Tokyo City University, Setagata, Japan

Co-Chair: Tomoyo Taniguchi, Tottori University, Tottori, Japan

PVP2024-123258: STUDY ON IMPROVED VIBRATION DAMING PERFORMANCE OF THE ELASTO-PLASTIC DAMPER ON VIBRATION OF CONNECTED CABINETS STORING ELECTRONICS SUBJECTED TO SEISMIC WAVE

Atsuhiko Shintani, Yasunari Michishita, Chihiro Nakagawa, Osaka Metropolitan University, Sakai, Japan; Tomohiro Ito, Independent Author, Kobe, Japan

PVP2024-123489: INVESTIGATION OF ULTIMATE BEHAVIOR OF ELBOW PIPES BY TENSILE LOADING TESTS IN THE DIRECTION OF IN-PLANE BENDING (PART 2)

Ryuya Shimazu, Michiya Sakai, Yohei Ono, Central Research Institute of Electric Power Industry (CRIEPI), Abiko-shi, Japan

PVP2024-123924: VERY LOW CYCLE FATIGUE EVALUATION OF PIPE ELBOW UNDER DYNAMIC CYCLIC LOADING AND EXPERIMENTAL VALIDATIONS

Hyun-Seok Song, Joo-Young Park, Yun-Jae Kim, Korea University, Seoul, Republic of Korea; Jin-Weon Kim, Chosun Univeristy, Gwangju, Republic of Korea

PVP2024-124691: HIGH ACCELERATION SHAKING TESTS CONSIDERING COUPLE OF PIPE SUPPORT STRUCTURE AND BOX CULVERT

Michiya Sakai, Toshiaki Sakai, Yohei Ono, Ryuya Shimazu, Central Research Institute of Electric Power Industry (CRIEPI), Abiko-shi, Japan; Tatsumasa Watanabe, Tokyo Electric Power Service Co., Ltd., Koto-ku, Japan

SESSION 3.3E (DA-12-01)

Wednesday, July 31, 2:15 pm – 4:00 pm, Cedar Ballroom A (2nd Floor)

Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees

FRACTURE 1-ADVANCES IN FRACTURE ANALYSIS

Developed by: Shane Finneran, DNV, Columbus, OH, USA; Shunji Kataoka, JGC Corporation, Yokohama, Japan; Ali Ok, Air Products, Allentown, PA, USA; Darren Pinto, Schenck Process, Sabetha, KS, USA

Chair: Shane Finneran, DNV, Columbus, OH, USA

Co-Chair: Shunji Kataoka, JGC Corporation, Yokohama, Japan

PVP2024-121470: HILLSIDE NOZZLE CRACK ANALYSIS COMPARISON USING FAD AND CRACK DRIVING FORCE METHODS WITH 3-D CRACK MESHES

Greg Thorwald, Quest Integrity USA, LLC, Westminster, CO, USA

PVP2024-121794: DAMAGE MODEL INVESTIGATIONS TO PREDICT CRACK INITIATION IN A TENSION TEST FOR A DUCTILE STEEL

Samuel Rainey, Steven Smith, Naval Nuclear Laboratory, West Mifflin, PA, USA

PVP2024-122127: XFEM SIMULATION AND PARAMETRIC ANALYSIS OF THICK-WALLED CYLINDRICAL MOCK-UPS UNDER THERMO-SHOCK

Diego Fernando Mora Mendez, Markus Niffenegger, Paul Scherrer Institut, Villigen, Switzerland

PVP2024-122988: STUDY ON FRACTURE CHARACTERISTICS OF PIPELINE STEEL GIRTH WELDS BASED ON WIDE PLATE TENSILE TEST AND NUMERICAL SIMULATION

Tieyao Zhang, Yi Shuai, Junjie Zhang, Zhiyang Lv, China University of Petroleum, Beijing, China; Lei Shi, Sinopec (Dalian) Research Institute of Petroleum and Petrochemicals Co., Ltd., Dalian, China; Yinhui Zhang, PipeChina Institute of Science and Technology, Langfang, China; Gang Xia, Xingtao Li, China National Oil and Gas Exploration and Development Co., Beijing, China

SESSION 3.3F (NDE-02-01)

Wednesday, July 31, 2:15 pm – 4:00 pm, Laurel (3rd Floor)

NDE TECHNIQUES AND APPLICATIONS FOR PETROCHEMICAL AND POWER PLANT COMPONENTS-1

Developed by: Vivek Agarwal, Idaho National Laboratory, Idaho Falls, ID, USA; Min Zhang, Praxair, a Linde Company, Tonawanda, NY, USA

Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain

Co-Chair: Heramb Mahajan, Idaho National Laboratory, Idaho Falls, ID

PVP2024-122320: GIRTH WELD DEFECT IDENTIFICATION METHOD AND APPLICATION RESEARCH BASED ON MFL INTERNAL DETECTION
Yatong Zhao, Lei Shi, Liguo Zhou, Sinopec Dalian Research Institute of Petroleum and Petrochemicals Co. Ltd., Dalian, China; Renbi He, China Special Equipment Inspection & Research Institute, Beijing, China

PVP2024-124579: WELD RESIDUAL STRESS OF 347H WELDMENTS AND THE EFFECTS OF PWHT AND EXPOSURE TO SERVICE TEMPERATURE ON RESIDUAL STRESS REDUCTIONS
Yi Yang, Yanfei Gao, The University of Tennessee, Knoxville, TN, USA; Jorge Penso, Shell Houston Technology Center, Houston, TX, USA; Zhili Feng, Jeffrey Bunn, Andrew Payzant, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-124932: STUDY OF ERROR ANALYSIS AND OPTIMIZATION ALGORITHM FOR IMU-BASED PIPELINE BENDING STRAIN DETECTION THROUGH FINITE ELEMENT SIMULATION
Tong Shi, Ting Xie, Hong Zhang, Fangwei Ning, Qiyu Huang, Xiaoben Liu, China University of Petroleum, Beijing, China; Qingshan Feng, China Oil & Gas Pipeline Network Corporation, Beijing, China; Rui Li, PipeChina Institute of Science and Technology, Tlanjin, China

PVP2024-122211: DEVELOPMENT OF NDT DEMONSTRATION TECHNOLOGY FOR REPLACEMENT OF RT WITH PHASED ARRAY UT(PAUT) IN KOREA THERMAL POWER PLANT FACILITIES (Presentation Only)
Sungjong Cho, Dongchan Kang, Ik Keun Park, Seoul National University of Science and Technology, Seoul, Republic of Korea; Cheol Gyu Baek, In Young Jeong, Korea Westernpower Co., Ltd., Daejeon, Republic of Korea

SESSION 3.3G (DA-07-01)

Wednesday, July 31, 2:15 pm – 4:00 pm, Regency Ballroom A (2nd Floor)

THERMAL STRESSES AND ELEVATED TEMPERATURE DESIGN

Developed by: Qin Ma, Walla Walla University, College Place, WA, USA; Forrest Gu, Becht, Calgary, AB, USA
Chair: Qin Ma, Walla Walla University, College Place, WA, USA
Co-Chair: Forrest Gu, Becht, Calgary, AB, USA

PVP2024-121737: A COMPARATIVE STUDY ON CREEP-FATIGUE EVALUATION METHODOLOGIES FOR NATRIUM REACTOR INTERNAL COMPONENTS USING ELASTIC AND INELASTIC ANALYSIS
Heqin Xu, TerraPower, LLC, Snoqualmie, WA, USA; Tom Riordan, Shafiq Bhuiyan, Michael Cohen, TerraPower, LLC, Bellevue, WA, USA

PVP2024-121741: A THERMAL STRIPING EVALUATION METHODOLOGY FOR NATRIUM INTERNAL COMPONENTS USING FREQUENCY RESPONSE FUNCTION SOLUTIONS
Heqin Xu, TerraPower, LLC, Snoqualmie, WA, USA; Tom Riordan, Shafiq Bhuiyan, Saradhi Koneru, Michael Cohen, TerraPower, LLC, Bellevue, WA, USA

PVP2024-123419: EVOLUTION OF THERMOELASTIC STRESSES IN A FINITE-WIDTH SLAB OR THICK CYLINDER WITH A GROWING OR RECEDING BOUNDARY
Pavan Kumar, Albert Segall, Corina Drapaca, Pennsylvania State University, State College, PA, USA

PVP2024-123447: THERMAL STRUCTURAL AND SHOCK EVENT EVALUATIONS OF THE FUELING PELLET INJECTION SYSTEM FOR ITER
Oscar Martinez, Sumalatha Yaski, David Rasmussen, Kara Godsey, Sara Smith, Gary Lovett, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 3.3H (OAC-04-03)

Wednesday, July 31, 2:15 pm – 4:00 pm, Regency Ballroom B (2nd Floor)

STORAGE AND TRANSPORTATION OF RADIOACTIVE MATERIALS-3

Developed by: Mike Weber, Steffan Komann, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany; David Tamburello, Steve Hensel, Savannah River National Laboratory, Aiken, SC, USA; Mustafa Hadj-Nacer, University of Reno, Reno, NV, USA; Nicholas Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA; Oscar Martinez, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Zenghu Han, Argonne National Laboratory, Lemont, IL, USA
Chair: Nicholas Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA
Co-Chair: Steffen Komann, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany

PVP2024-122639: AGING INVESTIGATIONS OF METAL SEALS USED IN CONTAINERS FOR INTERIM STORAGE OF SPENT FUEL
Matthias Jaunich, Milan Goral, Ilja Sagradov, Dietmar Wolff, Holger Völzke, Bundesanstalt fuer Materialforschung und -pruefung (BAM), Berlin, Germany

PVP2024-122790: TIGHTNESS VERIFICATION PROCEDURES OF WELDED LIDS FOR ENCAPSULATIONS FOR DAMAGED SPENT NUCLEAR FUEL IN THE DESIGN APPROVAL PROCESS OF DUAL-PURPOSE CASK (DPC)
Lars Müller, Robert Scheidemann, Tino Neumeyer, Steffen Komann, Frank Wille, Bundesanstalt fuer Materialforschung und -pruefung (BAM), Berlin, Germany

PVP2024-123738: DEVELOPMENT OF A MONITORING SYSTEM FOR INTERROGATING THE INTERNAL CONDITION OF SNF CANISTERS
Lamia Belhassani, Brandon Hager, Theodore Maranets, John Lee, Yan Wang, Ji H Yoon, Xiaoshan Zhu, Miles Greiner, Mustafa Hadj-Nacer, University of Nevada-Reno, Reno, NV, USA

PVP2024-125017: HELIUM LEAK TEST MODELING OF A SPENT NUCLEAR FUEL CANISTER
Sarah Suffield, Dina Carpenter-Graffy, Beric Wells, Pacific Northwest National Laboratory, Richland, WA, USA

SESSION 3.3I (CS-01-01)

Wednesday, July 31, 2:15 pm – 4:00 pm, Regency Ballroom C (2nd Floor)

Symposium on Structural Integrity—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS

Developed by: Michael Benson, US Nuclear Regulatory Commission, Rockville, MD, USA; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada
Chair: Michael Benson, US Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-121384: ULTRASONIC TESTING IN LIEU OF RADIOGRAPHIC TESTING: APPLICATION TO ASME III CLASS 1 NUCLEAR PRESSURE VESSELS IN THE CONTEXT OF ROLLS-ROYCE STRUCTURAL JUSTIFICATION EXPECTATIONS
David Whitehead, David Rice, Rolls-Royce plc, Derby, United Kingdom

PVP2024-121814: PROBABILISTIC FRACTURE MECHANICS ANALYSIS FRAMEWORK FOR THE APAL PROJECT
Richard Bass, Paul Williams, Oakridge Consulting International, Inc., Knoxville, TN, USA; Peter Dillström, Kiwa Technical Consulting AB, Solna, Sweden; Ralf Tiete, Sebastien Blasset, Framatome GmbH, Erlangen, Germany; Vladislav Pistora, ÚJV Řež, a. s., Husinec, Czech Republic

PVP2024-123137: NUMERICAL STUDY OF A SPRING ENERGISED C-RING OF A BOLTED JOINT IN A CRYOGENIC PROPELLANT TANK
Jesna Rose, Indian Space Research Organisation, Scarsdale, NY, USA; Umer H M, Remya Nair, Suresh Mathew Thomas, A. K. Asraff, Indian Space Research Organisation, Trivandrum, India

PVP2024-123372: INVESTIGATION OF SHAPE BEHAVIOUR OF OPENING ON CYLINDRICAL SHELL AS PER ASME SEC.VIII DIV.1 -A COMPARATIVE STUDY OF VARIOUS CODES OF CONSTRUCTIONS
Sujay Pathre, LRQA Inspection Services India LLP, Mumbai, India; Shyam Gopalakrishnan, LRQA Inspection Services India LLP, Thane, India; Mohammad Abdul Qadeer, LRQA Inspection Services India LLP, Jogeshwari, India; Ameya Mathkar, UHDE India, Thane, India

SESSION 3.3J (DA-02-04)

Wednesday, July 31, 2:15 pm – 4:00 pm, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PIPING COMPONENTS-4

Developed by: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA; Bhaskar Shitole, Wood, Calgary, AB, Canada; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA
Chair: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: Bhaskar Shitole, Wood, Calgary, AB, Canada

PVP2024-123494: COMPARISON BETWEEN THE PERFORMANCE OF THREADED CONNECTIONS VERSUS WELDED CONNECTIONS IN PIPE-FITTING ASSEMBLIES
Cameron Rusnak, Lincoln University Missouri, Jefferson City, MO, USA; Sherif Elfass, Allen Rivas, University of Nevada, Reno, Reno, NV, USA
PVP2024-123500: AN INVESTIGATION OF STRESS INTENSIFICATION FACTORS OF LATERALS COMPARED TO TEES
Mohan Rathinasabapathy, Cristobal Rivas, Fluor Enterprises, Inc., Sugar Land, TX, USA
PVP2024-123501: IMPROVING FASTENING METHODS FOR THREADED CAST-IRON FITTINGS
Allen Rivas, Sherif Elfass, University of Nevada, Reno, Reno, NV, USA
PVP2024-123550: PREDICTING PIPE WALL VIBRATION IN FREQUENCY BANDS WITH LOW ACOUSTIC AND VIBRATION MODAL COINCIDENCE
J Adin Mann III, Wood Plc, Cleveland Heights, OH, USA; Daniel Eilers, Emerson, Marshalltown, IA, USA

SESSION 3.3K (CS-07-05)

Wednesday, July 31, 2:15 pm – 4:00 pm, Regency Ballroom F (2nd Floor)
Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee
THE GUIDO G. KARCHER MEMORIAL SESSION ON WHAT'S NEW IN ASME SECTION VIII DIVISIONS 1 AND 2?
Developed by: Ting-Leung (Sam) Sham, US Nuclear Regulatory Commission, Rockville, MD, USA; Mark Messner, Argonne National Laboratory, Plainfield, IL, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: Mark Lower, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: Clay Rodery. C&S Technology, League City, TX, USA

SESSION 3.3L (HT-01-01)

Wednesday, July 31, 2:15 pm – 4:00 pm, Regency Ballroom G (2nd Floor)
DESIGN, ANALYSIS AND LIFE PREDICTION OF HIGH-PRESSURE VESSELS AND EQUIPMENT
Developed by: Melanie Sarzynski, Becht, Houston, TX, USA; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA; Erick Ritter, Structural Integrity Associates, Inc., Littleton, CO, USA; Nathan Barkley, Becht, New Albany, MS, USA; Mandar Kulkarni, Stress Engineering Services, Cincinnati, OH, USA; David Fuenmayor, UHDE HPT, Hagen, Germany; Taylor Nyquist, A&A Machine & Fabrication, LLC, La Marque, TX, USA; Kumarswamy Karpanan, Technip FMC, Houston, TX, USA; Giuseppe Macoretta, University of Pisa, Pisa, Italy; Carly Antonucci, Metallus, Houston, TX, USA; Dan Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA
Chair: Melanie Sarzynski, Becht, Houston, TX, USA
Co-Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA
PVP2024-123444: ASME VIII-3, NONMANDATORY APPENDIX G - TOTAL EFFECTIVE AXIAL CLAMPING PRELOAD DERIVATION
Erick Ritter, Structural Integrity Associates, Littleton, CO, USA
PVP2024-124942: CHALLENGES OF APPLICATION OF ASME PRESSURE VESSELS AND PIPING CODES FOR SEMICONDUCTOR APPLICATIONS FOR EXTREME ULTRAVIOLET LITHOGRAPHY
Rahul Kapadia, Roel Geubbels, Farideh Hajy Akbary, ASML, Veldhoven, Netherlands; Sreeram Sonti, ASML, San Diego, CA, USA
PVP2024-122458: MODIFIED PIPE CONNECTORS FOR HIGH PRESSURE PIPE JOINTS
Haresh Sippy, Tema India Ltd, Mumbai, India

SESSION 3.3M (DA-15-03)

Wednesday, July 31, 2:15 pm – 4:00 pm, Cedar Ballroom B (2nd Floor)
Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee
8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 3-COKE DRUM STANDARDS, RESEARCH, AND ASSESSMENT
Developed by: Antonio Seijas, P66, Houston, TX, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA
Chair: Antonio Seijas, P66, Houston, TX, USA
Co-Chair: Julian Bedoya, ExxonMobil Technology and Engineering Company, Spring, TX, USA
PVP2024-122817: ASSESSING BULGE-INDUCED DAMAGE IN COKE DRUMS TO PLAN STRUCTURAL WELD OVERLAY REPAIRS
Egler Araque, Vessel Inspection and Assessment Corp - VIAAC, Mississauga, ON, Canada; Stephen Park, Vessel Inspection and Assessment Corp - VIAAC, Hamilton, ON, Canada
PVP2024-129301: COMPARISON OF CYCLIC PERFORMANCE BETWEEN GRADE 11 AND GRADE 22 PLATE WITH APPLICATION TO COKE DRUM BULGING
Dave Dewees, Becht, Medina, OH, USA
PVP2024-122830: OVERVIEW OF API TR 934 G & J WORK (Presentation Only)
Brent Ray, Marathon Petroleum Company, Catlettsburg, KY, USA

SESSION 3.3O (EPRI/SNL-1)

Wednesday, July 31, 2:45 pm – 4:00 pm, Auditorium (3rd Floor)
EXPERT WORKSHOP-CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE-SCALE GASEOUS HYDROGEN INFRASTRUCTURE-PART 1
Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Michael Gagliano, Jonathan Parker, EPRI, Palo Alto, CA, USA
Chair: Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA
Co-Chair: Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA
TOWARDS A VIRTUAL HYDROGEN LAB: COMPUTATIONAL PREDICTIONS OF HYDROGEN-ASSISTED FAILURES
Emilio Martinez-Paneda, University of Oxford, Oxford, United Kingdom
HETEROGENEITY AND RISK FACTORS INFLUENCING DAMAGE SUSCEPTIBILITY
Michael Gagliano, Jonathan Parker, Electric Power Research Institute, Palo Alto, CA, USA

Block 3.4: Wednesday, July 31, 2024 (4:10 pm – 5:45 pm)

SESSION 3.4O (EPRI/SNL-2)

Wednesday, July 31, 4:10 pm – 5:45 pm, Auditorium (3rd Floor)
EXPERT WORKSHOP-CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE-SCALE GASEOUS HYDROGEN INFRASTRUCTURE-PART 2
Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Michael Gagliano, Jonathan Parker, EPRI, Palo Alto, CA, USA
Chair: Kevin Nibur, HyPerformance Materials Testing, LLC, Bend, OR, USA
Co-Chair: Hisao Matsunaga, Kyushu University, Nishi-ku, Japan
COMPATIBILITY OF METALS WITH HYDROGEN ENVIRONMENTS
Brian Somerday, Somerday Consulting, LLC (Wayne PA, USA)
HYDROGEN-MATERIALS COMPATIBILITY AND ITS IMPACT ON PIPELINE INTEGRITY – AN INDUSTRY PERSPECTIVE
Joe Jun, Neeraj Thirumalai, ExxonMobil Technology and Engineering Company, Annandale, NJ, USA
DATABASE OF HYDROGEN COMPATIBLE POLYMERIC MATERIALS FOR HYDROGEN INFRASTRUCTURE
Shin Nishimura, Hydrigenius, Kyushu University, Kyushu, Japan

Block 4.1: Thursday, August 1, 2024 (8:15 am – 10:00 am)

SESSION 4.1B (MF-29-01)

Thursday, August 1, 8:15 am – 10:00 am, Evergreen Ballroom H (Lobby Level)

Symposium on Mechanical Properties of Nuclear Materials—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH CS)

Developed by: Ting-Leung (Sam) Sham, Joe Bass, US Nuclear Regulatory Commission, Rockville, MD, USA; David Rudland, US Nuclear Regulatory Commission, Frederick, MD, USA; Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom; Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

Chair: Joe Bass, US Nuclear Regulatory Commission, Rockville, MD, USA

Co-Chair: David Rudland, US Nuclear Regulatory Commission, Rockville, MD, USA

PVP2024-123523: NUCLEAR GRAPHITE IRRADIATED MATERIAL PROPERTY NORMALIZATION, INTERPOLATION, AND EXTRAPOLATION APPRACH

Adam Walker, Kevin Caldwell, Stuart Kellner, Anthony Schroeder, Westinghouse Electric Company LLC, Cranberry Township, PA, USA

PVP2024-122371: PRELIMINARY INVESTIGATION OF THE EFFECTS OF NEUTRON IRRADIATION ON THE WEIBULL MODULUS OF GRAPHITE

Anne Campbell, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2024-125409: MATERIALS CHALLENGES IN MOLTEN SALT REACTORS: UNDERSTANDING SALT INTRUSION AND WETTING BEHAVIOR OF GRAPHITE (Presentation Only)

Nidia Gallego, Jisue Moon, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 4.1C (CT-07-01)

Thursday, August 1, 8:15 am – 10:00 am, Evergreen Ballroom I (Lobby Level)

Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees

COMPUTATIONAL APPLICATIONS IN FATIGUE, FRACTURE, AND DAMAGE MECHANICS-1

Developed by: Wolf Reinhardt, SNC Lavalin, Mississauga, ON, Canada; Reza Adibi-Asl, Kinectrics, Inc., Toronto, ON, Canada; Stefano Fini, University of Bologna, Bologna, Italy

Chair: Hubert Lejeune, CETIM, Nantes, France

Co-Chair: Carlos Girão, Teadit, Itatiba, Brazil

PVP2024-130055: APPLICATION OF TORSIONAL FATIGUE TESTING OF HELICAL SPRINGS TO EXPLORE THE EFFECT OF MEAN STRESS ON INCONEL X-750 FATIGUE RESISTANCE

Don Metzger, Andre Gagnon, AtkinsRealis, Mississauga, ON, Canada

PVP2024-133074: FRACTURE ANALYSIS WITH RESIDUAL STRESSES FROM LOCAL POST-WELD HEAT TREATMENT

François Billon, ONET Technologies, Marseille, France; Erwan Jourden, ONET Technologies, Brest, France; Anthony Miguet, François Moreau, Pierre Willaume, Framatome, Lyon, France; Laurent Mouchette, ESI Group, Bagneux, France

PVP2024-121781: ELECTROMAGNETIC LITHIUM RING COMPRESSION FOR MAGNETIZED TARGET FUSION APPLICATION: TRAJECTORIES

Jean-Sebastien Dick, General Fusion Inc., Vancouver, BC, Canada; Nick Sirmas, Scott Bernard, Lemuel Santos, Piotr Forysinski, General Fusion, Richmond, BC, Canada

SESSION 4.1E (DA-12-02)

Thursday, August 1, 8:15 am – 10:00 am, Cedar Ballroom A (2nd Floor)

Symposium on Fracture Mechanics and Analysis—Co-Sponsored by the Codes & Standards, Design & Analysis, and Materials & Fabrication Technical Committees

FRACTURE 2-FRACTURE PREDICTION AND EVALUATION

Developed by: Shane Finneran, DNV, Columbus, OH, USA; Shunji Kataoka, JGC Corporation, Yokohama, Japan; Ali Ok, Air Products, Allentown, PA, USA; Darren Pinto, Schenck Process, Sabetha, KS, USA

Chair: Shunji Kataoka, JGC Corporation, Yokohama, Japan

Co-Chair: Shane Finneran, DNV, Columbus, OH, USA

PVP2024-133078: LOW TEMPERATURE INTEGRITY OF CARBON STEEL PRESSURE PIPING: AN ASSESSMENT BASED ON PROBABILISTIC FRACTURE MECHANICS AND FULL-SCALE TESTING

Isabel Hadley, Matthew Haslett, Yin Jin Janin, TWI Ltd, Cambridge, United Kingdom; Siak Manteghi, Geoff Evans, BP, Sunbury on Thames, United Kingdom

PVP2024-121892: COMPARATIVE STUDY OF CRACK SHAPE ON THE DUCTILE FRACTURE RESPONSE OF CRACKED PIPELINES

Xinfang Zhang, Juliana Leung, Samer Adeeb, University of Alberta, Edmonton, AB, Canada; Nader Yoosef-Ghodsi, Muntaseer Kainat, Enbridge Pipelines Inc., Edmonton, AB, Canada

PVP2024-124301: DEFECT STABILITY EVALUATION IN A NOZZLE THROUGH THE GFR CRITERION UNDER THERMAL LOADING

Walid Hamouche, Edith Marques Vieira, Olivier Ancelet, Stéphane Marie, Framatome, Courbevoie, France; David Albrecht, EDF, Lyon, France; Stéphane Chapuliot, EDF, Écuelles, France

PVP2024-122218: MODE I AND MODE II STRESS INTENSITY FACTORS FOR A SLANTED-EDGE-CRACK AFFECTED BY AN ADJACENT HORIZONTAL CRACK UNDER REMOTE TENSION

Cesar Levy, Florida International University, Miami, FL, USA; Mordechai Perl, Ben Gurion University of the Negev, Beer Sheva, Israel; Qin Ma, Walla Walla University, College Place, WA, USA

SESSION 4.1F (NDE-03-01)

Thursday, August 1, 8:15 am – 10:00 am, Laurel (3rd Floor)

NDE RELIABILITY-MODELING AND EXPERIMENTAL ANALYSIS

Developed by: Vivek Agarwal, Idaho National Laboratory, Idaho Falls, ID, USA; Min Zhang, Praxair, a Linde Company, Tonawanda, NY, USA

Chair: Heramb Mahajan, Idaho National Laboratory, Idaho Falls, ID

Co-Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain

PVP2024-122487: ENHANCEMENT AND OPTIMIZATION OF CRACK SIGNAL PROCESSING IN ALTERNATING CURRENT ELECTROMAGNETIC NON-DESTRUCTIVE TESTING

Yong Li, Shaohua Dong, Luming Wang, Guanyi Liu, China University of Petroleum, Beijing, China

PVP2024-122966: NUMERICAL AND EXPERIMENTAL STUDY OF DETECTION OF LINEAR DAMAGE OF PRESSURE EQUIPMENT USING ELECTROMAGNETIC ACOUSTIC RESONANT METHOD

Zhe Wang, Zhichao Fan, Jian Tang, Jingwei Cheng, Tian Ji, Haibin Wang, Yangguang Bu, Hefei General Machinery Research Institute Co., Ltd, Hefei, China

PVP2024-124913: STRESS DETECTION OF X80 PIPELINE BASED ON VIBRATION CHARACTERISTICS ANALYSIS

Jinzhou Li, Xiaoben Liu, Hong Zhang, China University of Petroleum, Beijing, China

PVP2024-122578: DEVELOPMENT OF 3D DIMENSIONAL INSPECTION METHODS FOR PRESSURE VESSELS USING PORTABLE, NON-CONTACT, INFRARED LASER TYPE 3D SCANNER

Aiko Hanaki, Yukihiko Enoki, Akihiro Kudo, JGC Corporation, Yokohama, Japan

SESSION 4.1G (MF-17-01)

Thursday, August 1, 8:15 am – 10:00 am, Regency Ballroom A (2nd Floor)

ADVANCED AND ADDITIVE MANUFACTURING AND MATERIAL TECHNOLOGIES (JOINT WITH D&A)-1

Developed by: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Adam Cooper, Jacobs, Warrington, United Kingdom; Andrew Duncan, Savannah River National Laboratory, Aiken, SC, USA; Arindam Chakraborty, Virtual Integrated Analytics Solutions (VIAS), San Jose, CA, USA; Catrin Mair Davies, Imperial College London, London, United Kingdom; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Kevin Mandeville, DNV, Katy, TX, USA;

Michael McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Cheng Liu, Kinectrics Inc., Toronto, ON, Canada
Co-Chair: Alex Brust, DNV, Dublin, OH, USA

PVP2024-123384: CHARACTERIZATION OF FATIGUE BEHAVIORS OF NOTCHED 316L DED AM SPECIMENS
Timothy Krentz, Savannah River National Laboratory, Aiken, SC, USA; Pingsha Dong, University of Michigan, Ann Arbor, MI, USA; George Rawls, GBR Consulting, Aiken, SC, USA

PVP2024-123543: CREEP PROPERTIES OF GAS METAL ARC DIRECTED ENERGY DEPOSITION AUSTENITIC STAINLESS STEELS
Eun Jang, Stephen Tate, EPRI, Charlotte, NC, USA; Olivia Denonno, Juan Gonzalez, Jonah Klemm-Toole, Colorado School of Mines, Golden, CO, USA

PVP2024-125299: MATERIAL MANUFACTURED USING WIRE-ADDITIVE WELDING IN BOILER AND PRESSURE VESSEL APPLICATIONS
Teresa Melfi, Lincoln Electric Co., Cleveland, OH, USA; J. Ben Schaeffer, Lincoln Electric Additive Solutions, Euclid, OH, USA

SESSION 4.1J (DA-02-05)

Thursday, August 1, 8:15 am – 10:00 am, Regency Ballroom E (2nd Floor)

DESIGN AND ANALYSIS OF PIPING COMPONENTS-5
Developed by: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA; Bhaskar Shitole, Wood, Calgary, AB, Canada; Bing Li, Kinectrics, Inc., Toronto, ON, Canada; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA
Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada
Co-Chair: Bhaskar Shitole, Wood, Calgary, AB, Canada

PVP2024-123559: ACOUSTIC INDUCED FATIGUE OF GIRTH WELDS
J Adin Mann III, Wood Plc, Cleveland Heights, OH, USA; Rob Swindell, Wood plc, Southampton, United Kingdom; Noel Hart, ExxonMobil Technology and Engineering Company, Spring, TX, USA

PVP2024-123566: MITIGATION OF VANE PASS PULSATION INDUCED VIBRATION IN A CRUDE OIL PUMPING STATION
J Adin Mann III, Wood Plc, Cleveland Heights, OH, USA; Noel Hart, Elizabeth Tillotson, ExxonMobil Pipeline Company, Spring, TX, USA; Charles T Sexton, ExxonMobil Upstream Integrated Solutions Company, Spring, TX, USA

PVP2024-123834: COOLDOWN OF LNG LOADING SYSTEMS – AN INTEGRATED APPROACH. PART 1: PIPING STRESS ANALYSIS
Ian Bottomley, Andre Nicolle, BP International Centre for Business and Technology, Sunbury-on-Thames, United Kingdom; Nick Carr, Alireza Azarbadegan, BP, Sunbury-on-Thames, United Kingdom

PVP2024-129996: ON STRUCTURAL INTEGRITY ASSESSMENT OF CONVEYOR TUBE FOR ICE PLUG FORMATION IN THE FUEL RECEIVING BAY
Reza Ghafouri-Azar, Ontario Power Generation, Pickering, ON, Canada

SESSION 4.1K (CS-10-01)

Thursday, August 1, 8:15 am – 10:00 am, Regency Ballroom F (2nd Floor)

Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee

RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS
Developed by: Jianfeng Shi, Jinyang Zheng, Zhejiang University, Hangzhou, China; Guide Deng, China Special Equipment Inspection Research Institute, Beijing, China; Xuedong Chen, Zhichao Fan, Hefei General Machinery Research Institute, Hefei, China; Yinghua Liu, Tsinghua University, Beijing, China
Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, USA
Co-Chair: Zhoutian Ge, Zhejiang University, Hangzhou, China

PVP2024-122708: REVIEW OF STANDARDS FOR LIQUID HYDROGEN STORAGE VESSELS
Keming Li, Xiao Guo,Tao Shen, Jinyang Zheng, Zhejiang University, Hangzhou, China; Yi Gao, Yisong Han, Hangzhou Oxygen Plant Group Co., Ltd., Hangzhou, China

PVP2024-122745: PERFORMANCE ANALYSIS OF 12MNNIVR HIGH STRENGTH STEEL PLATE FOR LARGE OIL STORAGE TANKS IN CHINA
Yunmeng Zhou, Zhiwei Chen, Xiaoliang Jia, Fang Ji, Gaoyu Cui, Xiang Li, China Special Equipment Inspection & Research Institute, Beijing, China

PVP2024-123163: THE DEVELOPMENT OF HYDROGEN ENERGY EQUIPMENT SAFETY CERTIFICATION IN CHINA
Jun Li, Jiepu Li, Songsong Zhang, Xiang Li, Xu Liu, China Special Equipment Inspection & Research Institute, Beijing, China; Chenxi Guan, China Coal Energy Group Co., Beijing, China

PVP2024-122887: DISCUSSION ON THE DESIGN LIFE AND ULTIMATE SERVICE LIFE DETERMINATION CRITERIA OF PRESSURE VESSELS IN CHINA
Xuedong Chen, Zhichao Fan, Shuangqing Xu, Wei Chen, Jie Dong, Hefei General Machinery Research Institute Co. Ltd., Hefei, China

SESSION 4.1L (HT-06-01)

Thursday, August 1, 8:15 am – 10:00 am, Regency Ballroom G (2nd Floor)

DESIGN AND ANALYSIS OF HIGH-PRESSURE EQUIPMENT FOR OIL AND GAS EXPLORATION AND PRODUCTION
Developed by: Przemyslaw Lutkiewicz, DNV AS, Hovik, Norway; Kumarswamy Karpanan, Technip FMC, Houston, TX, USA; Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA; Barry Stewart, Technip FMC, Dunfermline, United Kingdom; Gaurav Bansal, SLB, Houston, TX, USA; Gaurav Bansal, SLB, Houston, TX, USA
Chair: Gaurav Bansal, SLB, Houston, TX, USA
Co-Chair: Barry Stewart, Technip FMC, Dunfermline, United Kingdom and Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA

PVP2024-121850: DESIGN OF HIGH-PRESSURE CYLINDRICAL SHELLS AGAINST PLASTIC COLLAPSE
Finn Kirkemo, Equinor, Oslo, Norway; Anders Wormsen, TFMC, Kongsberg, Norway

PVP2024-123441: STRUCTURAL CAPACITY ESTIMATION OF SUBSEA FLANGES USING VARIOUS CODES AND STANDARDS
Kumarswamy Karpanan, Technip FMC, Tomball, TX, USA; Finn Kirkemo, Equinor, Oslo, Norway; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

PVP2024-124936: ADVANCED POST-PROCESSING OF STRAIN GAUGE MEASUREMENTS: A NONLINEAR ELASTIC-PLASTIC SOLUTION AND COMPENSATION FOR PRIOR WORK HARDENING (Presentation Only)
Rafal Sulwinski, T.D. Williamson, Stavanger, Norway

SESSION 4.1M (DA-15-04)

Thursday, August 1, 8:15 am – 10:00 am, Cedar Ballroom B (2nd Floor)

Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee

8TH INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT 4-FORUM SESSION-WHAT'S NEXT FOR THE INDUSTRY?
Developed by: Antonio Seijas, P66, Houston, TX, USA; Clay Rodery, C&S Technology LLC, League City, TX, USA; Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA
Chair: Antonio Seijas, P66, Houston, TX, USA
Co-Chair: Julian Bedoya, ExxonMobil Technology and Engineering Company, Spring, TX, USA

SESSION 4.1O (EPRI/SNL-3)

Thursday, August 1, 8:15 am – 10:15 am, Auditorium (3rd Floor)

EXPERT WORKSHOP-CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE-SCALE GASEOUS HYDROGEN INFRASTRUCTURE-PART 3
Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Michael Gagliano, Jonathan Parker, EPRI, Palo Alto, CA, USA
Chair: Brian Somerday, Somerday Consulting, LLC, Wayne, PA, USA
Co-Chair: Thorsten Michler, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Germany

INFLUENCE OF HYDROGEN KINETICS ON HYDROGEN-ASSISTED FATIGUE AND FRACTURE TESTING
Joe Ronevich, Sandia National Laboratories, Livermore CA, USA

ENSURING TRANSFERABILITY OF MECHANICAL TEST MEASUREMENTS IN HYDROGEN GAS TO STRUCTURAL APPLICATIONS

Kevin Nibur, HyPerformance Materials Testing, LLC, Bend OR, USA
HYDROGEN TEST METHODS: PAST PRESENT AND FUTURE
Robin Gordon, Microalloying International, Spring, TX, USA
MECHANICAL CHARACTERIZATION OF METALS UNDER HYDROGEN PRESSURE: CURRENT EU ISSUES AND DEVELOPMENTS
Laurent Briottet, French Alternative Energies and Atomic Energy Commission (CEA), Grenoble, France

Block 4.2: Thursday, August 1, 2024 (10:15 am – 12:00 pm)

SESSION 4.2C (CT-07-02)

Thursday, August 1, 10:15 am – 12:00 pm, Evergreen Ballroom I (Lobby Level)
Symposium on Fatigue and Creep Issues—Co-Sponsored by the Codes & Standards, Computer Technology & Bolted Joints, Design & Analysis, and Materials & Fabrication Technical Committees
COMPUTATIONAL APPLICATIONS IN FATIGUE, FRACTURE, AND DAMAGE MECHANICS-2
Developed by: Wolf Reinhardt, Don Metzger, SNC Lavalin, Mississauga, ON, Canada; Reza Adibi-Asl, Kinectrics, Inc., Toronto, ON, Canada; Bhaskar Shitole, Wood, Calgary, AB, Canada; Young Ho Park, New Mexico State University, Las Cruces, NM, USA; Yasumasa Shoji, YS Corporation LLC, Mushashino, Japan
Chair: Don Metzger, AtkinsRealis, Mississauga, ON, Canada
Co-Chair: Adrian Baniak, AtkinsRealis, Mississauga, ON, Canada
PVP2024-122299: A PROPOSED WEIGHT FUNCTION METHOD FOR 2-D EMBEDDED CRACKS SUBJECT TO ARBITRARY STRESS DISTRIBUTION
Steven Altstadt, Becht, Fargo, ND, USA; Scott Bouse, Wiss, Janney, Elstner Associates, Inc., Houston, TX, USA
PVP2024-122920: DIGITAL TWIN DEVELOPMENT FOR ADDITIVE MANUFACTURING
Youngho Park, Allen Love, Saeed Behseresht, Omar Valdez Pastrana, James Sakai, New Mexico State University, Las Cruces, NM, USA
PVP2024-121324: ANALYTTICAL MODELING OF AUTOFRETTAGED CYLINDERS WITH CONSIDERATION TO BAUSCHINGER EFFECT AND REDUCED ELASTIC MODULUS
Hakim Bouzid, Ecole Supérieure de Technologie, Montreal, QC, Canada

SESSION 4.2F (NDE-04-01)

Thursday, August 1, 10:15 am – 12:00 pm, Laurel (3rd Floor)
PREDICTIVE NON-DESTRUCTIVE EVALUATION AND STRUCTURAL HEALTH MONITORING OF COMPLEX MATERIALS AND STRUCTURES
Developed by: Vivek Agarwal, Idaho National Laboratory, Idaho Falls, ID, USA; Min Zhang, Praxair, a Linde Company, Tonawanda, NY, USA
Chair: Heramb Mahajan, Idaho National Laboratory, Idaho Falls, ID
Co-Chair: Maria Ortiz de Zúñiga López-Chicheri, Fusion for Energy, Barcelona, Spain
PVP2024-122444: FITNESS-FOR-SERVICE ASSESSMENT OF GAS PIPELINE WELDS BASED ON THE FUSION OF MULTI-SOURCE DATA
Jialu Zhang, Lili Zuo, Shaohua Dong, China University of Petroleum, Beijing, China; Fan Fei, National Petroleum and Natural Gas Pipe Network Group Beijing Pipeline Co., Ltd., Beijing, China
PVP2024-122942: NON-DESTRUCTIVE TESTING STUDY OF HYDROGEN STORAGE COPVS BASED ON DIGITAL SHEAROGRAPHY TECHNIQUE
Ange Wen, Yifan Li, Zhejiang University, Hangzhou, China; Li Ma, Shoulong Wang, Changchen Liu, Kaidi Ying, Zhejiang University of Technology, Hangzhou, China
PVP2024-123042: MULTI-SCALE FAILURE BEHAVIOR OF CATHODE IN LITHIUM-ION BATTERIES BASED ON STRESS FIELD (Presentation Only)
Haofeng Chen, Weiling Luan, East China University of Science and Technology, Shanghai, China

SESSION 4.2G (MF-17-02)

Thursday, August 1, 10:15 am – 12:00 pm, Regency Ballroom A (2nd Floor)
ADVANCED AND ADDITIVE MANUFACTURING AND MATERIAL TECHNOLOGIES (JOINT WITH D&A)-2
Developed by: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA; Adam Cooper, Jacobs, Warrington, United Kingdom; Andrew Duncan, Savannah River National Laboratory, Aiken, SC, USA; Arindam Chakraborty, Virtual Integrated Analytics Solutions (VIAS), San Jose, CA, USA; Catrin Mair Davies, Imperial College London, London, United Kingdom; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Kevin Mandeville, DNV, Katy, TX, USA; Michael McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA; Sylvain Pillot, ArcelorMittal, Le Creusot, France
Chair: Alex Brust, DNV, Dublin, OH, USA
Co-Chair: Cheng Liu, Kinectrics Inc., Toronto, ON, Canada
PVP2024-122525: NEURAL NETWORK FOR CONSTITUTIVE MODELLING OF BEAM STRUCTURES
Beilei Ji, Qipei Mei, Pouya Taraghi, Samer Adeeb, University of Alberta, Edmonton, AB, Canada
PVP2024-123287: APPLICATION OF ARTIFICAL INTELLEGENCE AND MACHINE LEARNING TO LOW ENERGY SOLID STATE SPOT WELDING (Presentation Only)
Jeremy Rogers, William Wells, Vincent DiNova, Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA
PVP2024-123680: PHYSICAL TWINS FOR LIFETIME EVALUATION OF SAFETY-RELEVANT LARGE COMPONENTS CONTAINING CRACK FIELDS
Linda Mally, Michael Seidenfuß, Martin Werz, Stefan Weihe, Materials Testing Institute University of Stuttgart (MPA), Stuttgart, Germany

SESSION 4.2J (DA-02-06)

Thursday, August 1, 10:15 am – 12:00 pm, Regency Ballroom E (2nd Floor)
DESIGN AND ANALYSIS OF PIPING COMPONENTS-6
Developed by: Phillip Wiseman, Lisega, Inc., Kodak, TN, USA; Kshitij Gawande, Cummins Inc., Indianapolis, IN, USA; Kazuaki Inaba, Ji Ming, Tokyo Institute of Technology, Meguro, Japan; Su Ziyi, Nagoya Institute of Technology, Nagoya, Japan
Chair: Bhaskar Shitole, Wood, Calgary, AB, Canada
Co-Chair: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Rockville, MD, USA
PVP2024-137046: CASE HISTORIES OF THE RESOLUTION OF PIPING VIBRATION FAILURES IN THE OIL & GAS INDUSTRY
Mark Rattansingh, Geoff Evans, Ian Bottomley, Duncan Reith, BP, Paul James, BP, Sunbury on Thames, United Kingdom; Ethan Perry, BP, Blaine, WA, USA
PVP2024-122286: HEAT TRANSFER OF PIPE CLAMPS
Phillip Wiseman, Sanket Kulkarni, Lisega, Inc, Kodak, TN, USA; Muaviya Shaik, Purdue University Northwest, Hammond, IN, USA
PVP2024-122546: A CASE STUDY ON THE EFFECTS OF GEOMETRY AND STRESS AROUND VARIOUS PIN-CONNECTED MEMBERS
Phillip Wiseman, Animesh Anil Darade, Ayushma Sharma Timilsina, Lisega.Inc., Kodak, TN, USA

SESSION 4.2K (CS-12-01)

Thursday, August 1, 10:15 am – 12:00 pm, Regency Ballroom F (2nd Floor)
Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee
HIGH TEMPERATURE CODES AND STANDARDS
Developed by: Anees Udyawar, Suresh Kalyanam, Westinghouse Electric Company, Cranberry Township, PA, USA; Valery Lacroix, Tractebel Engie, Brussels, Belgium; Yogendra Garud, SIMRAND, LLC, San Jose, CA, USA; Qin Ma, Walla Walla University, College Place, WA, USA; Forrest Gu, Becht, Calgary, AB, USA
Chair: Suresh Kalyanam, Westinghouse Electric Company, Cranberry Township, PA, USA
Co-Chair: Valery Lacroix, Tractebel Engie, Brussels, Belgium
PVP2024-123103: DEVELOPMENT OF THE BUCKLING EVALUATION METHOD FOR LARGE SCALE VESSELS IN FAST REACTORS MADE OF GRADE 91 STEEL AND AUSTENITIC STAINLESS STEEL WITH LARGE INITIAL IMPERFECTIONS
Takashi Okafuji, Kazuhiro Miura, Mitsubishi Heavy Industries, LTD., Nagasaki, Japan; Hiromi Sago, Mitsubishi Heavy Industries, LTD., Kobe, Japan; Hisatomo Murakami, Mitsubishi FBR Systems, Inc., Kobe, Japan; Tomoyoshi Watakabe,

Masanori Ando, Masashi Miyazaki, Japan Atomic Energy Agency, Higashi-ibaraki, Japan

PVP2024-123510: A CASE STUDY FOR A MOLTEN SALT REACTOR DESIGN
Ramesh Rajasekaran, Hsu-Kuang Ching, David Bankston, Francesco Deleo, TerraPower, Bellevue, WA, USA

PVP2024-122776: LIFE ASSESSMENT OF WELDED METALS USING R5 AND RCC-MRX USED IN FUSION
Younes Belrhiti, David Knowles, Mahmoud Mostafavi, University of Bristol, Bristol, United Kingdom; Cory Hamelin, UK Atomic Energy Authority, Oxfordshire, United Kingdom

PVP2024-123438: SIMPLIFIED ELEVATED TEMPERATURE SERVICE ELASTIC METHODS FOR SECTION III, DIVISION 5 CLASS A METALLIC PRESSURE BOUNDARY COMPONENTS
Derrick Pease, Becht, Chino Valley, AZ, USA

SESSION 4.2L (HT-06-02)

Thursday, August 1, 10:15 am – 12:00 pm, Regency Ballroom G (2nd Floor)

FATIGUE AND FRACTURE MECHANICS BASED LIFE ESTIMATION OF HPHT OIL AND GAS EQUIPMENT

Developed by: Przemyslaw Lutkiewicz, DNV AS, Hovik, Norway; Kumarswamy Karpanan, Technip FMC, Houston, TX, USA; Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA; Barry Stewart, Technip FMC, Dunfermline, United Kingdom; Gaurav Bansal, SLB, Houston, TX, USA; Gaurav Bansal, SLB, Houston, TX, USA
Chair: Sreelatha Kilambi, TD Williamson, Tulsa, OK, USA
Co-Chair: Kumarswamy Karpanan, Technip FMC, Houston, TX, USA and Barry Stewart, Technip FMC, Dunfermline, United Kingdom

PVP2024-120909: A COMPARISON BETWEEN FATIGUE CAPACITY OF A SUBSEA CONNECTOR PER S-N AND FRACTURE MECHANICS METHODS
Ali Sepehri, SLB, Cypress, TX, USA; Gaurav Bansal, SLB, Houston, TX, USA

PVP2024-123378: NON-DESTRUCTIVE EXAMINATION LIMITS FOR FRACTURE MECHANICS DESIGN OF HIGH PRESSURE HIGH TEMPERATURE SUBSEA EQUIPMENT
Thiago Daflon, TechnipFMC, Rio de Janeiro, Brazil; Barry Stewart, TechnipFMC, Dunfermline, United Kingdom; Sam (Kwok Lun) Lee, Sashidhar Parayitham, TechnipFMC, Houston, TX, USA

PVP2024-123674: FATIGUE ANALYSIS OF HPHT SUBSEA EQUIPMENT ACCORDING TO API 17TR8
Kumarswamy Karpanan, Technip FMC, Tomball, TX, USA; Brian Skeels, TechnipFMC, Houston, TX, USA

SESSION 4.2M (MF-33-01)

Thursday, August 1, 10:15 am – 12:00 pm, Cedar Ballroom B (2nd Floor)

GENERAL PAPERS

Developed by: Sylvain Pillot, ArcelorMittal, Le Creusot, France; Kevin Mandeville, DNV, Katy, TX, USA; Stefan Belfroid, TNO, The Hague, Netherlands; Arindam Chosh, KBR, Houston, TX, USA
Chair: Kevin Mandeville, DNV, Katy, TX, USA
Co-Chair: Preeti Doddihal, Kinectrics, Inc., Toronto, ON, Canada

PVP2024-123282: PREDICTION OF COMPRESSIVE RESIDUAL STRESSES ACCORDING TO ULTRASONIC NANOCRYSTAL SURFACE MODIFICATION PROCESS VARIABLES OF ALLOY 600
Tae-Hyeon Seok, Ju-Won Choi, Nam-Su Huh, Seoul National University of Science and Technology, Nowon-gu, Republic of Korea

PVP2024-121152: SUCCESSFUL ON SITE MODIFICATION ON 44 YEARS OLD CO2 STRIPPER AT AMMONIA PLANT
Hafiz Muhammad Zeshan Wasi, Saad Khalid, Fatima Fertilizers Multan, Multan, Pakistan; Asif Farooq, Fatima Fertilizers Multan, Lahore, Pakistan

PVP2024-122760: STUDY ON COMPATIBILITY ASSESSMENT OF URBAN NATURAL GAS PIPELINE WELDED JOINTS UNDER HYDROGEN ENVIRONMENT
Songrui Guo, Xi Shen, Zhengli Hua, Zhejiang University, Hangzhou, China; Xiang He, Lingxiao Shao, Hang Zhou Qianjiang Gas Co., Ltd, Hangzhou, China

SESSION 4.2O (EPRI/SNL-4)

Thursday, August 1, 10:30 am – 12:30 pm, Auditorium (3rd Floor)

EXPERT WORKSHOP-CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE-SCALE GASEOUS HYDROGEN INFRASTRUCTURE-PART 4

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Michael Gagliano, Jonathan Parker, EPRI, Palo Alto, CA, USA
Chair: Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA
Co-Chair: Laurent Briottet, French Alternative Energies and Atomic Energy Commission (CEA), Grenoble, France

OVERVIEW OF HYDROGEN STORAGE SYSTEMS AND RELATED CHALLENGES FOR THE DESIGN OF HIGH-PRESSURE VESSELS
Paolo Bortot, M. Ortolani, M. Bellingardi, Tenaris, Dalmine, Italy

SUBSURFACE STORAGE OF HYDROGEN – HURDLES IN THE PATH FORWARD
Mathew Ingraham, Sandia National Laboratories, Albuquerque NM, USA

CHALLENGES AND SOLUTIONS WITH BULK STORAGE OF HYDROGEN
Rob Trautz, Electric Power Research Institute, Charlotte NC, USA

MODERN FAILURE ASSESSMENT DIAGRAMS (FADs) FOR DEFECT ASSESSMENT IN PRESSURIZED FERRITIC STEEL COMPONENTS
Robert H. Dodds, University of Illinois at Urbana-Champaign, Denver CO, USA

Block 4.3: Thursday, August 1, 2024 (1:30 pm – 3:30 pm)

SESSION 4.3O (EPRI/SNL-5)

Thursday, August 1, 1:30 pm – 3:30 pm, Auditorium (3rd Floor)

EXPERT WORKSHOP-CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE-SCALE GASEOUS HYDROGEN INFRASTRUCTURE-PART 5

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Michael Gagliano, Jonathan Parker, EPRI, Palo Alto, CA, USA
Chair: Michael Gagliano, EPRI, Palo Alto, CA, USA
Co-Chair: Bostjan Bezensek, Shell

HYDROGEN AND THE PIPELINE NETWORK - A EUROPEAN PERSPECTIVE
Marion Erdelen-Peppler, Rosen Group/European Pipeline Research Group, Lingen, Germany

INTEGRATED LIFING STRATEGY FOR BUILDING NEW AND REPURPOSING EXISTING NG PIPELINES
Shane Finneran and Ramgopal Thodla, DNV, Dublin OH, USA

HYDROGEN BLENDING – EVALUATING THE IMPACT ON GAS TRANSMISSION PIPELINE INTEGRITY
Scott Riccardella, Structural Integrity Associates, Inc., Denver CO, USA

AN OVERVIEW OF THE HYDROGEN EXTREMELY LOW PROBABILITY OF RUPTURE (HELPR) TOOLKIT FOR PROBABILISTIC STRUCTURAL INTEGRITY ASSESSMENTS WHEN TRANSPORTING HYDROGEN IN NATURAL GAS INFRASTRUCTURE
Ben Schroeder, Sandia National Laboratories, Albuquerque NM, USA

Block 4.4: Thursday, August 1, 2024 (3:45 pm – 5:45 pm)

SESSION 4.4O (EPRI/SNL-6)

Thursday, August 1, 3:45 pm – 5:45 pm, Auditorium (3rd Floor)

EXPERT WORKSHOP-CHALLENGES AND SOLUTIONS TO IMPLEMENTATION AND RELIABLE OPERATION OF LARGE-SCALE GASEOUS HYDROGEN INFRASTRUCTURE-PART 6

Developed by: Chris San Marchi, Joe Ronevich, Sandia National Laboratories, Livermore, CA, USA; Michael Gagliano, Jonathan Parker, EPRI, Palo Alto, CA, USA
Chair: Jonathan Parker, EPRI, Palo Alto, CA, USA
Co-Chair: Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA

CHALLENGES AND SOLUTIONS TO TRANSMISSION OF HYDROGEN IN THE UK
Robert Best, National Gas Transmission, plc, Warwick, United Kingdom

REPURPOSING NATURAL GAS PIPELINE INFRASTRUCTURE FOR HYDROGEN – A CASE STUDY IN A PHASED APPROACH TO ASSESSMENT AND PLANNING FOR HYDROGEN CONVERSION
Craig Clarke, GHD, Auckland, New Zealand
HYDROGEN INITIATIVES AT SOUTHERN COMPANY REPURPOSING NATURAL GAS PIPELINE INFRASTRUCTURE FOR HYDROGEN – A CASE STUDY OF THE APPROACH, OPPORTUNITY, AND CHALLENGES, CHET ACHARYA, SOUTHERN COMPANY GAS (USA)
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CONSENSUS ENGINEERING REQUIREMENTS FOR HIGH PRESSURE HYDROGEN AND HYDROGEN BLEND TRANSMISSION PIPELINES, SIMON SLATER, ROSEN INTEGRITY SERVICES (OH, USA)
Simon Slater, ROSEN Integrity Services, Columbus, OH, USA

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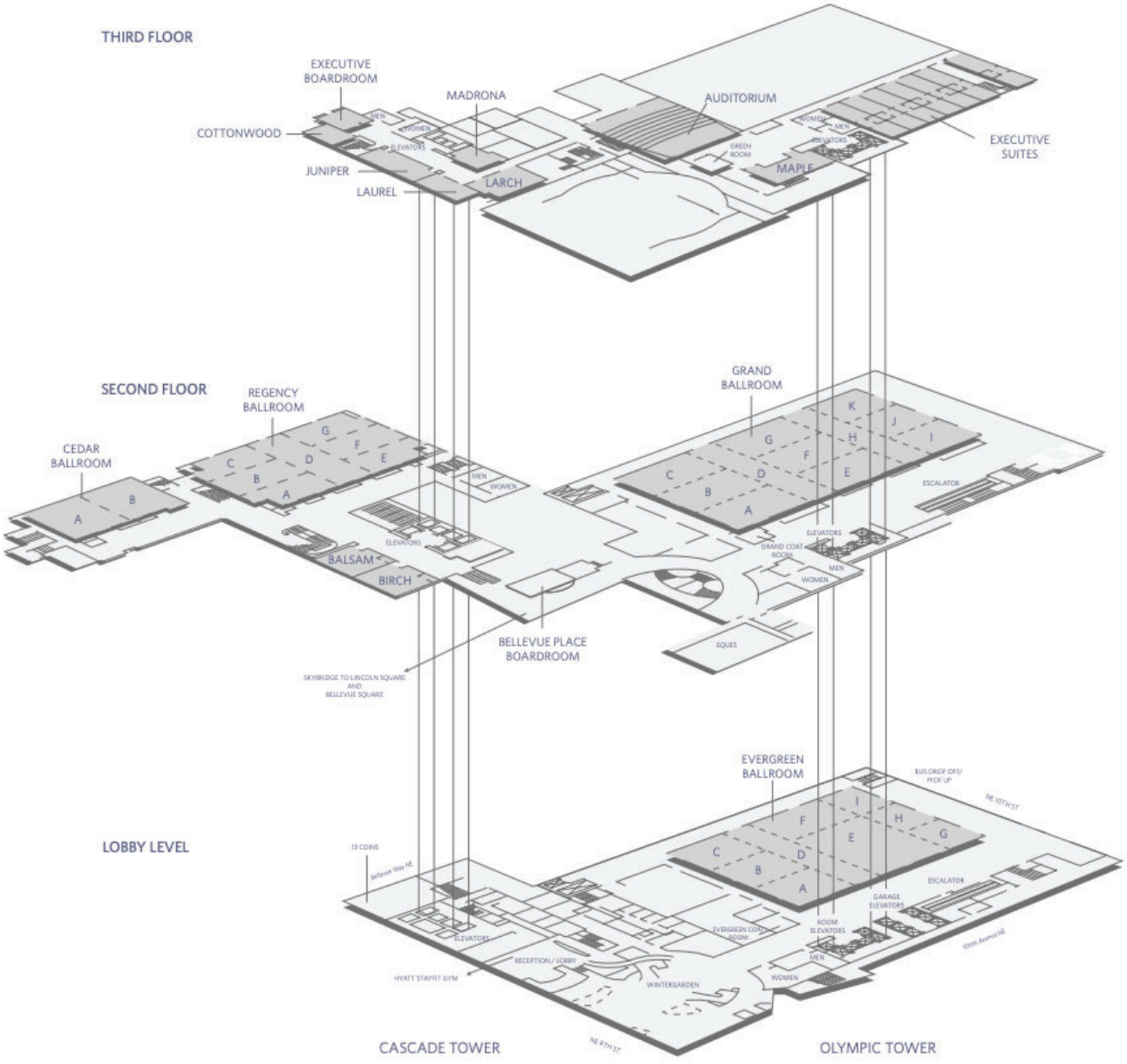

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