Final Program

PVP 2023

2023 Pressure Vessels & Piping Conference

Re-Energizing the Pressure Vessels and Piping Community

July 16–21, 2023
Westin Peachtree Plaza
Atlanta, Georgia, USA

ASME
SETTING THE STANDARD

WELCOME TO PVP 2023

Welcome to Atlanta, Georgia, 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 knowledgebase 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 460 technical papers and presentations organized into approximately 130 technical and panel discussion sessions, three technical tutorials, one special tutorial, a workshop to introduce technical considerations for hydrogen, 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 **Guided Trolley Tour** on Monday—this tour will highlight Atlanta's major attractions and includes a stop at the Martin Luther King Jr. National Historical Park. Monday evening we all meet at the Conference-Wide Reception, which will be held in the Peachtree Ballroom. The **Guided Walking Tour** on Tuesday features the many attractions of Downtown Atlanta, just steps from the Conference hotel. Additional details regarding these tours can be found later in this program.

PVP 2023 PROGRAM LAYOUT

	Sunday **July 16, 2023**	**Monday** **July 17, 2023**	**Tuesday** **July 18, 2023**	**Wednesday** **July 19, 2023**	**Thursday** **July 20, 2023**	**Friday** **July 21, 2023**
7:15 am **8:15 am**	Arrival Registration Opens **(8:00 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	**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 4.1** Technical Sessions	**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 Technology Exhibits	**Block 2.3** Technical Sessions Technical Tutorial Technology Exhibits	**Block 3.2** Technical Sessions Technical Tutorial Technology Exhibits	**Block 4.3** Hydrogen 101 Workshop Conference General Committee Meeting	**Block 5.3** Hydrogen Study Group
4:15 pm **6:00 pm**	Special Tutorial **(4:00 pm – 6:00 pm)**	**Block 1.4** Technical Sessions Technology Exhibits	**Block 2.4** Technical Sessions Technical Tutorial Technology Exhibits	**Block 3.4** PVP Division Honors & Awards Assembly/ Dinner **(5:00 pm – 8:00 pm)**	**Block 4.4** Hydrogen 101 Workshop Conference Evaluation	**Block 5.4** Hydrogen Study Group
Evening	Open	Conference-Wide Reception **(6:45 – 8:45 pm)**	Open		Open	Open

* Author's Breakfast/Briefing (7:15 – 8:00 am) open to those Presenting Authors on their scheduled day of presentation only.

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

The 2023 Pressure Vessels & Piping Conference marks the 57th 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. D.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 C.E. Taylor at the University of Illinois using photoelasticity stress analysis, and E.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 and Core Values to build upon:

- **The Mission** is to provide a forum to the engineering and scientific communities to promote, share and disseminate state-of-the-art pressure technologies, relating to the power, petrochemical, and process industries, and sustainable and alternative energies.
- **The Core Values** are to embrace integrity and ethical conduct and 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.

Index to Program

The American Society of Mechanical Engineers
Pressure Vessels & Piping Division

PVP 2023 Conference Committees

Clay D. Rodery
Conference Chair

Yasumasa Shoji
Technical Program Chair

Douglas A. Scarth
Conference Advisor

PVP Technical Program Representatives

Codes & Standards	Pierre Dulieu
	Anees Udyawar
Computer Technology & Bolted Joints	Anita Bausman
	Linbo Zhu
Design & Analysis	Shunji Kataoka
Fluid-Structure Interaction	Kazuaki Inaba
	Atef Mohany
High-Pressure Technology	Dusan Spernjak
	Taylor Nyquist
Materials & Fabrication	Sylvain Pillot
	Kevin Mandeville
Operations, Applications & Components	Ayman Cheta
	Oscar Martinez
Seismic Engineering	Keisuke Minagawa
	Sukru Guzey
ASME NDPD Division	Vivek Agarwal
	Min Zhang

PVP Division Management Committee (2022-2023)

Andrew J. Duncan	Chair
Clay D. Rodery	Vice Chair
Yasumasa Shoji	Communications Chair
Ravi Baliga	Honors & Awards Chair
David Gross	Incoming Communications Chair

PVP Senate of Past Division Chairs

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 Berwin*	1972–73
Danos Kallas*	1971–72
Robert J. Cepluch*	1970–71
Charles F. Larson	1969–70
Gunther P. Eschenbrenner	1968–69
Vito Salerno*	1967–68
Dana Young*	1966–67

*Deceased

PVP Division Technical Committee Chairs

Codes & Standards	Kiminobu Hojo
Computer Technology & Bolted Joints	Reza Adibi-Asl
Design & Analysis	Alicia C. Avery
Fluid-Structure Interaction	Kazuaki Inaba
High-Pressure Technology	Kannan Subramanian
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	Yasumasa Shoji
International Coordination	Hubert LeJeune

ASME Journal of Pressure Vessel Technology

Editor	Young W. Kwon

ASME President

Thomas R. Kurfess 2023-2024

ASME Staff

Executive Director/CEO	Thomas Costabile
Senior Manager, TEC Operations	Jamie Hart
Manager, Conferences and Events	Kim Miceli
Coordinator, Conferences and Events	Danielle Cavouti
Senior Manager, Conference E-Tools	Stacey Cooper

WELCOME and ORIENTATION

A welcome and orientation session will be held on Monday, July 17th at 8:15 am in the Peachtree Ballroom C/D. 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

Re-Energizing the Pressure Vessels and Piping Community

The Conference opens in the Peachtree C/D Ballroom on Monday, July 17th at 10:15 am. Representatives of the PVP Division Leadership Team will welcome the attendees. The first plenary presentation will be delivered by Zach Brunson, Research Engineer at the Georgia Institute of Technology. The second plenary presentation will be delivered by Earl Berry, Engineering Vice President at Southern Nuclear.

Plenary Speaker

Dr. Zach D. Brunson
Research Engineer
Georgia Institute of Technology, Atlanta, GA, USA

Mechanical Testing of Anisotropic Materials: From Fundamental Research to Testing As-Manufactured Materials

As industries search for solutions to the problems of light-weighting, extreme temperatures, biocompatibility, and cost, engineers are increasingly turning to anisotropic and asymmetric materials such as magnesium (Mg) plate, titanium (Ti) forgings, 3D-printed nickel (Ni) superalloys, super-elastic Ni-Ti alloy extrusions, and a whole host of composites. Since an accurate description of a material's strength is paramount to reliable and safe engineering design, it is crucial that we understand precisely how these materials behave, how to model that behavior, and how to calibrate those models. With this in mind: this presentation will explore state-of-the-art methods for multiaxial and multiscale mechanical testing; describe a newly developed yield criterion for anisotropic and asymmetric materials; and discuss recent research efforts for the mechanical testing of as-manufactured materials, from new samples and tests to automation.

Plenary Speaker

Earl Berry
Engineering Vice President
Southern Nuclear, Birmingham, AL, USA

How the Vessel and Piping Community Will Help Global Energy Needs

Southern Nuclear is commissioning the first two new nuclear reactors built in the United States in over 30 years. These reactors will generate over 2,000 megawatts of carbon-free electricity for at least 60 years and will help Southern Company achieve net-zero by 2050. We are not alone with our net-zero goal – many companies and countries have similar ones. Around the world, there are 57 reactors under construction and over 300 proposed. This demand is being driven by the desire to produce large amounts of clean, safe, reliable, and affordable energy worldwide.

With these goals and the desire to continue safely running nuclear power plants around the world, there are multiple opportunities for the pressure vessel and piping community. There are design concepts that require additional research, and the latest knowledge on materials and technologies must inform the codes and standards needed for these new concepts and the existing nuclear fleet. All of this must happen in the brief time needed to meet the accelerated global demand for clean electricity. Therefore, an energized and focused pressure vessel and piping community is critical to meeting our global energy needs.

HONORS and AWARDS ASSEMBLY

The ASME PVP Division Honors and Awards Gala, during which Division and selected ASME Society awards are presented, will be held on Wednesday, July 19, from 5:00 pm until 8:00 pm, in the Peachtree Ballroom. The top PVP Division award, the ASME S. Y. Zamrik PVP Medal, will be presented to Dr. Douglas A. Scarth.

ASME S. Y. Zamrik PVP Medal Recipient

Dr. Douglas A. Scarth
Toronto, Ontario, Canada

Dr. Douglas A. Scarth received his B.Sc. in Mechanical Engineering at the University of Manitoba at Winnipeg, Manitoba, Canada in 1979. Upon graduation, he joined the Master's program in Mechanical Engineering (M.Sc.) at the University of Manitoba. In 1981 while doing his M.Sc. at the University of Manitoba, Dr. Scarth started working at Wardrop Engineering, Inc. at Winnipeg, Manitoba as an Engineer attached to the Thermal Hydraulics Branch at Atomic Energy of Canada, Ltd., Whiteshell Laboratories. As a new engineer at the job he assisted in development of a two-fluid finite-difference thermal hydraulics computer code to model transient two-phase flow in CANDU nuclear reactors. Dr. Scarth worked at Wardrop Engineering from 1981 till 1985. In 1985, Dr. Scarth joined Ontario Hydro Research Division, Toronto, Ontario as a Research

Engineer where he performed structural integrity evaluations of nuclear and fossil plant components containing flaws. He participated in development of improved technologies for evaluating flaws. He also participated in development of engineering codes and standards for fitness for service assessments of plant components. He worked at Ontario Hydro from 1985 till 1993.

In 1993, Dr. Scarth started his engineering career at Ontario Power Technologies, which later became Kinectrics, Inc. in Toronto, Ontario, Canada. At Kinectrics, he performed a number of structural integrity evaluations of fossil plant components containing flaws. This included pressure boundary components in the main circulation systems of fossil power plant boilers. Elevated temperature evaluations of secondary super heater systems that included creep were also performed. This included development of a flaw evaluation procedure for creep crack growth.

In 1999, Dr. Scarth enrolled in his Ph.D. program in Material Science at University of Manchester, Manchester, U.K. He received his Ph.D. degree in Material Science from University of Manchester in 2002.

Dr. Scarth performed a number of structural integrity evaluations of nuclear components containing flaws. He led projects to develop improved technologies for evaluating flaws in CANDU reactor Zr-Nb pressure tubes. He co-developed a process-zone model for predicting Delayed Hydride Cracking (DHC) initiation from blunt flaws in irradiated Zr-Nb pressure tubes. He developed a model to predict the threshold stress intensity factor for DHC initiation from a crack as a function of orientation of the crack in an irradiated Zr-Nb pressure tube. He developed models to predict fatigue crack initiation at blunt flaws in irradiated Zr-Nb pressure tubes. He developed a model to predict fatigue crack initiation at nominally smooth surfaces in irradiated Zr-Nb pressure tubes in a CANDU reactor coolant environment. He co-developed a model for predicting fracture toughness of irradiated Zr-Nb pressure tubes with high hydrogen concentrations. He also developed a model to predict the relaxation of residual stresses in CANDU fuel channel rolled joints. A number of these models have been implemented into the Canadian CSA Standard N285.8 and/or have been used to design new CANDU fuel channels.

Dr. Scarth participated in development of engineering codes and standards for fitness for service assessments of plant components. He was co-author of fitness-for-service guidelines for CANDU reactor Zr-Nb pressure tubes, CANDU steam generator tubes and CANDU feeder piping. He is also co-author of the CSA Standard N285.8 for in-service evaluation of CANDU Zr-Nb pressure tubes. He is a member of committees under Section XI of the ASME Boiler and Pressure Vessel Code. He participated in the development of a number of Nonmandatory Appendices and Code Cases under Section XI of the ASME Code.

Dr. Scarth has been active in the ASME PVP Division since 1999 developing technical sessions. He became Technical Program Representative (TPR) in 2005 for the Materials and Fabrication Technical Committee (M&F). He served as M&F Technical Committee Chair from 2009 till 2012. Because of his outstanding performance at the M&F Technical Committee he was promoted to the Division Leadership Team and became the Chair of the Honors and Awards Committee in 2012. He served as Honors and Awards Committee Chair from 2012 till 2015. He became an ASME Fellow in 2014. Dr. Scarth was the Conference Chair of the 2016 PVP Conference in Vancouver British Columbia, Canada, and PVP Division Chair in 2017.

Throughout his service to the PVP Division, Dr. Scarth demonstrated vision to seek, recognize and promote early career engineers. In 2019, the PVP Division voted to rename the award that recognizes an early career engineer that best demonstrates leadership qualities the Doug Scarth Early Career Leadership Award.

He is an internationally known and an outstanding technical expert in Fracture Mechanics in failure assessment of flaws and cracks in pressure boundary components in the nuclear industry.

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.

Coffee Breaks and Refreshments

Coffee and refreshments are available throughout the week in the *Augusta Ballroom on the Augusta Level (7th Floor).* This hub of activity features exhibit booths and coffee breaks.

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 hours in length. Technical Tutorials fill two 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 tutorial sessions for the 2023 PVP Conference are presented below.

SPECIAL TUTORIAL

Book Review of *Great at Work: How Top Performers Do Less, Work Better, and Achieve More*

Nathan Barkley, Becht

Sunday, July 16, 4:00 pm – 6:00 pm
Augusta 1, Augusta Level (7th Floor)

This tutorial consists of a review of the book *Great at Work: How Top Performers Do Less, Work Better, and Achieve More* by Morten T. Hansen. This book presents strategies for achieving high performance at work and offers high value for professionals in the early stages of their careers. As such, the book is particularly relevant to Early Career Engineers, as well as providing a forum for an objective review of a widely circulated book. We will begin by introducing the book and provide a chapter-by-chapter overview of the book's main points, followed by an open discussion among the tutorial attendees.

TECHNICAL TUTORIALS

Improvements in Acoustic Induced and Flow Induced Vibration of Process Piping Prediction and Mitigation

Rob Swindell, Wood PLC; Itsuro Hayashi, Chiyoda Corporation; Nick Horder, Xodus Group; Arindam Ghosh, KBR; Noel Hart, ExxonMobil; and Adin Mann, Wood PLC.

Tuesday, July 18, 8:15 am – 10:00 am (Part 1), and 10:15 am – 12:00 pm (Part 2)
Augusta 1, Augusta Level (7th Floor)

Acoustic Induced Vibration (AIV) and Flow Induced Vibration (FIV) can have damaging impacts on process piping. A Joint Industry Project (JIP) was formed to obtain measured responses on a mockup of a blow down system and utilize that information to develop means to improve predictions of AIV based fatigue failures. During the testing work, FIV was found to be present, and the test data was used to refine FIV prediction methods so that AIV and FIV assessment can be evaluated together.

In parallel, the 3rd edition of the Energy Institute's Guidelines for The Avoidance of Vibration Induced Fatigue Failure in Process Pipework was being developed. Learnings and results from the AIV JIP were included in the revision of the Energy Institute Guidelines.

This tutorial will focus on the changes to the Energy Institute Guidelines and the alignment with the API-579 Part 15 development. Specific areas to be discussed are:

1. 3rd edition updates to the Energy Institute Guidelines

2. AIV and FIV Background
3. Sound Power and Vibration Index
4. Dynamic stress concentration ratios
5. Baseline for 3rd edition Energy Institute Guidelines and examples comparing the 2nd edition, 3rd editions and other assessment methods
6. Energy Institute Guidelines alignment with API-579 Part 15.

Piping Vibration Fundamentals, Measurement, and Assessment using the Future API 579 Part 15

Michael Bifano, The Equity Engineering Group, Inc., and Lyle Breaux, Stress Engineering Services

Tuesday, July 18, 2:15 pm – 4:00 pm (Part 1), and 4:15 pm – 6:00 pm (Part 2)

Augusta 1, Augusta Level (7th Floor)

There are a variety of recognized and generally accepted good engineering practices for the prevention of piping vibration fatigue in new designs, and assessment methods and acceptability criteria for in-service piping published in industry recognized publications by global professional organizations (i.e., Energy Institute, BS ISO). However, the vibration assessment of in-service piping has yet to be formalized in an in-service API standard. Over the past 10 years, the Part 15 task group of the joint ASME FFS-1/API 579-1 Committee on Fitness-for-Service has been pulling from the existing body of published documents and developing updated approaches using the existing API 579 Level 1, 2, and 3 tiers of assessment. In addition to the engineering assessment steps, Part 15 includes appendices such as signal processing and measurement strategies to supplement analysis. These informative appendices are important as effective and accurate evaluations require a basic understanding of measurement and testing techniques and a general understanding of engineering vibration concepts, especially when performing advanced Level 2 and 3 assessments.

This tutorial begins with an overview of the technical background helpful for understanding piping vibration assessment, including engineering vibration concepts, measurement and testing techniques, and the limitations of various test methods. The different measurement technologies covered include motion amplification, impact testing, operating deflection shape assessments, and single and multi-channel accelerometer measurements. Participants will learn how to identify important signal characteristics and behaviors to collect quality data for accurate assessments and to understand the source of the vibration.

The tutorial then delves into the upcoming API 579 Part 15 Assessment Methodology, which provides a comprehensive and standardized approach to the assessment of in-service piping. The specific focus of this tutorial is on both resonant and non-resonant beam-mode, low-frequency vibration, caused by either mechanical sources, flow induced turbulence, or acoustic pulsation.

Using multiple case studies, the tutorial presents a step-by-step approach to Levels 1, 2, and 3 evaluations, providing participants with an appreciation and general understanding of the Part 15 methodology. This tutorial is ideal for engineers and technicians involved in the design, maintenance, and inspection of process piping systems. The coverage of the technical concepts, measurement technologies, and assessment methodology will provide participants with skills necessary to perform effective Level 1 and 2 piping vibration assessments, understand the process and information required for Level 3 assessments, and contribute to the safe and reliable operation of process piping systems.

An Introduction to ASME Section VIII, Division 2, Part 5: Design By Analysis

Trevor Seipp, Becht

Wednesday, July 19, 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)

Augusta 1, Augusta Level (7th Floor)

This tutorial is a high-level introduction to the Design-By-Analysis portion of ASME Section VIII, Division 2, Part 5, which is normally delivered as part of a 4-day course. The general outline of the tutorial covers the following:

- General Philosophy of Part 5 – Protection Against Failure Modes
- Loading Conditions / Load Case Combinations
- Protection Against Plastic Collapse
- Protection Against Local Failure
- Protection Against Collapse From Buckling
- Protection Against Failure From Cyclic Loading: Ratcheting
- Protection Against Failure From Cyclic Loading: Fatigue
- Protection Against Failure From Cyclic Loading: Fatigue of Weldments
- Protection Against Creep Damage.

TECHNICAL WORKSHOP

Hydrogen 101: Introduction Considerations for Hydrogen Service

Chris San Marchi, Sandia National Laboatories; Hisao Matsunaga, Kyushu University; Kevin Simmons, Pacific Northwest National Laboratory; Bostjan Besensek, Shell Global Solutions (UK); and Kang Xu, Linde

Thursday, July 20, 2:15 pm – 4:00 pm (Part 1); and 4:15 pm – 6:00 pm (Part 2)

Chastain E, Chastain Level (6th Floor)

This ½-day workshop will provide an introduction to concerns for integrating hydrogen into energy infrastructure. The workshop will begin with the foundations for understanding hydrogen-materials interactions and basic trends describing the influence of hydrogen on relevant engineering properties of materials (both metals and polymers). The second half of the workshop will provide an industry perspective on transportation of hydrogen in pipelines and an overview of hydrogen in the ASME codes.

TECHNOLOGY EXHIBITS

Monday, July 17, 8:15 am – 6:00 pm; Tuesday, July 18, 8:15 am – 6:00 pm; and Wednesday, July 19, 8:15 am – 4:30 pm

Augusta Ballroom, Augusta Level (7th Floor)

The Conference Exhibits will be held from Monday July 17th to Wednesday July 19th. Vendors and sponsors will present and discuss their capabilities, equipment, and services in the Augusta Ballroom.

NETWORKING RECEPTION

Tuesday, July 18, 5:30 pm – 7:00 pm

The Overlook, Chastain Level (6th Floor)

A Networking Reception will be held from 5:30 to 7:00 pm on Tuesday, July 18. 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 17, 6:45 pm – 8:45 pm

Peachtree C/D, Peachtree Level (8th 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 25th Rudy Scavuzzo Student Paper Symposium and Competition are invited to present their posters.

No charge for registered conference participants and guests.

Guided Trolley Tour

Monday, July 17, 10:00 am (lunch on your own)

Starting from the conference hotel, this tour of Atlanta highlights all the major attractions and includes a 30 minute stop at the MLK National Park. The Martin Luther King Jr. National Historical Park covers about 35 acres and includes several sites related to the life and work of civil rights leader Martin Luther King Jr. Trolley through Inman Park, Atlanta Beltline, Little Five Points, Midtown Atlanta and Georgia Tech. Learn about each location from your guide. For lunch, the tour will stop at our largest food hall, Ponce City Market. This location offers a variety of eating options and can meet all dietary restrictions. This tour is approximately 4 hours in duration and lunch cost 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.

Guided Walking Tour
Tuesday, July 18, 10:00 am (lunch on your own)

Come experience the many attractions of Downtown Atlanta, just steps from the Conference hotel. Highlights of this guided walking tour include seeing the Centennial Olympic Park, Atlanta Aquarium, World of Coke, Civil Rights Museum, and the College Football Hall of Fame. See filming locations for popular movies and TV and learn the impact on the local economy. Sites include Marvel, Ozark, Fast & the Furious and the Gone with the Wind Premier. Discuss the impact of the 1906 Atlanta Race Riot and view the Ellis Hotel, the location of the deadliest US hotel fire. Tour inside the historic Candler Building built in 1906, first office of Coca Cola and the Flat Iron Building. The Atlanta Flat Iron is the oldest skyscraper and predates the NYC Flat Iron. Also see the Woodruff Park Water Fountains. The large geyser feature pumps more than 9,000 gallons of water per minute into the air. The water wall, which spans more than 150 feet, provides a dramatic backdrop to the park, and a memorable gateway to Auburn Avenue and the Martin Luther King, Jr. National Historic Site.

Your guide will provide suggestions of local restaurant & bars to visit while in town.

Tickets: $25 per person

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 by utilize file sharing methods as opposed to USB devices, which many companies have imposed restrictions on their use due to security concerns.

The location of the session rooms is shown in the hotel floor plan on the 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 2023 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 18, 12:00 pm – 2:00 pm
Wednesday, July 19, 12:00 pm – 2:00 pm

The Pressure Vessels & Piping Division Technical Committees will meet during the noon breaks on Tuesday, July 18, and Wednesday, July 19. Visitors are encouraged to attend and take an active part in PVP committee activities. All committee meetings, schedules and rooms are listed under PVP 2023 Committee Meetings on page 10.

PVP Division Honors and Awards Assembly and Dinner

Wednesday, July 19, 5:00 pm – 8:00 pm
Peachtree C/D, Peachtree Level (8th Floor)

The Honors and Awards Gala, honoring all Division Award Recipients and the 2023 ASME S.Y. Zamrik PVP Medalist, Douglas A. Scarth, will be held on Wednesday, July 19, from 5:00 pm until 8:00 pm, in the Peachtree C/D Ballroom. 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 17 – Thursday, July 20, 7:15 am – 8:00 am
Chastain Room (Chastain 1 and 2), Chastain Level (6th Floor) – Monday Only
Peachtree C/D, Peachtree Level (8th Floor) Tuesday – Thursday

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
Peachtree D, Peachtree Level (8th Floor)

Located in Peachtree D, 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 16	8:00 am – 6:00 pm
Monday, July 17	7:30 am – 6:00 pm
Tuesday, July 18	7:30 am – 4:00 pm
Wednesday, July 19	7:30 am – 3:00 pm
Thursday, July 20	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
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. Please fill in your society affiliation and membership number on the registration form.

**** 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 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 Dinner.

‡‡ Guests wishing to attend the Honors and Awards 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

PVP 2023 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 PVP 2023 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 7, 2023 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: Guided Trolley Tour (Monday), the Conference Wide Reception in the Peachtree Ballroom (Monday evening), and the Guided Walking Tour (Tuesday). Tickets are required for admission to all events. Please also note that the 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.

Breakfast for guests is served from 7:30 am to 10:00 am in Piedmont Rooms 1, 2 and 3, Piedmont Level (12th Floor) of the Westin Peachtree Plaza hotel.

Childcare Reimbursement

We are pleased to offer childcare reimbursement for attendees of PVP 2023. 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 Atlanta, Georgia. This offering will be available from July 17 - 20, 2023, during the hours of days in which technical presentations are offered.

To be reimbursed, you must complete the ASME Volunteer Travel Expense Contribution form. 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 Kim Miceli at micelik@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 PVP2023 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. Young W. Kwon whose contacts are hereafter, 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

Dr. Young W. Kwon, Editor
Journal of Pressure Vessel Technology
Dept. of Mechanical & Astronautical Engineering 700 Dyer Road
Naval Postgraduate School Monterey, CA 93943
Phone/Fax: 831-656-3468 / 2238
E-mail: ywkwon@nps.edu

PVP2023 COMMITTEE MEETINGS

Date/Time	Meeting	Room	Responsible Person
Saturday, July 15, 2023			
4:30 pm – 6:00 pm	PVPD Senate Operations Committee	Chastain 2	T. Seipp
Sunday, July 16, 2023			
8:30 am – 12:30 pm	PVP Division Leadership Team	Chastain 2	A. Duncan
Monday, July 17, 2023			
8:15 am – 10:00 am	PVPD Professional Development Committee	Augusta 2	M. Younan
Tuesday, July 18, 2023			
10:15 am – 12:00 pm	PVP2024 Program Committee	Chastain 2	Y. Shoji
12:00 pm – 2:00 pm	PVPD Codes & Standards Technical Committee	Augusta 1	K. Hojo/V. LaCroix
12:00 pm – 2:00 pm	PVPD Operations, Applications and Components Technical Committee	Augusta 2	A. Reich
12:00 pm – 2:00 pm	PVPD Fluid Structure Interaction Technical Committee	Chastain 2	K. Inaba
12:00 pm – 2:00 pm	PVPD Design & Analysis Technical Committee	Chastain 1	A. Avery
2:15 pm – 4:00 pm	PVPD International Coordination Committee	Chastain 2	H. LeJeune
4:15 pm – 6:00 pm	PVPD Honors and Awards Committee (CLOSED MEETING)	Chastain 2	R. Baliga
Wednesday, July 19, 2023			
8:15 am – 10:00 am	PVPD Communications Committee	Chastain 2	Y. Shoji
10:15 am – 12:00 pm	JPVT Editors	Chastain 2	Y. Kwon
12:00 pm – 2:00 pm	PVPD Materials & Fabrication Technical Committee	Augusta 1	H. Qian
12:00 pm – 2:00 pm	PVPD Seismic Engineering Technical Committee	Augusta 2	O. Furuya
12:00 pm – 2:00 pm	PVPD High Pressure Technology Technical Committee	Chastain 2	K. Subramanian
12:00 pm – 2:00 pm	PVPD Computer Technology & Bolted Joints Technical Committee	Chastain 1	R. Adibi-Asl
2:15 pm – 4:00 pm	PVPD Early Career Engineers Committee	Chastain 2	N. Barkley
Thursday, July 20, 2023			
12:15 pm – 4:00 pm	PVPD General Committee Meeting	Chastain 1	C. Rodery
4:15 pm – 6:00 pm	PVPD Conference Evaluation	Chastain 1	P. Mertiny
Friday, July 21, 2023			
8:30 am – 12:30 pm	PVP Division Leadership Team	Chastain 1	C. Rodery

CALL FOR PAPERS

2024 ASME Pressure Vessels & Piping Conference

July 28 – August 2, 2024

ABSTRACTS DUE – OCTOBER 16, 2023

JOIN US AT THE 2024 ASME PVP CONFERENCE

JULY 28 – AUGUST 2, 2024, AT THE HYATT REGENCY BELLEVUE

BELLEVUE, WASHINGTON, USA

PRESSURE VESSEL AND PIPING TECHNOLOGIES FOR A SUSTAINABLE WORLD

Join us in Bellevue, Washington for the 2024 ASME Pressure Vessels & Piping Conference, as we contribute to supporting a sustainable 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 150 paper and panel sessions are planned, including tutorials, workshops, and a Technical Demonstration Forum (Exhibition). 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*

October 16, 2023	Abstracts are due
November 13, 2023	Abstract Accept/Reject Notification
January 29, 2024	Submission of Full-Length Paper for Review
March 11, 2024	Peer Review Comments Returned
April 25, 2024	Copyright Agreement Form (for each paper) due
April 29, 2024	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

Yasumasa Shoji
YS Corporation LLC
Tokyo, Japan
yasumasa.shoji@nifty.com

PVP Technical Program Chair

Ravi Baliga
ADVENT Energy Consultants, Inc.
Redwood City, CA USA
rbaliga@adventeng.com

ASME
SETTING THE STANDARD

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 = Chastain C; B = Chastain D; C = Chastain E; D = Chastain F; E = Chastain G; F = Chastain H; G = Chastain I; H = Chastain J; I = Augusta 3; J = Peachtree 1; K = Peachtree 2; L = Chastain 1; Q = Augusta 1; S = Augusta Ballroom. 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
- NDE = ASME NDE, Diagnosis and Prognosis Division
- OAC = Operations Applications, & Components
- SE = Seismic Engineering
- TE = Technology Exhibits
- TW = Technical Tutorials

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 16, 2023

Block 0.4: Sunday, July 16, 2023 (4:00 pm – 6:00 pm)

0.1Q (TW-1-1)	SPECIAL TUTORIAL-- REVIEW OF BOOK: GREAT AT WORK: HOW TOP PERFORMERS DO LESS, WORK BETTER, AND ACHIEVE MORE

Monday, July 17, 2023

Block 1.1: Monday, July 17, 2023 (8:15 am – 10:00 am)

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

Block 1.2: Monday, July 17, 2023 (10:15 am – 12:00 pm)

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

Block 1.3: Monday, July 17, 2023 (2:15 pm – 4:00 pm)

1.3A (FSI-03-01)	SHOCK AND BLAST LOADING
1.3B (DA-02-01)	DESIGN & ANALYSIS OF PIPING AND COMPONENTS - 1
1.3C (MF-17-01)	ADVANCED MANUFACTURING AND ADDITIVE MANUFACTURING
1.3D (CT-01-01)	THE YVES BIREMBAUT MEMORIAL SESSION ON DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS
1.3E (CS-16-01)	FATIGUE ISSUES IN PRESSURE VESSEL AND PIPING DESIGN
1.3F (MF-01-01)	APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT - 1
1.3G (CS-01-01)	STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS
1.3H (FSI-02-04)	VORTEX AND SOUND
1.3I (CS-07-03)	PANEL SESSION - WHAT'S NEW IN ASME SECTION VIII DIVISION 1?
1.3J (MF-24-01)	MATERIALS AND FABRICATION FOR REFINING - 1
1.3K (OAC-02-01)	QUALIFICATION, TESTING, AGEING MANAGEMENT AND PLANT LIFE EXTENSION
1.3Q (HT-01-01)	DESIGN, ANALYSIS AND LIFE PREDICTION OF HIGH-PRESSURE VESSELS AND EQUIPMENT
1.3S (TE-01-03)	TECHNOLOGY EXHIBITS – 3

Block 1.4: Monday, July 17, 2023 (4:15 pm – 6:00 pm)

1.4A (HT-02-01)	IMPULSIVELY LOADED VESSELS - 1
1.4B (DA-02-02)	DESIGN & ANALYSIS OF PIPING AND COMPONENTS - 2
1.4C (CS-02-01)	HYDROGEN EFFECTS ON MATERIAL BEHAVIOR FOR STRUCTURAL INTEGRITY ASSESSMENT (JOINT WITH MF-2) - APPLYING ASME CODES TO MATERIAL SELECTION
1.4D (DA-10-01)	BOLTED JOINT DESIGN AND ANALYSIS - 1
1.4E (DA-03-01)	FATIGUE
1.4F (MF-01-02)	APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT - 2
1.4G (MF-10-01)	PIPELINE INTEGRITY - 1 - FATIGUE AND FRACTURE ANALYSIS OF PIPELINES
1.4H (FSI-02-05)	PIPING AND AXIAL FLOW
1.4I (CS-07-01)	RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS - 1
1.4J (MF-24-02)	MATERIALS AND FABRICATION FOR REFINING - 2
1.4K (OAC-04-01)	STORAGE AND TRANSPORTATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS - 1
1.4Q (HT-06-01)	DESIGN AND ANALYSIS OF HIGH-PRESSURE EQUIPMENT FOR OIL AND GAS EXPLORATION AND PRODUCTION
1.4S (TE-01-04)	TECHNOLOGY EXHIBITS – 4

Tuesday, July 18, 2023

Block 2.1: Tuesday, July 18, 2023 (8:15 am – 10:00 am)

2.1A (HT-02-02)	IMPULSIVELY LOADED VESSELS - 2
2.1B (MF-05-01)	FITNESS-FOR-SERVICE AND FAILURE ASSESSMENT - 1
2.1C (MF-02-01)	MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - EVALUATING COMPONENT LIFE
2.1D (DA-10-02)	BOLTED JOINT DESIGN AND ANALYSIS - 2
2.1E (MF-16-01)	CREEP AND CREEP-FATIGUE INTERACTION (JOINT WITH CS-25) - 1
2.1F (DA-12-01)	FRACTURE - 1
2.1G (MF-10-02)	PIPELINE INTEGRITY - 2 - CORROSION ASSESSMENT AND MACHINE LEARNING MODELS OF BURST PRESSURE OF PIPELINES
2.1H (DA-01-01)	THE ROGER F. REEDY MEMORIAL SYMPOSIUM ON DESIGN & ANALYSIS OF PRESSURE VESSELS AND COMPONENTS - 1
2.1I (CS-07-02)	RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS - 2
2.1J (MF-24-03)	MATERIALS AND FABRICATION FOR REFINING - 3
2.1K (OAC-04-02)	STORAGE AND TRANSPORTATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS - 2
2.1L (SE-01-01)	EARTHQUAKE RESISTANCE AND SEISMIC MARGIN / MACHINE LEARNING FOR SEISMIC ANALYSIS OF INDUSTRIAL FACILITIES
2.1Q (TW-02-01)	TECHNICAL TUTORIAL--IMPROVEMENTS IN ACOUSTIC INDUCED AND FLOW INDUCED VIBRATION OF PROCESS PIPING PREDICTION AND MITIGATION (PART 1)
2.1S (TE-02-01)	TECHNOLOGY EXHIBITS – 5

Block 2.2: Tuesday, July 18, 2023 (10:15 am – 12:00 pm)

2.2A (NDE-01-01)	EMERGING NON-DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS - 1
2.2B (MF-05-02)	FITNESS-FOR-SERVICE AND FAILURE ASSESSMENT - 2
2.2C (MF-02-02)	MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - TEMPERATURE AND HYDROGEN EFFECTS

2.2D (CT-03-01) LEAK TIGHTNESS AND FUGITIVE EMISSIONS
2.2E (MF-16-02) CREEP AND CREEP-FATIGUE INTERACTION (JOINT WITH CS-25) - 2
2.2F (DA-12-02) FRACTURE - 2
2.2G (CS-24-01) PROBABILISTIC AND RISK-INFORMED METHODS FOR STRUCTURAL INTEGRITY ASSESSMENT (JOINT WITH MF-14)
2.2H (DA-01-02) THE ROGER F. REEDY MEMORIAL SYMPOSIUM ON DESIGN & ANALYSIS OF PRESSURE VESSELS AND COMPONENTS - 2
2.2I (CS-08-01) ASME CODE SECTION XI ACTIVITIES
2.2J (MF-24-04) MATERIALS AND FABRICATION FOR REFINING - 4
2.2K (OAC-04-03) STORAGE AND TRANSPORTATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS - 3
2.2L (SE-02-01) SEISMIC ISOLATION / DAMPING AND VIBRATION CONTROL
2.2Q (TW-02-02) TECHNICAL TUTORIAL--IMPROVEMENTS IN ACOUSTIC INDUCED AND FLOW INDUCED VIBRATION OF PROCESS PIPING PREDICTION AND MITIGATION (PART 2)
2.2S (TE-02-02) TECHNOLOGY EXHIBITS – 6

Block 2.3: Tuesday, July 18, 2023 (2:15 pm – 4:00 pm)

2.3A (NDE-01-02) EMERGING NON-DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS - 2
2.3B (HT-03-01) MATERIALS & FITNESS FOR SERVICE METHODS FOR HIGH-PRESSURE VESSELS AND PIPING
2.3C (MF-02-03) MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - FATIGUE AND FRACTURE - 1
2.3D (MF-20-01) MATERIAL QUALITY AND FAILURE ANALYSIS - 1
2.3E (CS-25-01) CREEP-FATIGUE ASSESSMENT AND RELIABILITY APPROACHES (JOINT WITH MF-16)
2.3F (CS-19-01) FRACTURE TOUGHNESS AND OTHER SMALL SPECIMEN MECHANICAL PROPERTIES (JOINT WITH MF-11)
2.3G (MF-14-01) PROBABILISTIC ASSESSMENT OF FAILURE (JOINT WITH CS-24) - 1
2.3H (DA-04-01) THE RANGASWAMY SESHADRI MEMORIAL SESSION ON INELASTIC, NONLINEAR, AND LIMIT LOAD ANALYSIS
2.3I (CS-10-02) RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS - EXTREME PRESSURE EQUIPMENT
2.3J (MF-25-01) HIGH STRENGTH STEELS FOR PRESSURE VESSELS AND PIPING APPLICATIONS
2.3K (OAC-05-01) RELIABILITY & INTEGRITY OF PUMPS AND VALVES
2.3L (SE-06-01) SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEM - 1
2.3Q (TW-02-03) TECHNICAL TUTORIAL--PIPING VIBRATION FUNDAMENTALS, MEASUREMENT, AND ASSESSMENT USING THE FUTURE API 579 PART 15 (PART 1)
2.3S (TE-02-03) TECHNOLOGY EXHIBITS – 7

Block 2.4: Tuesday, July 18, 2023 (4:15 pm – 6:00 pm)

2.4A (NDE-02-01) NDE TECHNIQUES AND APPLICATIONS FOR PETROCHEMICAL AND POWER PLANT COMPONENTS
2.4B (CS-23-01) IMPROVEMENT OF FLAW ASSESSMENT PROCEDURES IN FFS CODES
2.4C (MF-02-04) MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - FATIGUE AND FRACTURE - 2
2.4D (MF-20-02) MATERIAL QUALITY AND FAILURE ANALYSIS - 2
2.4E (CS-17-01) EUROPEAN EAF PROJECT: INCEFA-SCALE
2.4F (CS-19-02) EUROPEAN PROJECTS STRUMAT AND DELISA FOR LTO
2.4G (MF-06-01) MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS
2.4H (DA-01-03) THE ROGER F. REEDY MEMORIAL SYMPOSIUM ON DESIGN & ANALYSIS OF PRESSURE VESSELS AND COMPONENTS - 3
2.4I (CS-10-01) RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS - INTEGRITY MANAGEMENT
2.4J (DA-15-01) COKE DRUM ENGINEERING ASSESSMENTS AND LIFE MANAGEMENT
2.4K (OAC-06-01) CONTINUED SAFE OPERATION OF EXISTING ASSETS - 1
2.4L (SE-06-02) SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEM - 2
2.4Q (TW-02-04) TECHNICAL TUTORIAL--PIPING VIBRATION FUNDAMENTALS, MEASUREMENT, AND ASSESSMENT USING THE FUTURE API 579 PART 15 (PART 2)
2.4S (TE-02-04) TECHNOLOGY EXHIBITS – 8

Wednesday, July 19, 2023

Block 3.1: Wednesday, July 19, 2023 (8:15 am – 10:00 am)

3.1A (NDE-03-01) NDE RELIABILITY - MODELING AND EXPERIMENTAL ANALYSIS
3.1B (CS-22-02) TEMPER BEAD WELDING ADVANCEMENTS FOR REPAIR AND REPLACEMENT
3.1C (MF-02-05) MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - SPECIMEN SIZE AND RATE EFFECTS
3.1D (CT-06-01) ELEVATED TEMPERATURE BEHAVIOR OF BOLTED FLANGE JOINTS
3.1E (CS-17-02) EAF TESTING OUTCOMES
3.1F (CS-19-03) EUROPEAN PROJECT FRACTESUS FOR MINI-CT MASTER CURVE - 1
3.1G (FSI-01-01) THERMAL HYDRAULIC PHENOMENA WITH VESSELS, PIPING AND COMPONENTS
3.1H (FSI-02-06) SELECTED TOPICS IN FSI
3.1I (CS-15-01) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF-29) – 1
3.1J (DA-15-02) COKE DRUM DAMAGE MECHANISMS AND MATERIAL EVALUATION
3.1K (OAC-06-02) CONTINUED SAFE OPERATION OF EXISTING ASSETS - 2
3.1L (SE-09-01) ADVANCED SEISMIC EVALUATION AND CODE - 1
3.1Q (TW-02-05) TECHNICAL TUTORIAL--AN INTRODUCTION TO ASME SECTION VIII, DIVISION 2, PART 5: DESIGN BY ANALYSIS (PART 1)
3.1S (TE-03-01) TECHNOLOGY EXHIBITS – 9

Block 3.2: Wednesday, July 19, 2023 (10:15 am – 12:00 pm)

3.2B (CS-22-01) REPAIR AND REPLACEMENT ACTIVITIES TO MAINTAIN COMPONENT INTEGRITY
3.2C (HT-07-01) DESIGN AND ANALYSIS OF HIGH PRESSURE HYDROGEN EQUIPMENT (JOINT WITH CS-02 AND MF-02)
3.2D (CT-04-01) ASSEMBLY OF BOLTED JOINTS - 1
3.2E (CS-17-03) FATIGUE EVALUATION METHOD
3.2F (CS-19-04) EUROPEAN PROJECT FRACTESUS FOR MINI-CT MASTER CURVE - 2
3.2G (MF-03-01) WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT
3.2H (DA-09-01) PIPING AND EQUIPMENT DYNAMICS AND DYNAMIC RESPONSE ANALYSIS

3.2I (CS-15-02) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF-29) – 2
3.2J (DA-15-03) INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT - PANEL SESSION - WHAT'S NEXT FOR THE INDUSTRY?
3.2K (OAC-06-03) CONTINUED SAFE OPERATION OF EXISTING ASSETS - 3
3.2L (SE-09-02) ADVANCED SEISMIC EVALUATION AND CODE - 2
3.2Q (TW-02-06) TECHNICAL TUTORIAL--AN INTRODUCTION TO ASME SECTION VIII, DIVISION 2, PART 5: DESIGN BY ANALYSIS (PART 2)
3.2S (TE-03-02) TECHNOLOGY EXHIBITS – 10

Block 3.3: Wednesday, July 19, 2023 (2:15 pm – 4:00 pm)

3.3A (CS-21-01) CONSTRAINT EFFECTS ON C&S
3.3B (DA-08-03) PRACTICAL APPLICATIONS OF FFS
3.3C (DA-21-02) DESIGN AND ANALYSIS OF HYDROGEN PRESSURE EQUIPMENT - 2
3.3D (CT-04-02) ASSEMBLY OF BOLTED JOINTS - 2
3.3E (MF-15-01) FATIGUE AND FRACTURE OF WELDS AND HEAT AFFECTED ZONES
3.3F (CS-20-01) MASTER CURVE METHOD AND APPLICATIONS
3.3G (MF-03-02) WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT - 2
3.3H (FSI-02-03) TUBE ARRAYS - 3
3.3I (CS-15-03) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF-29) – 3
3.3J (HT-04-01) DESIGN AND ANALYSIS OF HIGH-PRESSURE EQUIPMENT FOR INDUSTRY
3.3K (OAC-06-04) CONTINUED SAFE OPERATION OF EXISTING ASSETS - 4
3.3L (SE-07-01) SEISMIC EVALUATION OF SYSTEMS, STRUCTURES AND COMPONENTS
3.3Q (TW-02-07) TECHNICAL TUTORIAL--AN INTRODUCTION TO ASME SECTION VIII, DIVISION 2, PART 5: DESIGN BY ANALYSIS (PART 3)
3.3S (TE-03-03) TECHNOLOGY EXHIBITS – 11

Thursday, July 20, 2023

Block 4.1: Thursday, July 20, 2023 (8:15 am – 10:00 am)

4.1A (MF-12-01) LEAK BEFORE BREAK
4.1B (DA-08-01) DEVELOPMENTS IN FFS TECHNIQUES
4.1C (DA-21-01) DESIGN AND ANALYSIS OF HYDROGEN PRESSURE EQUIPMENT - 1
4.1D (DA-10-03) BOLTED JOINT INTERNATIONAL LIAISON (PANEL SESSION) - 1
4.1E (CT-07-01) COMPUTATIONAL APPLICATIONS IN FATIGUE, FRACTURE, AND DAMAGE MECHANICS
4.1F (MF-11-01) SMALL-SCALE AND MINIATURE MECHANICAL TESTING (JOINT WITH CS-19)
4.1G (FSI-04-01) FSI DESIGN FOR INDUSTRY AND RENEWABLE ENERGY TRANSPORT - 1
4.1H (FSI-02-01) TUBE ARRAYS - 1
4.1I (MF-29-01) MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH CS-15)
4.1J (CS-07-04) PANEL SESSION - ASME CODE STAMPING OF PLATE CELL STACKS AS RELATED TO HYDROGEN
4.1K (OAC-01-01) APPLICATION IN RISK MANAGEMENT AND SYSTEM RELIABILITY
4.1L (SE-05-01) STRUCTURAL DYNAMICS

Block 4.2: Thursday, July 20, 2023 (10:15 am – 12:00 pm)

4.2A (CT-08-01) THE L. EUGENE HULBERT MEMORIAL SESSION ON NEW AND EMERGING METHODS OF ANALYSIS AND APPLICATIONS
4.2B (DA-08-02) FFS INVOLVING PIPING AND PIPELINES
4.2C (MF-02-06) MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - HYDROGEN EXPOSURE EFFECTS
4.2D (DA-10-04) BOLTED JOINT INTERNATIONAL LIAISON (PANEL SESSION) - 2
4.2E (MF-13-01) COMPOSITE AND NON-METALLIC SYSTEMS FOR PRESSURE VESSELS AND PIPING
4.2F (MF-22-01) 3D CRACK GROWTH SIMULATION USING FEA
4.2G (FSI-04-02) FSI DESIGN FOR INDUSTRY AND RENEWABLE ENERGY TRANSPORT - 2
4.2H (FSI-02-02) TUBE ARRAYS - 2
4.2I (CS-12-01) HIGH TEMPERATURE CODES AND STANDARDS
4.2K (OAC-01-02) RISK MANAGEMENT AND HAZARD ANALYSIS

Block 4.3: Thursday, July 20, 2023 (2:15 pm – 4:00 pm)

4.3C (TW-02-08) HYDROGEN 101: INTRODUCTION CONSIDERATIONS FOR HYDROGEN SERVICE (PART 1)

Block 4.4: Thursday, July 20, 2023 (4:15 pm – 6:00 pm)

4.4C (TW-02-09) HYDROGEN 101: INTRODUCTION CONSIDERATIONS FOR HYDROGEN SERVICE (PART 2)

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 = Chastain C; B = Chastain D; C = Chastain E; D = Chastain F; E = Chastain G; F =Chastain H; G = Chastain I; H = Chastain J; I = Augusta 3; J = Peachtree 1; K = Peachtree 2; L = Chastain 1; M/N/O/P = Not Used; Q = Augusta 1; R = Not Used; S = Augusta Ballroom. 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
- SE = Seismic Engineering
- TW = Technical Tutorials

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 16

Block 0.4: Sunday, July 16, 2023 (4:00 pm – 6:00 pm)

SESSION 0.4Q (TW-01-01)

Sunday, July 16, 4:00 pm – 6:00 pm, Augusta 1 (7th Floor)

SPECIAL TUTORIAL--REVIEW OF BOOK: *GREAT AT WORK: HOW TOP PERFORMERS DO LESS, WORK BETTER, AND ACHIEVE MORE*

Developed by: Nathan Barkley, Becht, New Albany, MS, USA
Session Chair: Nathan Barkley, Becht, New Albany, MS, USA
Session Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presenter: Nathan Barkley, Becht, New Albany, MS, USA

MONDAY, JULY 17

Block 1.1: Monday, July 17, 2023 (8:15 am – 10:00 am)

SESSION 1.1P (WO-01-01)

Monday, July 17, 8:15 am – 10:00 am, Peachtree C/D (8th Floor)

WELCOME AND INTRODUCTION

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA
Presented by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Y. Shoji, YS Corporation LLC, Tokyo, Japan

SESSION 1.1S (TE-01-01)

Monday, July 17, 8:15 am – 10:00 am, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 1

Block 1.2: Monday, July 17, 2023 (10:15 am – 12:00 pm)

SESSION 1.2P (PS-01-01)

Monday, July 17, 10:15 am – 12:00 pm, Peachtree C/D (8th Floor)

PLENARY SESSION

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA

A BRIEF HISTORY OF THE BIRTH AND EVOLUTION OF THE PVP DIVISION
Douglas A. Scarth, Kinectrics, Inc., Toronto, Ontario, Canada

MECHANICAL TESTING OF ANISOTROPIC MATERIALS: FROM FUNDAMENTAL RESEARCH TO TESTING AS-MANUFACTURED MATERIALS
Zach Brunson, Georgia Institute of Technology, Atlanta, GA, USA

HOW THE VESSEL AND PIPING COMMUNITY WILL HELP GLOBAL ENERGY NEEDS
Earl Berry, Southern Nuclear, Birmingham, AL, USA

SESSION 1.2S (TE-01-02)

Monday, July 17, 10:15 am – 12:00 pm, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 2

Block 1.3: Monday, July 17, 2023 (2:15 pm – 4:00 pm)

SESSION 1.3A (FSI-03-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain C (6th Floor)

SHOCK AND BLAST LOADING

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

Developed by: David Gross, Dominion Engineering; Jihui Geng, BakerRisk; Matthew Edel, BakerRisk
Session Chair: David Gross, Dominion Engineering, Reston, VA, USA
Session Co-Chair: Jihui Geng, BakerRisk, San Antonio, TX, USA

PVP2023-106566: DEPENDENCE OF BLAST CLEARING EFFECT ON BUILDING DIMENSIONS
Jihui Geng, Kelly Thomas, BakerRisk, San Antonio, TX, USA

PVP2023-105923: COMPREHENSIVE MODELLING OF PRESSURIZED THERMAL SHOCK WITH A PROBABILISTIC APPROACH
Fabio Pasti, Sina Tajfirooz, H. J. Uitslag - Doolaard, Francesco Brigante, F. H. E. De Haan - De Wilde, NRG, Petten, Netherlands

PVP2023-106261: VENTILATING PROCESS AND PYROLYSIS GAS FROM HIGH-PRESSURE - REACTOR AND EXHAUST CONDITIONS ON MINI-PLANT SCALE
Moritz Imhoff, Markus Busch, TU Darmstadt, Darmstadt, Hesse, Germany

PVP2023-107150: NUMERICAL ANALYSIS OF GAS EXPLOSION CHARACTERISTICS OF GAS COMPARTMENT OF UTILITY TUNNEL BASED ON FLACS ▼
Honglian Ma, Hui Huang, Guiyuan Zhang, Zhiwei Chen, Fang Ji, China Special Equipment Inspection and Research Institute, Beijing, China

SESSION 1.3B (DA-02-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain D (6th Floor)

DESIGN & ANALYSIS OF PIPING AND COMPONENTS – 1

Developed by: Bhaskar Shitole, Wood; Bing Li, Kinectrics; Chakrapani Basavaraju, US Nuclear Regulatory Commission; Kannan Subramanian, Structural Integrity Associates, Inc.; Michael Huang, Kinectrics

Session Chair: Chakrapani Basavaraju, US Nuclear Regulatory Commission, Gaithersburg, MD, USA
Session Co-Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada

PVP2023-106810: A REVIEW OF STRESS INTENSIFICATION FACTORS FOR REDUCERS
Bhaskar Shitolé, Cynthia Heinrichs, Wood, Calgary, AB, Canada

PVP2023-105205: CRYOGENIC ALUMINUM TO STAINLESS STEEL PIPE TRANSITION JOINT QUALIFICATION
Ali Ok, John A. Dally, Stephen C. Tentarelli, Air Products and Chemicals, Allentown, PA, USA

PVP2023-106345: PIPE PLUGS: A SURVEY OF HISTORICAL DEVELOPMENT AND CURRENT TECHNOLOGY
Austin E. Cornelius, Armando Garza Jr., John Rey De Leon, Richard Sallee, Casey Sue, USA Industries, South Houston, TX, USA

PVP2023-105936: EFFECTS OF COLD TEMPERATURE ON STEEL SUPPORTS
Phillip Wiseman, Lisega, Inc., Kodak, TN, USA; Animesh Darade, North Carolina State University, Raleigh, NC, USA

SESSION 1.3C (MF-17-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain E (6th Floor)

ADVANCED MANUFACTURING AND ADDITIVE MANUFACTURING

Developed by: Adam Cooper, Jacobs; Andrew Duncan, Savannah River National Laboratory; Arindam Chakraborty, Virtual Integrated Analytics Solutions (VIAS); Catrin Mair Davies, Imperial College; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus; Kevin Mandeville, Jr, DNV; Michael McMurtrey, Idaho National Laboratory; Paul Korinko, Savannah River National Laboratory; Sylvain Pillot, ArcelorMittal
Session Chair: Kevin Mandeville, DNV, Katy, TX, USA
Session Co-Chair: Paul Korinko, Savannah River National Laboratory, Aiken, SC, USA

PVP2023-106320: BAYESIAN OPTIMISATION OF A BLOWN-POWDER ADDITIVE LASER PROCESS FOR PRESSURE VESSEL CLADDING {Presentation Only)
Greg Nelson, Steven Lawler, Frazer-Nash Consultancy, Burton on Trent, Staffordshire, United Kingdom

PVP2023-106379: GENERATION OF A FATIGUE DESIGN CURVE SUITABLE FOR USE ON ADDITIVE MANUFACTURE NUCLEAR PLANT COMPONENTS PRODUCED FROM 316LN STAINLESS STEEL USING LASER POWDER BED FUSION
Bill Press, Jay Ferriday, Thomas Jones, Matthew Dear, David Poole, Rolls-Royce, Derby, Derbyshire, United Kingdom

PVP2023-106920: MICROSTRUCTURE AND ELEVATED-TEMPERATURE MECHANICAL BEHAVIOR OF ALLOY 617 DIFFUSION WELDED BY ELECTRIC FIELD ASSISTED SINTERING {Presentation Only)
Xinchang Zhang, Jorgen Rufner, Michael McMurtrey, Tate Patterson, Andrew Gorman, Ryann Bass, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-107661: DEFECT INTERACTIONS AND EFFECTS ON FATIGUE BEHAVIORS IN NOTCHED ADDITIVELY MANUFACTURED TEST SPECIMENS
Shengjia Wu, Jiyuan Cheng, Pingsha Dong, Yuning Zhang, Lunyu Zhang, University of Michigan, Ann Arbor, Ann Arbor, MI, USA

SESSION 1.3D (CT-01-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain F (6th Floor)

THE YVES BIREMBAUT MEMORIAL SESSION ON DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS

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

Developed by: Hubert Lejeune, CETIM; Manfred Schaaf, AMTEC; Stefano Fini, University of Bologna
Session Chair: Hubert Lejeune, CETIM, Nantes, Loire-Atlantique, France
Session Co-Chair: Stefano Fini, Università di Bologna, DIN, Bologna, Emilia-Romagna, Italy

PVP2023-104063: EFFECT OF BOLT-UP STRESS LEVEL ON THE STRENGTH OF ASME B16.5 AND B16.47 STANDARD FLANGES
Abdel-Hakim Bouzid, Ecole Supérieure de Technologie, Montreal, Quebec, Canada; Sofiane Bouzid, WSP Global Inc., Montreal, Quebec, Canada; Khaled Benfriha, AMIT, Arts et Métiers Institute of Technology, HESAM Université, Paris, France

PVP2023-106580: THE FUNDAMENTAL SEALING CHARACTERISTICS EVALUATION FOR METAL HOLLOW O-RING GASKETS
Kohei Yamamoto, Valqua, Ltd., Gojo, Nara, Japan; Toshiyuki Sawa, Hiroshima University, Koto-city, Tokyo, Japan; Kohei Itano, Teikoku Electric Mfg. Co.,Ltd., Tatsuno-Shi, Hyogo, Japan

PVP2023-106013: CREEP BEHAVIOR OF METAL GRAPHITE WRAPPING GASKET AND ITS IMPACT ON FLANGE SEALING
Weiming Shen, Lanzhu Zhang, East China University of Science and Technology, Shanghai, Shanghai, China; Jian Bao, Ke Li, Zhangjiagang Branch of Jiangsu Special Equipment Safety Supervision and Inspection Institute, Suzhou, Jiangsu, China

PVP2023-106038: A VERIFICATION METHOD FOR THE ACCURACY OF GASKET ACCELERATED LIFE PREDICTION
Kang Hu, Bingyang Yao, Chunlei Shao, Jianfeng Zhou, NanjingTech University, Nanjing, Jiangsu, China

SESSION 1.3E (CS-16-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain G (6th Floor)

FATIGUE ISSUES IN PRESSURE VESSEL AND PIPING DESIGN

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: Steven Xu, Kinectrics; Wolf Reinhardt, SNC Lavalin
Session Chair: Jürgen Rudolph, Framatome GmbH, Erlangen, Bavaria, Germany
Session Co-Chair: Wolf Reinhardt, SNC Lavalin, Mississauga, Ontario, Canada

PVP2023-101728: A ROUND ROBIN EVALUATION OF ELASTIC-PLASTIC STRAIN MEASURES FOR FATIGUE ANALYSIS
Cory S. Matusin, Naval Nuclear Laboratory, West Mifflin, PA, USA; Thomas M. Damiani, EPRI, Palo Alto, CA, USA

PVP2023-107430: ASSESSMENT OF FATIGUE USING ELASTIC-PLASTIC ANALYSIS IN ASME SECTION III APPENDIX XIII: A PROPOSED APPROACH AND TECHNICAL JUSTIFICATION
Thomas M. Damiani, EPRI, Palo Alto, CA, USA; Cory S. Matusin, Naval Nuclear Laboratory, West Mifflin, PA, USA

PVP2023-105812: SAFE LIFE OF LINE PIPE IN HYDROGEN BLENDED TRANSPORT
Duncan Wang, BMT Global Canada, Kanata, Ontario, Canada; James Hogan, University of Alberta, Edmonton, Alberta, Canada; Lyndon Lamborn, Enbridge LP, Sherwood Park, Alberta, Canada

PVP2023-107274: DEVELOPMENT OF A NEW THERMO-MECHANICAL LOAD AND FATIGUE MONITORING APPROACH BASED ON ELECTROMAGNETIC ACOUSTIC TRANSDUCERS - EMUS-4-STRESS
Miriam Weikert-Müller, Fabian Weber, Sascha Thieltges, Fraunhofer Institute for Non-Destructive Testing IZFP, Saarbrücken, Saarland, Germany; Marek Smaga, Institute of Materials Science and Engineering (WKK), Technical University of Kaiserslautern, Kaiserslautern, Rhineland-Palatinate, Germany; Fabian Silber, Materials Testing Institute (MPA), University of Stuttgart, Stuttgart, Baden-Wurttemberg, Germany; Jürgen Rudolph, Steffen Bergholz, Framatome GmbH, Erlangen, Bavaria, Germany

SESSION 1.3F (MF-01-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain H (6th Floor)

APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT – 1

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

Developed by: Abdel Hamid Ismail Mourad, United Arab Emirates University; Abilio Jesus, University of Porto; Doug Scarth, Kinectrics; Gustavo Donato, FEI; Harry Coules, University of Bristol; Jessica Lam, Ontario Power Generation; Kiminobu Hojo, Mitsubishi Heavy Industries Ltd; Preeti Doddihal, Kinectrics; Suresh Kalyanam, Westinghouse Electric Company
Session Chair: Cheng Liu, Kinectrics Inc., Toronto, Ontario, Canada
Session Co-Chair: Kiminobu Hojo, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan

PVP2023-106341: DEVELOPMENT OF A NEW EPRI ELASTIC-PLASTIC FRACTURE MECHANICS HANDBOOK
Ted Anderson, TL Anderson Consulting, Cape Coral, FL, USA; Robert Dodds, Independent Consultant, Longmont, CO, USA; Greg Thorwald, Quest Integrity USA, LLC, Boulder, CO, USA; Thomas Dessein, Integral Engineering, Edmonton, AB, Canada; Do Jun Shim, EPRI, Palo Alto, CA, USA

PVP2023-106906: CMOD COMPLIANCE SOLUTION DETERMINED BY STRESS INTENSITY FACTOR FOR SINGLE EDGE NOTCHED TENSION SPECIMENS IN END-CLAMPED CONDITIONS
Xian-Kui Zhu, Savannah River National Laboratory, Aiken, SC, USA

PVP2023-106361: INVESTIGATION OF FRACTURE TOUGHNESS OF THE HIGH FLUX REACTOR VESSEL SURVEILLANCE TEST SPECIMEN WITHDRAWN IN 2021 {Presentation Only)
M. Kolluri, F. Naziris, M. Laot, H. H. S. P Bregman, S. P. A. Hageman, f.h.e. De Haan – De Wilde, NRG, Petten, Netherlands

PVP2023-106414: A MODIFIED J-INTEGRAL SOLUTION FOR THE CURVED CT SPECIMEN FROM CANDU PRESSURE TUBE
Yupeng Cao, Shanghai Nuclear Engineering Research and Design Institute, Shanghai, Shanghai, China; Chen Bao, Southwest Jiaotong University, Chengdu, Sichuan, China

SESSION 1.3G (CS-01-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain I (6th Floor)

STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS
Symposium on Structural Integrity—Co-Sponsored by Codes & Standards and Materials & Fabrication Technical Committees
Developed by: Michael Benson, US Nuclear Regulatory Commission; Steven Xu, Kinectrics
Session Chair: Michael Benson, US Nuclear Regulatory Commission, Rockville, MD, USA
Session Co-Chair: Steven Xu, Kinectrics, Inc., Toronto, Ontario, Canada

PVP2023-102473: STEAM-GENERATOR GRADE P91 STEEL COMPONENT WELD CREEP-ASSESSMENT
Ottaviano Grisolia, INAIL Central Research Directorate, Rome, Lazio, Italy; Lorenzo Scano, Francesco Piccini, Studio Scano Associato Safety & Integrity, Udine, Friuli Venezia Giulia, Italy; Antonietta Lo Conte, Politecnico di Milano, Dipartimento di Meccanica, Milan, Lombardy, Italy; Massimiliano De Agostinis, Stefano Fini, Università di Bologna, DIN, Bologna, Emilia-Romagna, Italy

PVP2023-107431: FURTHER STUDIES INTO THE IMPACT OF CLADDING RESIDUAL STRESS IN FLAW TOLERANCE ASSESSMENTS OF CLAD VESSELS
Benjamin Pellereau, Joshua White, Andrew Wood, Rolls-Royce, Derby, Derbyshire, United Kingdom

PVP2023-107243: DESIGN OF ELLIPSOIDAL HEADS AND TORISPHERICAL HEADS IN PRESSURE VESSELS AND REVIEW OF RESTRICTIONS FOR ONSET OF BUCKLING IN ASME SEC. VIII DIV. 1– A COMPARATIVE STUDY OF VARIOUS CODES OF CONSTRUCTION
Sujay S. Pathre, LRQA Inspection Services India LLP, Mumbai, Maharashtra, India; Ameya Mathkar,; Shyam Gopalakrishnan, LRQA Inspection Services India LLP, Thane, Maharashtra, India

PVP2023-107684: MERIDIONAL DIRECTION LIMITS FOR LOCAL PRIMARY MEMBRANE STRESS BETWEEN SM AND 1.1SM
Rafal Sulwinski, T.D. Williamson, Stavanger, OK, Norway; Qi Li, T.D. Williamson, Houston, TX, USA; Rusty Johnston, T.D.Williamson, Tulsa, OK, USA; Sreelatha Kilambi, T.D. Williamson, Inc, Broken Arrow, OK, USA

SESSION 1.3H (FSI-02-04)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain J (6th Floor)

VORTEX AND SOUND
Symposium on Flow-Induced Vibration—Sponsored by the Fluid-Structure Interaction Technical Committee
Developed by: Marwan Hassan, University of Guelph
Session Chair: Stefan Belfroid, TNO, Delft, Netherlands
Session Co-Chair: Daniele Vivaldi, IRSN, Saint-Paul-lez-Durance, France

PVP2023-106102: APPLICABILITY OF NON-UNIFORMLY VARYING THE FIN DENSITY OF TANDEM FINNED CYLINDERS AS A VIABLE VORTEX AND NOISE SUPPRESSION TECHNIQUE
Mohammed Alziadeh, Atef Mohany, Ontario Tech University, Oshawa, ON, Canada

PVP2023-106188: RESEARCH ON FLOW INDUCED VIBRATION TANDEM TOWERS UNDER PASSIVE CONTROL ▼
Jiawei Wang, Bowen Tang, Wei Tan, Tianjin University, Tianjin, Tianjin, China

PVP2023-106498: SHEAR LAYER INSTABILITY IN THE GAP OF TANDEM CYLINDERS AND ITS COUPLING WITH HIGHER ORDER ACOUSTIC MODES
Rasha Noufal, Atef Mohany, Ontario Tech University, Oshawa, ON, Canada

PVP2023-105997: VORTEX SHEDDING DYNAMIC IN TANDEM CIRCULAR CYLINDERS PLACED IN A TURBULENT CROSSFLOW
Patrick Batista Habowski, Roberta Fátima Neumeister, Sergio Viçosa Möller, Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil

SESSION 1.3I (CS-07-03)

Monday, July 17, 2:15 pm – 4:00 pm, Augusta 3 (7th Floor)

PANEL SESSION - WHAT'S NEW IN ASME SECTION VIII DIVISION 1?
Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee
Developed by: S. C. Roberts, Shell Global Solutions (US), Houston, TX, USA; Mark Lower, Oak Ridge National Laboratory, Oak Ridge, TN, USA; James Sowinski, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Session Chair: Steven C. Roberts, Shell Global Solutions (US), Houston, TX, USA
Session Co-Chair: Ting-Leung (Sam) Sham, Idaho National Laboratory, Idaho Falls, ID, USA
Panelists: Steven C. Roberts, Shell Global Solutions (US), Houston, TX, USA
Mark Lower, Oak Ridge National Laboratory, Oak Ridge, TN, USA
James Sowinski, The Equity Engineering Group, Inc., Shaker Heights, OH, USA

SESSION 1.3J (MF-24-01)

Monday, July 17, 2:15 pm – 4:00 pm, Peachtree 1 (8th Floor)

MATERIALS AND FABRICATION FOR REFINING – 1
Developed by: Jorge Penso, Shell Projects and Technology; Mitul Dalal, Shell Projects and Technology; Richard Colwell, Bechtel; Sylvain Pillot, ArcelorMittal
Session Chair: Richard Colwell, Bechtel, Houston, TX, USA
Session Co-Chair: Scott Daniels, Bechtel, Houston, TX, USA

PVP2023-105792: FIRE ASSESSMENTS IN REFINERIES, 20 YEARS OF API 579 PART 11 USE AT TOTALENERGIES
Charles Le Neve, TotalEnergies, Harfleur, Seine-Maritime, France

PVP2023-105856: REHEAT CRACKING IN WELDS OF 1¼CR-½MO STEEL PRESSURE VESSELS DURING FABRICATION
Kazuki Suda, Mikihiro Sakata, Shigekazu Miyashita, JGC Corporation, Yokohama-Shi Nishi-Ku, Kanagawa, Japan; Hideaki Takauchi, Kobe Steel, Ltd., Fujisawa-shi Miyamae, Kanagawa, Japan

PVP2023-106333: PITTING CORROSION RESISTANCE OF NO BACKING GAS (NBG) STAINLESS STEEL WELDS

Claire Cary, Narasi Sridhar, Carolin Fink, Ohio State University, Columbus, OH, USA; Jorge A. Penso, Shell Global Solution (US) Inc., Houston, Houston, TX, USA;

PVP2023-106382: EFFECT OF WELDING PARAMETERS AND POST WELD HEAT TREATMENT CONDITIONS ON MECHANICAL PROPERTIES OF 3.5% NI STEEL WELD METAL

Ritesh Patel, Dip Patel, Nitin Avaiya, Larsen & Toubro Limited, Surat, Gujarat, India

SESSION 1.3K (OAC-02-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain J (6th Floor)

QUALIFICATION, TESTING, AGEING MANAGEMENT AND PLANT LIFE EXTENSION

Developed by: Ciska de Haan, NRG, Petten, Netherlands; Georges Bezdikian, Georges Bezdikian Consulting, Paris, France
Session Chair: Ciska de Haan, NRG, Petten, Netherlands
Session Co-Chair: Georges Bezdikian, Georges Bezdikian Consulting, Paris, France

PVP2023-105456: EXPERIMENTAL AND NUMERICAL INVESTIGATIONS ON THE RELAXATION BEHAVIOUR OF POWER PLANT FLANGE CONNECTIONS UNDER STEADY STATE AND TRANSIENT CONDITIONS

Kevin Kettler, Andreas Klenk, Stefan Weihe, Materials Testing Institute (MPA) - University of Stuttgart, Stuttgart, Baden-Wurttemberg, Germany

PVP2023-107200: RELIABILITY OF A COMPOSITE LINED PIPE FOR TRENCHLESS REHABILITATION OF THERMAL PIPELINES BASED ON A TWO-HEATING-SEASON LONG FIELD TEST IN CHINA ▼

Yingdi Wang, Shuo Yan, Xiangjing Zeng, Liang Zhang, Jianfeng Shi, Zhejiang University, Hangzhou, Zhejiang, China

PVP2023-105650: DEVELOPMENT OF CONSERVATIVE MATERIAL PROPERTIES TO ACCOUNT FOR CONCRETE DEGRADATION MECHANISM WITH SPECIFIC EMPHASIS ON REBAR CORROSION DUE TO CHLORIDE INGRESS

K. M. Browning, L. Hasa, F. H. E. De Haan -de Wilde NRG, Petten, Netherlands

SESSION 1.3Q (HT-01-01)

Monday, July 17, 2:15 pm – 4:00 pm, Chastain J (6th Floor)

DESIGN, ANALYSIS AND LIFE PREDICTION OF HIGH-PRESSURE VESSELS AND EQUIPMENT

Developed by: Kannan Subramanian, Structural Integrity Associates, Inc.; Melanie Sarzynski, Becht
Session Chair: Melanie Sarzynski, Becht, Houston, TX, USA
Session Co-Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

PVP2023-106304: OVERVIEW OF REVISIONS TO THE ASME BOILER AND PRESSURE VESSEL CODE SECTION VIII DIVISION 3 FOR THE 2023 EDITION AND NEAR FUTURE

Daniel Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA; Kannan Subramanian, Structural Integrity Associates, Huntersville, NC, USA; Melanie Sarzynski, Wiss, Janney, Elstner Associates, Inc., Houston, TX, USA

PVP2023-105769: PROPOSAL OF REVISION OF UPPER LIMIT OF HYDROSTATIC TEST PRESSURE IN KD-236 AND KT-312.3 OF ASME SECTION VIII DIVISION 3

Susumu Terada, Kobe Steel, Ltd., Takasago, Hyogo, Japan

PVP2023-106090: DESIGN OF A LAB-SCALE MULTI-ZONE-AUTOCLAVE FOR LDPE HIGH-PRESSURE POLYMERIZATION-SYSTEMS

Lena Gockel, Laura Ständecke, Nicola Schreiner, Markus Busch, TU Darmstadt, Darmstadt, Hesse, Germany

PVP2023-105844: RISK MITIGATION FOR VERY LARGE HOT ISOSTATIC PRESSES {Presentation Only)

Robert Conaway, Isostatic Forging International, Ltd, Columbus, OH, USA; Victor Samarov, Synertech PM Inc., Garden Grove, CA, USA; Steven Cotton, IFI Europe, Ltd, Waterford, Waterford County, Ireland

SESSION 1.3S (TE-01-03)

Monday, July 17, 2:15 pm – 4:00 pm, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 3

Block 1.4: Monday, July 17, 2023 (4:15 pm – 6:00 pm)

SESSION 1.4A (HT-02-01)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain C (6th Floor)

IMPULSIVELY LOADED VESSELS – 1

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

Developed by: David Gross, Dominion Engineering; Jihui Geng, BakerRisk; Matthew Edel, BakerRisk
Session Chair: Jihui Geng, BakerRisk, San Antonio, TX, USA
Session Co-Chair: David Gross, Dominion Engineering, Reston, VA, USA

PVP2023-106754: RESULTS OF THE EXPLOSIVE DESTRUCTION SYSTEM P3 VESSEL QUALIFICATION

Megan Tribble, Jerome Stofleth, John Ludwigsen, Sandia National Laboratories, Albuquerque, NM, USA; Robert Crocker, Sandia National Laboratories, Livermore, CA, USA

PVP2023-105480: PROPOSAL FOR THE DESIGN OF A DYNAMICALLY LOADED PRESSURE VESSEL WITH THE RATIO OF THE PULSE PERIOD TO THE VESSEL NATURAL VIBRATION PERIOD MORE THAN 0.35 ▼

Mohamadreza Nourani, Joerg Zimmermann, Mohsen Seraj, Alan Clayton, General Fusion, Burnaby, BC, Canada

PVP2023-105843: DESIGN OVERVIEW OF PRESSURE VESSEL CONTAINMENT SYSTEM FOR PROTON RADIOGRAPHY OF SHOCK PHYSICS EXPERIMENTS

Dusan Spernjak, Heidi Reichert, Stephen Ney, Thomas Venhaus, Los Alamos National Laboratory, Los Alamos, NM, USA

PVP2023-105247: SEQUENTIALLY-COUPLED HYDRODYNAMIC AND STRUCTURAL ANALYSIS OF RADIOGRAPHIC WINDOWS IN BLAST CONFINEMENT VESSELS FOR PROTON RADIOGRAPHY OF PHYSICS EXPERIMENTS

Matthew Fister, Christian Spencer-Coker, Kevin Fehlmann, Dusan Spernjak, Los Alamos National Laboratory, Los Alamos, NM, USA

SESSION 1.4B (DA-02-02)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain D (6th Floor)

DESIGN & ANALYSIS OF PIPING AND COMPONENTS – 2

Developed by: Bhaskar Shitole, Wood; Bing Li, Kinectrics; Chakrapani Basavaraju, US Nuclear Regulatory Commission; Kannan Subramanian, Structural Integrity Associates, Inc.; Michael Huang, Kinectrics
Session Chair: Bing Li, Kinectrics, Inc., Toronto, ON, Canada
Session Co-Chair: Chakrapani Basavaraju, U.S. Nuclear Regulatory Commission, Gaithersburg, MD, USA

PVP2023-102680: HDPE PIPING STRESS ANALYSIS USING THE CAESAR SOFTWARE WITH NEW NM.1 AND NM.3.3 CODES.

Mehdi Fathi, Kiewit Engineering group Inc., Lenexa, KS, USA

PVP2023-105832: PRCI BURST PRESSURE MODEL MODERNIZATION AND PERFORMANCE

Lyndon Lamborn, Enbridge LP, Sherwood Park, AB, Canada; Ernest Kwok, Stantec Inc., Calgary, AB, Canada; Steven Polasik, Benjamin Hanna, DNV, Dublin, OH, USA

PVP2023-106201: RESPONSE OF BURIED PIPELINES UNDER PERMANENT GROUND MOVEMENTS: PHYSICS-INFORMED DEEP NEURAL NETWORK APPROACH ▼

Pouya Taraghi, Yong Li, Samer Adeeb, University of Alberta, Edmonton, AB, Canada; Nader Yoosef-Ghodsi, Matt Fowler, Muntaseer Kainat, Enbridge Inc., Edmonton, AB, Canada

PVP2023-108355: THEORETICAL SOLUTION OF OBROUND SHELL UNDER INTERNAL PRESSURE
Yao Jin, Propak Systems Ltd., Airdrie, AB, Canada; James Rust, Propak Systems, Ltd., Airdrie, AB, Canada
PVP2023-108378: A METHODOLOGY FOR MANAGEMENT OF THE RISK OF STRESS CORROSION CRACKING OF COLD WORKED AUSTENITIC STAINLESS STEELS IN GOOD QUALITY WATER IN PRESSURISED WATER REACTOR PLANT
Joseph Malin, James Wilson, Timothy Watkins, Timothy Harrison, Benjamin Pellereau, Rolls-Royce, Derby, Derbyshire, United Kingdom

SESSION 1.4C (CS-02-01)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain E (6th Floor)
HYDROGEN EFFECTS ON MATERIAL BEHAVIOR FOR STRUCTURAL INTEGRITY ASSESSMENT (JOINT WITH MF-2) - APPLYING ASME CODES TO MATERIAL SELECTION
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, Sandia National Laboratories; David Cho, Bruce Power; Jinyang Zheng, Zhejiang University; Joe Ronevich, Sandia National Laboratories; Michael Martin, Rolls-Royce; Steven Xu, Kinectrics
Session Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada
Session Co-Chair: Matteo Ortolani, Tenaris, Dalmine (BG), Italy
PVP2023-105727: TECHNICAL BASIS OF ASME B31.12 CODE CASE 218: USE OF ENHANCED MATERIALS PERFORMANCE FACTORS (HF AND MF) OF 1.0
Kang Xu, Linde Inc., Tonawanda, NY, USA; Mahendra Rana, Retired, Niantic, CT, USA
PVP2023-107120: COMPARISON OF THE FATIGUE LIFE IN HYDROGEN ENVIRONMENT USING ASME SECTION VIII, DIVISION 3 AND ASME SECTION VIII, DIVISION 2
Koray Kuscu, Mandeep Singh, CB&I - McDermott, Plainfield, IL, USA
PVP2023-105732: COMPARISON OF DESIGN APPROACHES ON THE DESIGN LIFETIME PREDICTION OF GASEOUS HYDROGEN STORAGE TANKS
Carl Fischer, Heiner Oesterlin, Thorsten Michler, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Baden-Wurttemberg, Germany
PVP2023-106417: EFFECT OF HYDROGEN PARTIAL PRESSURE ON FATIGUE CRACK GROWTH RATES OF LOW ALLOY, QUENCHED AND TEMPERED STEELS
Paolo Bortot, Matteo Ortolani, Tenaris, Dalmine, Lombardy, Italy; Christopher San Marchi, Joseph Ronevich, Sandia National Laboratories, Livermore, CA, USA

SESSION 1.4D (DA-10-01)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain F (6th Floor)
BOLTED JOINT DESIGN AND ANALYSIS – 1
Symposium on Bolted Joints—Co-Sponsored by the Computer Technology & Bolted Joints and Design & Analysis Technical Committees
Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Gys van Zyl, Integrity Engineering Solutions; Warren Brown, Integrity Engineering Solutions
Session Chair: Gys Van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia
Session Co-Chair: Hubert Lejeune, CETIM, Nantes, France
PVP2023-107767: CASE STUDY: TRANSIENT THERMAL ANALYSIS OF VALVE FLANGES
Trevor G. Seipp, Forrest Gu, Becht, Calgary, Alberta, Canada; Robert Brown, Becht, Medina, OH, USA; Everett Chatham, Becht, Houston, TX, USA
PVP2023-107097: ANALYSIS OF SPIRAL WOUND GASKET BEHAVIOR AGAINST TIGHTENING WITH FACE ROTATION
Shunji Kataoka, Suguru Sato, Kyohei Takahashi, JGC, Yokohama, Kanagawa, Japan
PVP2023-106172: A MECHANICAL PERFORMANCE COMPARISON BETWEEN GMCL AND HYBRID GASKETS
Abdelgader Abdelgalil, SABIC, Jubail, Eastern, Saudi Arabia
PVP2023-105673: NUMERICAL ANALYSIS AND RESEARCH ON SEALING PERFORMANCE OF FLANGE CONNECTION SYSTEM IN GAS STATION ▼
Feng Li, Laibin Zhang, Shaohua Dong, Wenping Wu, China University of Petroleum Beijing, China

SESSION 1.4E (DA-03-01)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain G (6th Floor)
FATIGUE
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; Kevin Mandeville, Jr, DNV
Session Chair: Shunji Kataoka, JGC Corporation, Yokohama, Japan
Session Co-Chair: Kevin Mandeville, DNV, Katy, TX, USA
PVP2023-106033: SURVIVAL REGRESSION FOR FATIGUE LIFE OF NI-BASED ALLOYS
Dayu Fajrul Falaakh, Jae Phil Park, Chi Bum Bahn, Pusan National University, Busan, BSN, Republic of Korea
PVP2023-107084: FATIGUE CRACK GROWTH ANALYSIS IN PIPING FITTINGS USING FINITE ELEMENT ANALYSIS
Harish Radhakrishnan, Ansys Inc., Houston, TX, USA; Jacob Manuel, Chemex Global LLC, The Woodlands, TX, TX, USA
PVP2023-107586: FATIGUE ANALYSIS OF A PRESSURE SWING ADSORPTION VESSEL
Senthil Kumar, Unconventional Gas Solutions, Houston, TX, USA
PVP2023-107602: COMPUTATIONAL ANALYSIS OF A PIPING STRUCTURE SUBJECT TO THERMAL STRIPING
Chris Harper, Paul Crowther, Wood Plc, Calgary, AB, Canada; Christian Chauvet, Wood Plc, Paris, Paris, France

SESSION 1.4F (MF-01-02)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain H (6th Floor)
APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT – 2
Symposium on Fracture Mechanics and Analysis—Co-Sponsored by Design & Analysis, and Materials & Fabrication Technical Committees
Developed by: Abdel Hamid Ismail Mourad, United Arab Emirates University; Abilio Jesus, University of Porto; Doug Scarth, Kinectrics; Gustavo Donato, FEI; Harry Coules, University of Bristol; Jessica Lam, Ontario Power Generation; Kiminobu Hojo, Mitsubishi Heavy Industries Ltd; Preeti Doddihal, Kinectrics; Suresh Kalyanam, Westinghouse Electric Company
Session Chair: Kiminobu Hojo, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan
Session Co-Chair: Cheng Liu, Kinectrics, Inc., Toronto, ON, Canada
PVP2023-106363: VALIDATION AND REFINEMENT OF STATISTICAL-BASED FATIGUE CRACK INITIATION MODEL FOR AXIAL FLAWS IN ZR-NB PRESSURE TUBES
Cheng Liu, Douglas Scarth, Kinectrics Inc., Toronto, ON, Canada
PVP2023-101999: EFFECT OF COMPRESSION PRECRACKING ON THE NEAR THRESHOLD FATIGUE CRACK PROPAGATION IN AN AISI 316L STAINLESS STEEL
Javier Gualdron Plata, Luis Bonazzi, Claudio Ruggieri, University of Sao Paulo, São Paulo, São Paulo, Brazil
PVP2023-107568: ACCELERATED AGING BEHAVIOR OF GLASS/POLYURETHANE COMPOSITE
Amir Hussain Idrisi, Michigan Technological University, Houghton, MI, USA; Abdel-Hamid Ismail Mourad, United Arab Emirates University, Al Ain, United Arab Emirates

SESSION 1.4G (MF-10-01)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain I (6th Floor)

PIPELINE INTEGRITY - 1 - FATIGUE AND FRACTURE ANALYSIS OF PIPELINES

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

Developed by: Dong-Yeob Park, CanMetMaterials; Xian-Kui Zhu, Savannah River National Laboratory

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

Session Co-Chair: Xian-Kui Zhu, Savannah River National Laboratory, Aiken, SC, USA

PVP2023-102043: COMPARISON OF FATIGUE MODELS IN API 1183 FOR PREDICTING FATIGUE LIFE OF PIPELINE DENTS

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

PVP2023-102314: PIPELINE STACKED CRACKS INTERACTION BURST PRESSURE ANALYSIS USING 3-D CRACK MESHES

Ryan Holloman, Michael Turnquist, Quest Integrity USA LLC, Boulder, CO, USA; Greg Thorwald, Quest Integrity USA, LLC, Westminster, CO, USA; Mark Neuert, Enbridge, Edmonton, AB, Canada

PVP2023-105466: EFFECTS OF FATIGUE PARAMETERS ON FATIGUE CRACK GROWTH RATE OF PIPE STEELS AND GIRTH WELD

Dong-Yeob Park, CanmetMATERIALS, Natural Resources Canada, Calgary, AB, Canada; Jie Liang, CanmetMATERIALS, Natural Resources Canada, Hamilton, ON, Canada

SESSION 1.4H (FSI-02-05)

Monday, July 17, 4:15 pm – 6:00 pm, Chastain J (6th Floor)

PIPING AND AXIAL FLOW

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

Developed by: Marwan Hassan, University of Guelph

Session Chair: Salim El Bouzidi, Canadian Nuclear Laboratories, Chalk River, ON, Canada

Session Co-Chair: Akane Uemichi, Waseda University, Tokyo, Japan

PVP2023-103450: EXPERIMENTAL INVESTIGATION OF FLOW INDUCED PULSATIONS IN CORRUGATED FLEXIBLE PIPES IN SERVICE WITH SUPERCRITICAL CARBON DIOXIDE

Stefan Belfroid, Néstor González Díez, Irma Meijer, Pieter Van Beek, TNO, Delft, Netherlands

PVP2023-105742: FLUID-STRUCTURE INTERACTION SIMULATIONS TO PREDICT FLOW-INDUCED VIBRATION OF PIPING DUE TO CO2 MULTIPHASE FLOW

Juan Pontaza, Shell, Katy, TX, USA; Stefan Belfroid, Rens Bazuin, TNO, Delft, Netherlands

PVP2023-105808: FLUID-STRUCTURE INTERACTION SIMULATIONS OF A ROD SUBJECTED TO A WATER AXIAL FLOW IN A NUCLEAR CORE RELEVANT CONFIGURATION

Daniele Vivaldi, Roxan Pulicani, IRSN, Saint Paul lez Durance, France

PVP2023-105531: UPSTREAM WAKE EFFECT ON FLOW-INDUCED VIBRATION OF CANTILEVERED CYLINDER

Md Mahbub Alam, Chen Guanghao, Yu Zhou, Harbin Institute of Technology, Shenzhen, Guangdong, China

SESSION 1.4I (CS-07-01)

Monday, July 17, 4:15 pm – 6:00 pm, Augusta 3 (7th Floor)

RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS – 1

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

Developed by: Mark Messner, Argonne National Laboratory; Michael McMurtrey, Idaho National Laboratory; Sam Sham, Idaho National Laboratory; Yanli Wang, Oak Ridge National Laboratory

Session Chair: Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Session Co-Chair: Ting-Leung (Sam) Sham, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-102090: INITIAL DEVELOPMENT TO REVAMP ASME SECTION III, DIVISION 5, CLASS B RULES {Presentation Only)

Sam Sham, Heramb Mahajan, Idaho National Laboratory, Boise, ID, USA; Robert Jetter, R.I. Jetter Consulting, Pleasanton, CA, USA; Yanli Wang, Oak Ridge National Laboratory, Knoxville, TN, USA

PVP2023-107325: A COMPREHENSIVE SAMPLE PROBLEM FOR SECTION III DIVISION 5 DESIGN BY ELASTIC ANALYSIS

B. Barua, M. C. Messner, Argonne National Laboratory, Lemont, IL, USA

PVP2023-105946: A UNIVERSAL INELASTIC CONSTITUTIVE MODEL FOR HIGH TEMPERATURE DEFORMATION

Tianju Chen, Mark Messner, Argonne National Laboratory, Lemont, IL, USA

PVP2023-106904: CASE STUDY ON THE ACCEPTANCE OF A UNIQUE REFRACTORY MATERIAL IN ASME SECTION VIII

Daniel T. Peters, Structural Integrity Associates, Edinboro, PA, USA; Rahul Kapadia, ASML, San Diego, CA, USA; Maarten Hoeijmakers, ASML, Veldhoven, North Brabant, Netherlands; Harald Koestenbauer, Florian Niggl, Plansee, Reutte, Tyrol, Austria

SESSION 1.4J (MF-24-02)

Monday, July 17, 4:15 pm – 6:00 pm, Peachtree 1 (8th Floor)

MATERIALS AND FABRICATION FOR REFINING - 2

Developed by: Jorge Penso, Shell Projects and Technology; Mitul Dalal, Shell Projects and Technology; Richard Colwell, Bechtel; Sylvain Pillot, ArcelorMittal

Session Chair: Richard Colwell, Bechtel, Houston, TX, USA

Session Co-Chair: Scott Daniels, Bechtel, Houston, TX, USA

PVP2023-106175: EVALUATION OF CR-MO STEELS WELDS PRODUCED BY GAS TUNGSTEN ARC WELDING WITH HIGH SILICON CONTAINED SOLID FILLER ROD TO OMIT BACK SHIELDING

Atsushi Takahashi, JGC Corporation, Kanagawa Yokohama, Kanagawa, Japan; Shinya Isono, Hideaki Takauchi, Kobe Steel, Fujisawa, Kanagawa, Japan

PVP2023-106226: CLAD RESTORING, WELDING TECHNICS AND LIMITATIONS FOR SMALL DIAMETERS

Borja Sáiz Sanchez, NewTesol, Gajano, Cantabria, Spain; Edouard Bailleul, Delauanay, Le Havre, Seine-Maritime, France; Charles Le Neve, TotalEnergies, Harfleur, Seine-Maritime, France

PVP2023-106449: HIGH TEMPERATURE HYDROGEN ATTACK – A CASE HISTORY

Mitul Dalal, Shell Global Solutions (US) Inc., Deer Park, TX, USA; Jorge Penso, Jorge Hau, Shell Global Solution (US) Inc., Houston, TX, USA

PVP2023-106476: WELDING NEW SUPPORTS TO WELD OVERLAY OR CLADDING IN EXISTING HYDROPROCESSING REACTORS

Sophia Xiaoxia Zhu, Ryan Kruse, Jorge Penso, Shell Global Solutions (US) Inc., Houston, TX, USA

SESSION 1.4K (OAC-04-01)

Monday, July 17, 4:15 pm – 6:00 pm, Peachtree 2 (8th Floor)

STORAGE AND TRANSPORTATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS - 1

Developed by: David Tamburello, Savannah River National Laboratory; Mike Weber, BAM; Mustafa HADJ-NACER, University of Nevada-Reno; Nicholas Klymyshyn, PNNL; Oscar Martinez, Oak Ridge National Laboratory; Steffan Komann, BAM; Steve Hensel, Savannah River National Laboratory; Zenghu Han, Argonne National Laboratory

Session Chair: Oscar Martinez, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Session Co-Chair: Zenghu Han, Argonne National Laboratory, Lemont, IL, USA

PVP2023-104562: ACCOUNTING FOR WIND EFFECTS IN THERMAL MODELING OF THE HANFORD LEAD CANISTER

Sarah R. Suffield, Ben J. Jensen, Nick A. Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2023-105816: THERMO-ELECTRIC DEVICES FOR POWERING SENSING PLATFORMS OF INTERNAL CONDITIONS OF SPENT NUCLEAR FUEL CANISTERS {Presentation Only)

Brandon Hager, Mustafa Hadj-Nacer, University of Nevada, Reno, Reno, NV, USA

PVP2023-105833: MODELING A SPENT NUCLEAR FUEL CASK SEISMIC TEST
Nicholas Klymyshyn, Kevin Kadooka, James Fitzpatrick, Casey Spitz, Pacific Northwest National Laboratory, Richland, WA, USA
PVP2023-105935: DEVELOPING A CFD MODEL TO PREDICT RADIOLOGICAL MATERIALS PACKAGING TEMPERATURES WITHIN A GENERIC STAGING BUILDING {Presentation Only)
Mustafa Hadj-Nacer, Matthew Murphy-Sweet, Frank Pulciano, Miles Greiner, University of Nevada Reno, Reno, NV, USA

SESSION 1.4Q (HT-06-01)

Monday, July 17, 4:15 pm – 6:00 pm, Augusta 1 (7th Floor)
DESIGN AND ANALYSIS OF HIGH-PRESSURE EQUIPMENT FOR OIL AND GAS EXPLORATION AND PRODUCTION
Developed by: Kumarswamy Karpanen, Technip FMC; Mangesh Edke, Holo, Inc.; Przemyslaw Lutkiewicz, DNV GL
Session Chair: Przemyslaw Lutkiewicz, DNV GL, Drammen, Norway
Session Co-Chair: Kumar Karpanan, TechnipFMC, Houston, TX, USA
PVP2023-105438: NORSOK U-001 5TH EDITION 2021 EDITION FOR SUBSEA PRODUCTION SYSTEMS
Finn Kirkemo, Anthony David Muff, Equinor, Fornebu, Norway; Barry Stewart, TechnipFMC, Dunfermline, Dunbartonshire, United Kingdom; Anders Wormsen, TechnipFMC, Kongsberg, Norway
PVP2023-106125: EFFECT OF FRICTION ON STRUCTURAL CAPACITIES OF A SUBSEA INTERVENTION SYSTEM EQUIPMENT
Ali Sepehri, Gaurav Bansal, SLB, Houston, TX, USA
PVP2023-106446: STRUCTURAL CAPACITY ANALYSIS OF SUBSEA EQUIPMENT
Kumarswamy Karpanan, TechnipFMC, Tomball, TX, USA; Finn Kirkemo, Equinor, Fornebu, Oslo, Norway
PVP2023-105931: HIGH-PRESSURE HIGH-TEMPERATURE DESIGN VERIFICATION AND VALIDATION OF WELL COMPLETION TOOLS
Zhong Zhou, Jamie Weber, Shengjun Yin, Terapat Apichartthabrut, Allan Zhong, Halliburton, Carrollton, TX, USA

SESSION 1.4S (TE-01-04)

Monday, July 17, 4:15 pm – 6:00 pm, Augusta Ballroom (7th Floor)
TECHNOLOGY EXHIBITS - 4

TUESDAY, JULY 18

Block 2.1: Tuesday, July 18, 2023 (8:15 am – 10:00 am)

SESSION 2.1A (HT-02-02)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain C (6th Floor)
IMPULSIVELY LOADED VESSELS – 2
Symposium of Structures Under Extreme Loading Conditions—Sponsored by the Fluid-Structure Interaction and High-Pressure Technology Technical Committees
Developed by: David Gross, Dominion Engineering; Jihui Geng, BakerRisk; Matthew Edel, BakerRisk
Session Chair: Matt Edel, BakerRisk, San Antonio, TX, USA
Session Co-Chair: Jihui Geng, BakerRisk, San Antonio, TX, USA
PVP2023-105749: NUMERICAL SIMULATIONS OF THE DYNAMIC RESPONSE OF GAS HANDLING MANIFOLDS MOUNTED ON AN IMPULSIVELY LOADED CONFINEMENT VESSEL
Robert Valdiviez, Los Alamos National Laboratory, Orange, CA, USA; Dusan Spernjak, Jesse Scarafiotti, Los Alamos National Laboratory, Los Alamos, NM, USA
PVP2023-105952: ASSESSMENT OF ASTM A723 FOR CONSTRUCTING IMPULSIVELY LOADED VESSELS
Joshem Gibson, Dusan Spernjak, Los Alamos National Laboratory, Los Alamos, NM, USA; Joshua Mueller, Los Alamos National Laboratory, White Rock, NM, USA
PVP2023-106922: EXPLOSIVE HYDROCODE MODELING AND PROOF TESTING OF THE HSERA-26 CONTAINMENT VESSEL
Megan Tribble, John Ludwigsen, Jerome Stofleth, Darryn Fleming, Sandia National Laboratories, Albuquerque, NM, USA
PVP2023-105202: VISUALIZATION OF THE DECOMPOSITION AND RELIEF PROCESS IN HIGH-PRESSURE SYSTEMS
Aaron Röblitz, Markus Busch, TU Darmstadt, Darmstadt, Hesse, Germany

SESSION 2.1B (MF-05-01)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain D (6th Floor)
FITNESS-FOR-SERVICE AND FAILURE ASSESSMENT – 1
Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
Developed by: Arindam Chakraborty, Virtual Integrated Analytics Solutions (VIAS); Bruce Wiersma, Savannah River National Laboratory; Carl Jaske, HSI Group, Inc.; Graeme Horne, Frazer-Nash Consultancy; Harry Coules, University of Bristol; Marvin Cohn, Intertek Engineering Consulting
Session Chair: Marvin Cohn, Intertek, AIM, Santa Clara, CA, USA
Session Co-Chair: Bruce Wiersma, Savannah River National Laboratory, Aiken, SC, USA
PVP2023-101549: BRIDGING LENGTH SCALES EFFICIENTLY THROUGH SURROGATE MODELLING
David Knowles, Henry Royce Institute, Manchester, Lancashire, United Kingdom; Eralp Demir, University of Oxford, Bristol, Bristol, United Kingdom; Mike C. Smith, Maria S. Yankova, Anastasia Vasileiou, Dimitra Rissaki, The University of Manchester, Manchester, Lancashire, United Kingdom; Paul Wilcox, Dinesh Kumar, Mehdi Mokhtarishirazabad, Mahmoud Mostafavi, University of Bristol, Bristol, Bristol, United Kingdom
PVP2023-105442: FRACTURE LOAD PREDICTIONS IN 3D PRINTED GRAPHENE-REINFORCED PLA NOTCHED SPECIMENS BY USING THE AVERAGE STRAIN ENERGY DENSITY CRITERION
Sergio Cicero, Sergio Arrieta, University of Cantabria, Santander, Cantabria, Spain
PVP2023-105581: ESTIMATION OF THE LOAD BEARING CAPACITY IN 3D PRINTED PLA NOTCHED PLATES USING THE THEORY OF CRITICAL DISTANCES
Sergio Cicero, Sergio Arrieta, Marcos Sánchez, University of Cantabria, Santander, Cantabria, Spain
PVP2023-106107: STUDY ON THE EFFECT OF MATERIAL CONSTRAINT ON THE STRESS-STRAIN BEHAVIOR OF PIPELINE GIRTH WELD ▼
Yinhui Zhang, Fuxiang Wang, Wenbo Xuan, Zhengqiang Lei, Hui Yang, PipeChina Institute of Science and Technology, Langfang, Hebei, China; Jian Shuai, Tieyao Zhang, China University of Petroleum-Beijing, Beijing, China

SESSION 2.1C (MF-02-01)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain E (6th Floor)
MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - EVALUATING COMPONENT LIFE
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, Sandia National Laboratories; Joe Ronevich, Sandia National Laboratories; Kevin Mandeville, Jr, DNV; Laurent Briottet, French Alternative Energies & Atomic Energy Commission; Paul Korinko, Savannah River National Laboratory; Steven Xu, Kinectrics; Sylvain Pillot, ArcelorMittal; Timothy Krentz, Savannah River National Laboratory

Session Chair: Neeraj Thirumalai, ExxonMobil Research and Engineering, Annandale, NJ, USA
Session Co-Chair: Milan Agnani, Sandia National Laboratory, Livermore, CA, USA

PVP2023-105972: SHELL EXPERIENCE IN REPURPOSING VINTAGE PIPELINE MATERIALS TO HYDROGEN SERVICE
Bostjan Bezensek, Shell Global Solutions UK, Laurencekirk, Aberdeenshire, United Kingdom; Sarah Hopkin, Tom Martin, Wim Guijt, Shell Global Solutions B.V., Amsterdam, Netherlands

PVP2023-105791: CRACK GROWTH RETARDATION AND HYDROGEN SENSITIVITY IN PIPELINE STEELS
Sanjay Tiku, BMT Global Canada, Kanata, ON, Canada; Lyndon Lamborn, Enbridge LP, Sherwood Park, AB, Canada; Greg Nelson, University of Alberta, Edmonton, AB, Canada; Olayinka Tehinse, Stantec, Calgary, AB, Canada

PVP2023-105506: A MODEL FOR ESTIMATING THE AUTOFRETTAGE PRESSURE IN TYPE 2 PRESSURE VESSELS FOR STORING HYDROGEN AT HIGH PRESSURES
Tsz Ling Elaine Tang, Siemens Technology, Princeton, NJ, USA; Letchuman Sripragash, Santosh B Narasimhachary, Siemens Technology, Charlotte, NC, USA; Ashok Saxena, WireTough Cylinders, LLC, Bristol, VA, USA

PVP2023-107472: COMPARISON OF HYDROGEN PERFORMANCE OF HIGH-FREQUENCY INDUCTION WELDS AND SUBMERGED METAL ARC WELDS OF PIPELINE STEEL {Presentation Only)
Newell Moser, Zack Buck, May L. Martin, Damian Lauria, Peter Bradley, Andrew Slifka, Matthew Connolly, National Institute of Standards and Technology, Boulder, CO, USA; Holger Brauer, Mannesmann Line Pipe GmbH, Hamm, North Rhine-Westphalia, Germany

SESSION 2.1D (DA-10-02)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain F (6th Floor)

BOLTED JOINT DESIGN AND ANALYSIS – 2

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

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Gys van Zyl, Integrity Engineering Solutions; Warren Brown, Integrity Engineering Solutions
Session Chair: Carlos Girão, Teadit, Itatiba, Sao Paulo, Brazil
Session Co-Chair: Gys Van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia

PVP2023-107616: WHAT'S NEW IN ASME PCC-1—2022?
Clay D. Rodery, C&S Technology LLC, League City, TX, USA

PVP2023-103592: A SYSTEMATIC APPROACH TO SOLVING PROBLEMATIC HEAT EXCHANGER JOINTS THROUGH APPLICATION OF WRC 538 & WRC 510 PRINCIPLES
Alex Berry, Phillips66, Lincolnshire, Lincolnshire, United Kingdom; Usman Tanveer, Aamir Naqvi, Phillips66, South Killingholme, Lincolnshire, United Kingdom; Kevin Locascio, Antonio Seijas, Phillips66, Houston, TX, USA

PVP2023-106068: FLANGE DESIGN FACTORS FOR THE ASME BPVC OVER EXTENDED PARAMETER RANGES
Gys Van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia; Daniel Francis, Sasol, Sandton, Gauteng, South Africa; Mark Ruffin, Teadit, Pasadena, TX, USA

SESSION 2.1E (MF-16-01)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain G (6th Floor)

CREEP AND CREEP-FATIGUE INTERACTION (JOINT WITH CS-25) – 1

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: Catrin Mair Davies, Imperial College; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus; Haiyang Qian, GE Gas Power; Mark Messner, Argonne National Laboratory; Michael McMurtrey, Idaho National Laboratory; Rita Kirchhofer, Exponent; Yun-Jae Kim, Korea University
Session Chair: Catrin Mair Davies, Imperial College London, London, United Kingdom
Session Co-Chair: Mark Messner, Argonne National Laboratory, Lemont, IL, USA

PVP2023-101378: CREEP PROPERTY OF TYPE 316CB STAINLESS STEEL HEATER TUBE
Jorge Hau, Shell Global Solutions (US), Inc., Katy, TX, USA; Bing Hsieh, Neil Park, Shell Scotford Complex, Fort Saskatchewan, AB, Canada

PVP2023-101385: LMP AND OMEGA CREEP TESTING OF HPMA CENTRIFUGALLY CAST FE-CR-NI ALLOY
Jorge Hau, Shell Global Solutions (US), Inc., Katy, TX, USA; Hussain Abdellatif, Neil Park, Shell Scotford Complex, Fort Saskatchewan, AB, Canada

PVP2023-105949: WHAT BEST CORRELATES TO HIGH TEMPERATURE FAILURE: STRAIN, STRESS, DISSIPATION, OR SOMETHING ELSE?
Tianchen Hu, Mark Messner, Argonne National Laboratory, Lemont, IL, USA

PVP2023-106244: DESIGN OF CENTRIFUGALLY CAST FE-CR-NI HEAT-RESISTANT ALLOYS DRIVEN BY MATERIAL GENOME TECHNOLOGY ▼
Zhichao Fan, Shulin Xiang, Tao Chen, Hefei General Machinery Research Institute Co., Ltd., Hefei, Anhui, China

SESSION 2.1F (DA-12-01)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain H (6th Floor)

FRACTURE – 1

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

Developed by: Shane Finneran, DNV; Shunji Kataoka, JGC Corporation
Session Chair: Shane Finneran, DNV, Dublin, OH, USA
Session Co-Chair: Shunji Kataoka, JGC Corporation, Yokohama, Japan

PVP2023-101268: THERMO-SHOCK EXPERIMENTS ON THICK-WALLED CYLINDRICAL MOCK-UPS
Diego Fernando Mora Mendez, Markus Niffenegger, Gaojun Mao, Beat Baumgartner, Hans Kottmann, Paul Scherrer Institut, Villigen, Aargau, Switzerland

PVP2023-105374: THE CHANGE IN THE SIF OF AN INTERNAL SEMI-ELLIPTICAL SURFACE CRACK DUE TO THE PRESENCE OF AN ADJACENT NONALIGNED CORNER QUARTER-CIRCLE CRACK IN A SEMI-INFINITE BODY UNDER REMOTE BENDING
Qin Ma, Walla Walla University, College Place, WA, USA; Cesar Levy, Florida International University, Miami, FL, USA; Mordechai Perl, Ben Gurion University of the Negev, Beer Sheva, Beer Sheva, Israel

PVP2023-105733: PROBABILISTIC FRACTURE MECHANICS CODES FOR PIPING INTERNATIONAL BENCHMARK—PART 2: PROBABILISTIC COMPARISONS
Matthew Homiack, U.S. Nuclear Regulatory Commission, Washington, DC, USA; Xinjian Duan, Min Wang, Candu Energy, Inc., Mississauga, ON, Canada; Klaus Heckmann, GRS gGmbH, Cologne, North Rhine-Westphalia, Germany

PVP2023-105992: CLOSED FORM FORMULAE OF INTERACTION FACTORS FOR TTWIN COPLANAR AND PARALLEL ELLIPTICAL CRACKS
Philippe Gilles, GEP-INT, Paris, France; Celia Germain, Cyrille Desrayaud, ESI-France, Lyon, Bouches-du-Rhône, France; David Albrecht, EDF, Lyon, Bouches-du-Rhône, France

SESSION 2.1G (MF-10-02)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain I (6th Floor)

PIPELINE INTEGRITY - 2 - CORROSION ASSESSMENT AND MACHINE LEARNING MODELS OF BURST PRESSURE OF PIPELINES

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

Developed by: Dong-Yeob Park, CanMetMaterials; Xian-Kui Zhu, Savannah River National Laboratory
Session Chair: Xian-Kui Zhu, Savannah River National Laboratory, Aiken, SC, USA

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

PVP2023-106911: CORROSION ASSESSMENT MODEL FOR PREDICTING REMAINING STRENGTH OF THICK-WALL CORRODED PIPELINES

Xian-Kui Zhu, Bruce Wiersma, William R. Johnson, Robert Sindelar, Savannah River National Laboratory, Aiken, SC, USA

PVP2023-106001: CONVOLUTIONAL NEURAL NETWORK MODELS FOR RECONSTRUCTION AND SIZING OF THREE-DIMENSIONAL METAL-LOSS DEFECTS IN OIL AND GAS PIPELINES BASED ON MAGNETIC FLUX LEAKAGE SIGNALS ▼

Yufei Shen, Wenxing Zhou, The University of Western Ontario, London, ON, Canada

PVP2023-106471: ARTIFICIAL NEURAL NETWORKS FOR MODELING BURST STRENGTH OF THICK AND THIN-WALLED PRESSURE VESSELS

William R. Johnson, Xian-Kui Zhu, Robert Sindelar, Bruce Wiersma, Savannah River National Laboratory, Aiken, SC, USA

PVP2023-106088: EFFECT OF STRESS-STRAIN CURVE ON BURST PRESSURE PREDICTION FOR PIPELINES WITH AND WITHOUT CORROSION DEFECTS

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

SESSION 2.1H (DA-01-01)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain J (6th Floor)

THE ROGER F. REEDY MEMORIAL SYMPOSIUM ON DESIGN & ANALYSIS OF PRESSURE VESSELS AND COMPONENTS - 1

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Nathan Barkley, Becht

Session Chair: Nathan Barkley, Becht, New Albany, MS, USA

Session Co-Chair: Phillip Wiseman, Lisega, Inc., Kodak, TN, USA

PVP2023-105665: DESIGN CONSIDERATIONS FOR PRESSURE VESSELS CONTAINING A TOP MOUNTED AGITATOR

Kaveh Ebrahimi, Fluor Limited, Wokingham, Berkshire, United Kingdom; Barry Millet, Fluor, Inc., Houston, TX, USA; Kenneth Kirkpatrick, Fluor, Houston, TX, USA; Jessica Depner, Fluor Limited, Farnborough, Hampshire, United Kingdom

PVP2023-105906: AN INTRODUCTION TO ASD AND LRFD AND ITS APPLICATION TO PRESSURE VESSELS AND PIPING

Kenneth Kirkpatrick, Barry Millet, Bryan Mosher, Eric Wey, Felipe Mejia, Fluor, Inc., Sugar Land, TX, USA

PVP2023-106176: APPLICATION OF CODE CASES 2951 AND 2964 FOR ELEVATED TEMPERATURE DESIGN OF PRESSURE VESSELS CONSIDERING LOAD DURATIONS ▼

Gurumurthy Kagita, Mahesh Babu Addala, Penchala Sai Krishna Pottem, Balaji Srinivasan, Venkat Krishnakant Pudipeddi, Subramanyam V.R. Sripada, Engineers India Limited, Gurugram, Haryana, India

PVP2023-106688: STUDY ON THE CALCULATION METHOD OF FLUID DISTRIBUTOR OF CORNER-CORNER TYPED IN HEAT EXCHANGERS ▼

Guodong Zhu, Libin Song, China Special Equipment Inspection and Research Institute, Beijing, China; Yanfeng Zhang, Lanpec Technologies Limited (Shanghai), Shanghai, China; Tian Xie, Beijing Sinohytec Co.,Ltd., Beijing, China

SESSION 2.1I (CS-07-02)

Tuesday, July 18, 8:15 am – 10:00 am, Augusta 3 (7th Floor)

RECENT DEVELOPMENTS IN ASME CODES AND STANDARDS – 2

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

Developed by: Mark Messner, Argonne National Laboratory; Michael McMurtrey, Idaho National Laboratory; Sam Sham, Idaho National Laboratory; Yanli Wang, Oak Ridge National Laboratory

Session Chair: Ting-Leung (Sam) Sham, Idaho National Laboratory, Idaho Falls, ID, USA

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

PVP2023-106799: PATH FORWARD: MATERIALS DATA MODERNIZATION FOR ASME CODES AND STANDARDS IN THE ARTIFICIAL INTELLIGENCE ERA

Weiju Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2023-106450: ASME BPVC SECTION III DIVISION 4 SPECIAL WORKING GROUP FOR FUSION STAKEHOLDERS {Presentation Only)

Thomas Davis, Oxford Sigma Ltd, Didcot, Oxfordshire, United Kingdom

PVP2023-103837: DEVELOPMENT OF A PIPING QUALIFICATION METHODOLOGY AND TESTING – PROPOSAL ENHANCEMENT TO ASME BPVC AND B31 CERTIFICATION ▼

Irawan Josodipuro, PT Pertamina Hulu Mahakam, Jakarta, DKI Jakarta, Indonesia

PVP2023-107518: USING SECTION IX CASE 3020 WITH OTHER SPECIFICATIONS TO ACHIEVE ACCEPTANCE OF A VALVE BODY {Presentation Only)

Slade Gardner, Big Metal Additive, Denver, CO, USA

SESSION 2.1J (MF-24-03)

Tuesday, July 18, 8:15 am – 10:00 am, Peachtree 1 (8th Floor)

MATERIALS AND FABRICATION FOR REFINING - 3

Developed by: Jorge Penso, Shell Projects and Technology; Mitul Dalal, Shell Projects and Technology; Richard Colwell, Bechtel; Sylvain Pillot, ArcelorMittal

Session Chair: Richard Colwell, Bechtel, Houston, TX, USA

Session Co-Chair: Scott Daniels, Bechtel, Houston, TX, USA

PVP2023-106482: COMPARISON OF API RP 582 3RD EDITION WITH THE NEW 4TH EDITION

Richard Colwell, Bechtel Corp, Richmond, TX, USA; Bill Layo, Midalloy, Clark Summit, PA, USA

PVP2023-106489: CORRECT USAGE OF STAINLESS BOLTS FOR PRESSURE VESSEL APPLICATIONS

Cathleen Shargay, Fluor Corporation, Aliso Veijo, CA, USA; Kuntak Daru, Air Products and Chemicals Inc, Houston, TX, USA; Punita Gala, Reliance Petrochemicals, Gansoli, Maharashtra, India; Anilkumar Panchal, PVA Systems, Mumbai, Maharashtra, India

PVP2023-106497: ETHYLENE OXIDE REACTOR ENGINEERED WELD REPAIR CASE HISTORY

Mitul Dalal, Shell Global Solutions (US) Inc., Deer Park, TX, USA; Jorge Penso, Jorge Hau, Shell Global Solution (US) Inc., Houston, TX, USA; Steven O'Brien, Shell Canada Limited, Scotford, AB, Fort Saskatchewan, Alberta, Canada; Tyler London, Cui Er Seow, Vallerio Carollo, Jazeel Chukkan, Yin Jin Janin, John Rothwell, Marcello Consonni, TWI Technology Centre (Northeast), Middlesbrough, United Kingdom; David Howse, TWI - Arc Process and Welding Engineering (AWE) Section, Cambridge, Cambridgeshire, United Kingdom

PVP2023-106623: CHALLENGES IN THE LIFE MANAGEMENT OF STEAM METHANE REFORMER (SMR) COMPONENTS

Alex Bridges, Michael Gagliano, John Siefert, EPRI, Charlotte, NC, USA; Mitul Dalal, Shell Global Solutions (US) Inc., Deer Park, TX, USA; Jorge Penso, Shell Global Solution (US) Inc., Houston, TX, USA

SESSION 2.1K (OAC-04-02)

Tuesday, July 18, 8:15 am – 10:00 am, Peachtree 2 (8th Floor)

STORAGE AND TRANSPORTATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS - 2

Developed by: David Tamburello, Savannah River National Laboratory; Mike Weber, BAM; Mustafa HADJ-NACER, University of Nevada-Reno; Nicholas Klymyshyn, PNNL; Oscar Martinez, Oak Ridge National Laboratory; Steffan Komann, BAM; Steve Hensel, Savannah River National Laboratory; Zenghu Han, Argonne National Laboratory

Session Chair: David Tambuerello, Savannah River Nuclear Solutions, Aiken, SC, USA

Session Co-Chair: Mike Weber, Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany

PVP2023-101456: STORAGE LIFE AND SURVEILLANCE OF THE 9975 SHIPPING PACKAGE
Steve J. Hensel, Savannah River National Laboratory, Martinez, GA, USA; Andrew J. O'Grady, Savannah River Nuclear Solutions, Aiken, SC, USA
PVP2023-105981: ADDITIVE MANUFACTURING AND REGULATORY TESTING OF CANISTERS FOR SPENT NUCLEAR FUEL MANAGEMENT
Oscar Martinez, Dominic Giuliano, Wei Tang, Paul Nogradi, Abiodun Adeniyi, Lance Lowe, Oak Ridge National Laboratory, Oak Ridge, TN, USA
PVP2023-106249: AGEING MANAGEMENT MEASURES FOR TRANSPORT PACKAGES FOR RADIOACTIVE MATERIALS {Presentation Only)
Steffen Komann, Sven Schubert, Adrian Reichardt, Lars Müller, Martin Neumann, Frank Wille, Bundesanstalt für Materialforschung und prüfung (BAM), Berlin, Germany
PVP2023-106680: MECHANICAL RESPONSES OF 316L STAINLESS STEEL PRINTED BY WIRE ARC ADDITIVE MANUFACTURING WITH DIFFERENT THERMAL HISTORIES
Wei Tang, Dominic Giuliano, Oscar Martinez, Maxim Gussev, Andrzej Nycz, Ke An, Luke Meyer, Chris Masuo, Dunji Yu, William Carter, Alex Walters, Riley Wallace, Derek Vaughan, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 2.1L (SE-01-01)

Tuesday, July 18, 8:15 am – 10:00 am, Chastain 1 (6th Floor)
EARTHQUAKE RESISTANCE AND SEISMIC MARGIN / MACHINE LEARNING FOR SEISMIC ANALYSIS OF INDUSTRIAL FACILITIES
Developed by: Akira Maekawa, Osaka Sangyo University; Izumi Nakamura, Tokyo City University; Tomoyo Taniguchi, Tottori University
Session Chair: Izumi Nakamura, National Research Institute for Earth Science and Disaster Resilience, Ibaraki, Japan
Session Co-Chair: Yuichi Yoshida, National Research Institute of Fire and Disaster, Chofu, Tokyo, Japan
PVP2023-105543: STUDY ON DYNAMIC BUCKLING BEHAVIOR AND POST-BUCKLING STABILITY OF THIN-WALLED CYLINDERS SUBJECTED TO LATERAL VIBRATION
Yiji Ye, Sho Hasegawa, Naoto Kasahara, The University of Tokyo, Bunkyo City, Tokyo-to, Japan
PVP2023-105545: EXPERIMENTAL EVALUATION OF CONTRIBUTION OF CONTENT LIQUID TO UPLIFT COMMENCEMENT CONDITION OF CYLINDRICAL LIQUID STORAGE TANKS SUBJECT TO HORIZONTAL BASE EXCITATION
Yuichi Yoshida, National Research Institute of Fire and Disaster, Chofu, Tokyo, Japan; Tomoyo Taniguchi, Tottori University, Tottori, Tottori, Japan
PVP2023-106452: A NOVEL MACHINE LEARNING BASED FRAMEWORK FOR THE SEISMIC RISK ASSESSMENT OF INDUSTRIAL PLANT
Gianluca Quinci, Fabrizio Paolacci, Roma Tre University, Rome, Lazio, Italy
PVP2023-105347: ACCURACY OF THE TIME HISTORY ANALYSIS OF 2DOF SUBJECTED TO BASE EXCITATIONS BASED ON THE SUPERPOSITION OF THE ELASTO-PLASTIC RESPONSE OF EACH MODE
Tomoyo Taniguchi, Seiya Ueno, Tottori Univ, Tottori, Tottori, Japan; Yasumasa Shoji, YS Corporation, Musashino, Tokyo, Japan; Yukinobu Kimura, Kagoshima University, Kagoshima, Japan

SESSION 2.1Q (TW-02-01)

Tuesday, July 18, 8:15 am – 10:00 am, Augusta 1 (7th Floor)
TECHNICAL TUTORIAL--IMPROVEMENTS IN ACOUSTIC INDUCED AND FLOW INDUCED VIBRATION OF PROCESS PIPING PREDICTION AND MITIGATION (PART 1)
Developed by: Adin Mann, Wood Plc., Cleveland, OH, USA
Session Chair: Rob Swindell, Wood Plc, Southhampton, United Kingdom
Session Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presenters: Rob Swindell, Wood Plc
Itsuro Hayashi, Chiyoda Corp
Nick Horder, Xodus Group
Arindam Ghosh, KBR
Noel Hart, ExxonMobil
Adin Mann, Wood Plc.

SESSION 2.1S (TE-02-01)

Tuesday, July 18, 8:15 am – 10:00 am, Augusta Ballroom (7th Floor)
TECHNOLOGY EXHIBITS - 5

Block 2.2: Tuesday, July 18, 2023 (10:15 am – 12:00 pm)

SESSION 2.2A (NDE-01-01)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain C (6th Floor)
EMERGING NON-DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS - 1
Developed by: Vivek Agarwal, Idaho National Laboratory; Min Zhang, Praxair, a Linde Company
Session Chair: Maria Ortiz de Zuniga, Fusion for Energy - UNED, Barcelona, Spain
Session Co-Chair: Muhammad Nur Farhan Saniman, Universiti Kuala Lumpur Malaysia France Institute, Bandar Baru Bangi, Selangor, Malaysia
PVP2023-105223: ARTIFICIAL INTELLIGENCE FOR THE OUTPUT PROCESSING OF PHASED-ARRAY ULTRASONIC TEST APPLIED TO MATERIALS DEFECTS DETECTION IN THE ITER VACUUM VESSEL WELDING OPERATIONS {Presentation Only)
Maria Ortiz De Zuniga, Cristian Casanova, Fusion for Energy - UNED, Barcelona, Spain; Nawal Prinja, Prinja and Partners, Stockport, Cheshire, United Kingdom; Ana Maria Camacho-Lopez, Alvaro Rodriguez-Prieto, Universidad Nacional de Educación a Distancia - UNED, Madrid, Madrid, Spain
PVP2023-105782: SIMULATION ANALYSIS AND EXPERIMENTAL STUDY ON PIPELINE CIRCUMFERENTIAL CRACK DETECTION BASED ON RESIDUAL MAGNETISM EFFECT
Haotian Wei, China University of Petroleum (Beijing), Beijing, China; Shaohua Dong, Yundong Ma, Lushuai Xu, Jiahao Zhao, Hang Zhang, China University of Petroleum (Beijing), Changping District, Beijing, China
PVP2023-105851: STUDY ON SMALL LEAKAGE CHARACTERISTICS AND NOISE REDUCTION METHOD OF LIQUID PIPELINE BASED ON ACOUSTIC INTERNAL DETECTION
Yundong Ma, Shaohua Dong, Haotian Wei, Weichao Qian, Hang Zhang, Lushuai Xu, China University of Petroleum (Beijing), Beijing, China
PVP2023-106120: PHASE SHIFT MIGRATION APPROACH USING FULL-MATRIX CAPTURE OPTIMIZATION FOR MULTI-LAYER ULTRASONIC IMAGING ▼
Jingwei Cheng, Zhichao Fan, Xuedong Chen, Xiangting Xu, Yangguang Bu, Haibin Wang, Zhe Wang, Hefei General Machinery Research Institute Co., Ltd., Hefei, Anhui, China

SESSION 2.2B (MF-05-02)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain D (6th Floor)
FITNESS-FOR-SERVICE AND FAILURE ASSESSMENT – 2
Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
Developed by: Arindam Chakraborty, Virtual Integrated Analytics Solutions (VIAS); Bruce Wiersma, Savannah River National Laboratory; Carl Jaske, HSI Group, Inc.; Graeme Horne, Frazer-Nash Consultancy; Harry Coules, University of Bristol; Marvin Cohn, Intertek Engineering Consulting
Session Chair: Graeme Horne, Frazer-Nash Consultancy, Bristol, United Kingdom
Session Co-Chair: Marvin Cohn, Intertek, AIM, Santa Clara, CA, USA

PVP2023-106169: STRESS EVALUATION FOR REINFORCED WALL-THINNED CLASS 2 AND 3 PIPES USING EQUIVALENT STIFFNESS CONCEPT

Jae-Yoon Kim, Yun-Jae Kim, Korea University, Seongbuk-Gu, Seoul, Republic of Korea; Jin-Ha Hwang, Korea Military Academy, Nowon-Gu, Seoul, Republic of Korea

PVP2023-105983: FRACTURE MECHANICS ANALYSIS OF MULTI-PURPOSE CANISTER UNDER IMPACT LOADING

Jae-Yoon Jeong, Cheol-Ho Kim, Yun-Jae Kim, Korea University, Sungbuk-Gu, Seoul, Republic of Korea; Chang-Young Oh, Korea Institute of Materials Science, Kyungsang-namdo, Changwon, Republic of Korea; Hune-Tae Kim, Korea Hydro & Nuclear Power Co., Yuseong-Gu, Daejeon, Republic of Korea

PVP2023-106161: DATA-DRIVEN STRESS INTENSITY FACTOR SOLUTION FOR AXIAL OUTSIDE SURFACE CRACKS IN THIN-WALLED CYLINDERS

Xian-Kui Zhu, Andrew J. Duncan, Savannah River National Laboratory, Aiken, SC, USA; Jesse B. Zhu, Microsoft Corporation, New York, NY, USA

PVP2023-106210: DEVELOPMENT OF STRESS INTENSITY FACTOR SOLUTION FOR SURFACE CRACK AT NOZZLE CORNER IN REACTOR PRESSURE VESSEL

Yoshihito Yamaguchi, Hisashi Takamizawa, Jinya Katsuyama, Yinsheng Li, Japan Atomic Energy Agency, Tokai-mura, Ibaraki-ken, Japan

SESSION 2.2C (MF-02-02)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain E (6th Floor)

MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - TEMPERATURE AND HYDROGEN EFFECTS

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, Sandia National Laboratories; Joe Ronevich, Sandia National Laboratories; Kevin Mandeville, Jr, DNV; Laurent Briottet, French Alternative Energies & Atomic Energy Commission; Paul Korinko, Savannah River National Laboratory; Steven Xu, Kinectrics; Sylvain Pillot, ArcelorMittal; Timothy Krentz, Savannah River National Laboratory

Session Chair: Tim Krentz, Savannah River Nuclear Solutions, Aiken, SC, USA

Session Co-Chair: Rob Wheeler, Texas A&M University, College Station, TX, USA

PVP2023-101333: FATIGUE CRACK GROWTH PROPERTY OF DUCTILE CAST IRON IN HYDROGEN GAS WITH LOW OXYGEN CONCENTRATIONS AT VARIOUS TEMPERATURES {Presentation Only)

Kentaro Okumura, Kojiro Motoyama Kawasaki Heavy Industries, Ltd., Akashi City, Hyogo, Japan; Yuki Yamaoka, Hisao Matsunaga, Kyushu University, Research Center for Hydrogen Industrial Use and Storage (HYDROGENIUS), Fukuoka, Nishi-ku, Japan

PVP2023-106072: EVALUATION OF HYDROGEN EMBRITTLEMENT BEHAVIORS OF VARIOUS STEELS AT CRYOGENIC TEMPERATURES USING SIMPLE TESTING METHODS IN HIGH-PRESSURE HYDROGEN ENVIRONMENTS {Presentation Only)

Hyung-Seop Shin, Eunsu Min, Sungbeom Kang, Richard Pascua, Gellieca Dullas, Andong National University, Andong City, Gyeongsang Bukdo, Republic of Korea; Kyung-O Bae, Un-Bong Baek, Korea Research Institute of Standards and Science (KRISS), Daejeon, Daejeon, Republic of Korea

PVP2023-106848: HYDROGEN EMBRITTLEMENT EVALUATION METHOD IN CRYOGENIC ENVIRONMENT USING HOLLOW SPECIMEN {Presentation Only)

Jaeyeong Park, Un-Bong Baek, Kyung-Oh Bae, Korea Research Institute of Standards and Science (KRISS), Daejeon, Daejeon, Republic of Korea

PVP2023-107239: CRYOGENIC HYDROGEN AND AUSTENITIC STEELS: MICROSTRUCTURAL AND MECHANICAL PROPERTIES FOR CRYOGENIC HYDROGEN ENVIRONMENT {Presentation Only)

Camelia Schulz, Monzer Maarouf, Astrid Pundt, Klaus-Peter Weiss, Karlsruhe Institute of Technology (KIT) , Eggenstein-Leopoldshafen, Baden-Wurttemberg, Germany

SESSION 2.2D (CT-03-01)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain F (6th Floor)

LEAK TIGHTNESS AND FUGITIVE EMISSIONS

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

Developed by: Carlos Girão, Teadit; Hubert Lejeune, CETIM; Satoshi Nagata, Toyo Engineering Corporation

Session Chair: Hubert Lejeune, CETIM, Nantes, Loire-Atlantique, France

Session Co-Chair: Jeffery Wilson, VSP Technologies, Prince George, VA, USA

PVP2023-106374: OXIDATION PROPERTIES OF GRAPHITIC PACKINGS USED IN LOW EMISSION VALVES

Carlos D. Girão, João H. Pontes, Teadit, Itatiba, São Paulo, Brazil; Mark Ruffin, Teadit North America, Pasadena, TX, USA

PVP2023-105814: A CONTINUATION OF EVALUATING THE SEALING PERFORMANCE OF ENGINEERED PTFE-BASED GASKETS IN FIBERGLASS-REINFORCED PLASTIC FLANGES

Aidan Berrios, Tim Rice, Jeffery Wilson, VSP Technologies, Prince George, VA, USA

PVP2023-105909: UNDERSTANDING HYDROGEN LEAKAGE WITH STANDARD ASME B16.20 AND ASME B16.21 GASKETS

Justinn General, Dale Norman, Lamons Manufacturing and Services Co., Houston, TX, USA

PVP2023-105735: HOW TO QUALIFY GASKETS FOR LOW STRESS FLANGES

Cuong Phan, Lamons, Rosenberg, TX, USA; Dale Norman, Lamons Manufacturing and Services Co., Houston, TX, USA

SESSION 2.2E (MF-16-02)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain G (6th Floor)

CREEP AND CREEP-FATIGUE INTERACTION (JOINT WITH CS-25) – 2

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: Catrin Mair Davies, Imperial College; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus; Haiyang Qian, GE Gas Power; Mark Messner, Argonne National Laboratory; Michael McMurtrey, Idaho National Laboratory; Rita Kirchhofer, Exponent; Yun-Jae Kim, Korea University

Session Chair: Mark Messner, Argonne National Laboratory, Lemont, IL, USA

Session Co-Chair: Catrin Mair Davies, Imperial College London, London, United Kingdom

PVP2023-106248: EXPLORING 3D X-RAY DIFFRACTION METHOD TO VALIDATE APPROACHES IN MATERIALS MODELLING

Ranggi Ramadhan, Eralp Demir, Dylan Agius, Mahmoud Mostavafi, David Knowles, University of Bristol, Bristol, Bristol, United Kingdom; Abdullah Al Mamun, University of Bangor, Bangor, Gwynedd, United Kingdom; James Ball, David Collins, University of Birmingham, Birmingham, West Midlands, United Kingdom

PVP2023-106410: UNIAXIAL CREEP PROPERTIES OF 316L STAINLESS STEEL MANUFACTURED BY LASER POWDER BED FUSION

Paul Sandmann, Amy Milne, Catrin Mair Davies, Imperial College London, London, United Kingdom

PVP2023-106947: MATERIAL DETERIORATION AND RESIDUAL LIFE EVALUATION OF HIGH TEMPERATURE STEAM PIPELINE ▼

Zhifeng Li, Song Libin, China Special Equipment Inspection and Research Institute, Beijing, China; Chen Gang, Shanghai SECCO Petrochemical Company Limited, Shanghai, China

PVP2023-107318: DESIGN DATA FOR ALLOY 740H HIGH TEMPERATURE CONCENTRATING SOLAR POWER COMPONENTS

B. Barua, M. C. Messner, Argonne National Laboratory, Lemont, IL, USA; R. E. Bass, M. D. McMurtrey, Idaho National Laboratory, Idaho Falls, ID, USA

SESSION 2.2F (DA-12-02)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain H (6th Floor)

FRACTURE – 2

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

Developed by: Shane Finneran, DNV; Shunji Kataoka, JGC Corporation
Session Chair: Shunji Kataoka, JGC Corporation, Yokohama, Japan
Session Co-Chair: Shane Finneran, DNV, Dublin, OH, USA

PVP2023-106098: RESIDUAL STRESSES GENERATION PROCESS ON LOW ALLOY STEEL CRACKED PLATES WITHOUT MODIFICATION OF THE MATERIAL PROPERTIES

Jules Louerat, Stephane Marie, Olivier Ancelet, Framatome, Courbevoie, Hauts-de-Seine, France; Luc Doremus, Framatome, Le Creusot, Saône-et-Loire, France; Stephane Chapuliot, Anna Dahl, EDF, Moret sur Loing, Seine-et-Marne, France; Gregory Perez, CEA, Gif Sur Yvette, Essonne, France

PVP2023-106099: RESIDUAL STRESSES IMPACT ON BRITTLE FRACTURE - EXPERIMENTAL EVALUATION ON LOW ALLOY STEEL PLATES

Jules Louerat, Olivier Ancelet, Stephane Marie, Framatome, Courbevoie, Hauts-de-Seine, France; Luc Doremus, Framatome, Le Creusot, Saône-et-Loire, France; Stephane Chapuliot, Anna Dahl, EDF, Moret sur Loing, Seine-et-Marne, France

PVP2023-106859: A PHASE FIELD METHOD BASED FRACTURE ANALYSIS OF FUNCTIONALLY GRADED PLATES ▼

Sidharth PC, B. N. Rao, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India

SESSION 2.2G (CS-24-01)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain I (6th Floor)

PROBABILISTIC AND RISK-INFORMED METHODS FOR STRUCTURAL INTEGRITY ASSESSMENT (JOINT WITH MF-14)

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

Developed by: David Rudland, US Nuclear Regulatory Commission; Steven Xu, Kinectrics; Yinsheng Li, Japan Atomic Energy Agency
Session Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada
Session Co-Chair: David Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2023-105203: STATISTICAL APPROACH TO DEVELOPING A PERFORMANCE MONITORING PROGRAM

David L. Rudland, USNRC, Frederick, MD, USA; Dan Widrevitz, USNRC, Rockville, MD, USA

PVP2023-105958: TECHNICAL BASIS FOR INSPECTION OPTIMIZATION AND DEFERRAL OF PWR STEAM GENERATOR COMPONENT EXAMINATIONS

Nathaniel Cofie, Dilip Dedhia, Scott Chesworth, Structural Integrity Associates, Inc., San Jose, CA, USA; Do Jun Shim, EPRI, Palo Alto, CA, USA; Robert Grizzi, EPRI, Charlotte, NC, USA

PVP2023-107363: PROBABILISTIC FRACTURE MECHANICS EVALUATION OF PWR CAST AUSTENITIC STAINLESS STEEL PIPING COMPONENTS – AXIAL CRACKING METHODS AND RESULTS

Kevin Fuhr, Matt Wolfson, Glenn White, Markus Burkardt, Dominion Engineering, Inc., Reston, VA, USA; Do Jun Shim, EPRI, Palo Alto, CA, USA

PVP2023-107513: A REVIEW OF CURRENT BEST PRACTICE FOR VALIDATION OF PROBABILISTIC FRACTURE MECHANICS CODES FOR ASSESSMENT OF NUCLEAR STRUCTURAL INTEGRITY APPLICATIONS

Steven X. Xu, Douglas A. Scarth, Kinectrics, Toronto, ON, Canada; David L. Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

SESSION 2.2H (DA-01-02)

Tuesday, July 18, 10:15 am – 12:00 pm, Chastain J (6th Floor)

THE ROGER F. REEDY MEMORIAL SYMPOSIUM ON DESIGN & ANALYSIS OF PRESSURE VESSELS AND COMPONENTS - 2

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Nathan Barkley, Becht
Session Chair: Nathan Barkley, Becht, New Albany, MS, USA
Session Co-Chair: Phillip Wiseman, Lisega, Inc., Kodak, TN, USA

PVP2023-106075: WELDING, REPAIR AND LOCAL POST WELD HEAT TREATMENT RESIDUAL STRESSES

François Billon, ONET Technologies, Marseille, Bouches-du-Rhône, France; Josef Tejc, Andrej Krakovsky, Mojmir Vanek, MECAS ESI, Plzeň, Czech Republic; François Moreau, ESI Group, Lyon, Rhône, France

PVP2023-106064: SENSITIVITY OF RESIDUAL STRESSES TO THE IMPLEMENTATION OF LOCAL POST WELDING THERMAL STRESS RELIEVING

François Billon, ONET Technologies, Marseille, Bouches-du-Rhône, France; Pierre Willaume, Anthony Miguet, François Moreau, ESI Group, Lyon, Rhône, France

PVP2023-106971: LOCAL POST WELD HEAT TREATMENT OF A PRESSURE VESSEL: A POST-MORTEM EVALUATION

Simon Yuen, Suncor Energy Inc., Calgary, AB, Canada; A. Boyd McKay, Suncor Energy Inc., Fort McMurray, AB, Canada; Daniel McArthur, BMT Canada Ltd, Calgary, AB, Canada; Henry Kwok, John Fernando, Leanne Wong, Zachry Integrity Engineering Ltd, Calgary, AB, Canada

PVP2023-107420: NUMERICAL MODELING OF STRAIN RATE EFFECTS ON THE POST EXPANSION PROPERTIES OF EXPANDABLE TUBULAR

Nashmi Alrasheedi, Maaz Akhtar, Imam Mohammad Ibn Saud Islamic University, Riyadh, Riyadh, Saudi Arabia; Rashid Khan, Imam Mohammad Ibn Saud Islamic University, Karachi, Sindh, Pakistan; Tasneem Pervez, Syed Zahid Qamar, Sultan Qaboos University, Muscat, Muscat, Oman; Muhammad Arsalan, Saudi Aramco, Dhahran, Asir, Saudi Arabia

SESSION 2.2I (CS-08-01)

Tuesday, July 18, 10:15 am – 12:00 pm, Augusta 3 (7th Floor)

ASME CODE SECTION XI ACTIVITIES

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

Developed by: Daniel Miro-Quesada, ASME; Doug Scarth, Kinectrics; Russell Cipolla, Intertek AIM; Ryan Crane, ASME
Session Chair: Russell Cipolla, Intertek, AIM, Santa Clara, CA, USA
Session Co-Chair: Daniel Miro-Quesada, ASME, New York, NY, USA

PVP2023-107044: TECHNICAL BASIS FOR REVISION TO ASME SECTION XI IWB-2500 ITEM F

Matthew Walter, EPRI, Palo Alto, CA, USA; Kevin Wong, Nathaniel G. Cofie, Mo Uddin, Gary Dominguez, Structural Integrity Associates, San Jose, CA, USA

PVP2023-107388: SUGGESTED IMPROVEMENTS TO ASME CODE SECTION XI, NONMANDATORY APPENDIX L FLAW TOLERANCE APPROACH

Alexandria Scott, Anees Udyawar, Joshua Coleman, Westinghouse Electric Company, Cranberry Township, PA, USA; Nathan Glunt, EPRI, Palo Alto, CA, USA

PVP2023-105251: ORGANIZATION AND BASIS OF ASME SECTION XI, NONMANDATORY APPENDIX Y, "CRACK GROWTH RATE CURVES"

Glenn White, Kevin Fuhr, Dominion Engineering, Inc., Reston, VA, USA; Anees Udyawar, Westinghouse Electric Company, Cranberry Township, PA, USA; Doug Scarth, Kinectrics, Toronto, ON, Canada; Do Jun Shim, EPRI, Charlotte, NC, USA

PVP2023-106562: COMPARISON BETWEEN FRACTURE MECHANICS EVALUATION METHODS IN ASME BOILER & PRESSURE VESSEL CODE, SECTION XI AND THOSE IN JSME LEAK-BEFORE-BREAK EVALUATION GUIDELINES FOR SODIUM-COOLED FAST REACTORS

Hiroki Yada, Shigeru Takaya, Japan Atomic Energy Agency, Oarai, Ibaraki, Japan; Hideo Machida, TEPCO Systems Corporation, Koto - ku, Tokyo, Japan

SESSION 2.2J (MF-24-04)

Tuesday, July 18, 10:15 am – 12:00 pm, Augusta 3 (7th Floor)

MATERIALS AND FABRICATION FOR REFINING - 4

Developed by: Jorge Penso, Shell Projects and Technology; Mitul Dalal, Shell Projects and Technology; Richard Colwell, Bechtel; Sylvain Pillot, ArcelorMittal
Session Chair: Richard Colwell, Bechtel, Houston, TX, USA
Session Co-Chair: Scott Daniels, Bechtel, Houston, TX, USA

PVP2023-107488: NEW LEARNINGS AND TRENDS ON DUPLEX STAINLESS STEEL 2205 REACTOR EFFLUENT AIR COOLERS

Mitul Dalal, Shell Global Solutions (US) Inc., Deer Park, TX, USA; Jorge Penso, Shell Global Solution (US) Inc., Houston, TX, USA; Jordan Barrass, Oluwaseun Idowu, Shell Canada Limited, Scotford, Alberta, Fort Saskatchewan, AB, Canada

PVP2023-107793: STRESS RELAXATION CRACKING, A MISUNDERSTOOD PROBLEM IN THE PROCESS INDUSTRY

Jan-Willem Rensman, Fluor BV, Hoofddorp, NH, Netherlands; Mike W. Spindler, EDF Energy, Gloucester, Gloucestershire, United Kingdom; Cathleen Shargay, Fluor Corporation, Aliso VIejo, CA, USA

PVP2023-105721: ULTRA-THICK 9% NICKEL PLATES FOR CRYOGENIC PRESSURIZED EQUIPMENTS

Sylvain Pillot, Arcelormittal, Le Creusot, Saône-et-Loire, France; Jean-Christophe Milek, Anne Higelin, Ian Zuazo, Natalia Loukachenko, Industeel, Le Creusot, Saône-et-Loire, France

SESSION 2.2K (OAC-04-03)

Tuesday, July 18, 10:15 am – 12:00 pm, Augusta 3 (7th Floor)

STORAGE AND TRANSPORTATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS - 3

Developed by: David Tamburello, Savannah River National Laboratory; Mike Weber, BAM; Mustafa Hadj-Nacer, University of Nevada-Reno; Nicholas Klymyshyn, PNNL; Oscar Martinez, Oak Ridge National Laboratory; Steffan Komann, BAM; Steve Hensel, Savannah River National Laboratory; Zenghu Han, Argonne National Laboratory
Session Chair: Mustafa Hadj-Nacer, University of Nevada-Reno, Reno, NV, USA
Session Co-Chair: Nick Klymyshyn, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2023-105912: 3D METROLOGY ANALYSIS OF STRUCTURAL DAMAGES ON TYPE B SHIPPING CONTAINER COMPARED TO PREDICTED FEA RESULTS AFTER COMPLETION OF NCT AND HAC REGULATORY TESTING

Paul Nogradi, Oscar Martinez, Abiodun Adeniyi, Lance Lowe, Oak Ridge National Lab, Oak Ridge, TN, USA; Ross Whittenbarger, Ryan Fisher, Austin Mclaurine, Y-12 National Security Complex, Oak Ridge, TN, USA

PVP2023-106501: SUPPLEMENTAL STRUCTURAL ANALYSES USED IN SUPPORT OF CERTIFICATION OF THE DEFENSE PROGRAMS PACKAGE (DPP)-3

Peter J. Sakalaukus Jr., Nathan P. Barrett, Brian J. Koeppel, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2023-106649: FREE DROP IMPACT DATA ACQUISITION USING DIGITAL IMAGE CORRELATION

Veronica Montgomery, Embry-Riddle Aeronautical University, Oak Ridge, TN, USA; Oscar Martinez, Paul Nogradi, Lance Lowe, Abiodun Adeniyi, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2023-107275: DESIGN OF A DROP TEST TARGET WITH REPRODUCIBLE PROPERTIES FOR KONRAD PROTOTYPE TESTING {Presentation Only)

Mike Weber, Bundesanstalt fuer Materialforschung und -pruefung, Berlin, Berlin, Germany

SESSION 2.2L (SE-02-01)

Tuesday, July 18, 10:15 am – 12:00 pm, Augusta 3 (7th Floor)

SEISMIC ISOLATION / DAMPING AND VIBRATION CONTROL

Developed by: Osamu Furuya, Tokyo Denki University; Satoshi Fujita, Tokyo Denki University; Taichi Matsuoka, Meiji University
Session Chair: Taichi Matsuoka, Meiji University, Kawasaki, Kanagawa, Japan
Session Co-Chair: Osamu Furuya, Tokyo Denki University, Tokyo, Japan

PVP2023-101319: VARIABLE INERTIA DAMPER USING A FLYWHEEL FILLED BY MR FLUID: VIBRATION TESTS BY REINFORCEMENT LEARNING

Taichi Matsuoka, Shunya Kubota, Meiji University, Kawasaki, Kanagawa, Japan

PVP2023-102224: EXPERIMENT OF FLOATING SEISMIC ISOLATION SYSTEM

Takashi Mori, Takahiro Shimada, Satoru Kai, Akihito Otani, IHI Corporation, Yokohama, Kanagawa, Japan; Tomohiko Yamamoto, Xing L Yan, Japan Atomic Energy Agency, Higashiibaraki, Ibaraki, Japan

PVP2023-107170: SEISMIC DESIGN METHOD OF CROSSOVER PIPING ACROSS THE BUILDING ISOLATION BOUNDARY

Kenichi Shibukuwa, IHI Corporation, Yokohama, Kanagawa, Japan

SESSION 2.2Q (TW-02-02)

Tuesday, July 18, 10:15 am – 12:00 am, Augusta 1 (7th Floor)

TECHNICAL TUTORIAL--IMPROVEMENTS IN ACOUSTIC INDUCED AND FLOW INDUCED VIBRATION OF PROCESS PIPING PREDICTION AND MITIGATION (PART 2)

Developed by: Adin Mann, Wood Plc., Cleveland, OH, USA
Session Chair: Rob Swindell, Wood Plc, Southhampton, United Kingdom
Session Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt
Presenters: Rob Swindell, Wood Plc
Itsuro Hayashi, Chiyoda Corp
Nick Horder, Xodus Group
Arindam Ghosh, KBR
Noel Hart, ExxonMobil
Adin Mann, Wood Plc.

SESSION 2.2S (TE-02-02)

Tuesday, July 18, 10:15 am – 12:00 pm, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 6

Block 2.3: Tuesday, July 18, 2023 (2:15 pm – 4:00 pm)

SESSION 2.3A (NDE-01-02)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain C (6th Floor)

EMERGING NON-DESTRUCTIVE EVALUATION AND PROGNOSTIC TECHNIQUES AND APPLICATIONS - 2

Developed by: Vivek Agarwal, Idaho National Laboratory; Min Zhang, Praxair, a Linde Company
Session Chair: Art Leach, Sensor Networks, Inc., State College, PA, USA
Session Co-Chair: Teruaki Sano, JGC Corporation, Yokohama, Japan

PVP2023-117701: INTEGRITY OPERATING WINDOW (IOW) ANALYSIS USING WIRELESS INSTALLED ULTRASONIC SENSORS: HOW PROCESS CHANGES IMPACT CORROSION RATES {Presentation Only)

Steve Strachan, Sensor Networks, Inc., State College, TX, USA

PVP2023-106205: GENERATION OF ULTRASONIC SIGNALS OF THERMALLY AGED CAST AUSTENITIC STAINLESS STEEL (CASS) THROUGH MACHINE LEARNING {Presentation Only)

Sung-Sik Kang, Jin-Gyum Kim, Changsik Oh, Korea Institute of Nuclear Safety, Daejeon, Daejeon, Republic of Korea; Changheui Jang, Korea Advanced Institute of Science and Technology, Daejeon, Daejeon, Republic of Korea

PVP2023-106231: APPLICATION OF MULTIVARIATE ACOUSTIC EMISSION PARAMETERS IN DAMAGE MONITORING AND ASSESSMENT OF A LOW-ALLOYED STEEL ▼

Chuanjing Lai, Wei Xu, Mengyu Chai, Quan Duan, Zaoxiao Zhang, Xi'an Jiaotong University, Xi'an, Shaanxi, China

PVP2023-106114: ULTRASONIC PHASED ARRAY DETECTION OF CRACK-LIKE DEFECTS IN WELDS BASED ON MULTI-MODE TOTAL FOCUSING METHOD ▼

Yangguang Bu, Zhichao Fan, Xuedong Chen, Jingwei Cheng, Wei Chen, Zhe Wang, Haibin Wang, Hefei General Machinery Research Institute Co., Ltd, Hefei, Anhui, China

SESSION 2.3B (HT-03-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain D (6th Floor)

MATERIALS & FITNESS FOR SERVICE METHODS FOR HIGH-PRESSURE VESSELS AND PIPING

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

Developed by: Kannan Subramanian, Structural Integrity Associates, Inc.; Sam Lee, Technip FMC

Session Chair: Sam Lee, TechnipFMC, Houston, TX, USA

Session Co-Chair: Andrew Owens, Battery Minerals and Mining - Tesla, Austin, TX, USA

PVP2023-102994: BENDING MOMENT IN FLANGE DESIGN, CAPACITY, ALLOWABLE LOADS AND FEA METHODOLOGY ▼

Przemyslaw Lutkiewicz, DNV AS, Drammen, Viken, Norway

PVP2023-105862: A STUDY ON TENSILE PROPERTIES IN PIPELINE MATERIALS (API 5L X52) UNDER A HIGH-PRESSURE HYDROGEN ENVIRONMENT {Presentation Only)

Won Jung Kim, Hyung Goun Joo, Sung Kyu Cho, Chnagnam You, Hyeong Sub Kim, Min Su Kim, Hyundai Steel, Dangjin-si, Chungcheongnam-do, Republic of Korea

PVP2023-106321: EVALUATION OF THE API 579-1/ASME FFS-1 EQUATIONS FOR EQUIVALENT MEMBRANE AND BENDING STRESS IN THICK WALL APPLICATIONS

Steven Altstadt, Wiss, Janney, Elstner Associates, Inc., Northbrook, IL, USA; Melanie Sarzynski, Wiss, Janney, Elstner Associates, Inc., Houston, TX, USA

PVP2023-106355: EVALUATION OF THE API 579-1/ASME FFS-1 KCSCCL1 GLOBAL BENDING STRESS INTENSITY FACTORS

Scott Bouse, WJE Associates, Houston, TX, USA; Steven Altstadt, WJE Associates, Northbrook, IL, USA

SESSION 2.3C (MF-02-03)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain E (6th Floor)

MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - FATIGUE AND FRACTURE – 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, Sandia National Laboratories; Joe Ronevich, Sandia National Laboratories; Kevin Mandeville, Jr, DNV; Laurent Briottet, French Alternative Energies & Atomic Energy Commission; Paul Korinko, Savannah River National Laboratory; Steven Xu, Kinectrics; Sylvain Pillot, ArcelorMittal; Timothy Krentz, Savannah River National Laboratory

Session Chair: Bostjan Bezensek, Shell Global Solutions (UK) Inc., Aberdeen, United Kingdon

Session Co-Chair: Matt Connolly, NIST, Boulder, CO, USA

PVP2023-105622: FATIGUE AND FRACTURE BEHAVIOR OF VINTAGE PIPELINES IN GASEOUS HYDROGEN ENVIRONMENT

Milan Agnani, Joseph Ronevich, Christopher San Marchi, Sandia National Laboratories California, Livermore, CA, USA; Jonathan Parker, Michael Gagliano, EPRI, Charlotte, NC, USA; Steve Potts, Williams, Salt Lake City, UT, USA

PVP2023-105725: EFFECT OF HIGH PRESSURE HYDROGEN GAS ON FATIGUE AND FRACTURE PROPERTIES OF API X65 LINEPIPE STEELS

Yoshihiro Nishihara, Hiroshi Okano, JFE Steel Corporation, Kawasaki, Kanagawa, Japan

PVP2023-106091: FATIGUE CRACK GROWTH RATE STUDY OF NEW X52 LINE PIPE STEEL IN HYDROGEN BLENDED METHANE

Ashwini Chandra, Ramgopal Thodla, DNV, Dublin, OH, USA; Siari Sosa, SoCalGas, Los Angeles, CA, USA

PVP2023-106442: FATIGUE AND FRACTURE BEHAVIOR OF ALUMINUM ALLOYS IN GASEOUS HYDROGEN

Rakish Shrestha, Joseph A. Ronevich, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA; Thorsten Michler, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Baden-Wurttemberg, Germany

SESSION 2.3D (MF-20-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain F (6th Floor)

MATERIAL QUALITY AND FAILURE ANALYSIS - 1

Developed by: Grzegorz Lesiuk, Wroclaw University of Science and Technology; Jorge Penso, Shell Projects and Technology; Kang Xu, Linde; Rita Kirchhofer, Exponent

Session Chair: Kang Xu, Linde Inc., Tonawanda, NY, USA

Session Co-Chair: Jorge Penso, Shell Global Solution (US) Inc., Houston, TX, USA

PVP2023-106094: EFFECT OF NORMALIZING TEMPERATURE ON IMPACT TOUGHNESS OF ASME SA - 350 LF2 CL1 FORGINGS

Ricardo Hernández Soto, Tecnicas Reunidas, Spain; José María Gómez De Salazar, Complutense University of Madrid, Madrid, Spain

PVP2023-106003: PRODUCTION LOW TOUGHNESS CASE HISTORIES WHEN MANUFACTURING LOW ALLOY STEEL PRESSURE EQUIPMENT IN THE PETROCHEMICAL INDUSTRY

Mitul Dalal, Jorge Penso, Shell Global Solutions (US) Inc., Houston, TX, USA; Allie Hosack, Shell Canada Ltd., Fort Saskatchewan, AB, Canada

PVP2023-106144: STUDY ON THE EFFECT OF MATERIAL CHARACTERISTIC ON THE LIMIT PRESSURE OF THE PIPELINE GIRTH WELD CONTAINING WELDING DEFECT ▼

Wei Ren, Jian Shuai, China University of Petroleum-Beijing, Beijing, China

PVP2023-105977: COMPREHENSIVE PREDICTION FOR TEMPER EMBRITTLEMENT OF HYDROGENATION REACTORS IN LONG-TERM SERVICE CONDITION ▼

Juanbo Liu, Zhiyuan Han, Haoyuan Kang, Sheng Chen, Libin Song, Meng He, China Special Equipment Inspection and Research Institute, Beijing, China

SESSION 2.3E (CS-25-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain G (6th Floor)

CREEP-FATIGUE ASSESSMENT AND RELIABILITY APPROACHES (JOINT WITH MF-16)

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: Anees Udyawar, Westinghouse Electric Company; Yogendra Garud, SIMRAND, LLC

Session Chair: Yogen Garud, Simrand, LLC, San Jose, CA, USA

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

PVP2023-106503: NOTCH EFFECT ON CREEP-FATIGUE BEHAVIOR OF ALLOY 617 AT ELEVATED TEMPERATURE

Peijun Hou, Imtech Corporation, Knoxville, TN, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; T.-L. Sham, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-106512: A METHOD FOR EVALUATION OF CREEP-FATIGUE LIFE AT LOW STRAIN RANGES

Peijun Hou, Imtech Corporation, Knoxville, TN, USA; Yanli Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; T.-L. Sham, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-106831: A FAILURE-PROBABILITY- AND DAMAGE-STATE-BASED FATIGUE AND CREEP MODEL FOR ESTIMATING RELIABILITY OF STAINLESS STEEL 316L(N) COMPONENTS IN THERMAL FATIGUE
Jeffrey Fong, National Institute of Standards & Techology, San Bruno, CA, USA; Pedro Marcal, MPACT CORP., Oak Park, CA, USA; Marvin Cohn, Intertek, AIM, Santa Clara, CA, USA; N. Alan Heckert, National Inst. of Standards and Tech., Gaithersburg, MD, USA

PVP2023-106834: A MULTI-SCALE CREEP, FATIGUE, AND CREEP-FATIGUE INTERACTION MODEL FOR ESTIMATING RELIABILITY OF STEEL COMPONENTS AT ELEVATED TEMPERATURES
Jeffrey Fong, National Institute of Standards & Techology, San Bruno, CA, USA; Pedro Marcal, MPACT CORP., Oak Park, CA, USA; Marvin Cohn, Intertek, AIM, Santa Clara, CA, USA; N. Alan Heckert, National Institute of Standards and Technology, Gaithersburg, MD, USA

SESSION 2.3F (CS-19-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain H (6th Floor)

FRACTURE TOUGHNESS AND OTHER SMALL SPECIMEN MECHANICAL PROPERTIES (JOINT WITH MF-11)

Symposium on Small Scale Mechanical Testing—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

Developed by: Mark Kirk, Phoenix Engineering Associates Inc.; Masato Yamamoto, CRIEPI; William Server, ATI Consulting
Session Chair: Xiang (Frank) Chen, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Session Co-Chair: William Server, ATI Consulting, Black Mountain, NC, USA

PVP2023-101326: CASE ANALYSES FOR TEST TEMPERATURE SELECTION FOR SMALL SPECIMEN MASTER CURVE TESTS ON BI-MODAL INHOMOGENEOUS MATERIAL
Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Kanagawa, Japan; Mark Kirk, Central Research Institute of Electric Power Industry (CRIEPI), Unity, NH, USA

PVP2023-102699: ANALYSIS OF THE EFFECT OF PRE-CRACK CURVATURE IN MINI-C(T) SPECIMEN ON FRACTURE TOUGHNESS EVALUATION
Masaki Shimodaira, Yoosung Ha, Hisashi Takamizawa, Jinya Katsuyama, Kunio Onizawa, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan

PVP2023-107524: SUB-SIZED CREEP SPECIMEN TESTING FOR HIGH THROUGHPUT AND POST-IRRADIATION TESTING
Michael D. McMurtrey, Ninad Mohale, Idaho National Laboratory, Idaho Falls, ID, USA

SESSION 2.3G (MF-14-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain I (6th Floor)

PROBABILISTIC ASSESSMENT OF FAILURE (JOINT WITH CS-24) - 1

Developed by: David Rudland, US Nuclear Regulatory Commission; Do Jun Shim, EPRI; Graeme Horne, Frazer-Nash Consultancy; Liqing Wei, Zhejiang University; Steven Xu, Kinectrics; Yinsheng Li, Japan Atomic Energy Agency
Session Chair: David Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA
Session Co-Chair: Steven Xu, Kiinectrics, Inc., Toronto, ON, Canada

PVP2023-106214: POTENTIAL OF VARIATIONAL AUTO-ENCODER AS AN ALTERNATIVE TO A WELDING RESIDUAL STRESS PROFILE SAMPLING MODEL
Changsik Oh, Jin-Gyum Kim, Sung-Sik Kang, Sangmin Lee, Korea Institute of Nuclear Safety, Daejeon, Daejeon, Republic of Korea

PVP2023-106288: EVALUATION OF CRACK INITIATION PROBABILITY BY FERMAT CODE IN CONFORMITY WITH THE PROCEDURE BY A JAPANESE INDUSTRIAL PFM GUIDELINE
Satoshi Miyashiro, Takayuki Sakai, Masaki Nagai, Masato Yamamoto, Central Research Institute of Electric Power Industry, Yokosuka, Kanagawa, Japan

PVP2023-106715: LINKING DETERMINISTIC LEAK-BEFORE-BREAK TO PROBABILISTIC FRAMEWORK USING XLPR
M. Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA; N. Cofie, D. Dedhia, G. Dominguez, Structural Integrity Associates, Inc., San Jose, CA, USA; C. Harrington, N. Glunt, EPRI, Charlotte, NC, USA; D. J. Shim, EPRI, Palo Alto, CA, USA

PVP2023-106011: ARTIFICIAL NEURAL NETWORK AIDED SOURCE LOCATING FOR HAZARDOUS GAS LEAKAGE BASED ON SIMULATION ▼
Min Liu, Sheng Chen, Jiarui Shi, Meng He, Guoshan Xie, Haiyi Jiang, China Special Equipment Inspection and Research Institute, Beijing, China; Fei Li, Chinese Academy of Sciences, Beijing, China; Jiangyun Wang, China University of Petroleum, Beijing, Beijing, China

SESSION 2.3H (DA-04-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Chastain I (6th Floor)

THE RANGASWAMY SESHADRI MEMORIAL SESSION ON INELASTIC, NONLINEAR, AND LIMIT LOAD ANALYSIS

Developed by: Dan Vlaicu, Ontario Power Generation; Gys van Zyl, Integrity Engineering Solutions
Session Chair: Dan Vlaicu, Ontario Power Generation, Pickering, ON, Canada
Session Co-Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia

PVP2023-105868: INVESTIGATION ON BUCKLING INSTABILITY BEHAVIOR MECHANISM OF RUBBER BALLOON OF BLADDER ACCUMULATOR OF CAVITY PRESSURE
Tianyv Ni, Bo Wang, Chenghong Duan, Beijing University of Chemical Technology, Beijing, China

PVP2023-106364: A COMPONENT-BASED HYBRID REDUCED BASIS METHOD FOR CREEP ANALYSIS OF COMPLEX STRUCTURES ACCORDING TO THE MODIFIED OMEGA MODEL (API 579-1/ASME FFS-1)
Thanh Loi Nguyen, Nguyen Khanh Chau, Nhan Tien Cao, Dinh Bao Phuong Huynh, David Knezevic, Akselos S.A., Lausanne, Vaud, Switzerland; Gonghyun Jung, Shell Global Solutions (US) Inc., Houston, TX, USA

PVP2023-106617: CREEP-FATIGUE LIFE 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, Design and Development Solutions, Dhaka, Bangladesh

PVP2023-106637: DETERMINING BURST STRENGTH OF THIN AND THICK-WALLED PRESSURE VESSELS THROUGH PARAMETRIC FINITE ELEMENT ANALYSIS
William R. Johnson, Xian-Kui Zhu, Bruce Wiersma, Robert Sindelar, Savannah River National Laboratory, Aiken, SC, USA

SESSION 2.3I (CS-10-02)

Tuesday, July 18, 2:15 pm – 4:00 pm, Augusta 3 (7th Floor)

RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS - EXTREME PRESSURE EQUIPMENT

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

Developed by: Guide Deng, China Special Equipment Inspection Research Institute; Jianfeng Shi, Zhejiang University; Jinyang Zheng, Zhejiang University; Xuedong Chen, Hefei General Machinery Research Institute; Yinghua Liu, Tsinghua University; Zhichao Fan, Hefei General Machinery Research Institute
Session Chair: Jinyang Zheng, Zhejiang University, Hangzhou, China
Session Co-Chair: Yinghua Liu, Tsinghua University, Beijing, China

PVP2023-107121: STUDY ON REGULAR INSPECTION STANDARD OF LARGE VOLUME CARBON FIBER FULLY WOUND CYLINDER BUNDLES
Zhou Fang, Qia Liu, Beijing University of Chemical Technology, Beijing, China; Zhe Wang, Beijing Urban Construction Group Co., LTD., Beijing, China

PVP2023-107108: STUDY ON MECHANICAL RESPONSE OF GAS CYLINDER UNDER IMPACT LOAD

Zhou Fang, Gang Wu, Beijing University of Chemical Technology, Beijing, China; Ce Song, Jun Yuan, China Special Equipment Inspection and Research Institute, Beijing, China; Zhe Wang, Beijing Urban Construction Group Co.,Ltd., Beijing, China

PVP2023-107583: EXPERIMENTAL INVESTIGATION ON THE PULL-OUT STRENGTH OF FLEXIBLY EXPANDED TUBE-TO-TUBESHEET JOINTS ▼

Xin Ma, Wenli Dong, Xiaoliang Wang, Zhiqiang Ge, Jiangsu Province Special Equipment Safety Supervision Inspection Institute, Nanjing, Jiangsu, China

SESSION 2.3J (MF-25-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Peachtree 1 (7th Floor)

HIGH STRENGTH STEELS FOR PRESSURE VESSELS AND PIPING APPLICATIONS

Developed by: Kevin Mandeville, DNV; Sylvain Pillot, ArcelorMittal
Session Chair: Sylvain Pillot, Arcelormittal, Le Creusot, Saône-et-Loire, France
Session Co-Chair: Kevin Mandeville, DNV, Katy, TX, USA

PVP2023-101501: VALIDATION OF DEFORMATION IN CRYSTAL PLASTICITY WHEN MODELLING 316H STAINLESS STEEL FOR USE IN PRESSURE VESSELS ▼

Edward W. Horton, David Knowles, Mahmoud Mostafavi, University of Bristol, Bristol, United Kingdom; Julio C. Spadotto, Albert D. Smith, Jack M. Donoghue, Brian Connolly, Ed J. Pickering, University of Manchester, Manchester, Greater Manchester, United Kingdom

PVP2023-105615: AGE-HARDENED NICKEL-BASE ALLOYS FOR POWER PIPING

John deBarbadillo, Special Metals, Huntington, WV, USA

PVP2023-107297: IMPACT TEST EXEMPTION TEMPERATURE REDUCTION OF SA-193 B16 STUDS FOR COLD CLIMATE INSTALLATIONS

Yunior Hioe Fabian Orth, Kenneth Bagnoli, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Sabastian Moncayo, ExxonMobil Research and Engineering, Spring, TX, USA

PVP2023-107492: DUCTILE FRACTURE CRITERION PARAMETER CALIBRATION AND ANALYSIS: X80 PIPE STEEL

Xueming Zhu, Zhiyang Lv, Jian Shuai, China University Of Petroleum - Beijing, Beijing, China

SESSION 2.3K (OAC-05-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Peachtree 1 (7th Floor)

RELIABILITY & INTEGRITY OF PUMPS AND VALVES

Developed by: Alton Reich, Streamline Automation, LLC; Ayman Cheta, Shell Global Solutions US, Inc.; Ike Ezekoye, Consultant
Session Chair: Ayman Cheta, Shell Global Solutions (US) Inc., Houston, TX, USA
Session Co-Chair: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA

PVP2023-106510: SELF-HEALING ADVANCED MICROVASCULAR DIAPHRAGMS IN GAS TRANSMISSION {Presentation Only)

Md Mahfujul Khan, Anna Williams, Peter Lynch, Michael Keller, The University of Tulsa, Tulsa, OK, USA

PVP2023-106855: EXPERIMENTAL ANALYSIS OF THE DYNAMICS OF MAIN STEAM RELIEF ISOLATION VALVE USED IN NUCLEAR POWER PLANTS

Weihao Zhou, Chaoyong Zong, Qingye Li, Xueguan Song, Dalian University of Technology, Dalian, Liaoning, China; Songzhi Jiang, Yanliang Liu, Dalian DV Valve Co., Ltd, Dalian, Liaoning, China ▼

PVP2023-106957: REPAIR OF A CHECK VALVE SEAL

Alton Reich, Roberto DiSalvo, Streamline Automation, LLC, Huntsville, AL, USA

SESSION 2.3L (SE-06-01)

Tuesday, July 18, 2:15 pm – 4:00 pm, Peachtree 1 (7th Floor)

SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEM - 1

Developed by: Izumi Nakamura, Tokyo City University; Tasnim Hassan, NC State University; Xu Chen, Tianjin University
Session Chair: Osamu Furuya, Tokyo Denki University, Tokyo, Japan
Session Co-Chair: Kisaburo Azuma, Nuclear Regulation Authority, Japan, Tokyo, Japan

PVP2023-105967: RESEARCH AND DEVELOPMENT OF VISCOUS FLUID DAMPERS FOR IMPROVEMENT OF SEISMIC RESISTANCE OF THERMAL POWER PLANTS PART 13 FRAGILITY ANALYSIS BASED ON STRUCTURAL HEALTH MONITORING

Keisuke Minagawa, Saitama Institute of Technology, Saitama, Saitama, Japan; Kiyoshi Aida, Mitsubishi Heavy Industries, Ltd., Kure, Hiroshima, Japan; Satoshi Fujita, Tokyo Denki University, Tokyo, Tokyo, Japan

PVP2023-106081: SHAKING TABLE TEST ON A PIPING SYSTEM MODEL FOR DEVELOPING HIGH-QUALITY SIMULATION MODEL

Izumi Nakamura, National Research Institute for Earth Science and Disaster Resilience, Ibaraki Tsukuba-Shi, Ibaraki, Japan; Tadahiro Shibutani, Yukihisa Kuriyama, Naoya Kasai, Yokohama National University, Yokohama, Kanagawa, Japan

PVP2023-107249: ON THE QUANTIFICATION OF ACCIDENTAL GAS RELEASE FROM PRESSURIZED VESSELS

Annalisa Rosti, Emanuele Brunesi, Filippo Dacarro, Paolo Dubini, European Centre for Training and Research in Earthquake Engineering (EUCENTRE), Pavia, Lombardy, Italy; Alessandra Marino, Istituto Nazionale per L'Assicurazione contro gli Infortuni sul Lavoro, Rome, Lazio, Italy; Giorgio Nosenzo, Independent Researcher, Cinisello Balsamo, Lombardy, Italy; Gerard J. O'Reilly, Scuola Universitaria Superiore IUSS Pavia, Pavia, Italy

SESSION 2.3Q (TW-02-03)

Tuesday, July 18, 2:15 pm – 4:00 pm, Augusta 1 (7th Floor)

TECHNICAL TUTORIAL – PIPING VIBRATION FUNDAMENTALS, MEASUREMENT, AND ASSESSMENT USING THE FUTURE API 579 PART 15 (PART 1)

Developed by: Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Lyle Breaux, Stress Engineering Services, Inc.
Scot McNeil, ExxonMobil
Richard Brodzinski, Integrity Engineering Solutions, Dunsborough, WA, Australia
Session Chair: Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Session Co-Chair: Maher Younan, American University in Cairo, Cairo, Egypt
Presenters: Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Lyle Breaux, Stress Engineering Services, Inc., Metairie, LA, USA

SESSION 2.3S (TE-02-03)

Tuesday, July 18, 2:15 pm – 4:00 pm, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 7

Block 2.4: Tuesday, July 18, 2023 (4:15 pm – 6:00 pm)

SESSION 2.4A (NDE-02-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain C (6th Floor)

NDE TECHNIQUES AND APPLICATIONS FOR PETROCHEMICAL AND POWER PLANT COMPONENTS

Developed by: Vivek Agarwal, Idaho National Laboratory; Min Zhang, Praxair, a Linde Company
Session Chair: Maria Ortiz de Zuniga, Fusion for Energy - UNED, Barcelona, Spain
Session Co-Chair: Muhammad Nur Farhan Saniman, Universiti Kuala Lumpur Malaysia France Institute, Bandar Baru Bangi, Selangor, Malaysia

PVP2023-104607: APPLICATION OF ROBOTIC DIGITAL RADIOGRAPHY IN OIL & GAS AND REFINERY PROJECTS

Teruaki Sano, JGC Corporation, Yokohama-Shi Nishi-Ku, Kanagawa, Japan

PVP2023-105535: EVALUATION OF FMC/TFM PERFORMANCE FOR VOLUMETRIC NDT TO FIELD PIPING WELDING

Shohei Nakamura, JGC Corporation, Yokohama-Shi Nishi-Ku, Kanagawa, Japan; Mohd Helmy Sakir, Nuurul Akhyar Rozikin, Clifden Plantech Sdn. Bhd., Semenyih, Selangor, Malaysia; Muhammad Nur Farhan Saniman, Universiti Kuala Lumpur Malaysia France Institute, Bandar Baru Bangi, Selangor, Malaysia

PVP2023-106300: PREDICTION OF DEPTH DEFECTS IN PIPELINE MAGNETIC FLUX LEAKAGE DETECTION BASED ON THE AVOA-BPNN

Lushuai Xu, Shaohua Dong, Haotian Wei, Yundong Ma, China University of Petroleum, Beijing, China; Donghua Peng, PipeChina Beijing Pipeline Co.,Ltd., Beijing, China

PVP2023-107634: SAFETY EVALUATION METHOD OF DOUBLE FAILURE LOADS FOR DEFECTIVE PIPELINES ▼

Kaiyan Cui, Xiaolin Wang, Sinopec Dalian Research Institute of Petroleum and Petrochemicals Co, Ltd., Dalian, Liaoning, China; Xinsheng Wang, Sinopec Sales Co.,Ltd Zhejiang Branch, Hangzhou, Zhejiang, China; Tieyao Zhang, Yuntao Li, Jian Shuai, China University of Petroleum, Beijing, China; Su Zhang, Beijing, China

SESSION 2.4B (CS-23-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain D (6th Floor)

IMPROVEMENT OF FLAW ASSESSMENT PROCEDURES IN FFS CODES

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

Developed by: Kaveh Samadian, Tractebel Engie; Kunio Hasegawa, Consultant; Pierre Dulieu, Tractebel Engie; Valery Lacroix, Tractebel Engie

Session Chair: Pierre Dulieu, Tractebel, Brussels, Belgium

Session Co-Chair: Valery Lacroix, Tractebel, Brussels, Belgium

PVP2023-106371: RE-EVALUATING THE MINIMUM REQUIRED DISTANCE BETWEEN A LOCAL THIN AREA IN A CYLINDER AND AN ELLIPSOIDAL HEAD

Scott D. Bouse, Melanie Sarzynski, WJE Associates, Houston, TX, USA; Lance Hill, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Steven Altstadt, WJE Associates, Northbrook, IL, USA

PVP2023-103446: TOWARDS AN IMPROVEMENT OF ACCEPTANCE STANDARDS OF ASME B&PV CODE SECTION XI

Valéry Lacroix, Pierre Dulieu, Tractebel, Bruxelles, Belgium; Kunio Hasegawa, Japan Atomic Energy Agency, Naka-gun, Ibaraki-ken, Japan

PVP2023-103472: REVISION OF ALLOWABLE PLANAR FLAW TABLES OF ASME B&PV CODE SECTION XI FOR FERRITIC STEEL MATERIALS

Pierre Dulieu, Valery Lacroix, Tractebel, Bruxelles, Belgium; Kunio Hasegawa, Japan Atomic Energy Agency, Naka-gun, Ibaraki-ken, Japan

PVP2023-107601: COMPARATIVE ANALYSIS OF CALCULATION METHODS FOR FATIGUE CRACK GROWTH LIFE OF HYDROGEN STORAGE VESSELS ▼

Jinhui Wang, Xiaoliang Jia, Fang Ji, Zhiwei Chen, Yunmeng Zhou, Honglian Ma, China Special Equipment Inspection And Research Institute, Beijing, China; Kaibo Wang, Beijing Yunxingyu Traffic Technology Ltd, Beijing, China

SESSION 2.4C (MF-02-04)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain E (6th Floor)

MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - FATIGUE AND FRACTURE – 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, Sandia National Laboratories; Joe Ronevich, Sandia National Laboratories; Kevin Mandeville, Jr, DNV; Laurent Briottet, French Alternative Energies & Atomic Energy Commission; Paul Korinko, Savannah River National Laboratory; Steven Xu, Kinectrics; Sylvain Pillot, ArcelorMittal; Timothy Krentz, Savannah River National Laboratory

Session Chair: Hisao Matsunaga, Kyushu University, Fukuoka, Japan

Session Co-Chair: Sarah Hopkin, Shell Global Solutions B.V., Amsterdam, Netherlands

PVP2023-106413: FATIGUE CRACK INITIATION AND FATIGUE LIFE TESTING OF HIGH-STRENGTH AUSTENITIC STAINLESS STEEL TUBING WITH INTERNAL HYDROGEN

Chris San Marchi, Joseph A. Ronevich, Sandia National Laboratories, Livermore, CA, USA; Johan Pohl, Severin Ramseyer, Davide Cortinovis, Endress+Hauser Flowtec AG, Reinach, Switzerland; Stefan Eckmann, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Baden-Wurttemberg, Germany

PVP2023-106477: HIGH STRENGTH FERRITIC STEELS FOR HYDROGEN SERVICE

Matteo Ortolani, Paolo Bortot, Erick Escorza, Tenaris, Dalmine, Lombardy, Italy; Michele Sileo, Tenaris, Dalmine, Lombardy, Italy; Tenaris, Dalmine, Lombardy, Italy; Matthew Connolly, NIST, Boulder, CO, USA; Ashwini Chandra, DNV, Dublin, OH, USA

PVP2023-106086: THE ROLE OF INTERNAL VS EXTERNAL HYDROGEN ON FRACTURE RESISTANCE OF AUSTENITIC STAINLESS STEELS

Joe Ronevich, Dorian Balch, Chris San Marchi, Sandia National Laboratories, Livermore, CA, USA; Sandia National Laboratories, Livermore, CA, USA; Sandia National Laboratories, Livermore, CA, USA

PVP2023-105829: PIPELINE STEEL TABULAR DA/DN CURVES WITH VALIDATIONS, HYDROGEN APPLICATION

James A. Harter, LexTech Inc., Centerville, OH, USA; Lyndon Lamborn, Enbridge LP, Sherwood Park, Alberta, Canada

SESSION 2.4D (MF-20-02)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain F (6th Floor)

MATERIAL QUALITY AND FAILURE ANALYSIS - 2

Developed by: Grzegorz Lesiuk, Wroclaw University of Science and Technology; Jorge Penso, Shell Projects and Technology; Kang Xu, Linde; Rita Kirchhofer, Exponent

Session Chair: Kang Xu, Linde Inc., Tonawanda, NY, USA

Session Co-Chair: Jorge Penso, Shell Global Solution (US) Inc., Houston, TX, USA

PVP2023-106308: EXPERIMENTAL STUDY OF COMBINED EFFECT OF LIQUID-SOLID FLOW EROSION AND ALKALINE ACID WATER CORROSION IN COAL WATER SLURRY GASIFICATION UNIT ▼

Meng He, Sheng Chen, Haoyuan Kang, Zhiyuan Han, Guoshan Xie, China Special Equipment Inspection and Research Institute, Beijing, China; Li Sun, Ningbo Special Equipment Inspection and Research Institute, Ningbo, Zhejiang, China

PVP2023-107021: EVALUATION OF THE FRACTURE TOUGHNESS OF SHORT CARBON FIBER REINFORCED THERMOPLASTIC COMPOSITES

Jianfeng Shi, Xinwei Zong, Riwu Yao, Jinyang Zheng, Zhejiang University, Hangzhou, Zhejiang, China; Weili Jiang, Technical University of Munich, Garching, Bavaria, Germany

PVP2023-101366: STATISTICAL ANALYSIS OF WASTE TANK PIT DEPTH MEASUREMENTS FOR CORROSION RATE PROJECTIONS

Stephen Harris, Bruce Wiersma, Ruel Waltz, Savannah River National Laboratory, Aiken, SC, USA; Jim Elder, ITIVS, LLC, North Augusta, SC, USA; Alan Plummer, Savannah River Mission Completion, Aiken, SC, USA

SESSION 2.4E (CS-17-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain G (6th Floor)

EUROPEAN EAF PROJECT: INCEFA-SCALE

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: Claude Faidy, CF Integrity Engineering; Seiji Asada, Mitsubishi Heavy Industries Ltd; Thomas Damiani, EPRI; Thomas Metais, EDF

Session Chair: Seiji Asada, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan
Session Co-Chair: Thomas Damiani, EPRI, Palo Alto, CA, USA

PVP2023-106243: INCEFA-SCALE PROJECT – PHASES 1 AND 2 OF TESTING PROGRAMME
Jack Beswick, Jacobs, Warrington, Cheshire, United Kingdom; Luc Doremus, Framatome, Le Creusot, Saône-et-Loire, France; Oliver Martin, European Commission, Petten, Netherlands; Jean-Christophe Le-Roux, EDF, Orvanne, Seine-et-Marne, France

PVP2023-106618: INCEFA-SCALE PROJECT – DATA MINING AND LESSONS LEARNING
Roman Cicero, Inesco Ingenieros, Santander, Cantabria, Spain; Alec Mclennan, Jonathan Mann, Jack Beswick, Jacobs, Warrington, Lancashire, United Kingdom; Luc Doremus, Framatome, Le Creusot, Saône-et-Loire, France; Sam Cuvilliez, EDF, Lyon, Alpes-de-Haute-Provence, France

PVP2023-101351: INCEFA-SCALE PROJECT – OVERVIEW OF THE MODELLING PLANS
Stephan Courtin, EDF R&D, Palaiseau, Essonne, France; Olivier Ancelet, Framatome, Courbevoie, Hauts-de-Seine, France; Jack Beswick, Oliver Blakesley, Jacobs, Warrington, Cheshire, United Kingdom; Roman Cicero, Inesco Ingeniería, Santander, Cantabria, Spain

PVP2023-105357: INCEFA-SCALE (INCREASING SAFETY IN NPPS BY COVERING GAPS IN ENVIRONMENTAL FATIGUE ASSESSMENT - FOCUSING ON GAPS BETWEEN LABORATORY DATA AND COMPONENT-SCALE)
Alec Mclennan, Jack Beswick, Jacobs, Warrington, Cheshire, United Kingdom; Román Cicero, Inesco Ingenieros, Santander, Cantabria, Spain; Stéphan Courtin, EDF, Paris, France; Zaiqing Que, VTT Technical Research Centre of Finland Ltd., Espoo, Otaniemi, Finland; Sergio Cicero, University of Cantabria, Santander, Cantabria, Spain

SESSION 2.4F (CS-19-02)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain H (6th Floor)

EUROPEAN EAF PROJECT: INCEFA-SCALE

Symposium on Small Scale Mechanical Testing—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

Developed by: Mark Kirk, Phoenix Engineering Associates Inc.; Masato Yamamoto, CRIEPI; William Server, ATI Consulting
Session Chair: Masato Yamamoto, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Kanagawa, Japan
Session Co-Chair: Marcos Sánchez, Universidad de Cantabria, Santander, Cantabria, Spain

PVP2023-107250: INVESTIGATION OF SYNERGETIC EFFECTS OF NI, MN AND SI ON IRRADIATION INDUCED SHIFTS IN TRANSITION TEMPERATURE OF VVER-1000 RPV MODEL STEEL SPECIMENS IRRADIATED IN LYRA-10 {Presentation Only)
M. Kolluri, M. Laot, T. Bakker, M. E. M. Pronk, Nuclear Research & Consultancy Group (NRG), Petten, NH, Netherlands; C. Ohms, A. Rito, O. Martin, E. D'agata, European Commission, JRC, Directorate G – Nuclear Safety & Security, Petten, NH, Netherlands; M. Falcník, K. Rusnakova, M. Brumovsky, ÚJV Řež, a. s., Řež, Husinec, Czech Republic

PVP2023-105999: MINI ROUND ROBIN PROJECT FOR PREPARATION OF SECONDARY USE OF STRUMAT-LTO SPECIMENS. {Presentation Only)
Ferenc Gillemot, Szilvia Moritz, Balázs Hargitai, Centre for Energy Research, Budapest, Pest, Hungary; Marek Adamech, Vuje, a.s, Trnava, Trnavska, Slovakia; F. Naziris, Romy Welchen, Nuclear Research and Consultancy Group, Petten, ZG, Netherlands; Igor Simonovski, European Commission - Joint Research Centre, Petten, ZG, Netherlands; Radim Kopriva, Petra Klatovska, UJV Rez, Husinec, Praha, Czech Republic; Rebeca Hernandez, CIEMAT, Madrid, Madrid, Spain; Sebastian Lindqvist, VTT, Espoo, Espoo, Finland

PVP2023-105903: EVALUATION OF MECHANICAL PROPERTIES ON LYRA-10 SAMPLES USING SPT METHOD IN VUJE LAB WITHIN THE STRUMAT-LTO PROJECT {Presentation Only)
Jana Petzova, Marek Adamech, VUJE, a.s., Trnava, Slovakia, Slovakia

PVP2023-106480: THE ASSESSMENT OF THE PRIMARY PIPING MATERIAL STATES ON LTO SAFE OPERATION OF VVER-TYPE NPP IN THE FRAMEWORK OF DELISA-LTO PROJECT {Presentation Only)
Jana Petzova, Marek Adamech, David Slnek, VUJE, a.s., Trnava, Slovakia, Slovakia; Vladimir Slugen, STU BA, Bratislava, Slovakia, Slovakia; Radim Kopriva, Katerina Rusnakova, UJV, a.s., Rez, Czech Republic

SESSION 2.4G (MF-06-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain I (6th Floor)

MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS

Developed by: Rita Kirchhofer, Exponent; Weiju Ren, Oak Ridge National Laboratory; Xiang Chen, Oak Ridge National Laboratory
Session Chair: Weiju Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Session Co-Chair: Xiang (Frank) Chen, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2023-107347: POST IRRADIATION EXAMINATION OF PRESSURIZED WATER REACTOR STAINLESS STEEL INTERNAL COMPONENTS
Timothy Lach, Xiang Chen, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2023-106609: STUDY ON THE EFFECT OF LOCAL SEGREGATIONS ON THE CHARPY IMPACT TOUGHNESS SCATTER, IN RCC-M CODE 18 AND 20MND5 (SA 508 GR3) STEEL GRADE FORGINGS FOR NUCLEAR COMPONENTS
Pierre Joly, François Roch, Lingtao Sun, Elizabeth Deneuvillers, Framatome, Courbevoie, Hauts-de-Seine, France

PVP2023-107208: STUDY ON THE APPLICABILITY OF GTN MODEL ON FRACTURE EVALUATION FOR PLATE SPECIMEN WITH A SURFACE CRACK USING A BWR REACTOR PRESSURE VESSEL MATERIAL
Takuya Ogawa, Takahiro Hayashi, Shuichi Yoshida, Masao Itatani, Toshiyuki Saito, Toshiba Energy Systems and Solutions Corporation, Yokohama, Kanagawa, Japan

PVP2023-107304: MICROSTRUCTURE AND CREEP BEHAVIOR OF 141,000-HOUR SERVICE-AGED FORGE 91 STEEL AND PIPE 91 STEEL {Presentation Only)
Yiyu Wang, Wei Zhang, Yanli Wang, Zhili Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA; John Siefert, Alex Bridges, Steven Kung, EPRI, Charlotte, NC, USA

SESSION 2.4H (DA-01-03)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain J (6th Floor)

THE ROGER F. REEDY MEMORIAL SYMPOSIUM ON DESIGN & ANALYSIS OF PRESSURE VESSELS AND COMPONENTS - 3

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Nathan Barkley, Becht
Session Chair: Phillip Wiseman, Lisega, Inc., Kodak, TN, USA
Session Co-Chair: Nathan Barkley, Becht, New Albany, MS, USA

PVP2023-106187: OPERATIONAL EXPERIENCE WITH APPLICATION OF APPENDIX G METHODS FOR IRRADIATED PRESSURE VESSELS
Nathan Edge, Scott Cairns, Oliver Dutton, Rolls-Royce plc, Derby, Derbyshire, United Kingdom

PVP2023-106328: MULTI-CONCEPT BAYESIAN OPTIMISATION OF FUSION DIVERTOR TARGET DESIGNS {Presentation Only)
Greg Nelson, Frazer-Nash Consultancy, Burton On Trent, Staffordshire, United Kingdom

PVP2023-105748: A SIMPLIFIED YET EFFECTIVE APPROACH FOR CALCULATING PERMISSIBLE LOADS ON BRACKET SUPPORTS ATTACHED TO CYLINDRICAL SHELLS
Vivek Manjrekar, Neville Stokes, Junho Choi, Bechtel Energy, Houston, TX, USA

PVP2023-105786: DESIGN AND ANALYSIS PROCESS FOR SNS MERCURY TARGET MODULES {Presentation Only)
Kevin Johns, Oak Ridge National Laboratory, Rockford, TN, USA

SESSION 2.4I (CS-10-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Augusta 3 (7th Floor)

RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS - INTEGRITY MANAGEMENT

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

Developed by: Guide Deng, China Special Equipment Inspection Research Institute; Jianfeng Shi, Zhejiang University; Jinyang Zheng, Zhejiang University; Xuedong Chen, Hefei General Machinery Research Institute; Yinghua Liu, Tsinghua University; Zhichao Fan, Hefei General Machinery Research Institute

Session Chair: Xuedong Chen, Hefei General Machinery Research Institute Co. Ltd., Hefei, China

Session Co-Chair: Guangxu Cheng, Xi'an Jiaotong University, Xi'an, Shaanxi, China

PVP2023-106217: EXPLORATION OF DESIGN, MANUFACTURE AND MAINTENANCE OF PRESSURE VESSELS IN CHINA UNDER BACKGROUND OF THE INTERNET ▼

Xuedong Chen, Zhichao Fan, Shuangqing Xu, Jiushao Hu, Jianxin Zhu, Hefei General Machinery Research Institute Co. Ltd., Hefei, Anhui, China

PVP2023-106537: RESEARCH ON CHINA'S LNG TERMINAL STANDARD SYSTEM AND INTELLIGENT MANAGEMENT MODE

Hangjian Hu, Zhixiang Duan, China Special Equipment Inspection and Research Institute, Beijing, China; Yongli Yongli He, Petrochina Jiangsu Liquefied Natural Gas Co., Ltd, Nantong City, Jiangsu, China; Xin Liu, Pipechina Tianjin LNG Co., Ltd, Tianjin, China

PVP2023-107094: RESEARCH ON OPTIMIZATION OF DATABASE SECURITY SYSTEM OF CHEMICAL INDUSTRY PARK ▼

Yuxuan Cao, Kejing Liu, Rui Xue, Kaijian Xu, Zhou Fang, Beijing University of Chemical Technology, Beijing, China

SESSION 2.4J (DA-15-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Peachtree 1 (8th Floor)

COKE DRUM ENGINEERING ASSESSMENTS AND LIFE MANAGEMENT

Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee

Developed by: Antonio Seijas, P66; Jorge Penso, Shell Projects and Technology; Kannan Subramanian, Structural Integrity Associates, Inc.; C. D. Rodery, C&S Technology LLC, League City, TX, USA

Session Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

Session Co-Chair: Antonio Seijas, Phillips 66, Houston, TX, USA

PVP2023-106173: RELIABILITY AND LIFE ASSESSMENT OF COKE DRUMS THROUGH BOAT SAMPLE-BASED TESTING PROGRAM

Nitin Saini, Zhe Lyu, Leijun Li, University of Alberta, Edmonton, AB, Canada; Yasin Suzuk, Travis Skinner, Feng Ju, Millar Iverson, Sudeep Bohra, Suncor Energy Inc. Calgary, AB, Canada

PVP2023-106470: ON THE EFFECT OF RISING LIQUID ON COKE DRUM SKIRT FATIGUE LIFE

John Fernando, Henry Kwok, Luke Chan, Zachry Integrity Engineering Ltd, Calgary, AB, Canada; Millar Iverson, Feng Ju, Simon Yuen, Suncor Energy Inc, Calgary, AB, Canada

PVP2023-107648: IDENTIFICATION OF TYPICAL DAMAGE MECHANISM OF LARGE COKE DRUM IN DELAYED COKING UNIT ▼

Xin Ma, Yi Xie, Zhiqiang Ge, Jiangsu Province Special Equipment Safety Supervision Inspection Institute, Nanjing, Jiangsu, China

PVP2023-107535: LONGITUDINAL CRACKING FAILURE AT THE SKIRT-TO-CONE JOINT OF LARGE COKE DRUM IN DELAYED COKING UNIT ▼

Xin Ma, Yining Wang, Xiaoliang Wang, Yi Xie, Jiangsu Province Special Equipment Safety Supervision Inspection Institute, Nanjing, Jiangsu, China

SESSION 2.4K (OAC-06-01)

Tuesday, July 18, 4:15 pm – 6:00 pm, Peachtree 2 (8th Floor)

CONTINUED SAFE OPERATION OF EXISTING ASSETS - 1

Developed by: Ayman Cheta, Shell Global Solutions US, Inc.; Kaida Takuyo, Sumitomo

Session Chair: Junya Takahashi, Sumitomo Chemical Co., Ltd., Niihama City, Ehime, Japan

Session Co-Chair: Ayman Cheta, Shell Global Solutions (US) Inc., Houston, TX, USA

PVP2023-105689: DEVELOPMENT OF PREDICTION TOOL FOR FLOW-ACCELERATED CORROSION (1) EVALUATION OF PIPELINE LAYOUT EFFECT CONSIDERING VARIOUS PIPE COMPONENT COMBINATIONS

Kimitoshi Yoneda, Tomohisa Yuasa, Yuta Uchiyama, Ryo Morita, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Kanagawa, Japan

PVP2023-105401: DEVELOPMENT OF PREDICTION TOOL FOR FLOW-ACCELERATED CORROSION: (2) EVALUATION OF GEOMETRY FACTOR FOR VARIOUS PIPE COMPONENTS

Tomohisa Yuasa, Shun Watanabe, Kimitoshi Yoneda, Ryo Morita, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Kanagawa, Japan

PVP2023-105848: DEVELOPMENT OF PREDICTION TOOL FOR FLOW-ACCELERATED CORROSION: (3) DEVELOPMENT AND VALIDATION OF PREDICTION SOFTWARE "FALSET" WITH WATER SINGLE-PHASE FAC DATA OBTAINED IN JAPANESE BWR PLANTS

Yuta Uchiyama, Ryo Morita, Kazutoshi Fujiwara, Kimitoshi Yoneda, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Kanagawa, Japan

PVP2023-105766: DEVELOPMENT OF PREDICTION TOOL FOR FLOW-ACCELERATED CORROSION: (4) DEVELOPMENT AND VALIDATION OF PREDICTION SOFTWARE "FALSET" WITH WATER SINGLE-PHASE FAC DATA OBTAINED IN JAPANESE PWR PLANTS

Ryo Morita, Yuta Uchiyama, Kazutoshi Fujiwara, Kimitoshi Yoneda, Central Research Institute of Electric Power Industry (CRIEPI), Yokosuka, Kanagawa, Japan

SESSION 2.4L (SE-06-02)

Tuesday, July 18, 4:15 pm – 6:00 pm, Chastain 1 (8th Floor)

SEISMIC ANALYSIS AND DESIGN OF PIPING SYSTEM - 2

Developed by: Izumi Nakamura, Tokyo City University; Tasnim Hassan, NC State University; Xu Chen, Tianjin University

Session Chair: Izumi Nakamura, National Research Institute for Earth Science and Disaster Resilience, Ibaraki, Japan

Session Co-Chair: Ryuya Shimazu, Central Research Institute of Electric Power Industry (CRIEPI), Abiko,Japan

PVP2023-106166: UNCERTAIN FACTORS IN ELASTIC-PLASTIC FINITE ELEMENT ANALYSIS FOR ELBOWS AND TEES

Kisaburo Azuma, Keita Fujiwara, The Nuclear Regulation Authority, Minato-ku,, Tokyo, Japan; Satoru Kai, Akihito Otani, IHI Corporation, Yokohama-shi, Kanagawa, Japan; Osamu Furuya, Tokyo Denki University, Adachi, Tokyo, Japan

PVP2023-106207: THEORETICAL ANALYSIS OF NATURAL FREQUENCIES AND MODE SHAPES OF THREE-DIMENSIONAL PIPING SYSTEMS

Shinji Tamura, Shimane University, Matsue-shi, Shimane, Japan

PVP2023-106507: RELATIONSHIP BETWEEN NATURAL PERIOD AND STRENGTH OF ACTUAL PIPING SYSTEMS SUBJECTED TO SEISMIC MOTION

Ichiro Tamura, Yuya Ishii, The Chugoku Electric Power Co., Inc, Hiroshima, Japan; Keita Kamatani, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan; Shinji Tamura, Shimane University, Matsue-shi, Shimane, Japan

SESSION 2.4Q (TW-02-04)

Tuesday, July 18, 4:15 pm – 6:00 pm, Augusta 1 (7th Floor)

TECHNICAL TUTORIAL – PIPING VIBRATION FUNDAMENTALS, MEASUREMENT, AND ASSESSMENT USING THE FUTURE API 579 PART 15 (PART 2)

Developed by: Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Lyle Breaux, Stress Engineering Services, Inc.
Scot McNeil, ExxonMobil
Richard Brodzinski, Integrity Engineering Solutions, Dunsborough, WA, Australia
Session Chair: Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Session Co-Chair: Maher Younan, American University in Cairo, Cairo, Egypt
Presenters: Michael Bifano, The Equity Engineering Group, Inc., Shaker Heights, OH, USA
Lyle Breaux, Stress Engineering Services, Inc., Metarie, LA, USA

SESSION 2.4S (TE-02-04)

Tuesday, July 18, 4:15 pm – 6:00 pm, Augusta Ballroom (7th Floor)
TECHNOLOGY EXHIBITS - 8

WEDNESDAY, JULY 19

Block 3.1: Wednesday, July 19, 2023 (8:15 am – 10:00 am)

SESSION 3.1A (NDE-03-01)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain C (6th Floor)
NDE RELIABILITY - MODELING AND EXPERIMENTAL ANALYSIS
Developed by: Vivek Agarwal, Idaho National Laboratory; Min Zhang, Praxair, a Linde Company
Session Chair: Jason Skow, Integral Engineering, Edmonton, AB, Canada
Session Co-Chair: Jin-Gyum Kim, Korea Institute of Nuclear Safety, Daejeon, Republic of Korea

PVP2023-106142: MODELING AND EXPERIMENTAL ANALYSIS OF ELECTROMAGNETIC ULTRASONIC TESTING CONSIDERING EFFECT OF ROUGH SURFACE LAYER ▼
Zhe Wang, Zhichao Fan, Xuedong Chen, Hefei General Machinery Research Institute Co., Ltd, Hefei, Anhui, China; Haibin Wang, Yangguang Bu, Hefei General Machinery Research Institute Co., Ltd, Hefei, Anhui, China

PVP2023-106426: USING DETECTION PERFORMANCE TO ASSESS OUTLIER SIZING ON TRUNCATED DATA SETS
Jason Skow, Integral Engineering, Edmonton, Alberta, Canada; Joseph W. Krynicki, ExxonMobil Technology and Engineering, Spring, TX, USA

PVP2023-106521: RESEARCH ON SEALING RELIABILITY OF HIGH PRESSURE FLANGE BASED ON MAGNETIC MEMORY BOLT LOOSENESS DETECTION ▼
Yanran Wang, Jianchun Fan, China University of Petroleum (Beijing), Beijing, China

PVP2023-107140: SIMULATION OF PA-UT SECTOR SCANNING IMAGING OF IRREGULAR DEFECTS IN POLYETHYLENE PIPE BASED ON FINITE ELEMENT ANALYSIS ▼
Zhuoyu Chen, Ying Feng, Zhongzhen Wang, Jianfeng Shi, Zhejiang University, Hangzhou, Zhejiang, China; Yangji Tao, Zhejiang Academy of Special Equipment Science, Hangzhou, Zhejiang, China

SESSION 3.1B (CS-22-02)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain D (6th Floor)
TEMPER BEAD WELDING ADVANCEMENTS FOR REPAIR AND REPLACEMENT
Symposium on Fitness-for-Service—Co-Sponsored by the Codes & Standards, Design & Analysis, High-Pressure Technology, and Materials & Fabrication Technical Committees
Developed by: Jonathan Tatman, EPRI; Steven McCracken, EPRI
Session Chair: Jon Tatman, EPRI, Charlotte, NC, USA
Session Co-Chair: Steve McCracken, EPRI, Charlotte, NC, USA

PVP2023-107489: ELIMINATION OF THE 48-HOUR HOLD FOR AMBIENT TEMPERATURE TEMPER BEAD WELDING WITH AUSTENITIC WELD METAL
Steven L. McCracken, EPRI, Harrisburg, NC, USA; Asif Patel, Southern Nuclear Co., Birmingham, AL, USA

PVP2023-107473: PROGRESS AND ADVANCEMENT OF AMBIENT TEMPERATURE TEMPER BEAD WELDING IN THE NUCLEAR POWER INDUSTRY {Presentation Only)
Steven L. McCracken, EPRI, Harrisburg, NC, USA; Shane Findlan, Stone and Webster Inc., Charlotte, NC, USA; Joseph Weicks, Entergy, Madison, MS, USA

PVP2023-106079: EFFECT OF POST WELD HEAT TREATMENT AND TEMPER BEAD WELDING ON THE HYDROGEN INDUCED CRACKING SUSCEPTIBILITY IN THE HEAT AFFECTED ZONE OF SA-508 PRESSURE VESSEL STEEL
Abbas Mohammadi, Boian T. Alexandrov, Ohio State University, Columbus, OH, USA; Steven L. Mccracken, EPRI, Charlotte, NC, USA

PVP2023-106089: EVALUATING IMPACT TOUGHNESS PROPERTIES IN GRADE 22 STEEL HAZS AFTER PWHT AND TEMPER BEAD WELDING (TBW)
Eun Jang, Boian Alexandrov, Ohio State University, Columbus, OH, USA; Steve Mccracken, Darren Barborak, EPRI, Charlotte, NC, USA

SESSION 3.1C (MF-02-05)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain E (6th Floor)
MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - SPECIMEN SIZE AND RATE EFFECTS
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, Sandia National Laboratories; Joe Ronevich, Sandia National Laboratories; Kevin Mandeville, Jr, DNV; Laurent Briottet, French Alternative Energies & Atomic Energy Commission; Paul Korinko, Savannah River National Laboratory; Steven Xu, Kinectrics; Sylvain Pillot, ArcelorMittal; Timothy Krentz, Savannah River National Laboratory
Session Chair: Paolo Bortot, Tenaris, Dalmine (BG), Italy
Session Co-Chair: Shane Finneran, DNV, Dublin, OH, USA

PVP2023-105227: CHALLENGES IN KIH TESTING USING WOL SAMPLES FOR PIPELINE APPLICATIONS
Sebastian Cravero, Martín E. Valdez, Tenaris, Campana, Buenos Aires, Argentina; Mihaela E. Cristea, Philippe Darcis, Tenaris, Dalmine, Lombardy, Italy; Marije L. Deul, Carey L. Walters, TNO, Delft, JD, Netherlands

PVP2023-105339: FRACTURE TOUGHNESS EVALUATION FOR AN ULTRA-HIGH STRENGTH STEEL IN HIGH-PRESSURE HYDROGEN ENVIRONMENT I: ESTABLISHING THE TESTING METHOD FOR A THIN PLATE {Presentation Only)
Yuya Tanaka, Fukuoka University, Fukuoka, Fukuoka, Japan; Hisao Matsunaga, Kyushu University, Fukuoka, Fukuoka, Japan; Kaneaki Tsuzaki, Akinobu Shibata, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

PVP2023-107475: COMBINED HYDROGEN EMBRITTLEMENT AND STRAIN RATE SENSITIVITY OF ANNEALED AND FORGED 304L STEEL
Robert W. Wheeler, Joseph Ronevich, Chris San Marchi, James W. Foulk, Mazen Diab, Coleman Alleman, Sandia National Laboratories, Livermore, CA, USA

PVP2023-105971: FRACTURE TOUGHNESS EVALUATION FOR AN ULTRA-HIGH STRENGTH STEEL IN HIGH-PRESSURE HYDROGEN ENVIRONMENT II: EFFECT OF SPECIMEN THICKNESS ON FRACTURE TOUGHNESS {Presentation Only)
Yuya Tanaka, Fukuoka University, Fukuoka, Japan; Naoki Hirakawa, Hisao Matsunaga, Kyushu University, Fukuoka, Japan; Kaneaki Tsuzaki, Akinobu Shibata, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

SESSION 3.1D (CT-06-01)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain F (6th Floor)

ELEVATED TEMPERATURE BEHAVIOR OF BOLTED FLANGE JOINTS

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

Developed by: Alton Jamison, Teadit; Carlos Girão, Teadit
Session Chair: Carlos Girao, Teadit, Itatiba, Sao Paulo, Brazil
Session Co-Chair: Alton Jamison, Teadit, Pasadena, TX, USA

PVP2023-103979: TEMPERATURE VARIATION IN EACH COMPONENT OF THE BOLTED FLANGE JOINT

Robert Taylor, 3S Superior Sealing Services, Houston, TX, USA; Stefan Hufnagel, Amtec North America, Inc, Athens, OH, USA

PVP2023-103967: UNDERSTANDING BOLT STRESS BEHAVIOR IN TEMPERATURE CYCLING ENVIRONMENTS

Robert Taylor, 3S Superior Sealing Services, Houston, TX, USA

PVP2023-106140: HIGH TEMPERATURE PERFORMANCE COMPARISON OF SPIRAL-WOUND AND KAMMPROFILE GASKETS ▼

Lu Wang, Zhichao Fan, Jiahui Tao, Shuhao Ma, Hefei General Machinery Research Institute Co. Ltd., Hefei, Anhui, China

SESSION 3.1E (CS-17-02)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain G (6th Floor)

EAF TESTING OUTCOMES

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: Claude Faidy, CF Integrity Engineering; Seiji Asada, Mitsubishi Heavy Industries Ltd; Thomas Damiani, EPRI; Thomas Metais, EDF
Session Chair: Seiji Asada, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan
Session Co-Chair: Thomas Damiani, EPRI, Palo Alto, CA, USA

PVP2023-105888: MICROSTRUCTURE CHARACTERIZATION OF EU INCEFA-SCALE 316L STAINLESS STEEL FATIGUE SPECIMENS – MECHANISTIC UNDERSTANDING

Aleks Vainionpää, Zaiqing Que, VTT Technical Research Centre of Finland, Espoo, Uusimaa, Finland; Julio Spadotto, Brian Connolly, Henry Royce Institute, Department of Materials, University of Manchester, Manchester, Greater Manchester, United Kingdom; Alec Mclennan, Jacobs, Warrington, Cheshire, United Kingdom; Sergio Arrieta, University of Cantabria, Santander, Cantabria, Spain; Joseph Huret, IRSN, Saint-Paul-lez-Durance, Bouches-du-Rhône, France; Thomas Damiani, EPRI, Palo Alto, CA, USA

PVP2023-105889: INFLUENCE OF INSENSITIVE STRAIN REGION FOR STRAIN RATE ON FATIGUE LIFE OF STAINLESS STEEL IN PWR PRIMARY WATER ENVIRONMENT

Masayuki Kamaya, Institute of Nuclear Safety System, Incorporated, Mihama-cho, Fukui, Japan

PVP2023-105910: ASSESSMENT OF GAUGE LENGTH EFFECTS ON CYLINDRICAL AUSTENITIC STAINLESS STEEL FATIGUE SPECIMENS IN AIR AND HIGH-TEMPERATURE WATER ENVIORNMENT

B. Aydin Baykal, Philippe Spätig, Hans-Peter Seifert, Paul Scherrer Institut (PSI), Villigen, Aargau, Switzerland

PVP2023-107205: SHOULDER CONTROL FOR FATIGUE ENDURANCE TESTS CARRIED OUT UNDER VARIABLE AMPLITUDE LOADING CONDITIONS

James Meldrum, Peter Gill, Jonathan Mann, Alec McLennan, Norman Platts, Michael Toal, Jacobs, Warrington, Cheshire, United Kingdom

SESSION 3.1F (CS-19-03)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain H (6th Floor)

EUROPEAN PROJECT FRACTESUS FOR MINI-CT MASTER CURVE – 1

Symposium on Small Scale Mechanical Testing—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

Developed by: Mark Kirk, Phoenix Engineering Associates Inc.; Masato Yamamoto, CRIEPI; William Server, ATI Consulting
Session Chair: Inge Uytdenhowen, SCK CEN, Mol, Belgium
Session Co-Chair: Mark Kirk, Phoenix Engineering Associates Inc., Claremont, NH, USA

PVP2023-105449: PRESENT STATUS OF THE FRACTESUS PROJECT: TOWARDS FRACTURE TOUGHNESS MINIATURIZATION OF NUCLEAR STEELS

G. Bonny, R. Chaouadi, I. Uytdenhouwen, SCK CEN, Mol, Antwerpen, Belgium; E. Altstadt, HZDR, Dresden, Saxony, Germany; P. Arffman, VTT, Espoo, Uusimaa, Finland; S. Cicero, University of Cantabria, Santander, Cantabria, Spain; F. Obermeier, Framatome GmbH, Erlangen, Bavaria, Germany; T. Petit, Université Paris-Saclay, CEA, Gif-sur-Yvette, Essonne, France; H. Swan, National Nuclear Laboratory Limited-NNL, Abingdon, Oxfordshire, United Kingdom; E. Gaganidze, KIT, Eggenstein-Leopoldshafen, Baden-Wurttemberg, Germany; B. Hargitai, EK-CER, Budapest, Budapest, Hungary; M. Kolluri, NRG, Petten, Noord-Holland, Netherlands; R. Kopriva, NRI, Husinec, okres Prachatice, Czech Republic; P. Rozsahegyi, BZN, Budapest, Budapest, Hungary; M. Serrano, Centro de Investigaciones Energéticas, Madrid, Madrid, Spain; P. Spätig, PSI, Villigen, Brugg, Switzerland; H. Wilcox, National Nuclear Laboratory Limited-NNL, Abingdon, Oxfordshire, United Kingdom; M. Yamamoto, CRIEPI, Yokosuka-shi, Kanagawa-ken, Japan

PVP2023-107254: MASTER CURVE EVALUATION USING MINIATURE C(T) SPECIMENS AS PART OF A ROUND ROBIN PROGRAM WITHIN THE FRACTESUS PROJECT

Frideriki Naziris, Murthy Kolluri, NRG, Petten, Nord Holland, Netherlands; Rebeca Hernandez, CIEMAT, Madrid, Madrid, Spain; Timo Metzler, Ermile Gaganidze, Karlsruhe Institute of Technology, Karlsruhe, Baden-Wurttemberg, Germany; Inge Uytdenhouwen, SCK CEN, Mol, Antwerpen, Belgium

PVP2023-103648: FRACTOGRAPHY OF NEUTRON IRRADIATED RPV STEELS - A COMPARISON OF SHIFT IN REFERENCE TEMPERATURE AND NET HARDENING

Aniruddh Das, Paul Chekhonin, Mario Houska, Eberhard Altstadt, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Saxony, Germany; Florian Obermeier, Framatome GmbH, Erlangen, Bavaria, Germany

PVP2023-105437: FRACTURE CHARACTERIZATION OF STRUCTURAL STEEL S275JR BY USING CONVENTIONAL CT SPECIMENS, MINI-CT SPECIMENS AND SMALL PUNCH SPECIMENS: A COMPARISON

Marcos Sánchez, Sergio Cicero, Borja Arroyo, Universidad de Cantabria, Santander, Cantabria, Spain

SESSION 3.1G (FSI-01-01)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain I (6th Floor)

THERMAL HYDRAULIC PHENOMENA WITH VESSELS, PIPING AND COMPONENTS

Developed by: Arris S. Tijsseling, Eindhoven University of Technology; Jong Jo, Korea Institute of Nuclear Safety; Thorsten Neuhaus, TUEV Nord
Session Chair: Arris Tijsseling, Eindhoven University of Technology, Eindhoven, Netherlands
Session Co-Chair: Kazuaki Inaba, Tokyo Institute of Technology, Tokyo, Japan

PVP2023-108499: HOW FAST IS A FINITE GAS TRANSIENT WAVE AND WHY DOES IT STEEPEN?

Trey Walters, Applied Flow Technology, Colorado Springs, CO, USA; Scott Lang, Applied Flow Technology, Colorado Springs, CO, USA

PVP2023-106127: CFD INVESTIGATION OF EFFECTS OF DIFFERENT FEED INJECTION SCHEMES ON REACTION COKING IN AN INDUSTRIAL RFCC RISER ▼

Sheng Chen, Ming Chen, China Special Equipment Inspection and Research Institute, Beijing, China; Zihan Yan, Mengxi Liu, Juanbo Liu, Guoshan Xie, China University of Petroleum-Beijing, Beijing, China

PVP2023-106539: EVALUATION OF TEMPERATURE DISTRIBUTION INDUCED BY TURBULENT PENETRATION IN THE RE-BRANCHED LINE OF REACTOR COOLANT SYSTEMS {Presentation Only)

Jae-Wook Yu, Tae-Young Ryu, Young-Woo Phi, Moon-Ki Kim, Jae-Boong Choi, Sungkyunkwan University, Suwon-si, Gyeonggi-do, Republic of Korea; Doo-Ho Cho, Sun-Hye Kim, KINS, Yuseong-gu, Daejeon, Republic of Korea;

PVP2023-106129: CFD SIMULATION OF GAS-LIQUID NON-UNIFORM EROSION IN CONNECTION PIPELINE OF SILICON TETRACHLORIDE HYDROGENATION REDUCTION PROCESS ▼

Jiarui Shi, Sheng Chen, Meng He, Min Liu, Guoshan Xie, China Special Equipment Inspection and Research Institute, Beijing, China; Jiangyun Wang, Liyun Zhu, China University of Petroleum (East China), Qingdao, Shandong, China

SESSION 3.1H (FSI-02-06)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain J (6th Floor)

SELECTED TOPICS IN FSI

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

Developed by: Marwan Hassan, University of Guelph
Session Chair: Njuki Mureithi, Ecole Polytechnique Montreal, Montréal, Quebec, Canada
Session Co-Chair: Joaquin Moran, Sheridan College, Oakville, ON, Canada

PVP2023-102750: INFLUENCE OF ASPECT RATIO OF SHEETS ON FLUTTER CHARACTERISTICS

Keiichi Hiroaki, Masahiro Watanabe, Aoyama Gakuin University, Sagamihara, Kanagawa, Japan

PVP2023-105861: DYNAMIC STABILITY OF A PLATE SUPPORTED BY AIR PRESSURE (ANALYSIS OF TWO DEGREE-OF-FREEDOM COUPLED SYSTEM OF TRANSLATIONAL AND ROTATIONAL MOTIONS)

Masakazu Takeda, Takahiro Suda, Yoshiki Sugawara, Masahiro Watanabae, Aoyama Gakuin University, Sagamihara, Kanagawa, Japan

PVP2023-106667: MEASURING DAMPING IN LINEAR AND NONLINEAR SYSTEMS

Hugh Goyder, Cranfield University, Shrivenham, Oxfordshire, United Kingdom

PVP2023-105560: ESTIMATION OF OSCILLATING FREQUENCY DUE TO COMBUSTION OSCILLATION GENERATED IN A HYDROGEN CO-FIRING GAS TURBINE COMBUSTOR {Presentation Only)

Akane Uemichi, Ryota Imai, Waseda University, Tokyo, Japan

SESSION 3.1I (CS-15-01)

Wednesday, July 19, 8:15 am – 10:00 am, Augusta 3 (6th Floor)

MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF-29) – 1

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

Developed by: David Rudland, US Nuclear Regulatory Commission; Sam Sham, Idaho National Laboratory; Steven Xu, Kinectrics
Session Chair: David Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA
Session Co-Chair: Ting-Leung (Sam) Sham, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-106610: DEVELOPMENT OF A GRAPHITE IRRADIATION QUALIFICATION PLAN FOR THE XE-100 REACTOR

Anne Campbell, Josina Geringer, Adrian Schrell, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Samuel Baylis, Timothy Lucas, Martin Van Staden, X Energy, LLC., Rockville, MD, USA; Peter Pappano, TRISO X, LLC., Rockville, MD, USA

PVP2023-105209: SEMI-EMPIRICAL MODELING OF IRRADIATION INDUCED DIMENSIONAL CHANGE OF NUCLEAR GRAPHITES

Steve Johns, William E. Windes, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-105801: EFFECT OF RAW MATERIALS AND PROCESSING ON NUCLEAR GRAPHITE PROPERTIES {Presentation Only)

Chong Chen, Kairos Power, Charlotte, NC, USA

PVP2023-105928: CREEP AND MECHANICAL PROPERTIES TESTING FOR NEUTRON IRRADIATED GRAPHITE {Presentation Only)

Tjark van Staveren, NRG, Petten, Netherlands

SESSION 3.1J (DA-15-02)

Wednesday, July 19, 8:15 am – 10:00 am, Peachtree 1 (6th Floor)

COKE DRUM DAMAGE MECHANISMS AND MATERIAL EVALUATION

Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee

Developed by: Antonio Seijas, P66; Jorge Penso, Shell Projects and Technology; Kannan Subramanian, Structural Integrity Associates, Inc.; C. D. Rodery, C&S Technology LLC, League City, TX, USA
Session Chair: Antonio Seijas, Phillips 66, Houston, TX, USA
Session Co-Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

PVP2023-104630: ASSESSMENT OF COKE DRUM BULGE DEFORMATION USING ONLINE THERMAL DATA TO DETERMINE OPTIMAL WELD OVERLAY REPAIR DESIGN

Alex Berry, Phillips66, South Killingholme, Lincolnshire, United Kingdom; Warren Brown, Richard Brodzinski, Integrity Engineering Solutions Pty. Ltd., Dunsborough, WA, Australia; Antonio Seijas, Phillips66, Houston, TX, USA

PVP2023-106008: REMAINING LIFE ASSESSMENT OF COKE DRUMS BASED ON BULGE AND CRACK GROWTH RATE ANALYSIS {Presentation Only)

Warren Brown, Richard Brodzinski, Shae Tylor, Integrity Engineering Solutions, Dunsborough, WA, Australia; Alex Berry, Phillips 66 Limited, London, London, United Kingdom

PVP2023-106180: A COMPARATIVE STUDY ON AI/ML - BASED TRANSIENT TEMPERATURE PREDICTIONS AND REAL-TIME OPERATIONAL TRANSIENT TEMPERATURE DATA OF COKE DRUM ▼

Balaji Srinivasan, Engineers India Limited, Gurgaon, Haryana, India; Srinivasan V., Indian Institute of Technology Delhi, New Delhi, Delhi, India

PVP2023-106428: LOW-CYCLE FATIGUE EVALUATION OF COKE DRUM BASE MATERIALS AND WELDED JOINTS - A SUMMARY OF OSU RESEARCH PROJECT AND FUTURE WORK

Shutong Zhang, Jacque Berkson, Antonio J. Ramirez, Ohio State University, Columbus, OH, USA; Sebastian Romo, Institución Universitaria Pascual Bravo, Medellín, Antioquia, Colombia; Rafael Arthur Giorjao, EWI, Columbus, OH, USA; Jorge Penso, Shell Global Solutions (US) Inc., Houston, TX, USA; Haixia Guo, Suncor Energy Inc., Calgary, AB, Canada

SESSION 3.1K (OAC-06-02)

Wednesday, July 19, 8:15 am – 10:00 am, Peachtree 2 (6th Floor)

CONTINUED SAFE OPERATION OF EXISTING ASSETS - 2

Developed by: Ayman Cheta, Shell Global Solutions US, Inc.; Kaida Takuyo, Sumitomo
Session Chair: Ayman Cheta, Shell Global Solutions (US) Inc., Houston, TX, USA
Session Co-Chair: Junya Takahashi, Sumitomo Chemical Co., Ltd., Niihama City, Ehime, Japan

PVP2023-101682: DEVELOPMENT OF WES 2820 FITNESS-FOR-SERVICE PROCEDURE FOR PRESSURE EQUIPMENT – METAL LOSS ASSESSMENT

Junya Takahashi, Sumitomo Chemical Co., Ltd., Niihama City, Ehime, Japan; Yuki Yamauchi, Masakazu Shibahara, Osaka Metropolitan University, Sakai-shi Naka-ku, Osaka, Japan

PVP2023-101684: NUMERICAL INVESTIGATION FOR AN OPTIMIZED PROCEDURE OF OVERLAY WELDING REPAIR FOR THE METAL LOSS OF LARGE-SCALE STRUCTURES

Junya Takahashi, Sumitomo Chemical Co., Ltd., Niihama City, Ehime, Japan; Atsushi Yamaguchi, National Institute of Occupational Safety and Health, Kiyose-shi, Tokyo-to, Japan

PVP2023-105780: CORROSION RATE DETERMINATION OF HEAT EXCHANGER TUBES

Lee Junhang, GS Caltex, Yeosu-si, Jeollanam-do, Republic of Korea; Eui Jong Yoo, GS Caltex, Yeosu, Yeosu, Republic of Korea; Hyun Woo Kim, GS Caltex, Yeosu, Jeonranamdo, Republic of Korea

PVP2023-106969: STRESS ANALYSIS AND BACKFILLING MEASURES OF GAS PIPELINE BURIED IN EMBANKMENT OF TUNNEL ▼

Jia Wu, Li Xia, Ping Tang, Zhejiang Academy of Special Equipment Science, Hangzhou, Zhejiang, China

SESSION 3.1L (SE-09-01)

Wednesday, July 19, 8:15 am – 10:00 am, Chastain 1 (6th Floor)

ADVANCED SEISMIC EVALUATION AND CODE – 1

Symposium on Seismic Evaluation and Codes—Sponsored by the Seismic Engineering Technical Committee

Developed by: Akihito Otani, IHI Corporation; Akira Maekawa, Osaka Sangyo University; Izumi Nakamura, Tokyo City University
Session Chair: Izumi Nakamura, National Research Institute for Earth Science and Disaster Resilience, Ibaraki, Japan
Session Co-Chair: Ichiro Tamura, The Chugoku Electric Power Co., Inc., Hiroshima, Japan

PVP2023-106247: INVESTIGATION OF ULTIMATE BEHAVIOR OF ELBOW PIPES BY TENSILE LOADING TESTS IN THE DIRECTION OF IN-PLANE BENDING

Ryuya Shimazu, Michiya Sakai, Yohei Ono, Central Research Institute of Electric Power Industry (CRIEPI), Abiko-shi, Chiba, Japan

PVP2023-106549: VERY LOW CYCLE FATIGUE EVALUATION OF PIPE ELBOW AND EXPERIMENTAL VALIDATIONS: I- QUASI-STATIC CYCLIC LOADING TEST

Jong-Min Lee, Yun-Jae Kim, Hyun-Seok Song, Korea University, Seongbuk-gu, Seoul, Republic of Korea; Jin-Weon Kim, Chosun University, Gwangju, Gwangju, Republic of Korea

PVP2023-107707: A STUDY ON RELIABILITY OF PIPING SYSTEM SUPPORTED BY ELASTIC-PLASTIC SUPPORT SUBJECTED TO UNSTEADY SEISMIC WAVES

Atsuhiko Shintani, Chihiro Nakagawa, Osaka Metropolitan University, Sakai Osaka, Osaka, Japan; Tomohiro Ito, Independent Author, Kobe, Hyogo, Hyogo, Japan

SESSION 3.1Q (TW-02-05)

Wednesday, July 19, 8:15 am – 10:00 am, Augusta 1 (7th Floor)

TECHNICAL TUTORIAL – AN INTRODUCTION TO ASME SECTION VIII, DIVISION 2, PART 5: DESIGN BY ANALYSIS (PART 1)

Developed by: Trevor G. Seipp, Becht, Calgary, AB, Canada
Session Chair: Trevor G. Seipp, Becht, Calgary, AB, Canada
Session Co-Chair: Maher Younan, American University in Cairo, Cairo, Egypt
Presenter: Trevor G. Seipp, Becht, Calgary, AB, Canada

SESSION 3.1S (TE-03-01)

Wednesday, July 19, 8:15 am – 10:00 am, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 9

Block 3.2: Wednesday, July 19, 2023 (10:15 am – 12:00 pm)

SESSION 3.2B (CS-22-01)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain D (6th Floor)

REPAIR AND REPLACEMENT ACTIVITIES TO MAINTAIN COMPONENT INTEGRITY

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

Developed by: Jonathan Tatman, EPRI; Steven McCracken, EPRI
Session Chair: Steve McCracken, EPRI, Charlotte, NC, USA
Session Co-Chair: Jon Tatman, EPRI, Charlotte, NC, USA

PVP2023-107519: INFLUENCE OF ELECTRODE WEAVE WIDTH ON WELD HEAT INPUT

Jonathan Tatman, Mitchell Hargadine, EPRI - Welding and Repair Technology Center, Charlotte, NC, USA; Steven L. McCracken, EPRI, Harrisburg, NC, USA

PVP2023-106137: HISTORY AND TECHNICAL SCOPE OF CODE CASE N-513

Stephen M. Parker, Structural Integrity Associates, Castle Rock, CO, USA; Steven L. Mccracken, EPRI, Charlotte, NC, USA; Robert O. Mcgill, EPRI, Palo Alto, CA, USA; Ioannis D. Patten, Structural Integrity Associates, Centennial, CO, USA

PVP2023-106845: STUDY ON MOLTEN ZONE OF BUTT FUSION WELDING PROCESS WITH PHASED ARRAY ULTRASONIC TECHNOLOGY FOR POLYETHYLENE PIPE ▼

Yangji Tao, Weican Guo, Yan Shi, Cunjian Miao, Ping Tang, Zhejiang Academy of Special Equipment Science, Hangzhou, Zhejiang, China

PVP2023-106535: OVERVIEW OF HYDROGEN STORAGE EQUIPMENT AND ITS INSPECTION AND DETECTION TECHNOLOGY IN HYDROGEN FUELLING STATIONS IN CHINA

Zhixiang Duan, Gang Hao, Hangjian Hu, Huiyong Duan, China Special Equipment Inspection and Research Institute, Beijing, Beijing, China

SESSION 3.2C (HT-07-01)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain E (6th Floor)

DESIGN AND ANALYSIS OF HIGH PRESSURE HYDROGEN EQUIPMENT (JOINT WITH CS-02 AND MF-02)

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

Developed by: Melanie Sarzynski, Becht; Sean Berg, BakerRisk
Session Chair: Sean Berg, BakerRisk, San Antonio, TX, USA
Session Co-Chair: Melanie Sarzynski, Becht, Houston, TX, USA

PVP2023-106712: CASE STUDY ON THE AFFECT OF HYDROGEN ON GROUND STORAGE TANKS DESIGNED TO ASME SECTION VIII

Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA; Erick R. Ritter, Structural Integrity Associates, Centennial, CO, USA

PVP2023-106995: BLISTER DAMAGE EVOLUTION IN PLASTIC LINER OF TYPE IV HYDROGEN STORAGE VESSEL STUDIED BY FRACTURE MECHANICS ▼

Hao Shi, Wenzhu Peng, Liqing Wei, Qiubing Kang, Qi Chen, Zhengli Hua, Zhejiang University, Hangzhou, Zhejiang, China

PVP2023-107027: RESEARCH ON THE INFLUENCE OF THE LINER CRACK SIZE AND LOCATION ON FATIGUE LIFE OF 70MPA TYPE III CYLINDER ▼

Yulin Wang, Qinan Li, Yiming Zhao, Zhengli Hua, Liqing Wei, Chaohua Gu, Zhejiang University, Hangzhou, Zhejiang, China; Wenlong Ha, ZheJiang HeBang Security Technology Co., Ltd., Jiaxing, Zhejiang, China

PVP2023-106155: SAFETY ASSESSMENT OF HYDROGEN DISCHARGE WITH VARIOUS TYPES OF VENT EXIT ▼

Chongchong Zhang, Heyi Feng, Lijing Mu, Guide Deng, China Special Equipment Inspection & Research Institute, Beijing, Beijing, China; Xin Wang, Aerospace Newsky Technology Co., Ltd., Beijing, Beijing, China

SESSION 3.2D (CT-04-01)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain F (6th Floor)

ASSEMBLY OF BOLTED JOINTS – 1

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

Developed by: Anita Bausman, VSP Technologies; Jerry Waterland, Consultant; Linbo Zhu, Xi'an Jiaotong University
Session Chair: Anita Bausman, VSP Technologies, Kingsport, TN, USA
Session Co-Chair: Aidan Berrios, VSP Technologies, Kingsport, TN, USA

PVP2023-106273: SUGGESTED PROCEDURE FOR DETERMINING THE PCC-1 – APPENDIX O GASKET PROPERTIES

Carlos D. Girão, Igor Meira, Teadit Group, Itatiba, São Paulo, Brazil; Jose C. Veiga, Teadit Group, Rio de Janeiro, Rio de Janeiro, Brazil

PVP2023-106923: THE EFFECTS OF FLUID WORKING CONDITIONS ON FLANGE FACE CORROSION

Soroosh Hakimian, Hakim A. Bouzid, Lucas Hof, École de technologie supérieure, Montreal, Quebec, Canada

PVP2023-106237: TRIBOLOGICAL BEHAVIOUR IN THE UNDERHEAD FOR HIGH STRENGTH SOCKET-HEAD SCREWS COUPLED WITH CAST IRON AND TIGHTENED IN DRY AND LUBRICATED CONDITION

Dario Croccolo, Massimiliano De Agostinis, Stefano Fini, Giorgio Olmi, Chiara Scapecchi, University of Bologna, Bologna, Emilia-Romagna, Italy; Nicolò Vincenzi, Bucci automations S.p.A., Faenza, Emilia-Romagna, Italy

SESSION 3.2E (CS-17-03)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain G (6th Floor)

FATIGUE EVALUATION METHOD

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: Claude Faidy, CF Integrity Engineering; Seiji Asada, Mitsubishi Heavy Industries Ltd; Thomas Damiani, EPRI; Thomas Metais, EDF

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

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

PVP2023-102692: TECHNICAL REVISIONS OF JSME ENVIRONMENTAL FATIGUE EVALUATION METHOD

Seiji Asada, Mitsubishi Heavy Industries Ltd, Kobe, Hyogo, Japan; Takao Nakamura, Osaka University, Suita, Osaka-Fu, Japan; Masayuki Kamaya, Institute of Nuclear Safety System, Incorporated, Mikata-gun, Fukui, Japan; Yukio Takahashi, Tokyo University of Science, Tokyo, Tokyo, Japan

PVP2023-106814: FATIGUE PROPERTY EVALUATION OF METALLIC AM PARTS AND DETERMINATION OF DESIGN STRESS ALLOWABLES

Pingsha Dong, University of Michigan, Ann Arbor, MI, USA; George Rawls, GBR Consulting, Columbia, SC, USA; Tim Krentz, Savannah River Nuclear Solutions LLC, Aiken, SC, USA

PVP2023-106439: EPR PIPING MATERIAL STUDY: EFFECTS OF SAMPLING LOCATION AND TEMPERATURE ON LOW CYCLE FATIGUE IN AIR

Tommi Seppänen, Jouni Alhainen, Esko Arilahti, Jussi Solin, VTT Technical Research Centre of Finland Ltd., Espoo, Uusimaa, Finland; Rami Vanninen, TVO Oyj, Eurajoki, Satakunta, Finland

SESSION 3.2F (CS-19-04)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain H (6th Floor)

EUROPEAN PROJECT FRACTESUS FOR MINI-CT MASTER CURVE – 2

Symposium on Small Scale Mechanical Testing—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

Developed by: Mark Kirk, Phoenix Engineering Associates Inc.; Masato Yamamoto, CRIEPI; William Server, ATI Consulting

Session Chair: Inge Uytdenhowen, SCK CEN, Mol, Belgium

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

PVP2023-105596: METHODOLOGICAL ALTERNATIVES WHEN DEALING WITH MINI-CT SPECIMENS TO CHARACTERIZE THE DUCTILE-TO-BRITTLE TRANSITION RANGE AND THE UPPER SHELF REGIME

Marcos Sánchez, Sergio Cicero, Sergio Arrieta, University of Cantabria, Santander, Cantabria, Spain

PVP2023-106216: THE EFFECT OF LOSS OF CONSTRAINT ON THE INITIATION OF DUCTILE FRACTURE IN A MINI-CT

Meng Li, Rachid Chaouadi, Inge Uytdenhouwen, Giovanni Bonny, SCK CEN, Mol, Antwerpen, Belgium; Thomas Pardoen, Université Catholique de Louvain, Louvain-la-Neuve, Brabant Wallon, Belgium

PVP2023-105918: NUMERICAL PREDICTION OF FRACTURE TOUGHNESS OF A REACTOR PRESSURE VESSEL STEEL BASED ON EXPERIMENTS USING SMALL SPECIMENS

Timo Metzler, Ermile Gaganidze, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Baden-Wurttemberg, Germany; Jarir Aktaa, Karlsruhe Institute of Technology, Karlsruhe, Baden-Wurttemberg, Germany

SESSION 3.2G (MF-03-01)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain I (6th Floor)

WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT

Developed by: David Rudland, US Nuclear Regulatory Commission; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus; Graeme Horne, Frazer-Nash Consultancy; Harry Coules, University of Bristol; Vincent Robin, EDF R&D, Département PRISME

Session Chair: Elizabeth Kurth Twombly, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

Session Co-Chair: David Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2023-103449: MODELING OF HARDNESS AND WELDING RESIDUAL STRESS IN TYPE 316 STAINLESS STEEL COMPONENTS FOR THE ASSESSMENT OF STRESS CORROSION CRACKING

Suo Li, Yoshihito Yamaguchi, Jinya Katsuyama, Yinsheng Li, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan; Dean Deng, Chongqing University, Chongqing, Chongqing, China

PVP2023-107448: MODELLING OF RESIDUAL STRESSES IN MULTI-PASS GIRTH WELDS MADE OF AUSTENITIC STAINLESS STEEL TO PROVIDE INDICATORS FOR PWSCC RISK CLASSIFICATION

V. Robin, EDF, Lyon, Rhône, France; S. Hendili, J. Delmas, S. Hilal, EDF, D. Iampietro, EDF, Chatou, Yvelines, France; M. Abbas, EDF, Palaiseau, Essonne, France; S. Jutteau, EDF, Saint Denis, Seine-Saint-Denis, France

PVP2023-106279: EXPERIMENTAL INVESTIGATION ON TEMPERATURE FIELD EVOLUTION OF PG280 PIPELINE IN BUTT WELDING PROCESS

Maiwen Hu, Zelin Han, Yan Song, Xi'an Jiaotong University, Xi'an, Shaanxi, China; Hao Su, Yanping Wang, China Nuclear Power Engineering Co., Ltd., Beijing, Beijing, China

SESSION 3.2H (DA-09-01)

Wednesday, July 19, 10:15 am – 12:00 pm, Chastain J (6th Floor)

PIPING AND EQUIPMENT DYNAMICS AND DYNAMIC RESPONSE ANALYSIS

Developed by: Pieter Van Beek, TNO

Session Chair: Pieter Van Beek, TNO, Delft, Netherlands

Session Co-Chair: Stefan Belfroid, TNO, Delft, Netherlands

PVP2023-102346: RESPONSE COMBINATION METHOD BETWEEN DYNAMIC, HIGH FREQUENCY AND PSEUDO-STATIC RESPONSES WITH FLOOR RESPONSE SPECTRUM METHOD ASSISTED BY TIME HISTORY ANALYSIS FOR MULTIPLY SUPPORTED PIPING SYSTEM

Ayaka Yoshida, Yoshihiro Takayama, Toshiyuki Tsushima, Hiroaki Hioki, MHI NS Engineering Co., Ltd., Kobe, Hyogo, Japan; Hiromichi Shudo, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan

PVP2023-106307: REPEATABILITY AND UNCERTAINTY STUDY OF DYNAMIC STRAIN DATA MEASURED ON THE COUPLED FLUID-STRUCTURE VESSELS IN RESPONSE TO HIGH INTENSITY PROTON PULSES

Hao Jiang, Drew Winder, Yun Liu, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2023-106474: A SIMPLIFIED METHOD FOR ANALYZING PRESSURE VESSEL RESPONSE TO EXPLOSION GENERATED DRAG LOADING

Jacob Hundl, Barry Millet, Kenneth Kirkpatrick, Bryan Mosher, Fluor Enterprises, Inc., Sugar Land, TX, USA

SESSION 3.2I (CS-15-02)

Wednesday, July 19, 10:15 am – 12:00 pm, Augusta 3 (7th Floor)

MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF-29) – 2

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

Developed by: David Rudland, US Nuclear Regulatory Commission; Sam Sham, Idaho National Laboratory; Steven Xu, Kinectrics

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

Session Co-Chair: Ting-Leung (Sam) Sham, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-106343: FISSION PRODUCT TRANSPORT CHARACTERIZATION IN NUCLEAR GRAPHITE GRADES {Presentation Only)

Dina ElGewaily, Jacob Eapen, North Carolina State University, Raleigh, NC, USA

PVP2023-106469: PROBABILISTIC ASSESSMENT TOOL FOR GRAPHITE COMPONENT RELIABILITY

Joseph Bass, Raj Iyengar, Christopher Ulmer, US Nuclear Regulatory Commission, Rockville, MD, USA

PVP2023-105207: SIMPLIFIED METHOD OF ADJUSTING WEIBULL THRESHOLD PARAMETER

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

SESSION 3.2J (DA-15-03)

Wednesday, July 19, 10:15 am – 12:00 pm, Peachtree 1 (8th Floor)

INTERNATIONAL SYMPOSIUM ON COKE DRUM LIFE CYCLE MANAGEMENT - PANEL SESSION - WHAT'S NEXT FOR THE INDUSTRY?

Symposium on Coke Drum Life Cycle Management—Sponsored by the Design & Analysis Technical Committee

Developed by: Antonio Seijas, P66; Jorge Penso, Shell Projects and Technology; Kannan Subramanian, Structural Integrity Associates, Inc.; C. D. Rodery, C&S Technology LLC, League City, TX, USA

Session Chair: Antonio Seijas, Phillips 66, Houston, TX, USA

Session Co-Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

SESSION 3.2K (OAC-06-03)

Wednesday, July 19, 10:15 am – 12:00 pm, Peachtree 2 (8th Floor)

CONTINUED SAFE OPERATION OF EXISTING ASSETS - 3

Developed by: Ayman Cheta, Shell Global Solutions US, Inc.; Kaida Takuyo, Sumitomo

Session Chair: Junya Takahashi, Sumitomo Chemical Co., Ltd., Niihama City, Ehime, Japan

Session Co-Chair: Ayman Cheta, Shell Global Solutions (US) Inc., Houston, TX, USA

PVP2023-105293: MULTI-AXIAL STRESS CREEP CONSUMPTION PART I; TESTING AND VALIDATION OF EX-SERVICE 347SS

Teppei Suzuki, Yoichi Ishizaki, Idemitsu Kosan Co., Ltd., Chiba, Chiba, Japan

PVP2023-105411: MULTI-AXIAL STRESS CREEP CONSUMPTION PART II; CONSIDERATION ON CREEP CRITERIA TEMPERATURE FOR FFS

Yoichi Ishizaki, Teppei Suzuki, Idemitsu Kosan Co., Ltd., Chiba, Chiba, Japan

PVP2023-106055: FITNESS-FOR-SERVICE ASSESSMENT OF REFRACTORY LINED DUCT WITH HOT SPOT

Eui Jong Yoo, GS Caltex Coporation, Yeosu-si, Jellanam-do, Republic of Korea; Chongmyung Kim, SK Energy Co., Ltd, Ulsan, Ulsan, Republic of Korea; Capjoo Choi, GS Engineering & Construction, Seoul, Seoul, Republic of Korea

PVP2023-109158: PIPING INTEGRITY PROGRAM AT PETROCHEMICAL AND REFINERY PLANT {Presentation Only)

Ahmad Exsan Othman, Petronas, Kerteh, Terengganu, Malaysia; Long Zulkarnaen Long Zainudin, Petronas, Kuala Lumpur, W.P. Kuala Lumpur, Malaysia

SESSION 3.2L (SE-09-02)

Wednesday, July 19, 10:15 am – 12:00 pm, Peachtree 2 (8th Floor)

ADVANCED SEISMIC EVALUATION AND CODE – 2

Symposium on Seismic Evaluation and Codes—Sponsored by the Seismic Engineering Technical Committee

Developed by: Akihito Otani, IHI Corporation; Akira Maekawa, Osaka Sangyo University; Izumi Nakamura, Tokyo City University

Session Chair: Atuhiko Shintani, Osaka Metropolitan University, Sakai, Osaka, Japan

Session Co-Chair: Izumi Nakamura, National Research Institute for Earth Science and Disaster Resilience, Ibaraki, Japan

PVP2023-107828: STUDY ON SEISMIC EVALUATION FOR ANCHOR BOLTS IN CIRCULAR ARRANGEMENT USING ELASTIC-PLASTIC ANALYSIS

Kensuke Terai, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; Masanori Amino, MHI NS Engineering Co., Ltd., Kobe, Hyogo, Japan; Ichiro Tamura, Satoshi Iida, The Chugoku Electric Power Co., Inc., Hiroshima, Hiroshima, Japan

PVP2023-108029: DEVELOPMENT OF SEISMIC RESPONSE ANALYSIS METHOD OF PIPING SYSTEM — A FORMULATION OF NONLINEAR SPRING MODEL FOR PIPING SUPPORT STRUCTURES

Kiyotaka Takito, Yukihiko Okuda, Akemi Nishida, Yinsheng Li, Japan Atomic Energy Agency, HikiGun, Tokaimura, Ibaraki, Japan

PVP2023-107197: ELASTIC-PLASTIC ANALYSIS FOR CROSSOVER PIPING BY USING ASME CODE CASE N-900 AND JSME CODE CASE NC-CC-008

Kenichi Shibukuwa, IHI Corporation, Yokohama, Kanagawa, Japan

SESSION 3.2Q (TW-02-06)

Wednesday, July 19, 10:15 am – 12:00 pm, Augusta 1 (7th Floor)

TECHNICAL TUTORIAL – AN INTRODUCTION TO ASME SECTION VIII, DIVISION 2, PART 5: DESIGN BY ANALYSIS (PART 2)

Developed by: Trevor G. Seipp, Becht, Calgary, AB, Canada

Session Chair: Trevor G. Seipp, Becht, Calgary, AB, Canada

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

Presenter: Trevor G. Seipp, Becht, Calgary, AB, Canada

SESSION 3.2S (TE-03-02)

Wednesday, July 19, 10:15 am – 12:00 pm, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 10

Block 3.3: Wednesday, July 19, 2023 (2:15 pm – 4:00 pm)

SESSION 3.3A (CS-21-01)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain C (6th Floor)

CONSTRAINT EFFECTS ON C&S

Developed by: Claude Faidy, CF Integrity Engineering; Kiminobu Hojo, Mitsubishi Heavy Industries Ltd; Steven Xu, Kinectrics

Session Chair: Kiminobu Hojo, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan

Session Co-Chair: Stephane Marie, Framatome, Courbevoie, Hauts-de-Seine, France

PVP2023-105965: CONSTRAINT EFFECT ON FRACTURE IN DUCTILE-BRITTLE TRANSITION TEMPERATURE REGION (REPORT 3)

Kiminobu Hojo, Takatoshi Hirota, Yasuto Nagoshi, Mitsubishi Heavy Industries, Inc., Kobe, Hyogo, Japan; Takuya Fukahori, Mitsubishi Heavy Industries, Inc., Nagasaki, Nagasaki, Japan; Kimihisa Sakima, Mitsubishi Heavy Industries, Inc., Takasago, Hyogo, Japan; Mitsuru Ohata, Fumiyoshi Minami, Osaka University, Suita, Osaka, Japan

PVP2023-106100: CONSIDERATION OF GEOMETRICAL EFFECT IN FRACTURE MECHANICS ASSESSMENT FOR A VESSEL LOW ALLOY STEEL

Jules Louerat, Olivier Ancelet, Stephane Marie, Framatome, Courbevoie, Hauts-de-Seine, France; Stephane Chapuliot, Anna Dahl, EDF, Moret sur Loing, Seine-et-Marne, France

PVP2023-106269: APPLICATION OF THE J-Q METHODOLOGY TO CONSIDER THE GEOMETRICAL EFFECT ON FRACTURE FOR LARGE STEAM-GENERATOR TUBESHEET

Olivier Ancelet, Stephane Marie, Framatome, Courbevoie, Hauts-de-Seine, France; Stéphane Chapuliot, Aurore Parrot, EDF, Écuelles, Seine-et-Marne, France

SESSION 3.3B (DA-08-03)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain D (6th Floor)

PRACTICAL APPLICATIONS OF FFS

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

Developed by: Gys van Zyl, Integrity Engineering Solutions; Kannan Subramanian, Structural Integrity Associates, Inc.

Session Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia

Session Co-Chair: Andrew Owens, Battery Minerals and Mining - Tesla, Austin, TX, USA

PVP2023-105485: A CRITICAL INITIAL FLAW SIZE ANALYSIS APPROACH FOR CLEAVAGE FRACTURE 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, Benjamin Melia, NASA Marshall Space Flight Center, Huntsville, AL, USA

PVP2023-107570: NUMERICAL ANALYSIS OF PERMANENT DEFORMATION IN PRESSURE VESSELS DUE TO WELD OVERLAY

Akshay Dandekar, Andrew Gordon, Mandar Kulkarni, Stress Engineering Services Inc, Mason, OH, USA

PVP2023-106381: HOT SPENT/WASTE HEAT BOILER TUBE SHEET RELIABILITY ANALYSIS

Kannan Subramanian, Structural Integrity Associates, Kenner, LA, USA; Daniel Parker, Structural Integrity Associates, Inc., San Diego, CA, USA

PVP2023-106451: PLANT VALIDATION OF FLAW EVALUATION PROCEDURE FOR AXIAL PWSCC IN ALLOY 600 REACTOR VESSEL HEAD PENETRATION NOZZLES

Kevin Fuhr, Gideon Schmidt, Glenn White, Dominion Engineering, Inc., Reston, VA, USA; Craig Harrington, EPRI, Palo Alto, CA, USA

SESSION 3.3C (DA-21-02)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain E (6th Floor)

DESIGN AND ANALYSIS OF HYDROGEN PRESSURE EQUIPMENT – 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: Kannan Subramanian, Structural Integrity Associates, Inc.; Warren Brown, Integrity Engineering Solutions

Session Chair: Thomas Prewitt, DNV, Dublin, OH, USA

Session Co-Chair: TBD

PVP2023-105658: BUCKLING STRENGTH OF THE LINERS OF TYPE IV HYDROGEN STORAGE CYLINDERS ▼

Heyi Feng, Yongshan Jiang, Ke Bo, Guide Deng, China Special Equipment Inspection and Research Institute, Beijing, Beijing, China; Xiaofei Wu, Hao Yang, To High Hydrogen Testing (Baoding) Co., LTD, Baoding, Hebei, China

PVP2023-106131: FAILURE BEHAVIOR AND INFLUENCING FACTORS OF THE SEALING STRUCTURE FOR TYPE iv HYDROGEN CYLINDERS ▼

Jiahui Tao, Zhichao Fan, Peng Xu, Lu Wang, Shuhao Ma, Hefei General Machinery Research Institute Co., Ltd., Hefei, Anhui, China

PVP2023-107195: STUDY ON ANTI-INSTABILITY INFLATION PRESSURE OF VEHICLE-MOUNTED TYPE IV HYDROGEN STORAGE CYLINDER ▼

Zezhong Liu, Zhiwei Chen, Xiaoliang Jia, Fang Ji, China Special Equipment Inspection and Research Institute, Beijing, Beijing, China

SESSION 3.3D (CT-04-02)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain F (6th Floor)

ASSEMBLY OF BOLTED JOINTS – 2

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

Developed by: Anita Bausman, VSP Technologies; Jerry Waterland, Consultant; Linbo Zhu, Xi'an Jiaotong University

Session Chair: Anita Bausman, VSP Technologies, Kingsport, TN, USA

Session Co-Chair: Aidan Berrios, VSP Technologies, Kingsport, TN, USA

PVP2023-106467: VALIDATION OF A NOVEL VIRTUAL FLANGE JOINT ASSEMBLY SIMULATOR

Leonardo De La Roca, Igor Meira, Carlos D. Girão, TEADIT, Itatiba, São Paulo, Brazil; Mark Ruffin, TEADIT, Pasadena, TX, USA

PVP2023-101616: SOME TRIBOLOGICAL INSIGHTS INTO THREADED FASTENER FRICTION AND LUBRICATION {Presentation Only)

Christopher Dyson, William A Hopkins, ROCOL, A Division of ITW Limited, Leeds, West Yorkshire, United Kingdom; Martin Priest, Malcolm Fox, University of Bradford, Bradford, West Yorkshire, United Kingdom

PVP2023-106493: THE EFFECT OF LUBRICATION ON PERCENT OF RED RUST AND BREAK-OUT TORQUE OF PTFE COATED FASTENERS

Justinn General, Dale Norman, Tommie Bao, Lamons, Houston, TX, USA

SESSION 3.3E (MF-15-01)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain G (6th Floor)

FATIGUE AND FRACTURE OF WELDS AND HEAT AFFECTED ZONES

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: Adam Cooper, Jacobs; David Rudland, US Nuclear Regulatory Commission; Do Jun Shim, EPRI; Mo Uddin, Structural Integrity Associates, Inc.

Session Chair: Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA

Session Co-Chair: Do Jun Shim, EPRI, Palo Alto, CA, USA

PVP2023-104710: POST WELD HEAT TREATMENT AND FRACTURE TOUGHNESS EVALUATION OF ELECTRON BEAM WELDED SA508 ALLOYS

Adam J. Cooper, Andrew Wisbey, Jacobs, Warrington, Cheshire, United Kingdom; `William Kyffin, Thomas Dutilleul, N-AMRC, UK, Rotherham, Derbyshire, United Kingdom; Mike Nunn, TWI, Cambridge, Cambridgeshire, United Kingdom; Chris Punshon, Cambridge Vacuum Engineering, Cambridge, Cambridgeshire, United Kingdom; Mike C. Smith, Ed Pickering, Vasileios Akrivos, Alex Carruthers, University of Manchester, Manchester, Greater Manchester, United Kingdom

PVP2023-106163: FRACTURE TOUGHNESS ESTIMATION OF HIGH-GRADE PIPELINE STEEL GIRTH WELD IN DUCTILE-BRITTLE TRANSITION ZONE ▼

Lele Gui, Tianyu Zhou, Renyang He, CSEI, Beijing, China

PVP2023-106317: INVESTIGATION ON A METHOD OF COUNTING LOW-CYCLE FATIGUE IN STEEL UNDER CRACK CLOSURE AND RANDOM VARIABLE AMPLITUDE LOADING

Jo Watanuki, Tomoya Kawabata, The University of Tokyo, Bunkyo-Ku, Tokyo, Japan; Shunsuke Takagi, Tokyo Electric Power Company Holdings, Inc., Chiyoda-ku, Tokyo, Japan

SESSION 3.3F (CS-20-01)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain H (6th Floor)

MASTER CURVE METHOD AND APPLICATIONS

Developed by: Mark Kirk, Phoenix Engineering Associates Inc.; Masato Yamamoto, CRIEPI; William Server, ATI Consulting

Session Chair: William Server, ATI Consulting, Black Mountain, NC, USA

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

PVP2023-105982: SPECIMEN SIZE EFFECT ON HOMOGENEITY SCREENING OF MASTER CURVE RESULTS OF EUROFER97 AND F82H STEELS {Presentation Only)

Xiang (Frank) Chen, Mikhail Sokolov, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Marta Serrano, Rebeca Hernández, CIEMAT, Madrid, Madrid, Spain

PVP2023-105904: ASSESSMENT OF THE NEED TO CONSIDER HAZ PROPERTIES AS PART OF RPV INTEGRITY MANAGEMENT

Mark Kirk, Marjorie Erickson, PEAI Consulting, Claremont, NH, USA; Elliot Long, EPRI, Palo Alto, CA, USA

PVP2023-105571: LINKAGE OF FRACTURE ASSESSMENT METHODOLOGY WITH FRACTURE TOUGHNESS TESTING PROCEDURES

Adam Cooper, Peter James, John Sharples, Jacobs, Warrington, Cheshire, United Kingdom

SESSION 3.3G (MF-03-02)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain I (6th Floor)

WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT - 2

Developed by: David Rudland, US Nuclear Regulatory Commission; Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus; Graeme Horne, Frazer-Nash Consultancy; Harry Coules, University of Bristol; Vincent Robin, EDF R&D, Département PRISME

Session Chair: Michael Benson, US Nuclear Regulatory Commission, Rockville, MD, USA

Session Co-Chair: Elizabeth Kurth Twombly, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2023-107179: NET PROJECT TASK GROUP 8 – AN INTERNATIONAL BENCHMARK ON RESIDUAL STRESS ASSESSMENT FOR WELDING REPAIR – FIRST PHASE RESULTS

V. Robin, EDF, Lyon, Rhône, France; J. Draup, EDF Energy, Manchester, Merseyside, United Kingdom; M. C. Smith, A. Vasileiou, Manchester University, Manchester, Lancashire, United Kingdom; V. Akrivos, University of Manchester, Manchester, Greater Manchester, United Kingdom; R. C. Wimpory, HZB, Berlin, Berlin, Germany; L. Depradeux, EC2M, Villeurbanne, Rhône, France; A. Brosse, Framatome, Lyon, Rhône, France; D. Gallitelli, Europe Technologies, Carquefou, Loire-Atlantique, France; F. Hosseinzadeh, Open University, Milton Keynes, London, United Kingdom; C. E. Truman, University of Bristol, Bristol, Berkshire, United Kingdom; S. Pascal, CEA, Gif-Sur-Yvette, Essonne, France; S. Hendili, J. Delmas, EDF, Chatou, Yvelines, France; C. Ohms, JRC, Petten, Netherlands

PVP2023-106309: AN EXPERIMENTAL AND NUMERICAL MODELLING FOR SMAW

Sebastien Gallee, Florence Gommez, Alexandre Brosse, Framatome, Lyon, Rhône, France; Nicolas Sallez, Framatome, Chalon sur Saone, Saône-et-Loire, France

PVP2023-105200: APPLICATION OF PROPER GENERALIZED DECOMPOSITION TO SENSITIVITY ANALYSIS OF RESIDUAL STRESS IN DISSIMILAR METAL WELD OF NUCLEAR POWER PLANT {Presentation Only}

Jin-Gyum Kim, Sung-Sik Kang, Changsik Oh, Korea Institute of Nuclear Safety, Daejeon, Daejeon, Republic of Korea; Jangho Ahn, ESI Group, Seoul, Seoul, Republic of Korea

SESSION 3.3H (FSI-02-03)

Wednesday, July 19, 2:15 pm – 4:00 pm, Chastain J (6th Floor)

TUBE ARRAYS – 3

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

Developed by: Marwan Hassan, University of Guelph

Session Chair: Atef Mohany, Ontario Tech University, Oshawa, ON, Canada

Session Co-Chair: Joaquin Moran, Sheridan College, Oakville, ON, Canada

PVP2023-105842: ADVANCING THE STATE-OF-THE-ART FOR FRETTING WEAR TESTING

Salim El Bouzidi, Fabrice Guerout, Paul Feenstra, Anne McLellan, Brendan St. Pierre, Canadian Nuclear Laboratories, Chalk River, Ontario, Canada

PVP2023-106375: FRETTING WEAR PREDICTION OF AN ENERGY-BASED MODEL FOR HEAT TRANSFER TUBE IN STEAM GENERATORS

Kai Guo, Boyao Wang, Hongsheng Zhang, Meiqi Yu, Yanshan University, Qinhuangdao, Hebei, China; Wei Tan, Tianjin University, QInhuangdao, Hebei, China

PVP2023-106295: INVESTIGATION OF ACOUSTIC RESONANCE PHENOMENON IN A LARGE-SCALE HEAT EXCHANGER ▼

Guofeng Huang, Wei Tan, Tianjin University, Tianjin, Tianjin, China; Heng Wang, Zhejiang Institute of Tianjin University, Ningbo, Zhejiang, China

SESSION 3.3I (CS-15-03)

Wednesday, July 19, 2:15 pm – 4:00 pm, Augusta 3 (7th Floor)

MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH MF-29) – 3

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

Developed by: David Rudland, US Nuclear Regulatory Commission; Sam Sham, Idaho National Laboratory; Steven Xu, Kinectrics

Session Chair: David Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

Session Co-Chair: Steven Xu, Kinectrics, Inc., Toronto, ON, Canada

PVP2023-106760: POROSITY CHARACTERIZATION IN NUCLEAR GRAPHITE {Presentation Only}

Dina ElGewaily, Jacob Eapen, North Carolina State University, Raleigh, NC, USA; Arash Rabbani, University of Leeds, Leeds, West Yorkshire, United Kingdom

PVP2023-107369: FINITE ELEMENT MODEL MESH REFINEMENT EFFECTS ON QUALIFICATION OF NUCLEAR GRADE GRAPHITE CORE COMPONENTS

Andrea Mack, William Hoffman, Joseph Bass, William Windes, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2023-106367: STRUCTURAL INTEGRITY ASSESSMENTS OF NUCLEAR GRAPHITE: MANAGING UNCERTAINTY AND VARIABILITY

Graeme Horne, Frazer-Nash Consultancy, Bristol, Bristol, United Kingdom; Amanda Young, Daniel Kent, Richard Gray, Mark Joyce, Frazer-Nash Consultancy, Warrington, Cheshire, United Kingdom

SESSION 3.3J (HT-04-01)

Wednesday, July 19, 2:15 pm – 4:00 pm, Peachtree 1 (7th Floor)

DESIGN AND ANALYSIS OF HIGH-PRESSURE EQUIPMENT FOR INDUSTRY

Developed by: David Fuenmayor, UHDE HPT; Taylor Nyquist, A&A Machine & Fabrication, LLC; Kumarswamy Karpanen, Technip FMC

Session Chair: Taylor Nyquist, A&A Machine & Fabrication, LLC, La Marque, TX, USA

Session Co-Chair: Kumar Karpanan, TechnipFMC, Houston, TX, USA

PVP2023-106338: ADVANCES AND CHALLENGES IN POWDER METAL HIP PROCESSING FOR THE PRODUCTION OF LARGE COMPONENTS

Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA; David W. Gandy, EPRI, Charlotte, NC, USA; Doug Puerta, Stack Metallurgical Group, Portland, OR, USA; Robert McLaughlin, Structural Integrity Associates, Inc., Tupelo, MS, USA

PVP2023-101355: A PRACTICAL APPROACH FOR IN-FIELD CALCULATION OF AUTOFRETTAGE PRESSURES FOR THICK-WALLED CYLINDERS

Philippe Jäger, David Fuenmayor, Matthias Bortz, UHDE High Pressure Technologies GmbH, Hagen, North Rhine-Westphalia, Germany

PVP2023-105698: FIT FOR SERVICE EVALUATION OF LDPE TUBULAR REACTOR TUBES EXPOSED TO SEVERE DECOMPOSITION

Ahmad Hassan Abdul Hamid, M Syukri Abdul Rahim, Alias Mamat, Ibrahim Mat, Alias Kadir, Petronas Chemicals Ammonia Sdn Bhd, Kemaman, Terengganu, Malaysia

SESSION 3.3K (OAC-06-04)

Wednesday, July 19, 2:15 pm – 4:00 pm, Peachtree 2 (7th Floor)

CONTINUED SAFE OPERATION OF EXISTING ASSETS – 4

Developed by: Ayman Cheta, Shell Global Solutions US, Inc.; Kaida Takuyo, Sumitomo

Session Chair: Ayman Cheta, Shell Global Solutions (US) Inc., Houston, TX, USA

Session Co-Chair: Junya Takahashi, Sumitomo Chemical Co., Ltd., Niihama City, Ehime, Japan

PVP2023-105755: A STUDY OF STRESS RELAXATION CRACKING MECHANISM IN A 347H STEEL PIPE-SHOE WELDMENT AFTER FIVE-YEAR SERVICE

Yiyu Wang, Zhili Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Yi Yang, Yanfei Gao, University of Tennessee, Knoxville, TN, USA; Jorge Penso, Shell Global Solutions (US) Inc, Houston, TX, USA

PVP2023-107319: METHODOLOGY DEVELOPMENT TO ASSESS LOCAL DEPOSITION OF CORROSION PRODUCTS ON HEATED SURFACES OF STEAM GENERATING HEAT EXCHANGERS {Presentation Only)

Luciana Rudolph, Thomas Fuchs, Framatome GmbH, Erlangen, Bavaria, Germany

PVP2023-107759: HYDROCRACKER GASKET LIPSEAL DESIGN AND FABRICATION LEARNINGS

Charles Perilloux, Mary Catherine Huff, Amy Adams, John Rhodes, Robert Stierwald, Shell Norco, Norco, LA, USA; Shell Norco, Norco, LA, USA; Shell Norco, Norco, LA, USA; Shell Norco, Norco, LA, USA; Jorge Penso, Shell Projects and Technology, Houston, TX, USA

SESSION 3.3L (SE-07-01)

Wednesday, July 19, 2:15 pm – 4:00 pm, Peachtree 2 (7th Floor)

SEISMIC EVALUATION OF SYSTEMS, STRUCTURES AND COMPONENTS

Symposium on Seismic Evaluation and Codes—Sponsored by the Seismic Engineering Technical Committee

Developed by: Akemi Akemi, Japan Atomic Energy Agency; Satoru Kai, IHI Corporation

Session Chair: Satoru Kai, IHI Corporation, Yokohama, Japan

Session Co-Chair: Keisuke Minagawa, Saitama Institute of Technology, Saitama, Japan

PVP2023-105307: UNCERTAINTIES IN IN-STRUCTURE RESPONSE SPECTRA DUE TO UNCERTAINTIES IN INPUT MOTION AMPLITUDE AND PHASE SPECTRA

Jinsuo R. Nie, U.S. Nuclear Regulatory Commission, Washington, DC, USA; Jim Xu, Vladimir Graizer, Dogan Seber, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2023-105706: SIMPLIFIED METHOD FOR SEISMIC ASSESSMENT OF BURIED PIPELINE WITH LOCAL WALL THINNING

Shoma Onuki, Masaki Mitsuya, Tokyo Gas Co.,Ltd., Yokohama, Kanagawa, Japan

PVP2023-106165: PROPOSAL OF PERFORMANCE-BASED SEISMIC FRAGILITY CONCEPT RELATED TO FAILURE MODES FOR A PIPING SYSTEM

Akihiro Mano, Takuya Sato, Masakazu Ichimiya, Naoto Kasahara, The University of Tokyo, Bunkyo-ku, Tokyo, Japan

PVP2023-107126: STUDY ON ANALYSIS PROCEDURE USING INTEGRATED THREE-DIMENSIONAL FE MODEL FOR REACTOR COOLANT SYSTEM BY APPLYING TO SHAKING TABLE TESTS FOR SCALED MOCK-UPS

Takehiro Kawashima, Yasutaka Kumagai, Yuki Asao, Shota Shimazu, Takuya Nishimura, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan

SESSION 3.3Q (TW-02-07)

Wednesday, July 19, 2:15 pm – 4:00 pm, Augusta 1 (7th Floor)

TECHNICAL TUTORIAL – AN INTRODUCTION TO ASME SECTION VIII, DIVISION 2, PART 5: DESIGN BY ANALYSIS (PART 3)

Developed by: Trevor G. Seipp, Becht, Calgary, AB, Canada

Session Chair: Trevor G. Seipp, Becht, Calgary, AB, Canada

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

Presenter: Trevor G. Seipp, Becht, Calgary, AB, Canada

SESSION 3.3S (TE-03-03)

Wednesday, July 19, 2:15 pm – 4:00 pm, Augusta Ballroom (7th Floor)

TECHNOLOGY EXHIBITS - 11

THURSDAY, JULY 20

Block 4.1: Thursday, July 20, 2023 (8:15 am – 10:00 am)

SESSION 4.1A (MF-12-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain C (6th Floor)

LEAK BEFORE BREAK

Developed by: David Rudland, US Nuclear Regulatory Commission; John Sharples, Jacobs; Mo Uddin, Structural Integrity Associates, Inc.; Peter Gill, Office for Nuclear Regulation

Session Chair: David Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

Session Co-Chair: Peter James, Jacobs, Warrington, Cheshire, United Kingdom

PVP2023-106122: REGULATORY REVIEW EXPERIENCE ON THE LEAK-BEFORE-BREAK APPLICATION OF APR1400 REACTORS IN KOREA {Presentation Only)

Sangmin Lee, Yeji Kim, Sunhye Kim, Young-Hwan Choi, Korea Institute of Nuclear Safety, Yuseong-gu, Daejeon, Republic of Korea

PVP2023-106330: AN APPROACH TO INCLUDE THE EFFECTS OF PLASTICITY IN THE CALCULATION OF CRACK OPENING AREAS FOR THROUGH-WALL CRACKS SUBJECT TO COMBINED PRIMARY AND SECONDARY LOADING

Peter James, William Brayshaw, John Sharples, Jacobs, Warrington, Cheshire, United Kingdom

PVP2023-107396: ESTIMATION SCHEME FOR WELD RESIDUAL STRESS EFFECT ON CRACK OPENING DISPLACEMENTS

Frederick (Bud) Brust, Edward Punch, Elizabeth Twombly, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Jay Wallace, US Nuclear Regulatory Commission, Rockville, MD, USA

PVP2023-107685: EVALUATION OF THE INHERENT LBB BEHAVIOR OF SMALL DIAMETER CLASS 1 AND 2 NUCLEAR PIPING SYSTEMS

Elizabeth Twombly, Lance Hill, Gery Wilkowski, Frederick (Bud) Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Bruce Lin, Robert Tregoning, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

SESSION 4.1B (DA-08-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain D (6th Floor)

DEVELOPMENTS IN FFS TECHNIQUES

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

Developed by: Gys van Zyl, Integrity Engineering Solutions; Kannan Subramanian, Structural Integrity Associates, Inc.

Session Chair: Andrew Owens, Battery Minerals and Mining - Tesla, Austin, TX, USA

Session Co-Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

PVP2023-105598: FURTHER INVESTIGATION OF THE API 579-1/ASME FFS-1 KPECL STRESS INTENSITY FACTORS

Steven Altstadt, Becht Engineering Co., Inc., Third Lake, IL, USA

PVP2023-105941: EFFECT OF GRAIN SIZE ON THE CREEP RESIDUAL LIFE EVALUATION IN THE FRAMEWORK OF THE API 579-1 STANDARD

Lorenzo Scano, Francesco Piccini, Salvatore Palomba, S.S.I. s.r.l., Udine, Friuli Venezia Giulia, Italy; Matteo Bruno, Luca Esposito, University of Naples, Naples, Campania, Italy

PVP2023-106332: EVALUATION OF THE API 579-1/ASME FFS-1 KSSCCL1 AND KSSCCL2 STRESS INTENSITY FACTORS

Steven Altstadt, Wiss, Janney, Elstner Associates, Inc., Northbrook, IL, USA; Melanie Sarzynski, Wiss, Janney, Elstner Associates, Inc., Houston, TX, USA

PVP2023-106460: DEVELOPMENT OF CODE-SPECIFIC RSFA FOR USE IN API 579-1/ASME FFS-1 ASSESSMENTS

Joseph Nunez, ExxonMobil Product Solutions Company, Baytown, TX, USA; Clifford Hay, ExxonMobil Technology and Engineering Company, Shenandoah,

TX, USA; Julian Bedoya, ExxonMobil Technology and Engineering Company, Spring, TX, USA

SESSION 4.1C (DA-21-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain E (6th Floor)

DESIGN AND ANALYSIS OF HYDROGEN PRESSURE 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: Kannan Subramanian, Structural Integrity Associates, Inc.; Warren Brown, Integrity Engineering Solutions

Session Chair: Kannan Subramanian, Structural Integrity Associates, Inc., Kenner, LA, USA

Session Co-Chair: Thomas Prewitt, DNV, Dublin, OH, USA

PVP2023-101664: NUMERICAL ANALYSIS OF HYDROGEN DIFFUSION AND DISTRIBUTION AT CORROSION DEFECT ON AGED PIPELINES FOR HYDROGEN SERVICE

Shiwen Guo, Shaohua Dong, China University of Petroleum-Beijing, Beijing, China; Frank Cheng, University of Calgary, Calgary, AB, Canada

PVP2023-107766: LIFE MANAGEMENT OF PRESSURE SWING ADSORBERS

Annette Karstensen, Becht, Burleigh Heads, Queensland, Australia; Trevor Seipp, Becht, Calgary, AB, Canada; Chithranjan Nadarajah, Becht, Liberty Corner, NJ, USA

PVP2023-107189: REVIEW ON HYDROGEN-INDUCE FAILURE OF RUBBER O-RINGS FOR HIGH PRESSURE HYDROGEN STORAGE TANKS ▼

Qi Chen, Miaomiao Yang, Wenzhu Peng, Riwu Yao, Jianfeng Shi, Zhejiang University, Hangzhou, Zhejiang, China

SESSION 4.1D (DA-10-03)

Thursday, July 20, 8:15 am – 10:00 am, Chastain F (6th Floor)

BOLTED JOINT INTERNATIONAL LIAISON (PANEL SESSION) – 1

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

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Gys van Zyl, Integrity Engineering Solutions; Warren Brown, Integrity Engineering Solutions

Session Chair: Mark Ruffin, Teadit, Pasadena, TX, USA

Session Co-Chair: Gys Van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia

Panelists:

Hubert Lejeune, CETIM, Nantes, Loire-Atlantique, France

Gys van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia

Carlos Girão, Teadit, Itatiba, Sao Paulo, Brazil

SESSION 4.1E (CT-07-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain G (6th Floor)

COMPUTATIONAL APPLICATIONS IN FATIGUE, FRACTURE, AND DAMAGE MECHANICS

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: Reza Adibi-Asl, Kinectrics; Wolf Reinhardt, SNC Lavalin

Session Chair: Reza Adibi-Asl, Kinectrics, Inc., Toronto, ON, Canada

Session Co-Chair: Bhaskar Shitole, Wood Canada Limited, Calgary, AB, Canada

PVP2023-102278: MICROSTRUCTURE-SENSITIVE DESCRIPTION OF THE RESIDUAL STRESSABILITY OF COMPONENTS WITH THE AID OF VIRTUAL EXPERIMENTS

Maximilian Neite, Michael Dölz, Markus Könemann, Sebastian Münstermann, RWTH-Aachen University, Aachen, North Rhine-Westphalia, Germany

PVP2023-106419: DEVELOPMENT OF A NUMERICAL FRAMEWORK FOR MICROSTRUCTURE SENSITIVE FATIGUE LIFE INVESTIGATIONS

Manuel Henrich, Michael Dölz, Sebastian Münstermann, RWTH-Aachen University, Aachen, North Rhine-Westphalia, Germany

PVP2023-106981: A PHASE FIELD APPROACH TO FRACTURE MECHANICS PROBLEMS ▼

Sidharth PC, B. N. Rao, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India

PVP2023-106016: PREDICTION OF CRUDE OIL VISCOSITY FOR PIPELINE OPERATION SAFETY USING OPTIMIZED GRNN MODEL ▼

Jianming Zhang, Xiaolin Wang, Lei Shi, Kaiyan Cui, Qianyao Sun, Yatong Zhao, Sinopec Dalian Research Institute of Petroleum and Petrochemicals Co. Ltd., Dalian, Liaoning, China; Liang Chang, Engineering Technology Research Company Limited, CNPC, Tianjin, Tianjin, China

SESSION 4.1F (MF-11-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain H (6th Floor)

SMALL-SCALE AND MINIATURE MECHANICAL TESTING (JOINT WITH CS-19)

Symposium on Small Scale Mechanical Testing—Co-Sponsored by the Codes & Standards and Materials & Fabrication Technical Committees

Developed by: Mark Kirk, Phoenix Engineering Associates Inc.; Masato Yamamoto, CRIEPI; Noel O'Dowd, University of Limerick; William Server, ATI Consulting

Session Chair: Mark Kirk, Phoenix Engineering Associates Inc., Claremont, NH, USA

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

PVP2023-105789: USE OF MINIATURE SPECIMENS TO CHARACTERIZE THE DUCTILE FAILURE OF WELDS IN PIPELINES {Presentation Only)

Jacques Besson, Said Belkacemi, Yazid Madi, Mines Paris PSL -- Centre des Materiaux, Corbeil-Essonnes, Essonne, France; Clément Soret, Magali Poloe, GRTGAZ, Villeneuve-la-Garenne, Hauts-de-Seine, France

PVP2023-106270: CHARACTERIZATION OF HYDROGEN EMBRITTLEMENT OF LINE PIPE STEELS USING SUB-SIZE SPECIMENS {Presentation Only)

Clément Soret, Magali Polo, GRTGAZ, Villeneuve-la-Garenne, Hauts-de-Seine, France; Jacques Besson, Yazid Madi, Said Belkacemi, Luciano Meireilles Santana, Mines Paris PSL -- Centre des Materiaux --- Corbeil-Essonnes, Hauts-de-Seine, France; Francis Bourguignon, Pierre-Jean Marchais, Mannesmann Precision Tubes France, Vitry-le-François, Marne, France

PVP2023-106298: MECHANICAL BEHAVIOR OF 316L-IN718 INTERFACE PRODUCED BY DIRECTED ENERGY DEPOSITION INVESTIGATED USING MINIATURIZED SPECIMENS

Sylwia Rzepa, Matouš Uhlík, Daniel Melzer, Martina Koukolíková, Pavel Konopík, Ján Džugan, COMTES FHT a.s., Dobřany, Plzeňský kraj, Czech Republic

SESSION 4.1G (FSI-04-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain I (6th Floor)

DESIGN FOR INDUSTRY AND RENEWABLE ENERGY TRANSPORT - 1

Developed by: Kazuaki Inaba, Tokyo Institute of Technology; Ming Ji, Tokyo Institute of Technology; Ziyi Su, Nagoya Institute of Technology

Session Chair: Stefan Belfroid, TNO, Delft, Netherlands

Session Co-Chair: Kazuaki Inaba, Tokyo Institute of Technology, Tokyo, Japan

PVP2023-105217: FLOW-INDUCED VIBRATION OF PIPING SYSTEMS

George Antaki, Becht Engineering Co., Inc., Aiken, SC, USA

PVP2023-106274: INVESTIGATIONS ON VIBROACOUSTIC CHARACTERISTICS OF SANDWICH PLATES WITH VISCOELASTIC CORE USING COUPLED FE-BE METHOD

Ming Ji, Tokyo Institute of Technology, Koto-ku, Tokyo, Japan; Yu Sekiguchi, Chiaki Sato, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan; Masanobu Naito, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

PVP2023-105915: FEASIBILITY AND OPTIMIZATION OF NOZZLE FLAPPER SYSTEM FOR POSITION MEASUREMENTS OF HIGH-SPEED ROTATION SPINDLE WITH AEROSTATIC BEARINGS
Peimin Xu, Kazuaki Inaba, Hisami Takeishi, Toshiharu Kagawa, Tokyo Institute of Technology, Meguro, Tokyo, Japan
PVP2023-107004: SEAL FAILURE ANALYSIS OF O-RING SEAL BASED ON TWO-WAY FLUID-STRUCTURE INTERACTION ▼
Xinao Ma, Qingye Li, Chaoyong Zong, Weihao Zhou, Xueguan Song, Dalian University of Technology, Dalian, Liaoning, China

SESSION 4.1H (FSI-02-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain I (6th Floor)
TUBE ARRAYS – 1
Symposium on Flow-Induced Vibration—Sponsored by the Fluid-Structure Interaction Technical Committee
Developed by: Marwan Hassan, University of Guelph
Session Chair: Hugh Goyder, Cranfield University, Shrivenham, Oxfordshire, United Kingdom
Session Co-Chair: Salim El Bouzidi, Canadian Nuclear Laboratories, Chalk River, ON, Canada
PVP2023-105825: ANALYSIS OF FLUID-ELASTIC INSTABILITY MODELS FOR TUBE BANKS WITH SQUARE ARRANGEMENT IN CROSS-FLOW
Roberta Fátima Neumeister, University of São Paulo, São Carlos, São Paulo, Brazil; Adriane Prisco Petry, Federal University of Rio Grande do Sul UFRGS, Porto Alegre, Rio Grande do Sul, Brazil; Sergio Viçosa Möller, Universidade Federal do Rio Grande do Sul, Osório, Rio Grande do Sul, Brazil
PVP2023-106282: STUDY ON THE CIRCUMFERENTIAL PRESSURE DISTRIBUTION OF THE TUBE BUNDLE IN THE CENTER OF THE HEAT EXCHANGER ▼
Sijiu Qi, Wei Tan, Guihong Zhu, Guorui Zhu, Tianjin University, Tianjin, Tianjin, China
PVP2023-107312: EXPERIMENTAL INVESTIGATION OF COMBINED AXIAL FLOW AND JET CROSS-FLOW ON PWR MOCK-UP ARRAY
Ibrahim Gad-el-Hak, Njuki Mureithi, Polytechnique Montreal, Montreal, Quebec, Canada; Kostas Karazis, Framatome Inc., Lynchburg, VA, USA
PVP2023-107434: GEOMETRICAL EFFECT OF TUBE ARRAY ON PREDICTION OF FLUIDELASTIC INSTABILITY– SINGLE PHASE AIR FLOW
Amro Elhelaly, Marwan Hassan, University of Guelph, Guelph, Ontario, Canada; David Weaver, McMaster University, Hamilton, Ontario, Canada; Jovica R. Riznic, Canadian Nuclear Safety Commission, Ottawa, Ontario, Canada

SESSION 4.1I (MF-29-01)

Thursday, July 20, 8:15 am – 10:00 am, Augusta 3 (7th Floor)
MECHANICAL PROPERTIES OF NUCLEAR GRAPHITE AND THEIR IMPLEMENTATION IN CODES AND STANDARDS (JOINT WITH CS-15)
Developed by: David Rudland, US Nuclear Regulatory Commission; Graeme Horne, Frazer-Nash Consultancy; Sam Sham, Idaho National Laboratory
Session Chair: Ting-Leung (Sam) Sham, Idaho National Laboratory, Idaho Falls, ID, USA
Session Co-Chair: Steven Xu, Kinectrics Inc., Toronto, ON, Canada
PVP2023-105922: EFFECT OF DIFFERENTIAL OXIDATION OF GRAPHITE CRYSTALLITES ON THE ELASTIC MODULI OF NUCLEAR GRAPHITES
James Spicer, Cristian Contescu Ellen Berry, Johns Hopkins University, Baltimore, MD, USA;, Jose David Arregui-Mena, Lianshan Lin, Nidia Gallego, Oak Ridge National Laboratory, Oak Ridge, TN, USA
PVP2023-106362: GRAPHITE MATERIAL MODEL CALIBRATION FOR CONCEPTUAL DESIGN AND CORE CONFIGURATION STUDIES
Amanda Young, Richard Gray, Daniel Kent, Mark Joyce, Frazer-Nash Consultancy, Warrington, Greater Manchester, United Kingdom; Graeme Horne, Frazer-Nash Consultancy, Bristol, Gloucestershire, United Kingdom
PVP2023-106613: GRAPHITE - MOLTEN SALT CONSIDERATIONS FOR COMPONENTS IN NUCLEAR APPLICATIONS
Nidia C. Gallego, Josina W. Geringer, Oak Ridge National Laboratory, Oak Ridge, TN, USA; William Windes, Idaho National Laboratory, Idaho Falls, ID, USA
PVP2023-107838: INTEGRATION OF FULL FIELD DIGITAL IMAGE CORRELATION WITH STANDARD DISC COMPRESSION TEST ON SMALL SIZE NUCLEAR GRAPHITE SAMPLES {Presentation Only)
Lianshan Lin, Charles Hawkins, Cristian Contescu, Jose Arregui-Mena, Nidia Gallego, Oak Ridge National Laboratory, Oak Ridge, TN, USA; James Spicer, Johns Hopkins University, Baltimore, MD, USA

SESSION 4.1J (CS-07-04)

Thursday, July 20, 8:15 am – 10:00 am, Peachtree 1 (8th Floor)
PANEL SESSION - ASME CODE STAMPING OF PLATE CELL STACKS AS RELATED TO HYDROGEN
Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee
Developed by: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA; Karen Quackenbush, Fuel Cell and Hydrogen Energy Association, Washington, DC, USA
Session Chair: Daniel T. Peters, Structural Integrity Associates, Inc., Edinboro, PA, USA;
Session Co-Chair: Karen Quackenbush, Fuel Cell and Hydrogen Energy Association, Washington, DC, USA
Panelists: Steven C. Roberts, Shell Global Solutions (US), Houston, TX, USA
Kang Xu, Linde Inc., Tonawanda, NY, USA
Curt Ebner, Electric Hydrogen Co., San Carlos, CA, USA
Svetlana Ulemek, Plug Power Inc., Ballston Spa, NY, USA

SESSION 4.1K (OAC-01-01)

Thursday, July 20, 8:15 am – 10:00 am, Peachtree 2 (8th Floor)
APPLICATION IN RISK MANAGEMENT AND SYSTEM RELIABILITY
Developed by: Alton Reich, Streamline Automation, LLC; Sarah Suffield, PNNL
Session Chair: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA
Session Co-Chair: Sarah Suffield, Pacific Northwest National Laboratory, Richland, WA, USA
PVP2023-106365: DETERMINISTIC LEAK-BEFORE-BREAK TREATMENT OF UNCERTAINTIES – THEORETICAL BASIS
Michael Kozluk, Cantech Associates, Burlington, ON, Canada; Maher Al-Dojayli, Kinectrics Inc., Etobicoke, ON, Canada; Renita Pavia, Bruce Power L.P., Tiverton, ON, Canada; Ernie Mileta, Ontario Power Generation, Pickering, ON, Canada
PVP2023-106384: DETERMINISTIC LEAK-BEFORE-BREAK TREATMENT OF UNCERTAINTIES – EXAMPLE APPLICATION
Michael Kozluk, Cantech Associates, Burlington, ON, Canada; Maher Al-Dojayli, Kinectrics Inc., Etobicoke, ON, Canada; Renita Pavia, Bruce Power L.P., Tiverton, ON, Canada; Ernie Mileta, Ontario Power Generation, Pickering, ON, Canada
PVP2023-107187: APPLICATION OF DYNAMIC RBI AND IOW TECHNOLOGY IN CRUDE DISTILLATION UNIT ▼
Juanbo Liu, Jun Li, Chang Liu, Zhiyuan Han, Guoshan Xie, Libin Song, Sheng Chen, Haoyuan Kang, China Special Equipment Inspection and Research Institute, Beijing, China

SESSION 4.1L (SE-05-01)

Thursday, July 20, 8:15 am – 10:00 am, Chastain 1 (6th Floor)
STRUCTURAL DYNAMICS
Developed by: Katsuhisa Fujita, Osaka City University; Kiyoshi Aida, Mitsubishi Heavy Industries
Session Chair: Keisuke Minagawa, Saitama Institute of Technology, Saitama, Japan
Session Co-Chair: Satoru Kai, IHI Corporation, Yokohama, Japan

PVP2023-102942: CONSIDERING GAPS BETWEEN TUBES AND AVBS FOR U-SHAPED TUBE BUNDLE IN STEAM GENERATORS USING SEISMIC LINEAR ANALYSIS METHOD

Kazuo Hirota, Masatsugu Monde, Naoki Ono, Tomohito Nakamori, Mitsubishi Heavy Industries, Ltd., Takasago, Hyogo, Japan; Masahito Matsubara, Tomonori Mineno, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; Koshi Taguchi, The Kansai Electric Power Company, Incorporated, Osaka, Osaka, Japan

PVP2023-105288: STUDY ON VERTICAL LOAD ACTING ON WHOLE ROOF OF CYLINDRICAL TANKS IN NONLINEAR SLOSHING INCLUDING EXTREMELY LARGE LOAD

Shunichi Ikesue, Mitsubishi Heavy Industries, Ltd., Nagasaki, Nagasaki, Japan; Hideyuki Morita, Mitsubishi Heavy Industries, Ltd., Takasago, Hyogo, Japan; Hiromi Sago, Mitsubishi Heavy Industires, Ltd., Kobe, Hyogo, Japan; Shinobu Yokoi, Mitsubishi FBR Systems, Inc., Kobe, Hyogo, Japan; Tomohiko Yamamoto, Japan Atomic Energy Agency, Higashiibaraki, Ibaraki, Japan

PVP2023-105872: SEISMIC RESPONSE OF TUBES VIBRATING INDEPENDENTLY IN IN-PLANE DIRECTION FOR U-SHAPED TUBE BUNDLE WITH TRIANGULAR ARRAYS IN STEAM GENERATORS

Masatsugu Monde, Naoki Ono, Tomohito Nakamori, Kazuo Hirota, Mitsubishi Heavy Industries, Ltd., Takasago, Hyogo, Japan; Masahito Matsubara, Tomonori Mineno, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; Koshi Taguchi, The Kansai Electric Power Company, Incorporated, Osaka, Osaka, Japan

PVP2023-105976: SEISMIC DYNAMIC RESPONSE ANALYSIS OF LIQUID STORAGE TANK UNDER UNEVEN FOUNDATION SETTLEMENT BASED ON FLUID-STRUCTURE INTERACTION ▼

Jiayi Huang, Zhiping Chen, Peng Jiao, Zhejiang University, Hangzhou, Zhejiang, China

Block 4.2: Thursday, July 20, 2023 (10:15 am – 12:00 pm)

SESSION 4.2A (CT-08-01)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain C (6th Floor)

THE L. EUGENE HULBERT MEMORIAL SESSION ON NEW AND EMERGING METHODS OF ANALYSIS AND APPLICATIONS

Developed by: Bhaskar Shitole, Wood; Don Metzger, SNC Lavalin; Young Ho Park, New Mexico State University
Session Chair: Anita Bausman, VSP Technologies, Kingsport, TN, USA
Session Co-Chair: Alton Reich, Streamline Automation, LLC, Huntsville, AL, USA

PVP2023-106773: CRACK SIZE MEASUREMENTS ON FRACTURE SURFACE IMAGES USING DEEP NEURAL NETWORKS FOR SEMANTIC SEGMENTATION

Johannes Rosenberger, Sebastian Münstermann, RWTH-Aachen University, Aachen, North Rhine-Westphalia, Germany; Johannes Tlatlik, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg im Breisgau, Baden-Wurttemberg, Germany

PVP2023-108275: THE POTENTIAL AND CHALLENGES OF QUANTUM COMPUTING FOR ENGINEERING APPLICATIONS

Alton Reich, Miranda Reich, Roberto Disalvo, Streamline Automation, Huntsville, AL, USA; David Carroll, Timothy Carlson, Wake Forest University, Winston-Salem, NC, USA

PVP2023-106347: DAMAGE MODELING IN METAL ADDITIVE MANUFACTURING PROCESS

C. Fietek, J. Sakai, A. Love, Y. H. Park, New Mexico State University, Las Cruces, NM, USA

PVP2023-106113: DEFECT RECOGNITION AND CLASSIFICATION FROM ULTRASONIC PHASED ARRAY TOTAL FOCUSING METHOD IMAGING BASED ON RANDOM FOREST ▼

Haibin Wang, Zhichao Fan, Xuedong Chen, Jingwei Cheng, Wei Chen, Zhe Wang, Yangguang Bu, Hefei General Machinery Research Institute Co., Ltd., Hefei, Anhui, China

SESSION 4.2B (DA-08-02)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain D (6th Floor)

FFS INVOLVING PIPING AND PIPELINES

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

Developed by: Gys van Zyl, Integrity Engineering Solutions; Kannan Subramanian, Structural Integrity Associates, Inc.
Session Chair: Gys van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia
Session Co-Chair: Andrew Owens, Battery Minerals and Mining - Tesla, Austin, TX, USA

PVP2023-101256: VALIDATION OF FATIGUE CRACK GROWTH MODELING SOLUTIONS USING MEASUREMENTS COLLECTED ON API X65 PIPING SPECIMENS

Adrian Loghin, Simmetrix Inc., Clifton Park, NY, USA; James Harter, LexTech Inc., Centerville, OH, USA

PVP2023-105920: PROBABILISTIC LEAK BEFORE BREAK

Francesco Brigante, Fabio Pasti, F. H. E. De Haan - De Wilde, NRG, Petten, North Holland, Netherlands

PVP2023-106116: A NOVEL STRAIN-BASED FRACTURE EVALUATION METHOD FOR LONG-DISTANCE PIPELINE GIRTH WELD WITH THE CRACK TIP UNDER LARGE SCALE YIELD CONDITION ▼

Kai Wu, Jie Dong, Guangfei Guo, Hefei General Machinery Research Institute Co. Ltd., Hefei, Anhui, China

PVP2023-106290: LEVEL 3 FITNESS FOR SERVICE ASSESSMENT OF CARBON STEEL PIPING COMPONENT HAVING LOCAL METAL LOSS

Muhammad Raheel Rafique, Petrokemya Arabian Petrochemical Co., Jubail, Eastern Province, Saudi Arabia

SESSION 4.2C (MF-02-06)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain D (6th Floor)

MATERIALS FOR HYDROGEN SERVICE (JOINT WITH CS-02 AND HT-07) - HYDROGEN EXPOSURE EFFECTS

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, Sandia National Laboratories; Joe Ronevich, Sandia National Laboratories; Kevin Mandeville, Jr, DNV; Laurent Briottet, French Alternative Energies & Atomic Energy Commission; Paul Korinko, Savannah River National Laboratory; Steven Xu, Kinectrics; Sylvain Pillot, ArcelorMittal; Timothy Krentz, Savannah River National Laboratory
Session Chair: Chris San Marchi, Sandia National Laboratory, Livermore, CA, USA
Session Co-Chair: Joe Ronevich, Sandia National Laboratory, Livermore, CA, USA

PVP2023-108285: REQUIRED SOAKING TIME FOR HYDROGEN TESTING (Presentation Only)

Jesse Rhodes, EWI, Lewis Center, OH, USA; Tom McGaughy, Joshua James, EWI, Columbus, OH, USA

PVP2023-106224: THE RELATIONSHIP BETWEEN THE CHANGE IN THE PROPERTIES OF RUBBER MATERIALS AND THE FAILURE OF O-RINGS EXPOSED TO HIGH-PRESSURE HYDROGEN {Presentation Only)

Sang Koo Jeon, Nae Hyung Tak, Nak Kwan Chung, Jae Kap Jung, Un Bong Baek, Seung Hoon Nahm, Korea Research Institute of Standards and Science, Daejeon, Yuseong-Gu, Republic of Korea

PVP2023-105798: THE EFFECTS OF FILLERS ON THE PERMEABILITY OF POLYMERS FOR HYDROGEN INFRASTRUCTURES {Presentation Only)

Nak-Kwan Chung, Dojung Kim, Sangkoo Jeon, Korea Research Institute of Standards and Science, Daejeon, Daejeon, Republic of Korea; Chunjoong Kim, Chungnam National University, Daejeon, Daejeon, Republic of Korea;

PVP2023-107131: PREDICTION OF DORMANCY TIME OF CRYO-COMPRESSED HYDROGEN TANK BY CONSIDERING DYNAMIC THERMAL BOUNDARY ▼

Yutong Yuan, Zhoutian Ge, Jianfeng Shi, Zhejiang University, Hangzhou, Zhejiang, China

SESSION 4.2D (DA-10-04)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain F (6th Floor)

BOLTED JOINT INTERNATIONAL LIAISON (PANEL SESSION) – 2

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

Developed by: C. D. Rodery, C&S Technology LLC, League City, TX, USA; Gys van Zyl, Integrity Engineering Solutions; Warren Brown, Integrity Engineering Solutions

Session Chair: Hubert Lejeune, CETIM, Nantes, France

Session Co-Chair: Carlos Girão, Teadit, Itatiba, Sao Paulo, Brazil

Panelists:

Gys van Zyl, Integrity Engineering Solutions, Dunsborough, WA, Australia

SESSION 4.2E (MF-13-01)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain G (6th Floor)

COMPOSITE AND NON-METALLIC SYSTEMS FOR PRESSURE VESSELS AND PIPING

Developed by: Jianfeng Shi, Zhejiang University; Mo Uddin, Structural Integrity Associates, Inc.; Noel O'Dowd, University of Limerick; Pierre Mertiny, University of Alberta; Qin Ma, Walla Walla University; Suresh Kalyanam, Westinghouse Electric Company; Sushma Pothana, Engineering Mechanics Corporation of Columbus

Session Chair: Pierre Mertiny, University of Alberta, Edmonton, Canada

Session Co-Chair: Jianfeng Shi, Zhejiang University, Hangzhou, Zhejiang, China

PVP2023-106404: ASSESSING RESIDUAL STRESSES IN PE-RT PIPES AND ANNEALING TEMPERATURE SENSITIVITY ANALYSIS

Arun Biradar, Jorge Palacios Moreno, Pierre Mertiny, University of Alberta, Edmonton, Alberta, Canada

PVP2023-106518: CONSIDERATIONS FOR GRAPHITE IN THE DESIGN AND QUALIFICATION OF ADVANCED REACTOR CORES

Owen Booler, Mike Davies, Jacobs, Warrington, Cheshire, United Kingdom

PVP2023-107022: APPLICABILITY ANALYSIS OF THERMOPLASTIC MATERIAL AS LINER PIPE FOR TRENCHLESS REHABILITATION OF THERMAL PIPELINES

Zhongzhen Wang, Jianfeng Shi, Liang Zhang, Zhejiang University, Hangzhou, Zhejiang, China

PVP2023-105954: EVALUATION OF THE DEFECT WIDTH EFFECT ON THE BURST PRESSURE OF A CORRODED PIPELINE REPAIRED USING COMPOSITE MATERIALS

Rodrigo Silva Silva-Santisteban, Wenxing Zhou, University of Western Ontario, London, Ontario, Canada

SESSION 4.2F (MF-22-01)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain H (6th Floor)

3D CRACK GROWTH SIMULATION USING FEA

Developed by: Do Jun Shim, EPRI; Gary Dominguez, Structural Integrity Associates, Inc.; Suresh Kalyanam, Westinghouse Electric Company; Yifan Huang, GE Hitachi Nuclear Energy; Yinsheng Li, Japan Atomic Energy Agency

Session Chair: Do Jun Shim, EPRI, Palo Alto, CA, USA

Session Co-Chair: Mo Uddin, Structural Integrity Associates, Inc., Dublin, OH, USA

PVP2023-106195: OVERVIEW OF THE KOREAN PROGRAM ON FE-BASED NATURAL CRACK GROWTH SIMULATION SYSTEM {Presentation Only)

Nam-Su Huh, Seoul National Univ of Science and Technology, Seoul, Seoul, Republic of Korea; Kyungsoo Park, Yonsei University, Seoul, Seoul, Republic of Korea; No-Hwan Park, Jun Park, VENG, Seongnam-si, Gyeonggi-do, Republic of Korea; Chang-Hee Jang, KAIST, Daejeon, Daejeon, Republic of Korea

PVP2023-106211: 3D MESH REGENERATION ALONG WITH CRACK PROPAGATION {Presentation Only)

Sunghoon Park, Noh-Hwan Park, Jun Park, VENG Co., Ltd., Seongnam-si, Gyeonggi-do, Republic of Korea

PVP2023-106250: NATURAL CRACK GROWTH DUE TO THERMO-MECHANICAL FATIGUE USING 3D ITERATIVE FE ANALYSIS {Presentation Only)

Gi-Bum Lee, Nam-Su Huh, Seoul National University of Science and Technology, Seoul, Seoul, Republic of Korea; Sunghoon Park, VENG, Seongnam-si, Gyeonggi-do, Republic of Korea

PVP2023-106265: ACCURATE EVALUATION OF STRESS INTENSITY FACTOR IN 3D ARBITRARY UNSTRUCTURED MESH USING VIRTUAL GRID BASED STRESS RECOVERY {Presentation Only)

Jongyeop Kim, Kyoungsoo Park, Yonsei University, Seoul, Seoul, Republic of Korea; Habeon Choi, Korea Atomic Energy Research Institute, Daejeon, Daejeon, Republic of Korea

PVP2023-106254: PWSCC CRACK INITIATION AND GROWTH OF ALLOY 182 WELD USING CURVED TENSILE SPECIMEN WITH A NOTCH {Presentation Only)

Changheui Jang, Hyeon Bae Lee, Okonkwo Bright Ogwugwa, Korea Advanced Institute of Science and Technology, Yuseong-gu, Daejeon, Republic of Korea

SESSION 4.2G (FSI-04-02)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain I (6th Floor)

FSI DESIGN FOR INDUSTRY AND RENEWABLE ENERGY TRANSPORT - 2

Developed by: Kazuaki Inaba, Tokyo Institute of Technology; Ming Ji, Tokyo Institute of Technology; Ziyi Su, Nagoya Institute of Technology

Session Chair: Kazuaki Inaba, Tokyo Institute of Technology, Tokyo, Japan

Session Co-Chair: Stefan Belfroid, TNO, Delft, Netherlands

PVP2023-109226: FLUID TRANSIENTS IGNITED THE SAN BRUNO GAS PIPELINE EXPLOSIONS

Robert Leishear, Leishear Engineering, LLC., Aiken, SC, USA

PVP2023-105960: A CHECK VALVE ROTOR CONCEPT TO FORM AN IMPLODING LIQUID LINER FOR THE MAGNETIZED TARGET FUSION APPLICATION

Jean-Sebastien Dick, Scott Bernard, Ivan Khalzov, General Fusion Inc., Richmond, BC, Canada

PVP2023-106868: CFD STUDY ON HIGH-PRESSURE HYDROGEN LEAKAGE AND EXPLOSION OF HYDROGEN ENERGY TRAM IN TUNNEL

Tiantian Tian, Chen Lu, Yiming Zhao, Zhengli Hua, Wenzhu Peng, Chaohua Gu, Zhejiang University, Hangzhou, Zhejiang, China; Wenlong Ha, ZheJiang HeBang Security Technology Co., Ltd., Jiaxing, Zhejiang, China;

PVP2023-107033: A REVIEW ON THE HYDROGEN PRODUCTION FROM OCEAN RENEWABLE ENERGY AND THE APPLICATION STATUS ▼

Jianfeng Shi, Ruoxi Xia, Xingyu Zheng, Riwu Yao, Jinyang Zheng, Zhejiang University, Hangzhou, Zhejiang, China

SESSION 4.2H (FSI-02-02)

Thursday, July 20, 10:15 am – 12:00 pm, Chastain J (6th Floor)

TUBE ARRAYS – 2

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

Developed by: Marwan Hassan, University of Guelph

Session Chair: Sergio Viçosa Möller, Universidade Federal do Rio Grande do Sul, Osório, Rio Grande do Sul, Brazil

Session Co-Chair: Paul Feenstra, Canadian Nuclear Laboratories Ltd., Chalk River, ON, Canada

PVP2023-106387: STUDY ON FLUID-ELASTIC INSTABILITY OF TUBE BUNDLES IN CROSS FLOW BASED ON SPATIOTEMPORAL COHERENCE

Kai Guo, Yuxuan Cheng, Meiqi Yu, Hongsheng Zhang, Yanshan University, Qinhuangdao, Hebei, China; Xiantao Fan, University of Notre Dame, Notre Dame, IN, USA; Wei Tan, Tianjin University, Tianjin, Tianjin, China

PVP2023-106882: A METHOD FOR MODELING FLUIDELASTIC INSTABILITY IN TUBE ARRAYS SUBJECTED TO TWO-PHASE FLOWS
Hossein Farani Sani, Marwan Hassan, University of Guelph, Guelph, ON, Canada; Joaquin Moran, Sheridan College, Oakville, ON, Canada; Atef Mohany, Ontario Tech University, Oshawa, ON, Canada;
PVP2023-106888: GENERALIZATION OF ROTATED TRIANGULAR ARRAY FORCE MEASUREMENTS IN TWO-PHASE CROSS-FLOW ▼
Sameh Darwish, Njuki Mureithi, Ecole Polytechnique Montreal, Montreal, QC, Canada; Minki Cho, Doosan Enerbility, Changwon-si, Gyeongsangnam-do, Republic of Korea
PVP2023-106353: FLOW-VISUALIZATION OF A PROTOTYPICAL HELICAL COIL TEST BUNDLE UNDERGOING VIBRATIONS
Noah Sutton, Blake Maher, Rodolfo Vaghetto, Yassin Hassan, Texas A&M University, College Station, TX, USA

SESSION 4.2I (CS-12-01)

Thursday, July 20, 10:15 am – 12:00 pm, Augusta 3 (7th Floor)
HIGH TEMPERATURE CODES AND STANDARDS
Symposium on Recent Developments in Codes & Standards—Sponsored by the Codes & Standards Technical Committee

Developed by: Anees Udyawar, Westinghouse Electric Company; Suresh Kalyanam, Westinghouse Electric Company; Valery Lacroix, Tractebel Engie
Session Chair: Valery Lacroix, Tractebel, Brussels, Belgium
Session Co-Chair: Reza Adibi-Asl, Kinectrics, Inc., Toronto, ON, Canada

PVP2023-106584: DEVELOPMENT OF A WEB-BASED DESIGN EVALUATION PLATFORM FOR ELEVATED TEMPERATURE DESIGN AS PER ASME SECTION III DIVISION 5, ASME CC-2843 AND RCC-MRX
Hyeong-Yeon Lee, Ki-Ean Nam, Korea Atomic Energy Research Institute (KAERI), Daejeon, Daejeon-Gwangyeok-si, Republic of Korea; Nam-Su Huh, Seoul National University of Science and Technology, Seoul, Seoul, Republic of Korea; Min-Kyu Kim, ThusTop Co., Ltd., Suwon, Gyeonggi-Do, Republic of Korea
PVP2023-107112: ANALYSIS OF PIPING COMPONENTS FOR HIGH TEMPERATURE-EXAMPLE PROBLEM
Reza Adibi-Asl, Kinectrics, Toronto, ON, Canada
PVP2023-105707: DEVELOPMENT OF THE BUCKLING EVALUATION METHOD FOR LARGE SCALE VESSELS IN FAST REACTORS BY THE TESTING OF GRADE 91 STEEL AND AUSTENITIC STAINLESS STEEL VESSELS SUBJECTED TO HORIZONTAL AND CYCLIC VERTICAL LOADING
Takashi Okafuji, Kazuhiro Miura, Mitsubishi Heavy Industries, Ltd., Nagasaki, Nagasaki, Japan; Hiromi Sago, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; Hisatomo Murakami, Mitsubishi FBR Systems, Inc., Kobe, Hyogo, Japan; Masanori Ando, Satoshi Okajima, Japan Atomic Energy Agency, Higashi-ibaraki, Ibaraki, Japan
PVP2023-105722: COMPARISON OF RATCHETING RESULTS USING AVAILABLE METHODOLOGIES IN ASME III DIVISION 5
Gaston Bourguigne, Martin Brusconi, Seaborg Technologies ApS, Copenhaguen, Hovedstaden, Denmark

SESSION 4.2K (OAC-01-02)

Thursday, July 20, 10:15 am – 12:00 pm, Peachtree 2 (8th Floor)
RISK MANAGEMENT AND HAZARD ANALYSIS

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

PVP2023-105667: PARAMETRIC NUMERICAL ASSESSMENT OF AN AEROJET GENERAL NUCLEONICS REACTOR AGAINST POSTULATED FIRE CONDITIONS
Jae-Min Jyung, Yoon-Suk Chang, Kyung Hee University, Yongin-si, Gyeonggi-Do, Republic of Korea
PVP2023-105201: INSULATION MATERIALS USED IN TANKS FOR THE STORAGE OF CRYOGENIC FLUIDS IN FIRE SCENARIOS
Robert Eberwein, Aliasghar Hajhariri, Frank Otremba, Bundesanstalt für Materialforschung und –prüfung (BAM), Berlin, Germany; Davide Camplese, Giordano Emrys Scarponi, Valerio Cozzani, Università di Bologna, Bologna, Emilia-Romagna, Italy
PVP2023-106372: RESEARCH AND APPLICATION OF A DYNAMIC RISK MANAGEMENT SYSTEM FOR THE PETROCHEMICAL UNIT IN EXTENDED SERVICE ▼
Zhiyuan Han, Jun Li, Juanbo Liu, Guoshan Xie, Haoyuan Kang, China Special Equipment Inspection and Research Institute, Beijing, China
PVP2023-106697: A SURVEY OF FAILURE RATE OF IN-SERVICE PRESSURE VESSELS IN CHINA'S NON-NUCLEAR INDUSTRY ▼
Libin Song, Jun Li, Zhiyuan Han, Guoshan Xie, Guide Deng, Zhifeng Li, China Special Equipment Inspection and Research Institute, Beijing, China

Block 4.3: Thursday, July 20, 2023 (2:15 pm – 4:00 pm)

SESSION 4.3C (TW-02-08)

Thursday, July 20, 2:15 am – 4:00 pm, Chastain E (6th Floor)
TECHNICAL WORKSHOP – HYDROGEN 101: Introduction Considerations For Hydrogen Service (Part 1)

Developed by: Christopher San Marchi, Sandia National Laboratories, Livermore, CA, USA; Maher Younan, The American University in Cairo, Cairo, Egypt
Session Chair: Christopher San Marchi, Sandia National Laboratories, Livermore, CA, USA
Session Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt

Presenters:
Hisao Matsunaga, Kyushu University, Fukuoka, Nishi-ku, Fukuoka, Japan
Kevin Simmons, Pacific Northwest National Laboratory, Richland, WA, USA

Block 4.4: Thursday, July 20, 2023 (4:15 pm – 6:00 pm)

SESSION 4.4C (TW-02-09)

Thursday, July 20, 4:15 am – 6:00 pm, Chastain E (6th Floor)
TECHNICAL WORKSHOP – HYDROGEN 101: INTRODUCTION CONSIDERATIONS FOR HYDROGEN SERVICE (PART 2)

Developed by: Christopher San Marchi, Sandia National Laboratories, Livermore, CA, USA; Maher Younan, The American University in Cairo, Cairo, Egypt
Session Chair: Christopher San Marchi, Sandia National Laboratories, Livermore, CA, USA
Session Co-Chair: Maher Younan, The American University in Cairo, Cairo, Egypt

Presenters:
Bostjan Bezensek, Shell Global Solutions UK, Laurencekirk, Aberdeenshire, United Kingdom
Kang Xu, Linde Inc., Tonawanda, NY, USA

REVIEWERS

Reviewers are vital for the quality and success of the Conference Technical Program. The Conference Organizers would like to acknowledge the many Reviewers who donated their time and expertise to PVP2023. Their contributions are very much appreciated.

Abdelgalil, Abdelgader
Abu, Seena
Adibi-Asl, Reza
Agarwal, Vivek
Agnani, Milan
Aida, Kiyoshi
Alpan, Arzu
Al-Shehri, Ali
Altstadt, Steven
Alziadeh, Mohammed
Antaal, Bikram
Antaki, George
Arroyo Martinez, Borja
Asada, Seiji
Aumuller, John
Azuma, Kisaburo
Baek, Un-Bong
Bailey, Jonathan
Balakrishnan, Naresh
Ballheimer, Viktor
Bansal, Gaurav
Barborak, Darren
Barkley, Nathan
Barron, B.
Barua, Bipul
Basavaraju, Chakrapani
Bass, Joseph
Bausman, Anita
Bedoya, Julian
Belfroid, Stefan
Benson, Michael
Berry, Alex
Bezensek, Bostjan
Bhattacharya, Anindya
Bilello, Michael
Bogosian, David
Bonny, Giovanni
Bortot, Paolo
Bouse, Scott
Briottet, Laurent
Brongers, Michiel
Broussard, John
Brown, Warren
Brust, Frederick (Bud)
Bubenik, Tom
Busch, Markus
Camilleri, Duncan
Campbell, Anne
Carcasci, Cosimo
Chandra, Ashwini
Chaouadi, R.
Chen, Chong
Chen, Tom
Chen, Xiang
Chen, Yu
Chen, Zhiwei
Cheong, Ian Ty
Cheta, Ayman
Ching, Hsu-Kuang
Chou, Hsoung-Wei
Cicero, Sergio
Cipolla, Russell
Clayton, Alan
Cloostermans, Ben
Cohen, Michael
Cohn, Marvin
Colwell, Richard
Connolly, Matthew
Cooper, Marcia
Cornelissen, Philip
Cravero, Sebastian
Cristea, Mihaela E.
Damiani, Thomas
Darade, Animesh Anil
Daru, Kuntak
Davies, Catrin Mair
De Agostinis, Massimiliano
De Castro Marangone, Fabio
De Haan - De Wilde, F. H. E.
De Smet, Michel
Deng, Guide
Densmore, Bill
Ding, Ju
Disalvo, Roberto
Doddihal, Preeti
Dominguez, Gary
Drago, James
Drennen, Todd
Dulieu, Pierre
Duncan, Andrew
Dunn, Darrell
Duranton, Pascal
Edel, Matthew
El Bouzidi, Salim
Elhelaly, Amro
Ellis, Jeff L.
Emery, John
Erickson, Marjorie
Faidy, Claude
Fan, Xiantao
Farani Sani, Hossein
Faulkner, Michael
Feenstra, Paul
Feldman, Matthew
Findlan, Shane
Fini, Stefano
Fischer, Carl
Francis, Daniel
Fuenmayor, David
Fujimoto, Koji
Fukasawa, Tsuyoshi
Furuya, Osamu
Gad-El-Hak, Ibrahim
Garud, Yogendra
Gawande, Kshitij
Ge, Zhoutian
Geng, Jihui
Gill, Peter
Girão, Carlos
Gleim, Tobias
González Díez, Néstor
Goto, Sota
Gray, Mark
Gross, David
Gualdron Plata, Javier
Guo, Kai
Guo, Shiwen
Guo, Xiaolu
Gurdal, Robert
Ha, Yoosung
Hadji, Abdallah
Hadj-Nacer, Mustafa
Hall, Brian
Hamakawa, Hiromitsu
Hamelin, Cory
Han, Zenghu
Hanna, Benjamin
Harrington, C.
Hassan, Marwan
Hassan, Sara
Hassan, Tasnim
Henaff, Gilbert
Hensel, Steve
Hernandez Soto, Ricardo
Hickey, Fassett
Hijazi, Iyad
Hioe, Yunior
Hiroaki, Keiichi
Hirschberg, Paul
Hoffelner, Wolfgang
Hojo, Kiminobu
Hom, Scott
Homiack, Matthew
Hopkin, Sarah
Horne, Graeme
Hossain, Md Abir
Huising, Otto Jan
Hurrell, Paul
Imhoff, Moritz
Inaba, Kazuaki
Islam, Nazrul
Itatani, Masao
Ito, Tomohiro
Jã£Â¼Ngert, Anne
Jamalyaria, Ebadollah
James, Peter
Jensen, Ben J.
Jessup, William
Jesus, Abilio
Ji, Ming
Jo, Jong Chull
Johns, Steve
Josodipuro, Irawan
Jyrkama, Mikko
Kadooka, Kevin
Kai, Satoru
Kalnas, Ronald
Kalyanam, Suresh
Kamaya, Masayuki
Karpanan, Kumarswamy
Kataoka, Shunji
Katsuyama, Jinya
Keating, Robert
Keltjens, Jan
Kim, Jong-Sung
Kimura, Kazuhiro
Kirchhofer, Rita
Kirk, Mark
Kirkemo, Finn
Klymyshyn, Nick A.
Kojima, Tomohisa
Komann, Steffan
Komazaki, Shin-Ichi
Kong, Tianwei
Kopriva, R.
Korinko, Paul
Krentz, Timothy
Krishnan, Pradeepkumar
Kulkarni, Mandar
Kulkarni, Sanket
Kumar, Mukesh
Kumar, Senthil
Kumar, Sudhanshu
Kurth, Robert
Lacroix, Valery
Lam, Jessica
Lam, Poh-Sang
Lamborn, Lyndon
Lee, Darrell
Lee, Hyeong-Yeon
Lee, Sam
Leishear, Robert
Lejeune, Hubert
Lesiuk, Grzegorz
Li, Bing
Li, Feng
Li, Suo
Li, Xiang
Li, Yinsheng
Lim, Tze-Yew
Lin, Bruce
Lin, Lianshan
Lindqvist, Sebastian
Liu, Caiming
Liu, Cheng
Liu, Michael
Liu, Shengli
Liu, Yuqing
Long, Stewart
Lowry, William
Lucas, Leonard
Lucon, Enrico
Luo, Xiangpeng
Lutkiewicz, Przemyslaw
Ma, Qin
Ma, Xin

Ma, Yundong
Möller, Sergio
Macejko, Brian
Mack, Andrea
Macoretta, Giuseppe
Maekawa, Akira
Mahajan, Heramb
Mander, Thomas
Mandeville, Matthew
Marie, Stephane
Martin, May
Martinez, Oscar
Matkovics, Pete
Matsunaga, Hisao
Matsuoka, Taichi
Matsuura, Kota
Mcarthur, Dan
Mcgaughy, Tom
Mckillop, Suzanne
Mcmurtrey, M. D.
Meira, Igor
Merkel, Daniel
Mertiny, Pierre
Messner, Mark
Michler, Thorsten
Minagawa, Keisuke
Minichiello, John
Miranda, Henry Elias
Mohany, Atef
Moran, Joaquin
Mori, Takashi
Morley, Andrew
Mureithi, Njuki
Muscat, Martin
Nadarajah, Chithranjan
Nagata, Satoshi
Nakamura, Izumi
Nakamura, Takao
Narasimhachary, Santosh B
Nargund, Shrikant
Nazaripoor, Hadi
Nellis, Christopher
Neuhaus, Thorsten
Neumeister, Roberta Fátima
Nibur, Kevin
Nishino, Koji
Noel, Jean-Francois
Nomura, Yuichirou
Noronha, Celso
Noufal, Rasha
Nyquist, John
Ok, Ali
Olson, Gary
Ortiz De Zuniga, Maria
Ortolani, Matteo
Oshkai, Peter
Osorio, Daniel
Otani, Akihito
Owens, Andrew
Paolacci, Fabrizio
Paredes, Marcelo
Park, Dong-Yeob
Park, Young Ho
Parrot, Aurore
Patt, Timothy
Pc, Sidharth
Pellereau, Benjamin
Penso, Jorge
Pillot, Sylvain
Poehler, Jeffrey
Potratz, Seth
Prueter, Phillip
Quinci, Gianluca
Rafique, Muhammad Raheel
Rain, Mark
Rajasekaran, Ramesh
Rana, Mahendra
Raynaud, Patrick
Reich, Alton
Reinhardt, Wolf
Ren, Wei
Rensman, Jan-Willem
Rhodes, Jesse
Richey, Edward
Richmond, David
Robin, Vincent
Robles, Roberto
Rodery, Clay
Rodriguez, David
Ronevich, Joe
Rudland, David
Rudolph, Juergen
Ruggieri, Claudio
Saitta, Michael
Sakalaukus, Peter
Sakata, Mikihiro
Sallaberry, Cedric
Samadian, Kaveh
San Marchi, Chris
Sarzosa, Diego F. B.
Sarzynski, Melanie
Sato, Suguru
Sawa, Toshiyuki
Sawadogo, Teguewinde
Saxena, Ashok
Scarth, Douglas A.
Schaaf, Manfred
Schupp, Kelly
Seipp, Trevor
Sepehri, Ali
Sham, T.-L.
Shan, Xiangying
Shargay, Cathleen
Sharma, Amandeep
Shen, Lulin
Shi, Jianfeng
Shi, Tong
Shibata, Akinobu
Shim, Do Jun
Shin, Hyung-Seop
Shinko, Tomoki
Shintani, Atsuhiko
Shitolé, Bhaskar
Shoji, Yasumasa
Shrestha, Rakish
Sims, Bob
Sirosh, Neel
Skow, Jason
Slifka, Andrew
Smith, Allen
Smith, Eric
Smith, Steven
Stewart, Calvin
Su, Ziyi
Subramanian, Kannan
Suffield, Sarah
Sun, Donna
Sun, Quanzhao
Sun, Xingyue
Sutton, Noah
Tada, Naoya
Taheri, Farid
Takagoshi, Daiki
Takamizawa, Hisashi
Takanashi, Masahiro
Takeda, Masakazu
Tamburello, David
Tan, Wei
Tang, Wei
Taniguchi, Tomoyo
Tao, Jiahui
Tate, Stephen
Taylor, Robert
Teague, Melissa
Thirumalai, Neeraj
Thorwald, Greg
Tijsseling, Arris S.
Tipple, Christopher
Toyoda, Masanori
Tribble, Megan
Tsutsumi, Kazuya
Uddin, Mo
Uytdenhouwen, Inge
Valdiviez, Robert
Van Beek, Pieter
Van Staveren, Tjark
Van Zyl, Gys
Varelis, George E.
Vivaldi, Daniele
Vlaicu, Dan
Wacker, Randy
Wackermann, Ken
Walker, Adam
Walters, Trey
Wang, Min
Wang, Yanli
Wang, Yiyu
Wasiluk, Bogdan
Weber, Mike
Wei, Xuejun
Wen, Kai
Wheeler, Robert
Wiersma, Bruce
Wilson, Jeffery
Windes, William
Wiseman, Phillip
Wu, Shengjia
Xu, Kang
Xu, Steven
Yamamoto, Masato
Yang, Ming-Hang
Yang, Yi
Yao, Riwu
Yoshida, Yuichi
Younan, Maher
Yuen, Simon
Zarazovskii, Maksym
Zeng, Guang Li
Zhai, Ziqing
Zhang, Dong
Zhang, Han
Zhang, Jianming
Zhang, Liang
Zhang, Min
Zhang, Shengde
Zhang, Shutong
Zhu, Shun-Peng
Zhu, Xian-Kui

TOPIC ORGANIZERS

Topic Organizers perform an essential function in developing technical sessions; including the encouragment and screening of abstract submittals, facilitiating the paper review process, and ultimately the organization and conduct of sessions at the conference. On occasion, with the merging of individual papers into sessions some topics may not appear in the final conference program. Nonetheless, those organizers have provided an important service for the conference. A complete listing of topic organizers is provided below, along with their respective topics. The Conference Organizers would like to thank them for their contributions.

NAME	TOPIC
Adibi-Asl, Reza	**CT-07**
Agarwal, Vivek	NDE-01, NDE-02, NDE-03, NDE-04
Aida, Kiyoshi	SE-05
Akemi, Akemi	SE-07
Antonucci, Carly	HT-05
Asada, Seiji	CS-17, MF-07
Barkley, Nathan	DA-01
Basavaraju, Chakrapani	DA-02
Bausman, Anita	CT-04, CT-15
Belfroid, Stefan	FSI-05
Benson, Michael	CS-01
Berg, Sean	HT-07
Bezdikian, Georges	OAC-02, OAC-07
Bouzid, Hakim A.	CT-02, CT-15
Briottet, Laurent	MF-02
Brown, Warren	DA-10, DA-21
Brust, Frederick (Bud)	MF-03, MF-16, MF-17
Bursi, Oreste	SE-04
Chakraborty, Arindam	MF-05, MF-17
Chen, Xiang	MF-06
Chen, Xu	SE-06
Chen, Xuedong	CS-10
Cheta, Ayman	OAC-05, OAC-06
Cho, David	CS-02
Cicero, Sergio	MF-09
Cipolla, Russell	CS-08
Cohn, Marvin	MF-05, MF-21
Colwell, Richard	MF-24
Cooper, Adam	MF-15, MF-17
Coules, Harry	MF-01, MF-03, MF-05, MF-09
Crane, Ryan	CS-08
Dalal, Mitul	MF-24
Damiani, Thomas	CS-17
Davies, Catrin Mair	MF-16, MF-17
De Agostinis, Massimiliano	CT-16
de Haan de Wilde, Ciska	OAC-02, OAC-07
Deng, Guide	CS-10
Doddihal, Preeti	MF-01
Dominguez, Gary	MF-22
Donato, Gustavo	MF-01
Dulieu, Pierre	CS-23
Duncan, Andrew	MF-17, MF-23
Edel, Matthew	FSI-03, HT-02
Edke, Mangesh	HT-06
Ezekoye, Ike	OAC-05
Faidy, Claude	CS-17, CS-21
Fan, Zhichao	CS-10
Fini, Stefano	CT-01, CT-13, CT-16
Finneran, Shane	DA-12
Fuenmayor, David	HT-04
Fujita, Katsuhisa	SE-05
Fujita, Satoshi	SE-02
Furuya, Osamu	SE-02
Garud, Yogendra	CS-25
Gawande, Kshitij	DA-19
Geng, Jihui	FSI-03, HT-02
Gill, Peter	MF-07, MF-12
Gilman, Timothy	CS-18
Girão, Carlos	CT-03, CT-06

NAME	TOPIC
Gross, David	FSI-03, HT-02
Hadj-Nacer, Mustafa	OAC-04
Han, Zenghu	OAC-04
Hasegawa, Kunio	CS-23
Hassan, Marwan	FSI-02
Hassan, Tasnim	SE-06
Hensel, Steve	OAC-04
Hojo, Kiminobu	CS-21, MF-01
Horne, Graeme	MF-03, MF-05, MF-14, MF-29
Huang, Michael	DA-02
Huang, Yifan	MF-22
Idowu, Oluwaseun	MF-21
Inaba, Kazuaki	FSI-04
Ismail Mourad, Abdel Hamid	MF-01
James, Peter	MF-04, MF-09
Jamison, Alton	CT-06
Jaske, Carl	MF-05, MF-21
Jesus, Abilio	MF-01
Ji, Ming	FSI-04
Jo, Jong	FSI-01
Kai, Satoru	SE-07
Kalyanam, Suresh	CS-12, CS-13, MF-01, MF-13, MF-22
Karpanen, Kumarswamy	HT-04, HT-06
Kataoka, Shunji	DA-03, DA-12
Kim, Yun-Jae	MF-16, MF-23
Kirchhofer, Rita	MF-06, MF-16, MF-20
Kirk, Mark	CS-19, CS-20, MF-11
Klymyshyn, Nicholas	OAC-04
Kobayashi, Takashi	CT-15
Komann, Steffan	OAC-04
Kopriva, Radim	OAC-02
Korinko, Paul	MF-02, MF-17
Krentz, Timothy	MF-02
Lacroix, Valery	CS-12, CS-23
Lam, Jessica	MF-01
Lee, Sam	HT-03
Lejeune, Hubert	CT-01, CT-03, CT-15
Lesiuk, Grzegorz	MF-20
Li, Bing	DA-02
Li, Yinsheng	CS-24, MF-08, MF-14, MF-22
Liu, Yinghua	CS-10
Lutkiewicz, Przemyslaw	HT-06
Ma, Qin	MF-09, MF-13
Macoretta, Giuseppe	HT-05
Maekawa, Akira	SE-01, SE-09
Mandeville, Kevin	MF-25, MF-32, DA-03, MF-02, MF-17
Martin, Michael	CS-02
Martinez, Oscar	OAC-04
Matsuoka, Taichi	SE-02
McCracken, Steven	CS-22
McMurtrey, Michael	CS-07, MF-16, MF-17
Mertiny, Pierre	DA-17, MF-13
Messner, Mark	CS-07, MF-16
Metais, Thomas	CS-17
Metzger, Don	CT-08
Minagawa, Keisuke	SE-04
Miro-Quesada, Daniel	CS-08
Nagata, Satoshi	CT-03
Nakamura, Izumi	SE-01, SE-06, SE-09

NAME	TOPIC
Nassar, Sayed	CT-05, CT-12
Neuhaus, Thorsten	FSI-01
Nicak, Tomas	MF-04
Nyquist, Taylor	HT-04
O'Dowd, Noel	MF-09, MF-11, MF-13
Omiya, Yuya	CT-12
Otani, Akihito	SE-09
Paolacci, Fabrizio	SE-04
Park, Dong-Yeob	MF-10
Park, Young Ho	CT-08
Penso, Jorge	DA-15, MF-20, MF-24
Petesch, Cécile	CS-14
Petzova, Jana	OAC-02
Pillot, Sylvain	MF-02, MF-17, MF-24, MF-25, MF-30, MF-32
Pothana, Sushma	MF-13
Prueter, Phillip	CS-06
Qian, Haiyang	MF-16
Quinci, Gianluca	SE-04
Reich, Alton	OAC-01, OAC-05, CT-17
Reinhardt, Wolf	CS-16, CT-07, CT-13
Ren, Weiju	MF-06
Robin, Vincent	MF-03
Rodery, Clay	DA-01, DA-10, DA-15
Ronevich, Joe	CS-02, MF-02
Rudland, David	CS-15, CS-24, MF-03, MF-12, MF-14, MF-15, MF-29
Rudolph, Juergen	CS-18
Rush, Phil	CS-13
Samadian, Kaveh	CS-23
San Marchi, Chris	CS-02, MF-02
Sarzynski, Melanie	HT-01, HT-07
Sawa, Toshiyuki	CT-05, CT-15
Scarth, Doug	CS-08, MF-01
Schaaf, Manfred	CT-01, CT-02, CT-15
Seijas, Antonio	DA-15
Server, William	CS-19, CS-20, MF-11
Sham, Sam	CS-07, CS-14, CS-15, MF-29
Sharples, John	MF-12
Shi, Jianfeng	CS-10, CS-13, MF-13
Shim, Do Jun	MF-08, MF-14, MF-15, MF-22
Shitole, Bhaskar	CT-05, CT-08, DA-02
Shoji, Yasumasa	CT-17
Su, Ziyi	FSI-04
Subramanian, Kannan	DA-02, DA-08, DA-15, DA-21, HT-01, HT-03
Suffield, Sarah	OAC-01
Takuyo, Kaida	OAC-05
Tamburello, David	OAC-04
Taniguchi, Tomoyo	SE-01
Tatman, Jonathan	CS-22
Tijsseling, Arris	FSI-01
Uddin, Mo	DA-17, MF-08, MF-12, MF-13, MF-15
Udyawar, Anees	CS-12, CS-25
Vacant,	DA-11
Van Beek, Pieter	DA-09
van Zyl, Gys	DA-04, DA-08, DA-10
Vlaicu, Dan	DA-04
Wang, Yanli	CS-07
Waterland, Jerry	CT-04
Weber, Mike	OAC-04
Wei, Liqing	MF-14
Wiersma, Bruce	MF-05, MF-21
Wiseman, Phillip	DA-19
Xu, Kang	MF-20, MF-30
Xu, Steven	CS-01, CS-02, CS-15, CS-16, CS-21, CS-24, MF-02, MF-14
Yamamoto, Masato	CS-19, CS-20, MF-11
Zhang, Min	NDE-01, NDE-02, NDE-03, NDE-04
Zheng, Jinyang	CS-02, CS-10
Zhu, Linbo	CT-04
Zhu, Xian-Kui	MF-10

CHAIRS/CO-CHAIRS

NAME	SESSION
Adibi-Asl, Reza	4.1E, 4.2I
Agnani, Milan	2.1C
Asada, Seiji	2.4E, 3.1E
Azuma, Kisaburo	2.3L
Barkley, Nathan	0.4Q, 2.1H, 2.2H, 2.4H, 3.2E
Basavaraju, Chakrapani	1.3B, 1.4B
Bausman, Anita	3.2D, 3.3D, 4.2A
Belfroid, Stefan	1.3H, 4.1G, 3.2H, 4.2G
Benson, Michael	1.3G, 3.3G
Berg, Sean	3.2C
Berrios, Aidan	3.2D, 3.3D
Bezdikian, Georges	1.3K
Bezensek, Bostjan	2.3C
Bifano, Michael	2.3Q, 2.4Q
Bortot, Paolo	3.1C
Chen, Xiang (Frank)	2.3F, 2.4G
Chen, Xuedong	2.4I
Cheng, Guangxu	2.4I
Cheta, Ayman	2.3K, 2.4K, 3.1K, 3.2K, 3.3K
Cipolla, Russell	2.2I
Cohn, Marvin	2.1B, 2.2B
Colwell, Richard	1.3J, 1.4J, 2.1J, 2.2J
Connolly, Matt	2.3C
Damiani, Thomas	2.4E, 3.1E, 3,2E
Daniels, Scott	1.3J, 1.4J, 2.1J, 2.2J
de Haan, Ciska	1.3K
Dulieu, Pierre	2.4B
Edel, Matt	2.1A
El Bouzidi, Salim	4.1H
El, Salim	1.4H
Farhan Saniman, Muhammad Nur	2.2A, 2.4A
Feenstra, Paul	4.2H
Fini, Stefano	1.3D
Finneran, Shane	2.1F, 2.2F, 3.1C
Furuya, Osamu	2.2L, 2.3L
Garud, Yogen	2.3E
Geng, Jihui	1.3A, 1.4A, 2.1A
Girão, Carlos	2.1D, 3.1D, 4.2D
Goyder, Hugh	4.1H
Gross, David	1.3A, 1.4A
Hadj-Nacer, Mustafa	2.2K
Han, Zenghu	1.4K
Hojo, Kiminobu	1.3F, 1.4F, 3.3A
Hopkin, Sarah	2.4C
Horne, Graeme	2.2B
Inaba, Kazuaki	3.1G, 4.1G, 4.2G
James, Peter	4.1A
Jamison, Alton	3.1D
Jun, Do	4.2F
Kai, Satoru	3.3L, 4.1L
Karpanan, Kumar	1.4Q, 3.3J
Kataoka, Shunji	1.4E, 2.1F, 2.2F
Kim, Jin-Gyum	3.1A
Kirk, Mark	3.1F, 4.1F
Klymyshyn, Nick	2.2K
Korinko, Paul	1.3C
Krentz, Tim	2.2C
Kurth Twombly, Elizabeth	3.2G, 3.3G
Lacroix, Valery	2.4B, 4.2I
Leach, Art	2.3A
Lee, Sam	2.3B
Lejeune, Hubert	1.3D, 1.4D, 2.2D, 4.2D
Li, Bing	1.3B
Liu, Cheng	1.3F, 1.4F
Liu, Yinghua	2.3I
Lutkiewicz, Przemyslaw	1.4Q
Mair Davies, Catrin	2.1E, 2.2E
Mandeville, Kevin	1.3C, 1.4E, 2.3J
Marie, Stephane	3.3A
Martinez, Oscar	1.4K
Matsunaga, Hisao	2.4C
Matsuoka, Taichi	2.2L
McCracken, Steve	3.1B, 3.2B
Mertiny, Pierre	4.2E
Messner, Mark	2.1E, 2.2E
Minagawa, Keisuke	3.3L, 4.1L
Miro-Quesada, Daniel	2.2I
Mohany, Atef	3.3H
Möller, Sergio Viçosa	4.2H
Moran, Joaquin	3.1H, 3.3H
Mureithi, Njuki	3.1H
Nakamura, Izumi	2.1L, 2.4L, 3.1L, 3.2L
Nyquist, Taylor	3.3J
Ortiz de Zuniga, Maria	2.2A, 2.4A
Ortolani, Matteo	1.4C
Owens, Andrew	2.3B, 3.3B, 4.1B, 4.2B
Park, Dong-Yeob	1.4G
Penso, Jorge	2.3D, 2.4D
Peters, Daniel	4.1J
Pillot, Sylvain	2.3J
Prewitt, Thomas	3.3C, 4.1C
Quackenbush, Karen	4.1J
Reich, Alton	2.3K, 4.1K, 4.2A, 4.2K
Reinhardt, Wolf	1.3E
Ren, Weiju	2.4G
Roberts, Steven	1.3I
Rodery, Clay	1.1P, 1.2P
Ronevich, Joe	4.2C
Rudland, David	2.2G, 2.3G, 3.1I, 3.2G, 3.3I, 4.1A
Rudolph, Jürgen	1.3E
Ruffin, Mark	4.1D
San Marchi, Chris	4.2C, 4.3C, 4.4C
Sánchez, Marcos	2.4F
Sano, Teruaki	2.3A
Sarzynski, Melanie	1.3Q, 3.2C
Seijas, Antonio	2.4J, 3.1J, 3.2J
Seipp, Trevor	3.1Q, 3.2Q, 3.3Q
Server, William	2.3F, 3.3F
Sham, Ting-Leung (Sam)	1.3I, 1.4I, 2.1I, 3.1I, 3.2I, 4.1I
Shi, Jianfeng	4.2E
Shim, Do Jun	3.3E
Shimazu, Ryuya	2.4L
Shintani, Atuhiko	3.2L
Shitole, Bhaskar	4.1E
Shoji, Yasumasa	1.1P
Skow, Jason	3.1A
Subramanian, Kannan	1.3Q, 2.4J, 3.1J, 3.2J, 4.1B, 4.1C
Suffield, Sarah	4.1K, 4.2K
Swindell, Rob	2.1Q, 2.2Q
Takahashi, Junya	2.4K, 3.1K, 3.2K, 3.3K
Tambuerello, David	2.1K
Tamura, Ichiro	3.1L
Tatman, Jon	3.1B, 3.2B
Thirumalai, Neeraj	2.1C

NAME	SESSION
Tijsseling, Arris	3.1G
Uddin, Mo	3.3E, 4.2F
Uemichi, Akane	1.4H
Uytdenhowen, Inge	3.1F, 3.2F
Van Beek, Pieter	3.2H
van Zyl, Gys	1.4D, 2.1D, 2.3H, 3.3B, 4.1D, 4.2B
Vivaldi, Daniele	1.3H
Vlaicu, Dan	2.3H
Wang, Yanli	1.4I, 2.1I, 2.3E
Weber, Mike	2.1K
Wheeler, Rob	2.2C
Wiersma, Bruce	2.1B
Wilson, Jeff	2.2D
Wiseman, Phillip	2.1H, 2.2H, 2.4H
Xu, Kang	2.3D, 2.4D
Xu, Steven	1.3G, 1.4C, 2.2G, 2.3G, 3.2I, 3.3I, 4.1I
Yamamoto, Masato	2.4F, 3.2F, 3.3F, 4.1F
Yoshida, Yuichi	2.1L
Younan, Maher	0.4Q, 2.1Q, 2.2Q, 2.3Q, 2.4Q, 3.1Q, 3.2Q, 3.3Q, 4.3C, 4.4C
Zheng, Jinyang	2.3I
Zhu, Xian-Kui	1.4G, 2.1G

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

AUTHOR INDEX

CALL FOR PAPERS

2024 ASME Pressure Vessels & Piping Conference

July 28 – August 2, 2024

ABSTRACTS DUE – OCTOBER 16, 2023

JOIN US AT THE 2024 ASME PVP CONFERENCE

JULY 28 – AUGUST 2, 2024, AT THE HYATT REGENCY BELLEVUE

BELLEVUE, WASHINGTON, USA

PRESSURE VESSEL AND PIPING TECHNOLOGIES FOR A SUSTAINABLE WORLD

Join us in Bellevue, Washington for the 2024 ASME Pressure Vessels & Piping Conference, as we contribute to supporting a sustainable 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 150 paper and panel sessions are planned, including tutorials, workshops, and a Technical Demonstration Forum (Exhibition). 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*

October 16, 2023	Abstracts are due
November 13, 2023	Abstract Accept/Reject Notification
January 29, 2024	Submission of Full-Length Paper for Review
March 11, 2024	Peer Review Comments Returned
April 25, 2024	Copyright Agreement Form (for each paper) due
April 29, 2024	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

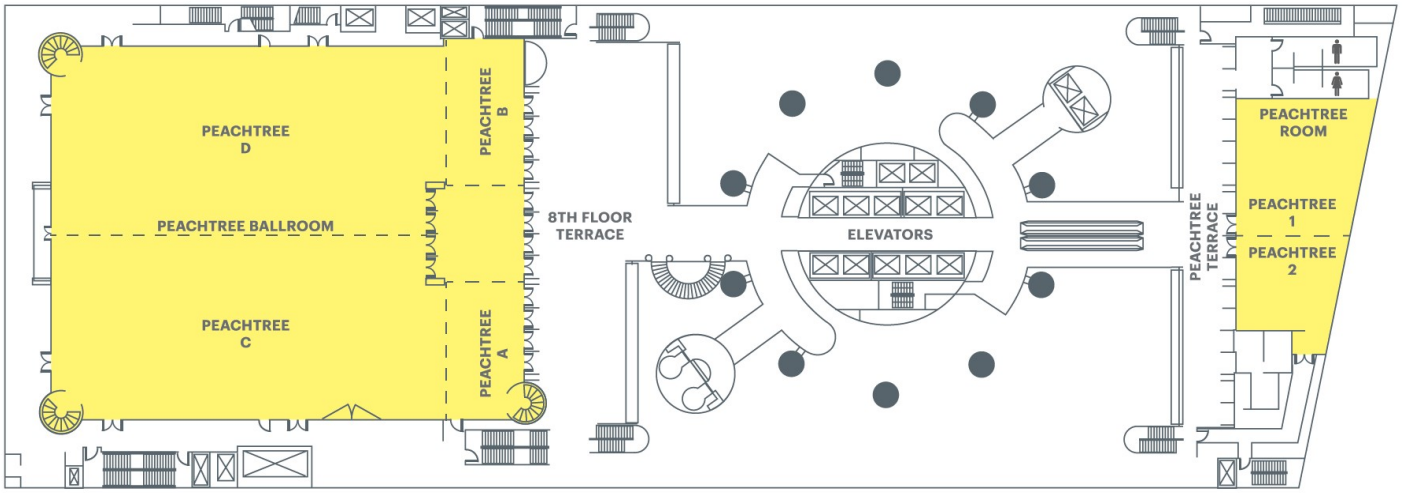
Yasumasa Shoji
YS Corporation LLC
Tokyo, Japan
yasumasa.shoji@nifty.com

PVP Technical Program Chair

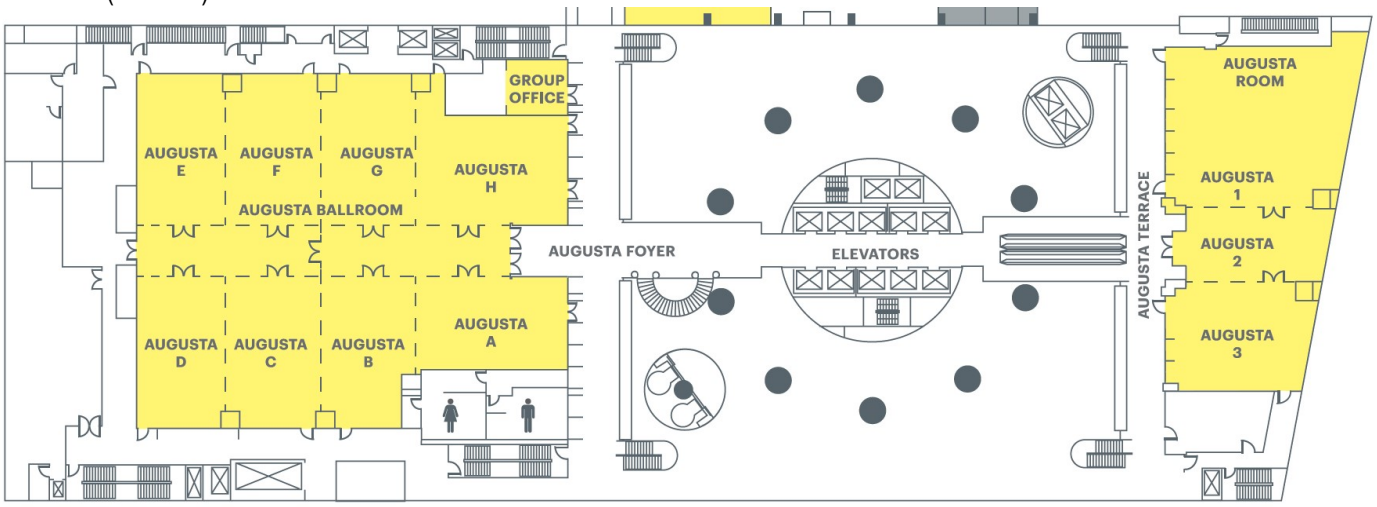
Ravi Baliga
ADVENT Energy Consultants, Inc.
Redwood City, CA USA
rbaliga@adventeng.com

ASME SETTING THE STANDARD

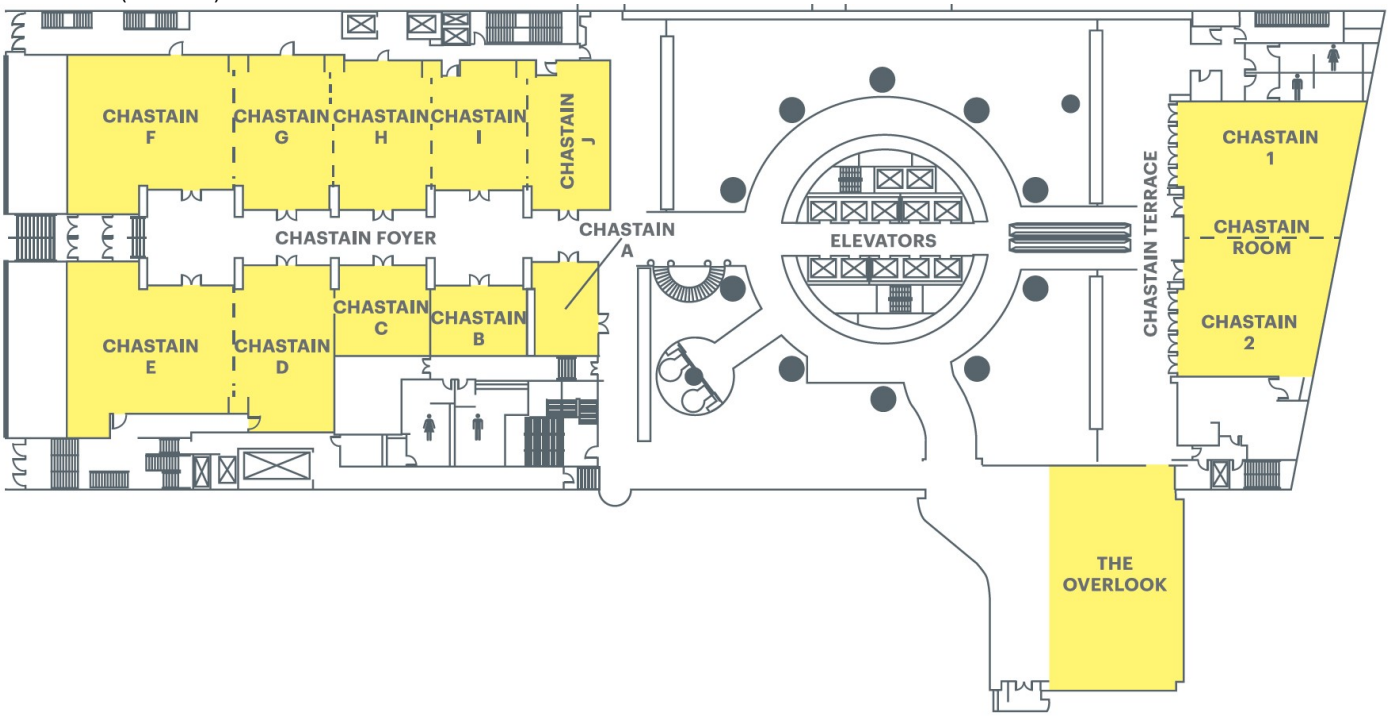
Peachtree Level (8th Floor):



Augusta Level (7th Floor):



Chastain Level (6th Floor):



A Sincere Thanks to Our Sponsors

Diamond Sponsor

BECHT
Good. Better. Becht.

Platinum Sponsor

FRAZER-NASH CONSULTANCY
A KBR COMPANY

Gold Sponsors

CURTISS-WRIGHT
EST Group

STRESS ENGINEERING SERVICES INC.

Silver Sponsors

KINECTRICS

LOKRING

TÜVRheinland®
Precisely Right.

USA INDUSTRIES

Exhibitors

AFT Applied Flow Technology

CELEROS FLOW TECHNOLOGY
GD ENGINEERING

CSI

Cumulus DIGITAL SYSTEMS

EFCO USA

FRONTICS

gecko robotics

HYTORC

LexTech

QUSTOMAPPS

R-V INDUSTRIES INC.

SENSOR NETWORKS INC

VALLEY FORGE 1974

ASME 2023 Pressure Vessels & Piping Conference

ASME
SETTING THE STANDARD

ASME
Two Park Avenue
New York, NY 10016-1990
www.asme.org