PVP 2011
2011 Pressure Vessels & Piping Conference

Pressure Vessel Technologies—
A Look Ahead into the Next Decade

July 17–21, 2011
Baltimore Marriott Waterfront Hotel
Baltimore, Maryland, USA
Welcome to PVP 2011

Welcome to Baltimore, Maryland, for the 2011 ASME Pressure Vessels & Piping Conference. The PVP Conference continues to be the outstanding international technical forum for the participants to further their knowledge-base by being exposed to, and exchange opinions and ideas on, different topics related to Pressure Vessel and Piping technologies for the Power and Process Industries. PVP is looking forward to fruitful technical exchanges between participants from Europe, Africa, the Middle East, Asia, the Americas and the Oceania islands. Our Conference will continue to shape the technology in the pressure vessel industry on a truly global basis.

The ASME Pressure Vessels and Piping Division is sponsoring this Conference. The ASME Nuclear Engineering Division (NED) is also participating, along with the ASME Nondestructive Evaluation (NDE) Engineering Division. This year, the Conference Technical Program contains over 700 technical papers, organized into more than 190 technical and panel discussion sessions, three tutorials, two workshops, and our outstanding Student Paper Competition. The NDE and Software Demonstration forums are organized as part of our technical program. Technical papers presented in this Conference are separated into tracks, according to their technical areas, and published in the Conference proceedings in the form of a CD-ROM.

In addition to the technical program, a series of social events has been developed, starting on Monday, with The Charm City: A Day of History, which provides an historical background of the area, interesting landmarks, and tips on special shopping and sightseeing areas. The Conference-Wide Reception will be held on Monday evening in the Harborside Ballroom, Salon C of the Baltimore Marriott Waterfront Hotel. On Tuesday, there will be A Walking Tour of Hampden and Lunch at Café Hon, Hampden being one of Baltimore’s most distinctive neighborhoods, and Café Hon being one of Baltimore’s most distinctive places to be seen. The Wednesday evening social event will be at the National Aquarium in Baltimore. Within walking distance of the hotel, this Wednesday evening social event promises to be like nothing else that has ever been offered.

PVP 2011 Program Layout

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<td>Authors’ Breakfast/Briefing Registration Open (7:30 am – 4:00 pm)</td>
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<td>Technical Workshop: Acoustic Emission in Metals and Composites (9:00 am – 11:30 am)</td>
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<td>Registration Opens (3:00 pm – 6:00 pm)</td>
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<td>Special Tutorial: Process and Benefits of ASME Pressure Technology Codes &amp; Standards Development (4:00 pm – 6:00 pm)</td>
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The American Society of Mechanical Engineers
Pressure Vessels & Piping Division

PVP2011 Conference Committees

Ronald S. Hafner
Conference Chair

Michael E. Nitzel
Technical Program Chair

PVP Technical Program Representatives

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Bostjan Bezensek/Doug Scarth

Computer Technology & Bolted Joints
John Martin/Hakim Bouzid

Design & Analysis
Pierre Mertiny

Fluid-Structure Interaction
George Papadakis

High-Pressure Technology
Edward A. Rodriguez/Karl C. Simpson

Materials & Fabrication
Andrew J. Duncan

Operations, Applications & Components
Ayman M. Cheta/Garry G. Young

Seismic Engineering
Cheryl C. O’Brien

Student Paper Competition
Artin A. Dermenjian

ASME Nuclear Engineering Division
Joseph S. Miller

ASME NDE Division
William T. Springer

NDE Demonstration Forum
Carl E. Jaske

Software Demonstration Forum
James F. Cory, Jr.

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Dennis K. Williams
Honors and Awards Chair

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Programs Chair

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Communications Chair

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2009–10

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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

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1997–98

Richard C. Gwaltney
1996–97

Shoei-Sheng Chen
1995–96

Greg L. Hollinger
1994–95

Carl E. Jaske
1993–94

Rudy J. Scauzucco
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

Irvin Berman*
1972–73

Danos Kallas*
1971–72

Robert J. Cepluch
1970–71

Charles F. Larson
1969–70

Gunther P. Eschenbrenner
1966–69

Vito Salerno*
1967–68

Dana Young*
1966–67

*Deceased

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Fluid-Structure Interaction
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High-Pressure Technology
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Membership Development
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Publicity & PVPD Newsletter Editor
Les Antalffy

International Coordination
Maher Y.A. Younan

ASME Journal of Pressure Vessel Technology
G. E. O. (Otto) Widera
On March 11, 2011, one of the largest earthquakes in recorded history occurred off the northeast coast of Japan. The earthquake severely jolted Japan, including the six nuclear power plants at the TEPCO Fukushima Daiichi power station. The earthquake also created a huge tidal wave and it arrived at the Japanese coast about an hour later; the wall of water was about five stories high at Fukushima Daiichi. The subsequent events have had a major impact on Japan and on the nuclear power industry around the world. Using pictures and drawings, this lecture will fill in some of the details, the plant location and configuration, the reactors on the site, a high level chronology of events, the source and extent of damage, comparisons to TMI-2 and Chernobyl, the current conditions on the site, the way forward, and examples of lessons learned to be taken away. Examples discussed will include items of interest to those whose profession is the design of pressure vessels and piping for critical applications.

Dr. Douglas M. Chapin, NAE, is currently a Principal of MPR Associates, Inc. In March of 2009, he stepped down as Principal Officer and Director of MPR having served in that role since 1985. Dr. Chapin is a member of the National Academy of Engineering, and a Fellow of the American Nuclear Society.

He holds a B.S. in Electrical Engineering from Duke University, a certificate from the Bettis Reactor Engineering School, an M.S. in Applied Science from George Washington University, and a Ph.D. in Nuclear Studies in Chemical Engineering and Nuclear Engineering from Princeton University.

Dr. Chapin has worked in the nuclear industry since 1962, beginning his career working in the Naval Reactors engineering design group for nuclear ships, reporting to Admiral Rickover at Naval Reactors. He joined MPR in 1968, and has spent the majority of his career at MPR involved with commercial nuclear power plants. He has worked actively on many aspects of nuclear power plants and other industrial and energy facilities. He has extensive experience in electrical, chemical and nuclear engineering, with particular application to nuclear and conventional power plant systems and associated components. He has worked in such areas as instrumentation and control systems, nuclear fuels, fluid mechanics, heat transfer, pumps, advanced analysis methods, test facility design, and electrical systems and components. Some of the major assignments in Dr. Chapin’s career include:

- Advisor to DOE-EM on decommissioning and deactivation of nuclear facilities particularly including PUREX;
- Technical leadership role in the EPRI Advanced Light Water Reactor project that defined the utility requirements for future nuclear power plants;
- U.S. technical lead in the Japan/Germany/United States research
Beginning in 1978, Dr. Chapin acted as the U.S. technical lead in the Japan/German/United States research program on loss of coolant accidents (2D/3D Program). Since this project, Dr. Chapin has carried out many engineering tasks for the Japanese Nuclear industry and in cooperation with numerous Japanese partners. As a result, he has extensive contacts and client relations in Japan. He has been to the Fukushima site, as well as many other Japanese and related industrial facilities. He has made a number of invited presentations in Japan and at other International meetings.

Beyond his experience in Japan, Dr. Chapin also has other considerable international nuclear experience. This experience includes projects with a variety of reactor coolants and technologies in addition to light water. Countries where Dr. Chapin has worked include Canada, Germany, UK, France, Taiwan, South Africa, Korea, UAE, and China.

As a member of the National Academy of Engineering, he chaired the Board on Energy and Environmental Systems of the National Research Council from 2003 through 2010. He also served as a member of the NAE’s Committee on Membership; previously he was on the Peer Review (Membership) Committee for the Electric Power/Energy Systems Section of NAE. From 2000 to 2002, he served as a member of the Nuclear Energy Research Advisory Committee (NERAC) subcommittee overseeing the production of the US DOE’s roadmap for the near-term deployment of US nuclear power plants (2010 Program), and the Generation IV program to provide advanced operating nuclear power plants by 2030. Subsequently, at DOE’s request, he acted as an outside technical reviewer for the Industry Consortia proposals for new nuclear plants under the 2010 Program. He currently serves on the NEAC subcommittee reviewing the DOE-NE R&D Program and the Steering Committee for the DOE-NE LWR Sustainability Program.

Dr. Chapin has authored numerous technical reports and articles, as well as presented papers at conferences, taught courses at conferences and for clients, and conducted several seminars at the invitation of both international and domestic clients.

Laney H. Bisbee
Structural Integrity Associates, Inc., Annapolis, Maryland, USA

Direction of the Power Industry after Fukushima-Daiichi

The events at Fukushima-Daiichi have, and will continue to have, significant impact on the Power generation industry throughout the world, as did Three Mile Island and Chernoby. The reaction and response of regulators, utilities, OEM’s, the public, and Standards Development Organizations (SDO) will play directly into the effect as to how this incident influences the future landscape of the industry. This is compounded by changes that are already in process for the industry, some of which include:

- Greenhouse Gas emissions, water use, and waste management issues;
- Focus on Renewable Energy sources;
- Reduction in the number of conventional coal plant; and
- Decreased demand growth and constrained credit markets.

To date, government regulators around the world have had significantly varying responses to the tragedy, including indefinitely suspending the use of all nuclear energy stations. The NRC is presently working to understand what happened during the incident, and to rapidly include changes in the ASME Code to reflect findings from their investigations. Equally important, public sentiment has swung from acceptance of new nuclear build, in order to meet future generation needs and replace a large coal generating base, to being concerned for the industry’s continued safe performance.

Prior to the Fukushima-Daiichi event, the power generation sources for future capacity consisted of increasing generation from renewables (wind and solar), gas (combined cycle HRSG’s), and nuclear plants, while at most maintaining capacity from coal plants. Government regulators at all levels (local, state, and federal) are creating mandates for generation renewable portfolio standards (RPS). The result of the RPS mandates is that, with time, utilities must have 10–40% of their generation from renewable sources.

It is broadly acknowledged that wind and solar are not reliable, owing to their dependency on appropriate weather conditions for operation. In fact, they are likely to be highly variable with significant unpredictability. Therefore, the base load must still be provided by conventional generation sources, and conventional plants (fossil and nuclear) would still be the backbone of the electric power industry, with additional demand growth met by new build gas (HRSG’s) and nuclear plants.
Enforcement of lower emission standards for greenhouse gases, tighter regulations on coal ash waste, as well as growing concerns for water usage, will result in challenges to all fossil based generation sources, but primarily coal plants. Present estimates show that up to 50% of the current coal fired power plants would be shutdown in the next 5–10 years. However, any reduction in future nuclear build regardless of source, economic, regulatory, or negative sentiment and public rejection will affect this schedule and may require additional service from the current coal fleet well beyond what has been considered. This extension would necessitate extensive capital, maintenance, and operational upgrades and investments. The loss of future nuclear generation might also drive additional expansion of the gas fleet to off-set the loss of coal and nuclear generation. Further expansion of the gas fleet could have dramatic unplanned consequences on gas inventories, exploration, extraction, and transmission infrastructure.

Post-Fukushima-Daiichi concerns may delay or eliminate the new nuclear generation builds, and, in turn, the balance of all generation sources. Thus, this presents significant challenges to meet the increasing power demands, while considering environmental, regulatory, social, and political needs.

Mr. Laney Bisbee is the President and CEO of Structural Integrity Associates, Inc., an engineering consulting firm specializing in the inspection, analysis, and assessment of critical components in fossil fuel and nuclear power plants. He holds PE licenses in seven states, and is a member of the Board of Advisors for the William States Lee College of Engineering, UNCC.

During his over 30 years in the industry, Laney has worked with Combustion Engineering, Duke Power Company, Failure Analysis Associates, and Structural Integrity Associates. He has become a leading expert in metallurgical engineering and non-destructive inspection through years of research and consultancy involving the detection and characterization of damage mechanisms in power plant components. Laney earned an international reputation as a leading authority in the field of condition assessment and asset management earned through the integration of metallurgy, advanced NDE techniques and analytical methods. He has published widely and has been an invited international lecturer at conferences on power plant assessment and asset management. He is the leading advocate of the benefits available from establishing a unified approach to Component Life Assessment.

HONORS and AWARDS LUNCHEON

The ASME PVP Division Honors and Awards Luncheon, during which all Division and selected ASME Society awards are presented, will be held on Wednesday, July 20, at 12:30 pm, in the Grand Ballroom, Salon V, on Level 3. The top PVP Division award, the ASME S. Y. Zamrik PVP Medal, will be presented to Dr. William T. Springer.
WORKSHOPS and TUTORIALS

Tutorials and Workshops offer both the experienced and early career engineers excellent opportunities to refresh their knowledge and to venture into specific technical areas outside their expertise.

Special Tutorial: This is a 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. Admission to the tutorials and workshops is free for Conference Registrants. At each technical tutorial, attendees may purchase a copy of the Tutorial Notes; the charge is set as low as possible based on the cost of production. For 2011, the notes for the Technical Tutorials may be purchased for $30.00 each at the tutorial sessions. The Technical Tutorial notes will be available in either printed or electronic format.

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

An outline of the tutorial sessions for the 2011 PVP Conference is presented below.

WORKSHOPS

TECHNICAL WORKSHOP

Sunday, July 17, 9:00 am – 11:30 am—Part I
Sunday, July 17, 1:00 pm – 3:30 pm—Part II
HARBORSIDE Ballroom, Salon B, Level 4

Acoustic Emission in Metals and Composites
by Ronnie Miller and Adrian Pollock, the MISTRAS Group
Sponsored by the MISTRAS Group and the ASME NDE Division

This is a two-session workshop intended to provide the attendee with a basic understanding of Acoustic Emission (AE) phenomena, the terminology, and how it applies to testing metals and composites. Brief descriptions of each session follow.

Part I (Morning Session): Dr. Ronnie Miller will discuss the following topics related to AE in metals:
- Definition of AE as a non-destructive testing (NDT) technique;
- Sources of AE energy;
- Events in metals detectable by AE technology;
- Differences between AE and other NDT methods;
- Typical applications of AE technology in laboratory and field testing;
- Review of applicable industry codes and standards and ASME Code Cases; and
- Desktop demonstration of AE in metals.

Part II (Afternoon Session): Dr. Adrian Pollock will discuss the following topics related to AE in composites:
- Use of AE in the evaluation of mechanical integrity of composite materials and structures;
- Effectiveness of AE as a research and development tool;
- Basic AE phenomena in composites;
- Source mechanisms of AE in composites;
- Relationships between different sources and the related AE signals;
- Examples of industrial applications;
- Review of applicable industry codes and standards and ASME code cases; and
- Desktop demonstration of AE in composites.

SPECIAL TUTORIAL

Sunday, July 17, 4:00 pm – 6:00 pm
HARBORSIDE Ballroom, Salon B, Level 4

Process and Benefits of ASME Pressure Technology Codes & Standards Development
by William Bees, ASME PVP Senator; Lou Hayden, Past Chair of Board on Pressure Technology Codes and Standards; and Guido Karcher, Chair of Board on Pressure Technology Codes and Standards

Have you ever wondered how all of the Codes & Standards stuff that ASME produces happens? In addition to the advantages and benefits that ASME members gain from membership in the PVP Division and attendance and participation in the ASME Pressure Vessel and Piping Conference, ASME can also offer additional benefits to folks with these interests in the area of development of Codes and Standards development. In this workshop, we will:
- Explain the organizational structure of the Committee Structure under the Board on Pressure Technology Codes and Standards and their areas of responsibilities;
- Explain the overall process used in development of ASME Codes & Standards, and specifically those in the area of Pressure Technology Codes and Standards;
- Describe the consensus process used in the Codes and Standards development process and the ANSI approval process;
- Explore the benefits to participants in ASME Codes and Standards development activities;
- Discuss the various types of participation in the Codes & Standards Committees, qualifications, and the expectations of the participants;
- Explore the relationship between ASME Pressure Vessels and Piping Division and ASME Codes & Standards; and
- Discuss some of the emerging areas in Pressure Technology and the ones currently seeking participants.

Coffee Breaks and Refreshments

Coffee and refreshments are available throughout the week in the Harborside Foyer (Level 4).

This hub of activity features the forums, coffee breaks, guest activity information area, and registration.
One of ASME’s most valuable assets is our relationships with the volunteer members who serve on our Codes and Standards committees. It is ASME’s policy to afford all persons with direct and material interest, without regard to country of citizenship or residency, the opportunity to participate in the ASME Codes & Standards development process. Membership on a committee normally represents you as an individual, rather than as a representative of your employer or another organization.

The last part of the session will be an open question and answer panel session to discuss any questions you may have. So come and ask the experts about another way to get involved with ASME.

**TECHNICAL TUTORIALS**

**Monday, July 18, 2:00 pm – 5:45 pm**

*Harborside Ballroom, Salon B, Level 4*

**ASME Section VIII, Division 3 Alternative Rules for Construction of High Pressure Vessels**

*by J. Robert Sims, Becht Engineering Co., Inc.*

This tutorial focuses on the differences between Section VIII, Division 3 (Alternative Rules for Construction of High Pressure Vessels) and Section VIII, Division 2 (Alternative Rules for Pressure Vessels). Requirements for materials, design, fabrication and testing will be presented, with special emphasis on the following areas:

- Methods for calculation of residual stresses due to autofrettage;
- Using closed form solutions;
- Using finite element analysis;
- Methods for fracture mechanics analysis to determine the design fatigue life;
- Detailed example will be provided;
- Methods for correcting the traditional “S-N” fatigue life calculations for mean stress;
- Differences in elastic-plastic analysis and structural stress methods compared to Division 2;
- Fracture toughness testing requirements; and
- Fabrication requirements.

**Tuesday, July 19, 2:00 pm – 5:45 pm**

*Harborside Ballroom, Salon B, Level 4*

**Uncertainty Assessment in Engineering Design and Analysis**

*by Narendra Gupta, Savannah River National Laboratory*

This tutorial will present some basic concepts and tools to assess uncertainty that an analyst should be familiar with while using computational models for analysis. The following topics will be discussed:

- What is uncertainty?
- Uncertainty and sensitivity;
- Probability distributions and basic statistics;
- Basic concepts of Design of Experiments (DOE);
- Sampling schemes used in assessing uncertainty;
- Propagation of uncertainty in computational models; and
- Uncertainty and decision analysis.

**Wednesday, July 20, 8:30 am – 12:15 pm**

*Harborside Ballroom, Salon B, Level 4*

**Flow-Induced Vibration of Heat Exchangers and Steam Generators**

*by Michel Pettigrew, École Polytechnique*

This tutorial is for the non-specialist and will cover the following basic steps to analyze a shell-and-tube heat exchanger:

- Flow velocity distribution;
- Tube frequencies and mode shapes;
- Tube damping in gases, liquids and two-phase flows;
- Vibration excitation mechanisms (fluidelastic instability, vortex shedding resonance, random turbulence, and acoustic resonance);
- Vibration response calculations;
- Fretting-wear damage prediction; and
- Design guidelines.

The participants are asked to bring their calculators and do sample calculations. A heat exchanger will be analyzed from a vibration point of view with the participation of the attendees.

**NDE and SOFTWARE FORUMS**

**NDE Demonstration Forum**

**Monday, July 18, 8:00 am – 5:45 pm**

*Harborside Foyer, Level 4*

The NDE Demonstration Forum will be held on Monday, July 18. NDE Vendors will present and discuss their capabilities, equipment, and services in the Harborside Foyer, Level 4, adjacent to the Conference Registration area. For additional information, please contact Dr. Carl E. Jaske, Det Norske Veritas (USA), Inc., at Carl.Jaske@dnv.com.

**Software Demonstration Forum**

**Tuesday, July 19, 8:00 am – 5:45 pm**

*Harborside Foyer, Level 4*

The Software Demonstration Forum will be held on Tuesday, July 19. Software Vendors will present and discuss their capabilities, equipment, and services in the Harborside Foyer, Level 4, adjacent to the Conference Registration area. For additional Information, please contact James F. Cory, Jr., Siemens PLM Software, at james.cory@siemens.com.

**SOCIAL PROGRAMS and TOURS**

**Conference-Wide Reception—Harborside Ballroom, Salon C, Level 4**

**Monday, July 18, 6:15 pm – 8:00 pm**

All who registered are invited to attend the Reception. Meet with your colleagues, many of whom you have not seen for a while. Join with the registrants and guests for a relaxing evening.

**No charge for registered conference participants and guests**

**The Charm City: A Day of History**

**Monday, July 18, 10:00 am – 2:00 pm**

Baltimore is America’s first major sea port located on the Chesapeake Bay. Famous for Fort McHenry, the “Star Spangled Banner,” and Maryland Blue Crab, Baltimore is an exciting place to visit. The Charm City will be highlighted on today’s driving tour, which will feature the many attractions that have made Baltimore famous. Baltimore’s art, industry, history, science and cul-

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(continues on the next page)
In Baltimore, you will be surrounded by dolphins until 10:00 pm. Please enjoy the dinner & drinks served from 7:00 pm – 11:00 pm. During dinner, you will have a self-guided tour of the Aquarium, from 6:00 pm – 7:00 pm. Dinner & Drinks will be served from 7:00 pm – 11:00 pm. During dinner, you will be surrounded by dolphins until 10:00 pm. Please enjoy the smooth, claiming atmosphere after a long day of technical sessions. We hope you enjoy the event.

**Per Person: $80, 12 years and under: $65**

**CONFERENCE SPECIAL EVENT**

**National Aquarium in Baltimore**

**Wednesday, July 20, 6:00 pm – 7:00 pm, Tour of Aquarium**

The National Aquarium in Baltimore is conveniently located at Pier 3, 501 East Pratt Street. The Aquarium is approximately a five-to-10 minute walk (or roughly a ½ mile) from the Baltimore Marriott Waterfront. During our event, you will have a self-guided tour of the Aquarium, from 6:00 pm – 7:00 pm. Dinner & Drinks will be served from 7:00 pm – 11:00 pm. During dinner, you will be surrounded by dolphins until 10:00 pm. Please enjoy the smooth, claiming atmosphere after a long day of technical sessions. We hope you enjoy the event.

**Per person: $85, 12 years and under: $60**

**CONFERENCE INFORMATION**

**Technical Sessions and Programs**

All technical sessions will be held on Level 4 of the Marriott Baltimore Waterfront 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, 35-mm slide projectors, VCRs, or overhead projectors. Personal computers are the responsibility of the session developer, or presenter. It is strongly recommended that authors provide their materials to the session developer at the Authors’ Breakfast, so that all the papers in a session can be loaded onto a single computer. Authors are recommended to have their presentations on a flash (pen) drive, in the event that compatibility problems occur between their computers and the LCD.

The location of the session rooms is shown in the Hotel Floor Plan on the inside of the back cover of this program.

**Rudy Scavuzzo Student Paper Symposium & 19th Annual Student Paper Competition**

**Mon., July 18, 8:30 am – 10:15 am & 2:00 pm – 5:45 pm**

**Tues., July 19, 8:30 am – 12:15 pm & 2:00 pm – 5:45 pm**

**Wed., July 20, 8:30 am – 12:15 am**

Sponsored by the PVPD Senate, the 2011 Rudy Scavuzzo Student Paper Symposium & Competition has attracted a record number of entries. Artin A. Dermenjian, PVPD Senate President, and Luc H. Geraets, PVPD Senate Vice-President will conduct the sessions, together with the Student Symposium & Competition representatives from each PVP Technical Committee. The Senate Review Committee will identify the outstanding finalist undergraduate and graduate student papers in two categories: the BS/MS level and the Ph.D. level. Finalist papers will be judged on written technical content (70%) and presentation effectiveness (30%). A $1,000 award will be made to each of the presenting Student Competition Finalist authors during the Honors Luncheon. In addition, each category (BS/MS and Ph.D.), $1000 will be awarded to the presenting author of the Outstanding Student Paper; $800 will be awarded to the presenting author of the Best Student Paper, $500 will be awarded to the presenting author of the Second Runner-Up Student Paper. Students must attend the Conference, and must present their papers to be eligible for an award. The winners will be announced at the Honors and Awards Luncheon, on Wednesday, July 20.
Technical Committee Meetings
Monday & Tuesday, July 18 & 19, 12:15 pm – 1:45 pm

The Pressure Vessels & Piping Division Technical Committees will meet during the noon time on Monday, July 18, and Tuesday, July 19. Visitors are encouraged to attend and take an active part in PVP committee activities. All committee meetings, schedules, and rooms are listed on Page 13.

Honors and Awards Luncheon
Wednesday, July 20, 12:30 pm – 2:15 pm
Grand Ballroom, Salon V, Level 3

The Division Honors Luncheon, honoring all Division Award Recipients and the 2011 ASME S. Y. Zamrik PVP Medalist, Dr. William T. Springer, will be held on Wednesday, July 20, from 12:30 pm, until approximately 2:15 pm, in the Grand Ballroom, Salon V, Level 3. One ticket is included in the Full Conference registration fee. Additional tickets may be purchased at the Conference Registration desk.

Authors Breakfast/Briefing
Monday – Thursday, July 18 – 21, 7:30 am – 8:15 am
Harborside Ballroom, Salon C, Level 4

Authors, Panelists, Session Developers, Chairs, and Vice-Chairs are requested to attend a breakfast briefing in the Harborside Ballroom, Salon C, Level 4, on Monday through Thursday, at 7:30 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 at the Authors’ Breakfast.

Registration Hours
Convention Registration Area, Level 4

Located near the top of the escalator on Level 4, 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 17: 3:00 pm – 6:00 pm
- Monday, July 18: 7:30 am – 4:00 pm
- Tuesday, July 19: 7:30 am – 4:00 pm
- Wednesday, July 20: 7:30 am – 4:00 pm
- Thursday, July 21: 7:30 am – 3:00 pm

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

<table>
<thead>
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<th>Category</th>
<th>MBR1</th>
<th>MBR2</th>
<th>AUP1</th>
<th>AUP2</th>
<th>CHM1</th>
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* Full Registration fees include a coupon for the Conference Proceedings CD containing all the published technical papers. Full Registration also includes a ticket for the Honors Luncheon.
** One Day Registration fees include a coupon for the Conference Proceedings CD and admission to technical sessions for one-day.
*** To qualify for discounted registration fees, you must be a member of ASME, or one of the cooperating societies listed below. Please fill in your society affiliation and membership number on the registration form.
† Life Member, Retired, Participating Members are defined as Life Members who are Retired, but who are participating in the Conference as an Author, a Co-Author, a Presenter, a Panelist, a Session/Symposium Developer, a Session/Symposium Co-Developer, a Session/Symposium Chair, a Session/Symposium Vice-Chair, etc. Registration under this category includes a CD-ROM of the Conference Proceedings and one (1) ticket for the Honors Luncheon.
‡ Life Member, Retired, Non-Participating Members are defined as Life Members who are Retired, but who are not participating in the Conference as an Author, a Co-Author, a Presenter, a Panelist, a Session/Symposium Developer, a Session/Symposium Co-Developer, a Session/Symposium Chair, a Session/Symposium Vice-Chair, etc. Full Registration under this category includes a CD-ROM of Conference Proceedings and one (1) ticket for the Honors Luncheon.
‡‡ Student Author Full Registration Fees also include a CD-ROM of the Conference Proceedings and one (1) ticket for the Honors Luncheon.
‡‡‡ Student Non-Author Full Registration Fees also include a CD-ROM of the Conference Proceedings, only.

Cooperating Societies

If you are a member of one of the following “Cooperating Societies,” you may register at the ASME member rate: Albanian Society of Mechanical Engineers; Centro Argentino de Ingenieros (Argentina); Institution of Engineers, Australia; Bahrain Society of Engineers; Institution of Engineers, Bangladesh; National Academy of Sciences of Belarus; Belgian Society of Mechanical and Environmental Engineering (formerly Société Belge Des Mécaniciens); Associação Brasileira de Ciencias Mechanicas (Brazil); Canadian Society for Mechanical Engineering; Canadian Nuclear Society; Chinese Mechanical Engineering Society (People's Republic); Chinese Institute of Engineers; Chinese Society of Mechanical Engineers (Taiwan, ROC); Chinese Nuclear Society; Asociación Colombiana de Ingenieros, Mecánicos, Electricistas, Electrónicos y Afines (Colombia); Colegio de Ingenieros Tecnologos (Costa Rica); Asociacion Costariccense de Ingenieros en Mantenimiento (Costa Rica); Cyprus Mechanical Engineering Association; Czech Mechanical Engineering Society; Ingeniorofreningen i Danmark, Dansk Maskinteknisk selskab (Society of
Danish Engineers: Society for Mechanical Engineering; Colegio de Ingenieros Mecanicos del Ecuador; Egyptian Society of Mechanical Engineers; Ethiopian Society of Mechanical Engineers; Association Francaise de Mécanique (France) (formerly Groupe de Concertation en Mécanique); Societe des Ingénieurs et Scientifiques de France; Georgia Academy of Engineering Sciences; Verein Deutscher Ingenieure (Germany); Ghana Institution of Engineers; Hellenic Society of Mechanical and Electrical Engineers (Greece); Hong Kong Institution of Engineers; Scientific Society of Mechanical Engineers (Hungary); Institution of Mechanical Engineers, India; Institution of Engineers, India; Indonesian Institute of Engineers; Iranian Society of Mechanical Engineers; Institution of Engineers of Ireland; Association of Engineers and Architects in Israel; Society of Mechanical Engineers in Israel; Associazione Nazionale Di Meccanica (Italy); Associazione Italiana di Tecnologia Meccanica (Italy); Unione Italiana Di Termofluidodinamica (Italy); Japan Society of Mechanical Engineers; Atomic Energy Society of Japan; Korean Society of Mechanical Engineers; Korean Nuclear Society; Kuwait Society of Engineers; Asociacion Mexicana De Ingenieros Mexicanos y Electricistas (Mexico); Sociedad Mexicana de Ingenieria Mecanica (Mexico); Koninklijk Instituut van Ingenieurs (Netherlands); Institution of Professional Engineers, New Zealand; Norwegian Society of Chartered Engineers; Philippine Society of Mechanical Engineers; Polish Society of Mechanical Engineers & Technicians; Ordem Dos Engenheiros (Portugal); Romanian Society of Mechanical Engineers; Russian Academy of Sciences (formerly the USSR Academy of Sciences); Nuclear Society of Russia; Union of Mechanical and Electrical Engineers and Technicians of Serbia; Institution of Engineers, Singapore; Slovak Mechanical Engineering Society; Association of Mechanical Engineers and Technicians of Slovenia; South African Institution of Mechanical Engineers; Federacion de Asociaciones de Ingenieros Industriales de Espana (Spain); Svenska Mekanisters Riksförening (Sweden); Association of Professional Engineers of Trinidad & Tobago; Turkish Chamber of Mechanical Engineers; Academy of Sciences of Ukraine; Institution of Mechanical Engineers (U.K.); Institute of Energy (U.K.) (formerly Institute of Fuel); Colegio de Ingenieros de Venezuela; International Institute of Acoustics and Vibration.

Conference Publications

Convention Rotunda, Level 4, Near Registration Desk

Papers presented at the ASME PVP 2011 Conference are published on a CD available at the Conference. 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 a coupon redeemable for one CD containing all the technical papers presented in the Conference.

Bound volumes of Conference Proceedings may be ordered at the Conference, for post-conference shipping, subject to there being sufficient demand for the respective volumes. A list of volumes is available in the Conference publication room, which features a variety of ASME publications.

Ship Your Conference Proceedings

You can ship your ASME Publications to your home or office right from the Conference. Bring your books to the shipping booth in the Publication Sales room, and they will be packaged and shipped for you. Inquire at the Publication Sales room for location and fees.

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 Melissa Torres at TorresM@asme.org with 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 check changes in the tax code for the current level of deduction, as this is subject to change.

Guest/Family Programs

Guests and family members of registrants are welcome at the Guest Programs that include The Charm City: A Day of History Tour (Monday), the Conference Wide Reception at Marriott Baltimore Waterfront Hotel (Monday evening), the Walking Tour of Hampden and Lunch at Café Hon (Tuesday), the Conference Social Event at the National Aquarium in Baltimore (Wednesday evening). There is also a daily Breakfast, Monday – Thursday, from 7:30 – 9:30 am, for guests and family members, in a separate area of the Harborside Foyer, Level 4. Badges are required for admission to all events.

A guest program activities packet is also included. Please indicate how many guests you will be bringing on your registration form, so that the necessary accommodations can be arranged.

Please note that the tours and Wednesday Evening Social event have an associated fee for participants, as is shown on the registration form, and in this booklet. Early registration is strongly recommended for the events that require fees, as they are available only on a first-come, first-served basis.

Professional Development Hours Now Available

Professional Development Hours are now 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 can then be picked up on Thursday at the registration desk.

Publishing Conference Papers in the ASME Journal of Pressure Vessels Technology

Technical papers presented at the ASME PVP 2011 Conference are published in the form of the ASME Conference Proceedings on a CD. 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 (i.e., the Journal), which is the technical voice of the Pressure Vessels and Piping Division.

Authors are encouraged to submit their papers to the Journal. The Journal is edited by Dr. G. E. O. Widera, and manuscripts should be submitted to the address below. Manuscripts should be prepared according to the
Journal guidelines, which can be found at the ASME web site at: http://journaltool.asme.org/Content/index.cfm.

Dr. G. E. O. Widera, Editor
Journal of Pressure Vessel Technology
Marquette University
College of Engineering
279 Haggerty Engineering
PO Box 1881
Milwaukee, WI 53201-1881
Ph/Fax: 414-288-4427/1647
E-mail: geo.widera@marquette.edu
<table>
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<tr>
<th>Date/Time</th>
<th>Meeting</th>
<th>Room</th>
<th>Responsible Person</th>
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<tr>
<td><strong>Sunday, July 17, 2011</strong></td>
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<tr>
<td>8:30 am – 1:30 pm</td>
<td>PVPD Executive Committee</td>
<td>Boardroom</td>
<td>Y. W. Kwon</td>
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<td>1:30 pm – 2:30 pm</td>
<td>PVP Senate</td>
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<td>A. A. Deremenjian</td>
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<td><strong>Monday, July 18, 2011</strong></td>
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<td>12:15 pm – 1:45 pm</td>
<td>PVPD Codes and Standards Technical Committee</td>
<td>Waterview D</td>
<td>K. Hasegawa</td>
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<td>12:15 pm – 1:45 pm</td>
<td>PVPD Design and Analysis Technical Committee</td>
<td>Waterview C</td>
<td>W. J. Koves</td>
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<td>12:15 pm – 1:45 pm</td>
<td>PVPD Operations, Applications &amp; Components Technical Committee</td>
<td>Waterview A+B</td>
<td>S. J. Hensel</td>
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<td>2:00 pm – 3:45 pm</td>
<td>PVPD International Coordination Committee</td>
<td>Boardroom</td>
<td>M. A. Younan</td>
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<td><strong>Tuesday, July 19, 2011</strong></td>
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<td>ASME NDE Executive Committee</td>
<td>Waterview A+B</td>
<td>W. T. Springer</td>
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<td>10:30 am – 12:15 pm</td>
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<td>D. A. Scharth</td>
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<td>2:00 pm – 3:45 pm</td>
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<td>PVPD Professional Development</td>
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<td>M. B. Ruggles-Wrenn</td>
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<td>PVP2012 Program Committee</td>
<td>Boardroom</td>
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<td><strong>Wednesday, July 20, 2011</strong></td>
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<td><strong>Thursday, July 21, 2011</strong></td>
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<td>8:30 am – 12:15 pm</td>
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PUBLICATIONS

Papers presented at the 2011 PVP Conference will be published in bound volumes, to be purchased at the conference for post-conference shipping, subject to sufficient demand from the authors. The list of volumes is presented below. Other books of interest, Codes and Standards, Transactions, Journals and free literature regarding ASME publications will be available at the conference.

During the Conference, all publications will be sold at the ASME member price. Prepaid orders will be taken for publications that are not available at the Conference. All fully-paid Conference registrants will receive a CD-ROM containing the papers presented at PVP2011. A complete set of the volumes covering the 2011 PVP Conference publications may be purchased as a package at a 10% discount. ASME accepts payment in cash ($US), checks ($US), travelers’ checks ($US), VISA, MasterCard, American Express, Diners Club, and Discover (all credit card charges in $US). Technical papers and bound volumes may be ordered after the Conference by contacting the ASME Order Department, 22 Law Drive, P.O. Box 2300, Fairfield, NJ 07007-2300 or by calling 1-800-THE-ASME. Payment by check or credit card (VISA, MasterCard, American Express, Diners Club, and Discover) must accompany your order. California, Georgia, Illinois, and Texas purchasers must add the appropriate sales tax or furnish a tax exemption certificate. Non-US checks are not accepted.

You may also ship your Conference publications home, or to your office, right from the Publication Sales. A shipping booth will be set up for your convenience, so you do not have to carry your books home.

The Publication Sales area, located in the Convention Rotunda, on Level 4, near the Registration Desk, will be open during the following hours:

- Sunday, July 17: 3:00 pm – 6:00 pm
- Monday, July 18: 8:00 am – 4:00 pm
- Tuesday, July 19: 8:00 am – 4:00 pm
- Wednesday, July 20: 8:00 am – Noon
- Thursday, July 21: 8:00 am – 3:00 pm

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<th>Volume Titles and Volume Editors</th>
<th>Volumes</th>
<th>No. of Papers</th>
<th>Conference Price</th>
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<tr>
<td>Codes &amp; Standards—2011, edited by B. Bezensek, D. Scarth, and K. Hasegawa (Topics include Structural Integrity; Elastic-Plastic Analysis &amp; Fatigue; Ratcheting Issues; Environmental Fatigue; Multiple Flaw Interaction; API/ASME Code Fitness-for-Service; Recent Developments in Chinese, Japanese, European Codes &amp; Standards; High Temperature Codes &amp; Standards; Repair, Replacement and Mitigation; Probabilistic &amp; Risk Based Assessment; Fusion Reactor Component Rules; Multi-Axial Loads Design and Fitness-for-Service; ASME/NRC Nuclear Codes and Standards; and HDPE Pipe and Related Issues.)</td>
<td>115</td>
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<td>Computer Technology &amp; Bolted Joints—2011, edited by J. Waterland, H. Bouzid, Y. Shoji, and J. F. Cory, Jr. (Topics include Design &amp; Analysis of Bolted Joints; Design &amp; Analysis of Packing &amp; Valves; Assembly and Leak Tightness of Bolted Joints; Threaded Fasteners; Elevated Temperature Behavior of Bolted Joints; Issues in Nonlinear FEA; New and Emerging Methods of Analysis &amp; Applications; Computational Model &amp; Experimental Verification; Computational Models for Limit Load, Elastic-Plastic Analysis, and Creep; Probabilistic Analysis Tools for Design and Fitness-for-Service Assessments; Computational Topics in Explicit FEA; and Software Demonstration Forum.)</td>
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<td>Design and Analysis—2011, edited by P. Mertiny and W. J. Koves (Topics include Design &amp; Analysis of Pressure Vessels, Heat Exchangers &amp; Components; Piping and Piping Components Design &amp; Analysis; Fatigue, Fracture and Damage Analysis; Inelastic and Nonlinear Analysis, Limit Load Analysis; Stress Classification and Design-by-Analysis Methodologies; Composite Materials and Structures; Buckling and Structural Reliability Analysis; Thermal Stresses; Fitness-for-Service Evaluations; Elevated Temperature Design; Piping an Equipment Dynamics and Dynamic Response Analysis; Design &amp; Analysis of Bolted Joints; Pipe Damages Due to Explosions or Water Hammer; Structural Integrity of Welded Components; Emerging Design Technologies, Small Modular Reactors; Probabilistic Methods; and Computational Fluid Dynamics.)</td>
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<td>Volume Titles and Volume Editors</td>
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<td><strong>High-Pressure Technology, Nondestructive Evaluation, Nuclear Engineering, and Student Paper Competition—2011</strong>, edited by K. C. Simpson, E. A. Rodriguez, J. Keltjens, W. T. Springer, J. S. Miller, A. Arastu, R. Schultz, A. Petruzzi, Y. Hassan, A. A. Dermenjian, and L. H. Geraets (Topics include Design, Analysis, and Life Prediction of High-Pressure Vessels; Structural Response to High-Explosive or Gaseous Detonations; Compressors for LDPE Production; NDE Research; Plant Inspection and Life Extension; Code Applications in Power and Petrochemical Industries; HDPE and Composite Materials Inspection Issues; Nuclear Waste Storage Inspection Issues; Risk Informed In-Service Inspection; NDE On-line Monitoring; NDE Residual Stress Assessment; System, Structure, and Component Design and Analysis; Plant Operational and Steady-State Analysis; Best Estimate Plus Uncertainty Challenges for Analysis; and Student Papers.)</td>
<td>91</td>
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<td><strong>Materials and Fabrication—2011</strong>, edited by A. J. Duncan and D. Scarth (Topics include Application of Fracture Mechanics in Failure Assessment; Materials for Hydrogen Service; Welding &amp; Residual Stress and Distortion; European Programs in Structural Integrity; Fitness-for-Service and Failure Assessment; Materials and Technologies for Nuclear Power Plants; Code Fatigue Design and Environmental Effects; Flow Accelerated Corrosion Wall Thinning; Mechanistic Materials Modeling; Stress Corrosion Cracking and Corrosion Fatigue Integrity Issues; Pipeline Integrity; Small-Scale and Miniature Mechanical Testing; Leak-Before-Break; NDE Forum; Plastic Pipe; Fracture Reliability; Fatigue and Fracture of Welds and Heat Affected Zones; Creep/Creep-Fatigue Interaction; Risk-Informed Online Monitoring, Modeling and Control of Aging PVP; Advanced Manufacturing and Material Technology for New Nuclear Builds; In-Service Inspection; Multiple Flaw Interaction; Composite Systems; Flow Forming for Material Containment Vessels; Advanced Materials; ASME BPV II Materials; Nature, Distribution, and Modeling of Uncertainties on Component Integrity; and Issues with Weld Overlays, Inlays and Onlays.)</td>
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<td><strong>Operations, Applications &amp; Components—2011</strong>, edited by A. M. Cheta, G. G. Young, S. J. Hensel, and C. S. Bajwa (Topics include Safety, Reliability and Risk Assessment; Qualification and Testing; Monitoring, Diagnostic and Inspection; Toxic Substances—Storage and Transportation; Pumps and Valves; Operations and Maintenance; Piping and Supports; Aging Management and Life Extension; Regulations, and Codes and Standards.)</td>
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<td><strong>Seismic Engineering—2011</strong>, edited by C. C. O’Brien and V. C. Matzen (Topics include Seismic Evaluations; Structural Dynamics—Linear and Non-Linear; Analysis and Design of Piping Systems; Criteria and Methods for Seismic Design of Piping; Issues for New Reactor Licensing Activities; Isolation and Energy Absorption; Seismic Isolation and Vibration Control; Design for DOE Pressure Components; Risk Assessment; Seismic Behavior of Storage Structures; Systems Identification and Control; Base Isolation and Vibration Control.)</td>
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Join us in beautiful Toronto, Ontario, Canada for the 2012 ASME Pressure Vessels & Piping Conference! The PVP conferences are known to be the outstanding international technical forum for participants to further their knowledge-base by exposure to diverse technical topics. Opportunities abound to exchange opinions and ideas both from industry and academia in the many topics related to Pressure Vessel and Piping technologies for the Power and Process Industries. Participants from approximately 40 countries in Europe, Africa, the Middle East, Asia, the Americas and the Oceania islands assure an interesting mixture of topics, ideas, and viewpoints.

The ASME Pressure Vessels & Piping Division is the primary sponsor of the PVP-2012 Conference, with additional participation by the ASME NDE Division. More than 175 paper and panel sessions are planned, as well as workshops, tutorials, NDE and Software Demonstration Forums, and our traditional Student Paper Competition and Symposium.

**General Topics:**
1. Codes & Standards;
2. Computer Technology & Bolted Joints;
3. Design & Analysis;
4. Fluid-Structure Interaction;
5. High Pressure Technology;
6. Materials & Fabrication;
7. Operations, Applications & Components;
8. Seismic Engineering;
9. Non-Destructive Examination;
10. Student Paper Competition & Symposium.

**Schedule:**
- Abstracts are due by **November 11, 2011.**
- Authors will be notified of abstract acceptance by **December 5, 2011.**
- Draft papers are due by **February 13, 2012.**
- Paper peer review comments will be returned by **March 12, 2012.**
- Final reviewed papers in the standard ASME format for publication and the Copyright Agreement Form for each paper must be received by **April 9, 2012.**

**Information:** Updated 2012 PVP Conference information and paper publication instructions will be available after July 15, 2011 at the conference website: http://www.asmeconferences.org/PVP2012/.

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SESSION TITLES BY SESSION BLOCK

Sessions are arranged in Session Blocks in the format X.YZ, where: X indicates the Day, Y indicates the Session Block, and Z indicates the Conference Session Room. Conference Session Rooms are as follows: A = Harborside C; B = Harborside E; C = Laurel C; D = Laurel D; E = Falkland; F = Galena; G = Heron; H = Harborside A; I = Essex C; J = Essex B; K = Essex A; L = Harborside D; M = Laurel A; N = Laurel B; O = Iron; P = James; Q = Kent A; R = Kent B; S = Harborside B; T = Harborside Foyer. The parenthetical designations are the Technical Committee session references.

**Sunday, July 17, 2011**

Block 0.1: Sunday, July 17 (9:00 am – 11:30)
0.1S (TT-1-1) WORKSHOP: ACOUSTIC EMISSION IN METALS AND COMPOSITES—PART I

Block 0.2: Sunday, July 17 (1:00 pm – 3:30 pm)
0.2S (TT-1-2) WORKSHOP: ACOUSTIC EMISSION IN METALS AND COMPOSITES—PART II

Block 0.3: Sunday, July 17 (4:00 pm – 6:00 pm)
0.3S (TT-1-3) SPECIAL TUTORIAL: PROCESS AND BENEFITS OF ASME PRESSURE TECHNOLOGY CODES AND STANDARDS DEVELOPMENT

**Monday, July 18, 2011**

Block 1.1: Monday, July 18 (8:30 am – 10:15 am)
1.1B (CS-3-1) LIMIT LOAD AND FATIGUE BY ELASTIC-PLASTIC ANALYSES
1.1C (CS-2-1) STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS—1
1.1D (CS-15-1) EUROPEAN CODES AND STANDARDS
1.1E (SE-1-1) SEISMIC EVALUATION OF SYSTEMS, STRUCTURES, AND COMPONENTS I
1.1F (FSI-2-1) FLOW-INDUCED VIBRATION SYMPOSIUM—PIPING VIBRATIONS ACOUSTICS
1.1G (CT-2-1) DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS—I
1.1I (DA-2-1) DESIGN AND ANALYSIS OF VESSELS: NOZZLE ISSUES
1.1J (MF-14-1) GENERAL ASPECTS OF LEAK-BEFORE-BREAK
1.1K (NED-1-1) SYSTEM, STRUCTURE, AND COMPONENT DESIGN AND ANALYSIS DEALING WITH REACTOR VESSELS AND PIPING—I
1.1L (MF-4-1) WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT I
1.1M (MF-5-1) EUROPEAN PROGRAMS IN STRUCTURAL INTEGRITY I
1.1N (MF-19-2) CREEP CRACK GROWTH AND DAMAGE
1.1O (NDE-2-1) RECENT DEVELOPMENTS IN NDE TECHNOLOGY
1.1P (OAC-8-1) AGING MANAGEMENT AND LIFE EXTENSION I
1.1Q (MF-7-1) MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS I
1.1R (SPC-1-1) STUDENT PAPER SYMPOSIUM AND COMPETITION BS/MS—1
1.1T NDE DEMONSTRATION FORUM I

Block 1.2: Monday, July 18 (10:30 am – 12:15 am)
1.2A OPENING CEREMONY AND PLENARY LECTURE
1.2T NDE DEMONSTRATION FORUM II

Block 1.3: Monday, July 18 (2:00 pm – 3:45 pm)
1.3B (CS-23-4) CODE SECTION XI ACTIVITIES: PART 1
1.3C (CS-6-1) INTERACTION AND FLAW MODELING FOR MULTIPLE FLAWS—1
1.3D (CS-15-2) DEDICATED SESSION ON BS7910
1.3E (SE-5-1) SEISMIC ISSUES FOR NEW REACTOR LICENSING ACTIVITIES
1.3F (FSI-2-2) FLOW-INDUCED VIBRATION SYMPOSIUM—FIV IN HEAT EXCHANGER TUBE ARRAYS I
1.3G (CT-2-2) DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS—I
1.3H (DA-2-2) DESIGN AND ANALYSIS OF VESSELS: NOZZLE ISSUES AND SKIRT-TO-SHELL JOINTS
1.3I (DA-5-1) INELASTIC AND NONLINEAR ANALYSIS
1.3J (DA-16-1) BUCKLING CONSIDERATIONS & EMERGING TECHNOLOGIES OF SMALL MODULAR REACTORS
1.3K (NED-1-2) SYSTEM, STRUCTURE, AND COMPONENT DESIGN AND ANALYSIS DEALING WITH REACTOR VESSELS AND PIPING—I
1.3L (MF-4-2) WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT II
1.3M (MF-5-2) EUROPEAN PROGRAMS IN STRUCTURAL INTEGRITY II
1.3N (MF-19-3) CREEP-FATIGUE INTERACTION
1.3O (NDE-3-1) PLANT INSPECTION AND LIFE EXTENSION
1.3P (OAC-8-2) AGING MANAGEMENT AND LIFE EXTENSION II
1.3Q (OAC-2-1) QUALIFICATION, TESTING AND EXPERTISES FOR RESOLUTION OF PROBLEMS
1.3R (SPC-1-2) STUDENT PAPER SYMPOSIUM AND COMPETITION BS/MS—2
1.3S (TT-1-5) TECHNICAL TUTORIAL: ASME SECTION VIII, DIVISION 3 ALTERNATIVE RULES FOR CONSTRUCTION OF HIGH PRESSURE VESSELS—PART I
1.3T NDE DEMONSTRATION FORUM III

Block 1.4: Monday, July 18 (4:00 pm – 5:45 pm)
1.4B (CS-23-5) CODE SECTION XI ACTIVITIES: PART 2
1.4C (CS-2-2) STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS—2
1.4D (CS-14-1) RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS—COLD STRETCHED AUSTENITIC STAINLESS STEEL PRESSURE VESSELS
1.4E (SE-6-1) SEISMIC ISOLATION AND ENERGY ABSORPTION SYSTEMS
Block 2.1: Tuesday, July 19 (8:30 am – 10:15 am)
2.1B (CS-23-1) CODE PROCESS AND INCORPORATION INTO REGULATION
2.1C (CS-6-2) INTERACTION AND FLAW MODELING FOR MULTIPLE FLAWS—2
2.1D (CS-16-1) HIGH TEMPERATURE CODES: CREEP
2.1E (SE-2-1) STRUCTURAL DYNAMICS—LINEAR AND NONLINEAR I
2.1F (FSI-2-4) FLOW-INDUCED VIBRATION SYMPOSIUM—VORTEX-INDUCED VIBRATIONS AND WAKE DYNAMICS
2.1G (CT-5-1) ASSEMBLY AND LEAK TIGHTNESS OF BOLTED JOINTS I
2.1H (DA-4-1) CREEP AND TIME DEPENDANT BEHAVIOR
2.1I (DA-3-1) DESIGN AND ANALYSIS OF PIPING & COMPONENTS I
2.1J (DA-18-1) PIPE DAMAGES DUE TO WATER HAMMER AND EXPLOSIONS
2.1K (NED-3-1) BEPU (BEST ESTIMATE PLUS UNCERTAINTY) CHALLENGES FOR SYSTEM, STRUCTURE AND COMPONENT ANALYSIS IN PRESSURE VESSELS AND PIPING
2.1L (MF-4-4) WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT IV
2.1M (MF-2-1) THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT I

Block 2.2: Tuesday, July 19 (10:30 am – 12:15 pm)
2.2B (CS-23-2) CURRENT REGULATORY ISSUES WITHIN ASME CODE
2.2C (CS-4-1) RATCHETING ISSUES IN PRESSURE VESSEL AND PIPING DESIGN—1
2.2D (CS-22-1) COMBINATION OF MULTI-AXIAL LOADS IN DESIGN AND FITNESS-FOR-SERVICE
2.2E (SE-2-2) STRUCTURAL DYNAMICS—LINEAR AND NONLINEAR II
2.2F (FSI-2-5) FLOW-INDUCED VIBRATION SYMPOSIUM—AXIAL AND LEAKAGE-FLOW-INDUCED VIBRATION
2.2G (CT-5-2) ASSEMBLY AND LEAK TIGHTNESS OF BOLTED JOINTS II
2.2H (DA-4-2) THERMAL FATIGUE—FATHER EXPERIMENT ON MIXING ZONE
2.2I (DA-3-2) DESIGN AND ANALYSIS OF PIPING & COMPONENTS II
2.2J (FSI-4-1) STRUCTURES UNDER EXTREME LOADING
2.2K (HP-3-1) STRUCTURAL RESPONSE OF VESSELS TO HIGH-EXPLOSIVE DETONATIONS—I
2.2L (MF-4-5) WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT V
2.2M (MF-2-2) THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT II
2.2N (MF-25-2) COMPOSITE MANUFACTURING TECHNOLOGIES FOR VESSELS AND PIPING
2.2O (NDE-10-1) NDE FOR CORROSION ASSESSMENT
2.2P (OAC-6-4) REPAIR WELDING GUIDELINES II
2.2Q (OAC-4-2) TOXIC SUBSTANCE PACKAGING—STRUCTURAL EVALUATION
2.2R (SPC-1-5) STUDENT PAPER SYMPOSIUM AND COMPETITION BS/MS—3
2.2T SOFTWARE DEMONSTRATION FORUM II

Block 2.3: Tuesday, July 19 (2:00 pm – 3:45 pm)
2.3B (CS-23-3) RECENT DEVELOPMENTS IN ASME CODE SECTION III—1
2.3C (CS-18-1) REPAIR, REPLACEMENT AND MITIGATION FOR FITNESS-FOR-SERVICE ACTIVITIES
2.3D (CS-16-2) HIGH TEMPERATURE CODES: CREEP-FATIGUE
2.3E (SE-3-1) SEISMIC ANALYSIS AND TESTING OF PIPING
2.3F (FSI-2-6) FLOW-INDUCED VIBRATION SYMPOSIUM—FIV IN HEAT EXCHANGER TUBE ARRAYS II
2.3G (CT-6-1) ANALYSIS OF THREADED FASTENERS
| 2.3H (DA-4-3) | PROPAGATION ANALYSIS |
| 2.3I (DA-3-3) | DESIGN AND ANALYSIS OF PIPING & COMPONENTS III |
| 2.3J (FSI-3-1) | 15TH INTERNATIONAL SYMPOSIUM ON EMERGING TECHNOLOGIES FOR FLUIDS, STRUCTURES AND FLUID-STRUCTURE INTERACTIONS—FLUID-STRUCTURE INTERACTION IN TUBE BUNDLES |
| 2.3K (HP-3-2) | STRUCTURAL RESPONSE OF VESSEL AND PIPING TO GASEOUS OR HIGH-EXPLOSIVE DETONATIONS—I |
| 2.3L (MF-4-6) | WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT VI |
| 2.3M (MF-2-3) | THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT III |
| 2.3N (MF-21-1) | ADVANCED MANUFACTURING AND MATERIAL TECHNOLOGY FOR NEW NUCLEAR BUILDS |
| 2.3O (MF-9-1) | WALL THINNING CAUSED BY FLOW ACCELERATED CORROSION I |
| 2.3P (OAC-6-1) | LIFE CYCLE MANAGEMENT |
| 2.3Q (OAC-4-3) | TOXIC SUBSTANCE PACKAGING—DESIGN & TESTING |
| 2.3R (SPC-1-6) | STUDENT PAPER SYMPOSIUM AND COMPETITION PHD—3 |
| 2.3S (TT-1-7) | TECHNICAL TUTORIAL: UNCERTAINTY ASSESSMENT IN ENGINEERING DESIGN AND ANALYSIS—PART I |
| 2.3T | SOFTWARE DEMONSTRATION FORUM III |

**Block 2.4: Tuesday, July 19 (4:00 pm – 5:45 pm)**

| 2.4B (CS-23-10) | RECENT DEVELOPMENTS IN ASME CODE SECTION III—2 |
| 2.4C (CS-13-1) | RECENT DEVELOPMENTS IN JAPANESE CODES AND STANDARDS—STRUCTURAL INTEGRITY ASSESSMENT |
| 2.4D (CS-14-2) | RECENT DEVELOPMENTS IN CHINESE CODES AND STANDARDS—ENGINEERING FAILURE ANALYSIS |
| 2.4E (SE-3-2) | SEISMIC ANALYSIS AND DESIGN OF PIPING |
| 2.4F (FSI-2-7) | FLOW-INDUCED VIBRATION SYMPOSIUM—PIPING VIBRATIONS ACOUSTICS II |
| 2.4G (CT-6-2) | SELF-LOOSENING OF BOLTED JOINTS |
| 2.4H (DA-4-4) | EVALUATION OF FRACTURE TOUGHNESS |
| 2.4I (DA-3-4) | DESIGN AND ANALYSIS OF PIPING & COMPONENTS IV |
| 2.4J (FSI-3-2) | 15TH INTERNATIONAL SYMPOSIUM ON EMERGING TECHNOLOGIES FOR FLUIDS, STRUCTURES AND FLUID-STRUCTURE INTERACTIONS—SHOCK WAVE PROPAGATION |
| 2.4K (MF-7-2) | MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS II |
| 2.4L (MF-4-7) | WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT VII |
| 2.4M (MF-2-4) | THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT IV |
| 2.4N (MF-16-1) | PLASTIC PIPE |

| 2.4O (MF-9-2) | WALL THINNING CAUSED BY FLOW ACCELERATED CORROSION II |
| 2.4P (OAC-6-3) | NUCLEAR PLANT OPERATION |
| 2.4Q (OAC-4-4) | TOXIC SUBSTANCES—REGULATIONS AND STANDARDS |
| 2.4R (SPC-1-7) | STUDENT PAPER SYMPOSIUM AND COMPETITION PHD—3 |
| 2.4S (TT-1-8) | TECHNICAL TUTORIAL: UNCERTAINTY ASSESSMENT IN ENGINEERING DESIGN AND ANALYSIS—PART I |
| 2.4T | SOFTWARE DEMONSTRATION FORUM IV |

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**Wednesday, July 20, 2011**

**Block 3.1: Wednesday, July 20 (8:30 am – 10:15 am)**

| 3.1B (CS-23-6) | ISSUES WITH WELD OVERLAYS, INLAYS, AND ONLAYS: PART 1 |
| 3.1C (CS-13-2) | RECENT DEVELOPMENTS IN JAPANESE CODES AND STANDARDS—CRACK GROWTH RATE OF SCC AND FATIGUE |
| 3.1D (CS-24-1) | HDPE PIPE AND RELATED ISSUES IN CODES & STANDARDS |
| 3.1E (SE-4-1) | FORUM ON APPROPRIATE CRITERIA AND METHODS FOR SEISMIC DESIGN OF PIPING SYSTEMS (FORUM SESSION) |
| 3.1F (FSI-2-8) | FLOW-INDUCED VIBRATION SYMPOSIUM—FIV IN HEAT EXCHANGER TUBE ARRAYS III |
| 3.1G (CT-7-1) | ELEVATED TEMPERATURE BEHAVIOR OF BOLTED JOINTS |
| 3.1H (DA-4-5) | DUCTILE PROPAGATION |
| 3.1I (DA-13-1) | DESIGN & ANALYSIS OF BOLTED JOINTS |
| 3.1J (FSI-5-1) | FLUID STRUCTURE INTERACTION AND SLOSHING: GENERAL INTERACTION |
| 3.1K (HP-5-1) | COMPRESSORS FOR LDPE PRODUCTION |
| 3.1L (MF-4-8) | WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT VIII |
| 3.1M (MF-29-1) | IMPLICATIONS OF THE NATURE, DISTRIBUTION, AND MODELING OF UNCERTAINTIES ON COMPONENT INTEGRITY—SESSION A |
| 3.1N (MF-17-1) | FRACTURE RELIABILITY-PROBABILISTIC LEAK-BEFORE-BREAK APPLICATIONS |
| 3.1O (MF-12-1) | PIPELINE INTEGRITY I |
| 3.1P (OAC-1-1) | SAFETY, RELIABILITY AND RISK ASSESSMENT I |
| 3.1Q (HP-3-3) | STRUCTURAL RESPONSE OF VESSELS TO HIGH-EXPLOSIVE DETONATIONS—II |
| 3.1R (SPC-1-8) | STUDENT PAPER SYMPOSIUM—1 |
| 3.1S (TT-1-9) | TECHNICAL TUTORIAL: FLOW-INDUCED VIBRATION OF HEAT EXCHANGERS AND STEAM GENERATORS—PART I |

**Block 3.2: Wednesday, July 20 (10:30 am – 12:15 pm)**

| 3.2B (CS-23-7) | ISSUES WITH WELD OVERLAYS, INLAYS, AND ONLAYS: PART 2 |
Block 4.1: Thursday, July 21 (8:30 am – 10:15 am)

4.1B (CS-23-8) ISSUES RELATED TO LEAK-BEFORE-BREAK: PROBABILISTIC METHODS
4.1C (CS-5-1) ENVIRONMENTAL FATIGUE ISSUES—I
4.1D (CS-8-1) ASME CODE FITNESS-FOR-SERVICE AND STORAGE TANK ACTIVITIES
4.1E (MF-13-1) SMALL-SCALE AND MINIATURE MECHANICAL TESTING—SMALL PUNCH TESTING
4.1F (FSI-1-1) THERMAL-HYDRAULIC PHENOMENA AND INTERACTIONS WITH VESSELS, PIPING, AND COMPONENTS—FLUID TRANSIENTS/VIBRATIONS
4.1G (CT-11-1) COMPUTATIONAL MODELS FOR LIMIT LOAD, ELASTIC-PLASTIC ANALYSIS AND CREEP
4.1H (DA-4-7) PROPAGATION AND RESIDUAL STRESSES
4.1I (DA-7-1) COMPOSITE MATERIALS AND STRUCTURES
4.1J (DA-6-1) STRESS CLASSIFICATION
4.1L (MF-20-1) MATERIAL, SYSTEM DEGRADATION AND MODELING IN AGING PVP OR COMPLEX SYSTEMS/NETWORKS
4.1M (MF-7-3) MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS III
4.1N (MF-11-1) SCC AND CORROSION FATIGUE—EXPERIMENTS
4.1O (MF-6-1) FITNESS FOR SERVICE AND FAILURE ASSESSMENT I

Block 4.2: Thursday, July 21 (10:30 am – 12:15 pm)

4.2B (CS-23-9) ISSUES RELATED TO LEAK-BEFORE-BREAK: DETERMINISTIC METHODS
4.2C (CS-4-2) RATCHETING ISSUES IN PRESSURE VESSEL AND PIPING DESIGN—2
4.2D (CS-20-2) FUSION REACTOR COMPONENT RULES FOR STRUCTURAL INTEGRITY
4.2E (MF-13-2) SMALL-SCALE AND MINIATURE MECHANICAL TESTING—MINIATURE SPECIMEN TESTING
4.2F (FSI-1-2) THERMAL-HYDRAULIC PHENOMENA AND INTERACTIONS WITH VESSELS, PIPING, AND COMPONENTS—THERMAL HYDRAULIC/FSI RELATED
4.2G (CT-13-1) COMPUTATIONAL TOPICS IN EXPLICIT FEA
4.2H (DA-4-8) FATIGUE INITIATION
4.2I (DA-9-1) THERMAL STRESSES IN VESSELS, PIPING, AND COMPONENTS
4.2J (CS-19-2) COMPUTATIONAL METHODS IN PROBABILISTIC ASSESSMENT
4.2K (MF-18-2) MODELING CRACK GROWTH AND THE IMPACT OF RESIDUAL STRESSES ON FRACTURE
4.2L (MF-20-5) RISK-INFORMED IN-SERVICE INSPECTION STRATEGY AND COMPUTATIONAL RELIABILITY FOR AGING PVP OR COMPLEX SYSTEMS/NETWORKS
4.2M (MF-11-2) SCC AND CORROSION FATIGUE—EXPERIMENTS II
4.2O (MF-6-2) FITNESS FOR SERVICE AND FAILURE ASSESSMENT II
4.2P (SE-12-2) BASE ISOLATION AND VIBRATION CONTROL SYSTEMS II

Block 4.3: Thursday, July 21 (2:00 pm – 3:45 pm)

4.3B (CS-5-2) ENVIRONMENTAL FATIGUE ISSUES—II
4.3C (CS-6-3) INTERACTION AND FLAW MODELING FOR MULTIPLE FLAWS—3
4.3D (CS-20-3) FUSION REACTOR COMPONENT RULES FOR STRUCTURAL INTEGRITY—II
4.3F (FSI-1-3) THERMAL-HYDRAULIC PHENOMENA AND INTERACTIONS WITH VESSELS, PIPING, AND COMPONENTS—CFD RELATED
4.3G (DA-12-1) PIPING AND EQUIPMENT DYNAMICS
4.3H (DA-4-9) FATIGUE AT MICRO AND MESO LEVELS
4.3I (DA-10-1) FITNESS-FOR-SERVICE EVALUATIONS
4.3J (CS-19-2) COMPUTATIONAL METHODS IN PROBABILISTIC ASSESSMENT
4.3K (MF-18-2) MODELING CRACK GROWTH AND THE IMPACT OF RESIDUAL STRESSES ON FRACTURE
4.3L (MF-20-5) RISK-INFORMED IN-SERVICE INSPECTION STRATEGY AND COMPUTATIONAL RELIABILITY FOR AGING PVP OR COMPLEX SYSTEMS/NETWORKS
4.3N (MF-11-3) SCC AND CORROSION FATIGUE—MODELS

Block 4.4: Thursday, July 21 (4:00 pm – 5:45 pm)

4.4H (DA-4-10) S/N CURVES AND ENVIRONMENT
4.4I (DA-11-1) ELEVATED TEMPERATURE DESIGN
4.4K (MF-18-3) MICROSTRUCTURE/PROPERTY ENGINEERING IN WELDS AND HEAT AFFECTED ZONES

4.4L (MF-20-6) RESEARCH, TRAINING AND APPLICATIONS IN MANAGING OR SIMULATING AGING PVP OR COMPLEX SYSTEMS/NETWORKS
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 = Harborside C; B = Harborside E; C = Laurel C; D = Laurel D; E = Falkland; F = Galena; G = Heron; H = Harborside A; I = Essex C; J = Essex B; K = Essex A; L = Harborside D; M = Laurel A; N = Laurel B; O = Iron; P = James; Q = Kent A; R = Kent B; S = Harborside B; T = Harborside Foyer. The parenthetical designations are the Technical Committee session references.

**SUNDAY, JULY 17**

**Block 0.1: Sunday, July 17 (9:00 am – 11:30 am)**

**SESSION 0.1S (TT-1-1)**
Sunday, Sunday, July 17, 9:00 am – 11:30 pm, Harborside B
TECHNICAL WORKSHOP: ACOUSTIC EMISSION IN METALS AND COMPOSITES—PART I
Sponsored by the MISTRAS Group, Inc. and the ASME NDE Division
Presented by: R. Miller, MISTRAS Group, Inc., Princeton Junction, USA

**Block 0.2: Sunday, July 17 (1:00 pm – 3:30 pm)**

**SESSION 0.2S (TT-1-2)**
Sunday, July 17, 1:00 pm – 3:30 pm, Harborside B
TECHNICAL WORKSHOP: ACOUSTIC EMISSION IN METALS AND COMPOSITES—PART II
Sponsored by the MISTRAS Group, Inc. and the ASME NDE Division
Presented by: A. Pollock, MISTRAS Group, Inc., Princeton Junction, USA

**Block 0.3: Sunday, July 17 (4:00 pm – 6:00 pm)**

**SESSION 0.3S (TT-1-3)**
Sunday, July 17, 4:00 pm – 6:00 pm, Harborside B
SPECIAL TUTORIAL: PROCESS AND BENEFITS OF ASME PRESSURE TECHNOLOGY CODES & STANDARDS DEVELOPMENT
Sponsored by the PVP Division Conference Committee
Presented by: G. G. Karcher, Consulting Engineer, Little Egg Harbor, USA; L. E. Hayden, Lou Hayden Consulting, Bethlehem, PA, USA; W. J. Bees, WJBees Consulting, Wadsworth, OH, USA

**MONDAY, JULY 18**

**Block 1.1: Monday, July 18 (8:30 am – 10:15 am)**

**SESSION 1.1B (CS-3-1)**
Monday, July 18, 8:30 am – 10:15 am, Harborside E
LIMIT LOAD ANALYSIS BY ELASTIC-PLASTIC FEA

Sponsored by Codes & Standards Technical Committee
Developed by: A. Kalnins, Lehigh University, Bethlehem, PA, USA
Chair: M. Rana, Praxair, Inc., Tonawanda, NY, USA
Co-Chair: J. Rudolph, AREVA NP GmbH, Erlangen, Germany
PVP2011-57138: REVIEW OF ASME III CODE CASE FOR THE APPLICATION OF FINITE ELEMENT BASED LIMIT LOAD ANALYSIS
M. Martin, C. Watson, K. Wright, Rolls-Royce, Derby, Derbyshire, United Kingdom
PVP2011-57583: PLASTIC LIMIT LOADS FOR SLANTED CIRCUMFERENTIAL THROUGH-WALL CRACKED PIPES BASED ON FINITE ELEMENT LIMIT ANALYSIS
H.-M. Jang, D.-H. Cho, Y.-J. Kim, J.-B. Choi, Sungkyunkwan University, Suwon, Gyeonggi-do, Korea (Republic); N.-S. Huh, Seoul National University of Science and Technology, Seoul, Korea (Republic); D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; Y. H. Choi, J.-S. Park, Korea Institute of Nuclear Safety, Daejeon, Korea (Republic)

PVP2011-57888: PLASTIC INSTABILITY ANALYSIS OF CONICAL SHELL
R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada
PVP2011-58011: ON THE ELASTO-PLASTIC EVALUATION OF PIPING SYSTEMS SUBJECT TO DYNAMIC EVENTS
A. Olsson, M. Möller, Areva NP Uddcomb AB, Helsingborg, Sweden

**SESSION 1.1C (CS-2-1)**
Monday, July 18, 8:30 am – 10:15 am, Laurel C
STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS—I
Sponsored by Codes & Standards Technical Committee
Developed by: Y. Hari, University of North Carolina at Charlotte, Charlotte, NC, USA
Chair: B. Antaal, ADVENT Engineering Services Inc., San Ramon, CA, USA
Co-Chair: D. K. Williams, NuScale Power, Inc., Corvallis, OR, USA
PVP2011-57014: STRESS AND FRACTURE MECHANICS ANALYSES OF BOILING WATER REACTOR AND PRESSURIZED WATER REACTOR PRESSURE VESSEL NOZZLES
G. Stevens, U.S. Nuclear Regulatory Commission, Rockville, MD, USA; R. Bass, S. Yin, Oak Ridge National Laboratory, Oak Ridge, TN, USA; M. Kirk, U. S. Nuclear Regulatory Commission, Washington, DC, USA
PVP2011-57218: DIFFERENT STRUCTURAL INTEGRITY ASSESSMENT METHODS FOR PIPE CONTAINING CIRCUMFERENTIAL THROUGH-THICKNESS CRACK
H. Jiang, X. Chen, Z. Fan, Hefei General Machinery Research Institute, Hefei, Anhui, China
PVP2011-57432: THE EFFECT OF THE STRESS AND STRAIN IN STATIONARY SHORT CRACK TIPS FOR THE DIFFERENT CRACK LENGTHS
SESSION 1.1D (CS-15-1)
Monday, July 18, 8:30 am – 10:15 am, Laurel D
EUROPEAN CODES AND STANDARDS
Sponsored by Codes & Standards Technical Committee
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; M. Sperandio, AREVA, Paris, France
Chair: C. Faidy, EDF-SEPTEN, Villeurbanne, France
Co-Chair: O. Grisolia, INAIL-ISPELS, Rome, Rome, Italy
PVP2011-57069: RCC-M: LATEST UPDATINGS, CURRENT WORKS, AND FUTURE EVOLUTIONS
P. Malouines, J.-M. Grandemange, AFCEN, Courbevoie, France
PVP2011-57533: COMPARISON OF PTS GUIDES FOR REACTOR PRESSURE VESSEL INTEGRITY ASSESSMENT (Presentation Only)
M. Brumovsky, Nuclear Research Institute Rez plc, Rez, Czech Republic
PVP2011-57852: MATERIAL REPORT IN SUPPORT TO RCC-MRX CODE 2010—STAINLESS STEEL PARTS AND PRODUCTS
T. Lebarbé, O. Ancelet, CEA, Gif sur Yvette, France; S. Dubiez-Le Goff, O. Gelineau, Areva NP, Lyon, France
PVP2011-58061: RCCM, RSEM AND RCCMX: A CONSISTENT SET OF MECHANICAL COMPONENTS CODES AND STANDARDS
C. Faidy, EDF-SEPTEN, Villeurbanne, France
PVP2011-58090: COMPARISON OF GERMAN KTA AND ASME NUCLEAR DESIGN CODES FOR CLASS 1, 2, 3 COMPONENTS AND PIPING
D. Hofer, Westinghouse Electric Germany Mannheim, Germany; H. Schau, TÜV SÜD Energietechnik, Mannheim, Germany; H. E. Karabaki, E.ON Kernkraft GmbH, Hannover, Germany; R. Hill, Westinghouse Electric Company, Walls Mill, PA, USA
SESSION 1.1E (SE-1-1)
Monday, July 18, 8:30 am – 10:15 am, Falkland
SEISMIC EVALUATION OF SYSTEMS, STRUCTURES, AND COMPONENTS I
Sponsored by Seismic Engineering Technical Committee
Developed by: D. Clark, Idaho National Laboratory, Idaho Falls, ID, USA
Chair: V. Matzen, North Carolina State University, Raleigh, NC, USA
Co-Chair: C. C. O’Brien, Idaho National Laboratory, Idaho Falls, ID, USA
I. Nakamura, National Research Institute for Earth Science and Disaster Prevention, Tsukuba, Ibaraki, Japan; K. Kajiwara, Hyogo Earthquake Engineering Research Center, National Research Institute for Earth Science and Disaster Prevention, Miki, Hyogo, Japan
PVP2011-57928: SEISMIC CAPACITY TESTS OF MOTOR OPERATED FANS IN VENTILATION SYSTEMS
J. Hirose, K. Suzuki, Japan Nuclear Energy Safety Organization, Tokyo, Japan; N. Yoshika, Mitsubishi Heavy Industries, Ltd., Kobe, Asia, Japan
PVP2011-57823: SEISMIC FRAGILITY EVALUATION OF A BURIED AUXILIARY COOLING WATER SYSTEM PIPELINE FOR LIQUEFACTION-INDUCED SOIL SETTLEMENT
O. O. Erbay, Simpson Gumpertz & Heger Inc., Waltham, MA, USA; F. W. Kan, Simpson Gumpertz & Heger, Inc., Waltham, MA, USA; P. Hashimoto, Simpson Gumpertz & Heger, Inc., Newport Beach, CA, USA; Y. Bayraktarli, O. Zuchuat, BKW FMB Energie AG, Muhleberg, Switzerland
PVP2011-57866: RELATIONSHIP BETWEEN CROSS SECTION OF TEST PIECE AND INPUT ENERGY FOR FAILURE
K. Minagawa, Saitama Institute of Technology, Saitama, Japan; S. Fujita, Tokyo Denki University, Tokyo, Japan; S. Kitamura, T. Watakabe, Japan Atomic Energy Agency, Ibaraki, Japan
SESSION 1.1F (FSI-2-1)
Monday, July 18, 8:30 am – 10:15 am, Galena
PIPING VIBRATIONS ACOUSTICS I
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: S. Ziada, McMaster University, Hamilton, ON, Canada; P. Oshkai, University of Victoria, Victoria, BC, Canada
Chair: P. Moussou, EDF R&D, Clamart, France
Co-Chair: S. Belfroid, TNO, Delft, Netherlands
PVP2011-58120: DR. FRANK EISINGER’S CONTRIBUTIONS TO THE ANALYSIS AND DESIGN OF POWER PLANT EQUIPMENT (Presentation Only)
R. Sullivan, Retired, Parsippany, USA
PVP2011-57437: AEROACOUSTIC SOURCE OF A SHALLOW CAVITY IN A PIPELINE
S. Mohamed, H. R. Graf, S. Ziada, McMaster University, Hamilton, ON, Canada
PVP2011-57515: MODELLING ACOUSTIC SOURCES IN PIPEWORK
H. G. D. Goyder, Cranfield University, Swindon, United Kingdom
PVP2011-57487: HYDRODYNAMIC INTERACTION BETWEEN WHISTLING AXISYMMETRIC CAVITIES IN THE PRESENCE OF A COUPLING LONGITUDINAL STANDING WAVE
SESSION 1.1G (CT-2-1)
Monday, July 18, 8:30 am – 10:15 am, Heron
DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS—I
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: H. Bouzid, Ecole de Technologie Superieure, Montreal, QC, Canada
Chair: H. Bouzid, Ecole de Technologie Superieure, Montreal, QC, Canada
Co-Chair: T. Sawa, Hiroshima University, Higashi-hiroshima, Japan
PVP2011-57737: FINITE ELEMENT STRESS ANALYSIS FOR LEAK TESTS OF PIPE FLANGE CONNECTIONS SUBJECT TO INTERNAL PRESSURE AND BENDING MOMENT
S. Nagata, Toyo Engineering Corporation, Narashino, Chiba, Japan; T. Sawa, Hiroshima University, Higashi-hiroshima, Japan; T. Kobayashi, Numazu National College of Technology, Numazu, Shizuoka, Japan; H.
SESSION 1.1I (DA-2-1)
Monday, July 18, 8:30 am – 10:15 am, Essex C
DESIGN AND ANALYSIS OF VESSELS: NOZZLE ISSUES
Sponsored by Design & Analysis Technical Committee
Developed by: T. Seipp, Becht Engineering Canada Ltd., Calgary, AB, Canada; J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA
Chair: T. Seipp, Becht Engineering Canada Ltd., Calgary, AB, Canada
Co-Chair: J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA

PVP2011-57100: ESTABLISHING ALLOWABLE NOZZLE LOADS
W. Koves, Pi Engineering Software Inc., Hoffman Estates, IL, USA; E. Upitis, R. Cullotta, O. Latif, Ambitech Engineering Corp., Downers Grove, IL, USA

PVP2011-57407: FINITE ELEMENT ANALYSIS FOR NOZZLE WITH EXTERNAL LOADS
H. Lee, C.-H. Ha, T. Park, Doosan Heavy Industries & Construction, Changwon, Gyeongnam, Korea (Republic)

PVP2011-57356: DEVELOPMENT OF DESIGN RULES FOR NOZZLES IN PRESSURE VESSELS FOR THE ASME B&PV CODE, SECTION VIII, DIVISION 2
Z. Cao, The Equity Engineering Group, Inc., Shaker Heights, OH, USA; L. Bildy, Codeware, Sarasota, FL, USA; D. Osage, J. Sowinski, The Equity Engineering Group, Inc., Shaker Heights, OH, USA

SESSION 1.1J (MF-14-1)
Monday, July 18, 8:30 am – 10:15 am, Essex B
GENERAL ASPECTS OF LBB
Sponsored by Materials & Fabrication and Codes & Standards Technical Committees
Developed by: J. Shariples, Serco Technical Consulting Services, Warrington, United Kingdom; B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; G. Wilkowski, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
Chair: B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom
Co-Chair: D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-57507: DEVELOPMENT OF LBB ASSESSMENT METHOD FOR JAPAN SODIUM COOLED FAST REACTOR (JSFR) PIPES (4) VERIFICATION OF CRACK OPENING DISPLACEMENT ASSESSMENT METHOD FOR THIN WALL PIPES MADE OF MOD.9CR-1MO STEEL
T. Wakai, Japan Atomic Energy Agency, Ibaraki, Japan; H. Machida, S. Yoshida, TEPCO Systems Corporation, Tokyo, Japan; F. Kawashima, Mitsubishi Heavy Industries, Ltd., Nagasaki, Japan; K. Kikuchi, Mitsubishi Heavy Industries, Ltd., Kobe, Japan; Y. Xu, Mitsubishi FBR Systems, Inc., Tokyo, Japan; K. Tsukimori, Japan Atomic Energy Agency, Ibaraki, Japan

PVP2011-57312: THE EVALUATION OF CRACK OPENING AREAS FOR THROUGH-WALL CRACKS IN THE VICINITY OF PIPE BRANCH CONNECTIONS
C. Madew, J. Shariples, R. Charles, Serco Technical Consulting Services, Warrington, United Kingdom; P. Gill, University of Manchester, Manchester, United Kingdom; P. Budden, EDF Energy, Gloucester, United Kingdom

PVP2011-57267: MODELING OF SUBCRITICAL CRACK GROWTH DUE TO STRESS CORROSION CRACKING—TRANSITION FROM SURFACE CRACK TO THROUGH-WALL CRACK
D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; D. Harris, Structural Integrity Associates, Inc., San Jose, CA, USA

SESSION 1.1K (NED-1-1)
Monday, July 18, 8:30 am – 10:15 am, Essex A
SYSTEM, STRUCTURE, AND COMPONENT DESIGN AND ANALYSIS DEALING WITH REACTOR VESSELS AND PIPING—I
Sponsored by ASME Nuclear Engineering Division
Developed by: A. Arastu, Bechtel Power Corporation, San Francisco, CA, USA
Chair: A. Arastu, Bechtel Power Corporation, San Francisco, CA, USA
Co-Chair: J. S. Miller, EDA, Inc, Vienna, VA, USA

PVP2011-57051: ANALYSIS OF ABWR CONTAINMENT PRESSURE-TEMPERATURE LOADS AND SUPPRESSION POOL HYDRODYNAMICS FOLLOWING LOSS OF COOLANT ACCIDENTS
P. Sawant, M. Khatib-Rahbar, Energy Research, Inc., Rockville, ME, USA; F. Moody, General Electric (Retired), Murphys, CA, USA; A. Drozd, U. S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2011-57902: TESTING AND ANALYSIS OF EARLY AGE STRESS-STRAIN DEVELOPMENT OF CONCRETE OVERLAY FOR REACTOR IN-SITU DECOMMISSIONING
H. Guerrero, C. Langton, M. Restivo, Savannah River Nuclear Solutions, Aiken, SC, USA

PVP2011-57862: EX-VESSEL VAPOR EXPLOSION SIMULATIONS FOR POSTULATED SEVERE ACCIDENT CONDITIONS
A. Diab, Ain Shams University, Cairo, Egypt; M. Corradini, University of Wisconsin-Madison, Madison, WI, USA

SESSION 1.1L (MF-4-1)
Monday, July 18, 8:30 am – 10:15 am, Harborside D
WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT I
Sponsored by Materials & Fabrication Technical Committee

Developed by: B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; P. Gilles, AREVA, Paris La Défense, France
Chair: D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: C. Truman, University of Bristol, Bristol, United Kingdom

PVP2011-57426: ACCOUNTING FOR PHASE TRANSFORMATIONS DURING WELDING OF FERRITIC STEELS
C. Hamelin, O. Muransky, V. Luzin, P. Bendeich, L. Edwards, Australian Nuclear Science and Technology Organisation, Kirrawee DC, NSW, Australia

PVP2011-57698: FINITE ELEMENT MODELLING OF 5- AND 8-PASS FERRITIC STEEL WELDS USING PHASE TRANSFORMATION MATERIAL MODELS
D. Hodgson, C. M. Gill, B. M. E. Pellereau, Rolls-Royce Plc, Derby, Derbyshire, United Kingdom; J. Francis, The Open University, Milton Keynes, United Kingdom; P. R. Hurrell, Rolls-Royce plc, Derby, United Kingdom

PVP2011-57054: RESIDUAL STRESS ANALYSIS OF BEAD WELDED LOW ALLOY STEEL PLATE SPECIMENS SUBJECTED TO POST WELD HEAT TREATMENT
N. Yanagida, Hitachi, Ltd., Hitachi, Ibaraki, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan

SESSION 1.1M (MF-19-2)
Monday, July 18, 8:30 am – 10:15 am, Laurel B
CREEP CRACK GROWTH AND DAMAGE
Sponsored by Materials & Fabrication Technical Committee

Developed by: B. Dogan, EPRI, Charlotte, NC, USA; A. Saxena, University of Arkansas, Fayetteville, AR, USA; K. Nikbin, Imperial College, London, United Kingdom

Chair: B. Dogan, EPRI, Charlotte, NC, USA
Co-Chair: R. Dennis, Frazer-Nash Consultancy Ltd., Bristol, Avon, United Kingdom

PVP2011-57166: A NOVEL METHOD FOR OBTAINING THE MULTIAXIALITY CONSTANT FOR DAMAGE MECHANICS WHICH IS APPROPRIATE TO CRACK TIP CONDITIONS
C. Hyde, T. H. Hyde, W. Sun, University of Nottingham, Nottingham, United Kingdom

PVP2011-57330: SPECIMEN GEOMETRY EFFECTS ON CREEP CRACK INITIATION AND GROWTH IN PARENT MATERIALS AND WELDMENTS
C. M. Davies, Imperial College London, London, United Kingdom; D. Dean, EDF Energy, Gloucester, United Kingdom; R. C. Wimpory, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; K. Nikbin, Imperial College, London, United Kingdom

PVP2011-57695: STUDY OF CREEP RELAXATION BEHAVIOUR OF 316H AUSTENITIC STEELS UNDER MECHANICALLY INDUCED RESIDUAL STRESS
H. Y. Nezhad, N. P. O'Dowd, University of Limerick, Limerick, Ireland; C. M. Davies, K. Nikbin, Imperial College London, London, United Kingdom; R. C. Wimpory, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany

PVP2011-57402: LONG-TERM CREEP LIFE ESTIMATION FOR MANAURITE XM MATERIAL, USING A CONSTRAINED MONKMAN-GRANT PLOT AND PROPORTIONAL SIMILITUDE
H. R. Voorhees, Materials Technology Corporation, Ann Arbor, MI, USA; H. C. Rhee, ConocoPhillips, Houston, TX, USA; M. K. Baker, ConocoPhillips, Billings, MT, USA
INTERFERENCE FIT AND WELD REGION

Chair: W. T. Springer, University of Arkansas, Fayetteville, AR, USA

**PVP2011-57119: INVESTIGATION OF IMPACT DAMAGE DETECTION OF CARBON FIBER-REINFORCED PLASTIC (CFRP) BY EDDY CURRENT NON-DESTRUCTIVE TESTING**
K. Koyama, Nihon University, Narashino, Japan

**PVP2011-57299: A METHOD OF CRACK DETECTION IN THE TURBINE BLADE USING DIGITAL HOLOGRAPHIC MICROSCOPY (DHM)**
N. Tada, Okayama University, Okayama, Japan; S. Yoshino, S. Hamada, Tokyo Electric Power, Tokyo, Japan; S.-S. Kang, Korea Institute of Nuclear Safety, Daejeon, Korea (Republic); H.-J. Kim, Sungkyunkwan University, Suwon, Korea (Republic)

**PVP2011-57913: DETECTION OF STRESS CORROSION CRACKING BY DIRECT-CURRENT POTENTIAL DIFFERENCE METHOD**
N. Tada, M. Uchida, H. Maeda, A. Hozuki, Okayama University, Okayama, Japan

**PVP2011-57502: COMPARATIVE ANALYSIS ON RESIDUAL STRESS OF X70 GAS TRANSMISSION PIPELINE IN SERVICE**
R. Gou, Y. Zhang, Z. Zhang, X. Xu, J. Wang, Beijing University of Technology, Beijing, China

**PVP2011-57977: ULTRASONIC PHASED ARRAY EVALUATION OF CONTROL ROD DRIVE MECHANISM (CRDM) NOZZLE INTERFERENCE FIT AND WELD REGION**
A. Cinson, S. Crawford, R. A Mathews, P. J. MacFarlan, B. D. Hanson, A. Diaz, Pacific Northwest National Laboratory, Richland, WA, USA

**SESSION 1.1P (OAC-8-1)**
Monday, July 18, 8:30 am – 10:15 am, James

**AGING MANAGEMENT AND LIFE EXTENSION I**

**PVP2011-57348: EMBRITTLEMENT ISSUES IN RPV MATERIALS; MIGHT THEY BE USED BEYOND THEIR CURRENT FLUENCE RANGE?**
D. T. Blagoeva, Nuclear Research and Consultancy Group (NRG), Petten, Netherlands; L. Debarberis, Institute for Energy, Joint Research Centre - EC, Petten, Netherlands; H. J. B. J. W. Hegeman, N. V. Luzginova, Nuclear Research and Consultancy Group (NRG), Petten, Netherlands

**PVP2011-57393: SYNCHROTRON RADIATION STUDY ON ALLOY 617 AND ALLOY 230 FOR VHTR APPLICATIONS**
K. Mo, H.-M. Tung, University of Illinois, Urbana, IL, USA; M. Li, J. Almer, Argonne National Laboratory, Argonne, IL, USA; X. Chen, W. Chen, J. Hansen, J. Stubbins, University of Illinois, Urbana, IL, USA

**PVP2011-58133: THE CONTRIBUTIONS OF MANSOOR SANWARWALLA TO THE NUCLEAR POWER INDUSTRY**
(Nomination Only)
N. V. Luzginova, H. J. B. J. W. Hegeman, D. T. Blagoeva, J. van der Laan, Nuclear Research and Consultancy Group (NRG), Petten, Netherlands
SESSION 1.1R (SPC-1-1)
Monday, July 18, 8:30 am – 10:15 am, Kent B
STUDENT PAPER SYMPOSIUM AND COMPETITION BS/MS—1
Sponsored by PVP Division Senate
Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium
PVP2011-57832: DAMAGE ASSESSMENT ON LOW CYCLE FATIGUE PROPERTIES OF CYCLIC PRE-STRAINED AUSTENITIC STAINLESS STEEL
N. Fujimura, H. Oguma, T. Nakamura, Hokkaido University, Sapporo, Hokkaido, Japan
PVP2011-57552: STUDY ON MECHANISM OF STRESS-STRAIN REDISTRIBUTION BY ELASTIC-PLASTIC-CREEP DEFORMATION
M. Sato, H. Kikuchi, N. Kasahara, University of Tokyo, Tokyo, Japan
PVP2011-57384: LOAD RECOVERY OF A BOLTED JOINT WITH A SHAPE MEMORY ALLOY STUD
N. Ould-Brahim, H. Bouzid, V. Brailovski, École de Technologie Supérieure, Montreal, QC, Canada
PVP2011-57757: EFFECTS OF POST-TIGHTENING ON THE RESIDUAL BOLT FORCE AND THE SEALING PERFORMANCE OF FLANGED CONNECTIONS WITH PTFE GASKETS (LONG TERM EFFECTS AT ROOM TEMPERATURE)
T. Hagiri, T. Kobayashi, Numazu National College of Technology, Numazu, Japan; K. Nishiura, Mitsubishi Chemical Corporation, Kurashiki, Okayama, Japan; K. Uchiyama, Nichias Corporation, Minato-ku, Tokyo, Japan

SESSION 1.1T (MF-15-1)
Monday, July 18, 8:30 am – 10:15 am, Harborside Foyer
NDE DEMONSTRATION FORUM—I
Sponsored by PVP Senate, PVP Materials & Fabrication Committee, and the ASME NDE Engineering Division
Developed by: C. Jaske, DNV Columbus, Inc., Dublin, OH, USA; B. Wright, Stress Engineering Services, Inc., Houston, TX, USA

Block 1.2: Monday, July 18 (10:30 am – 12:15 pm)

SESSION 1.2A
Monday, July 18, 10:30 am – 12:15 pm, Harborside C
OPENING CEREMONY AND PLENARY LECTURES
Sponsored by the PVP Division Conference Committee
Developed by: R. S. Hafner, Lawrence Livermore National Laboratory, Livermore, CA, USA
Chair: R. S. Hafner, Lawrence Livermore National Laboratory, Livermore, CA, USA
OVERVIEW OF FUKUSHIMA DAIICHI EVENTS: LOCATION, TECHNOLOGY, CHRONOLOGY, DAMAGE, CURRENT CONDITIONS, AND LESSONS LEARNED
D. M. Chapin, MPR Associates, Inc., Alexandria, VA, USA

DIRECTORY OF THE POWER INDUSTRY AFTER FUKUSHIMA-DAIICHI
L. H. Bisbee, Structural Integrity Associates, Inc., Annapolis, MD, USA

SESSION 1.2T (MF-15-2)
Monday, July 18, 10:30 am – 12:15 pm, Harborside Foyer
NDE DEMONSTRATION FORUM—II
Sponsored by PVP Senate, PVP Materials & Fabrication Committee, and the ASME NDE Engineering Division
Developed by: C. Jaske, DNV Columbus, Inc., Dublin, OH, USA; B. Wright, Stress Engineering Services, Inc., Houston, TX, USA

SESSION 1.3B (CS-23-4)
Monday, July 18, 2:00 pm – 3:45 pm, Harborside E
ASME CODE SECTION XI ACTIVITIES: PART 1
Sponsored by Codes & Standards Technical Committee
Developed by: R. Cipolla, Intertek-APTECH, Sunnyvale, CA, USA; D. Scarth, Kinectrics Inc., Toronto, ON, Canada; R. Crane, ASME, New York, NY, USA
Chair: R. Cipolla, Intertek-APTECH, Sunnyvale, CA, USA
Co-Chair: R. Crane, ASME, New York, NY, USA
PVP2011-57696: TECHNICAL BASIS FOR PROPOSED EXTENSION OF SECTION XI APPENDIX C PIPE FLAW EVALUATION PROCEDURES TO PIPE DIAMETERS LESS THAN NPS 4 (Presentation Only)
R. Cipolla, Intertek APTECH, Sunnyvale, CA, USA; K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan
PVP2011-57829: CHANGING THE FREQUENCY OF INSPECTIONS FOR PWSCC SUSCEPTIBLE WELDS AT COLD LEG TEMPERATURES
N. A. Palm, W. Bamford, Westinghouse Electric Company, Cranberry Township, PA, USA; C. Harrington, Electric Power Research Institute, Dallas, TX, USA
PVP2011-57932: PREDICTION OF FRACTURE TOUGHNESS TRANSITION FROM TENSILE TEST DATA APPLYING NEURAL NETWORKS
I. Dlouhy, Brno University of Technology, Brno, Czech Republic; H. Hadraba, Z. Chlup, L. Valka, Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno, Czech Republic; L. Zak, Institute of Mathematical Engineering, Brno University of Technology, Brno, Czech Republic
PVP2011-57872: NEW TRANSITION TEMPERATURE TABLES FOR FERRITIC PIPE FLAW EVALUATION IN SECTION XI (Presentation Only)
G. Wilkowski, D.-J. Shim, B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan

SESSION 1.3C (CS-6-1)
Monday, July 18, 2:00 pm – 3:45 pm, Laurel C
INTERACTION AND FLAW MODELLING FOR MULTIPLE FLAWS—I
Sponsored by Codes & Standards and Material & Fabrication Technical Committees

Developed by: K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom

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

Co-Chair: K. Sugita, Tokyo University of Science, Noda, Chiba, Japan

PVP2011-57875: EXPERIMENTAL STUDY ON THE FLAW CHARACTERIZATION OF MULTIPLE FLAWS FOR DUCTILE FRACTURE
F. Iwamatsu, K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan; T. Hamanaka, Y. Takahashi, Tokyo Electric Power Company, Tokyo, Japan

PVP2011-57876: ESTIMATION OF MAXIMUM LOAD FOR PIPES WITH MULTIPLE CIRCUMFERENTIAL FLAWS BY LIMIT LOAD ANALYSIS
F. Iwamatsu, K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; T. Hamanaka, Y. Takahashi, Tokyo Electric Power Company, Tokyo, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan

PVP2011-57859: FRACTURE ASSESSMENT OF PIPES HAVING MULTIPLE FLAWS BASED ON RAMBERG-OSGOOD-TYPE STRESS-STRAIN RELATIONSHIPS
H. Machida, TEPCO Systems Corporation, Tokyo, Japan; T. Hamanaka, Y. Takahashi, Tokyo Electric Power Company, Tokyo, Japan; K. Miyazaki, F. Iwamatsu, Hitachi, Ltd., Hitachi-shi, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan; M. Itatani, C. Narazaki, Toshiba Corporation, Yokohama, Japan; K. Hojo, Mitsubishi Heavy Industries, Ltd., Kobe, Japan

PVP2011-57430: PROPOSAL OF DRAFT CODE ABOUT EVALUATION PROCEDURES FOR MULTIPLE FLAWS IN ORDER TO REVISE THE RULES ON FITNESS-FOR-SERVICE FOR NUCLEAR POWER PLANTS IN JSME
T. Hamanaka, Y. Takahashi, Tokyo Electric Power Company, Tokyo, Japan; H. Machida, TEPCO Systems Corporation, Tokyo, Japan; K. Miyazaki, F. Iwamatsu, Hitachi, Ltd., Hitachi-shi, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan; M. Itatani, C. Narazaki, Toshiba Corporation, Yokohama, Japan; K. Hojo, Mitsubishi Heavy Industries, Ltd., Kobe, Japan

SESSION 1.3D (CS-15-2)
Monday, July 18, 2:00 pm – 3:45 pm, Laurel D
DEDICATED SESSION ON BS7910
Sponsored by Codes & Standards Technical Committee

Developed by: I. Hadley, TWI Ltd., Cambridge, United Kingdom; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom

Chair: J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom

Co-Chair: B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom

PVP2011-57307: PROGRESS TOWARDS THE REVISION OF BS7910
I. Hadley, TWI Ltd., Cambridge, United Kingdom

PVP2011-57071: REVISED GUIDANCE ON RESIDUAL STRESSES IN BS7910
J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom; P. Gill, University of Manchester, Manchester, United Kingdom; L. Wei, TWI Ltd., Cambridge, United Kingdom; S. Bate, Serco Technical Consulting Services, Warrington, United Kingdom

PVP2011-57857: THE HISTORY OF BS7910 FLAW INTERACTION CRITERION
B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; I. Hadley, TWI Ltd., Cambridge, United Kingdom; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom; H. Pisarski, TWI, Cambridge, United Kingdom

S. E. Eren, Imperial College, London, United Kingdom; I. Hadley, TWI Ltd., Cambridge, United Kingdom; K. Nikbin, Imperial College, London, United Kingdom

SESSION 1.3E (SE-5-1)
Monday, July 18, 2:00 pm – 3:45 pm, Falkland
SEISMIC ISSUES FOR NEW REACTOR LICENSING ACTIVITIES
Sponsored by Seismic Engineering Technical Committee

Developed by: J. Xu, USA Nuclear Regulatory Commission, Washington, DC, USA

Chair: J. Xu, USA Nuclear Regulatory Commission, Washington, DC, USA

Co-Chair: V. Matzen, North Carolina State University, Raleigh, NC, USA

PVP2011-57600: STRUCTURAL DESIGN CHALLENGES IN DESIGN CERTIFICATION APPLICATIONS FOR NEW REACTORS
M. Miranda, J. Braverman, X. Wei, C. Hofmayer, Brookhaven National Laboratory, Upton, NY, USA; J. Xu, USA Nuclear Regulatory Commission, Washington, DC, USA

PVP2011-57667: SEISMIC ANALYSIS ISSUES IN DESIGN CERTIFICATION APPLICATIONS FOR NEW REACTORS
R. Morante, M. Miranda, Brookhaven National Laboratory, Upton, NY, USA; J. Xu, USA Nuclear Regulatory Commission, Washington, DC, USA

PVP2011-57678: ON THE USE OF MATERIAL DEPENDENT DAMPING IN ANSYS FOR MODE SUPERPOSITION TRANSIENT ANALYSIS
J. Nie, X. Wei, Brookhaven National Laboratory, Upton, NY, USA

SESSION 1.3F (FSI-2-2)
Monday, July 18, 2:00 pm – 3:45 pm, Galena
FIV IN HEAT EXCHANGER TUBE ARRAYS I
Sponsored by Fluid-Structure Interaction Technical Committee

Developed by: M. Hassan, University of New Brunswick, Fredericton, NB, Canada; D. Weaver, McMaster University, Hamilton, ON, Canada

Chair: M. Hassan, University of New Brunswick, Fredericton, NB, Canada

Co-Chair: E. Stephane, Ecole Polytechnique de Montreal, Montreal, QC, Canada

PVP2011-57075: LES CFD SIMULATION OF UNSTEADY FLUID FORCES IN TUBE BUNDLE
S. Delafontaine, G. Ricciardi, B. Collard, CEA: Atomic and Alternative Energies Commission, Saint Paul lez Durance, France
PVP2011-57182: NUMERICAL CHARACTERIZATION OF FLOW-INDUCED VIBRATION AND FRETTING WEAR POTENTIAL IN NUCLEAR STEAM GENERATOR TUBE BUNDLES
M. Hassan, A. Mohany, University of New Brunswick, Fredericton, NB, Canada

PVP2011-57102: VIBRATION EXCITATION FORCES IN A NORMAL TRIANGULAR TUBE BUNDLE SUBJECTED TO TWO-PHASE CROSS FLOW

PVP2011-57162: RANDOM VIBRATIONS OF TUBES SUBJECTED TO TURBULENCE-CONVECTING FLOWS: TIME-DOMAIN MODELLING AND RESULTS
J. Antunes, ITN, Sacavem, Portugal; X. Delaune, P. Piteau, CEA, Gif sur Yvette, France

SESSION 1.3G (CT-2-2)
Monday, July 18, 2:00 pm – 3:45 pm, Heron

DESIGN AND ANALYSIS OF BOLTED FLANGE JOINTS—II
Sponsored by Computer Technology & Bolted Joints Technical Committee

Developed by: J. Waterland, VSP Technologies, Prince George, VA, USA
Chair: J. Waterland, VSP Technologies, Prince George, VA, USA
Co-Chair: J. Payne, JPAC Inc., Long Valley, NJ, USA

PVP2011-57028: TOOL INTERFERENCE ISSUES ON ASME B31.3 LISTED FLANGES
C. D. Reichert, Hatch, Calgary, AB, Canada; L. C. Fedoriw, Non Practicing, Calgary, AB, Canada

PVP2011-57499: FEM CALCULATIONS AND EVALUATION OF SEALING PERFORMANCE IN WAVY OIL-PAN SHAPED FLANGE GASKETED CONNECTIONS UNDER INTERNAL PRESSURE
R. Kurosawa, Yokogawa Electric Corporation, Kofu, Japan; K. Tenma, T. Sawa, Hiroshima University, Higashi-hiroshima, Japan

PVP2011-57524: FEM STRESS ANALYSIS AND THE SEALING PERFORMANCE EVALUATION OF PIPE FLANGE CONNECTIONS SUBJECTED TO EXTERNAL BENDING MOMENTS AND INTERNAL PRESSURE
K. Horiuchi, Hiroshima University, Higashi-hiroshima, Japan; Y. Takagi, Tokyo Electric Power Company, Yokohama, Japan; T. Sawa, Hiroshima University, Higashi-hiroshima, Japan

PVP2011-58003: VARIABLES AFFECTING THE ASSEMBLY BOLT STRESS DEVELOPED DURING MANUAL TIGHTENING
J. Payne, JPAC Inc., Long Valley, NJ, USA; J. Waterland, VSP Technologies, Prince George, VA, USA

SESSION 1.3H (DA-2-2)
Monday, July 18, 2:00 pm – 3:45 pm, Harborside A

DESIGN AND ANALYSIS OF VESSELS: NOZZLE ISSUES AND SKIRT-TO-SHELL JOINTS
Sponsored by Design & Analysis Technical Committee

Developed by: J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA; T. Seipp, Becht Engineering Canada, Ltd., Calgary, AB, Canada

Chair: J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA
Co-Chair: T. Seipp, Becht Engineering Canada, Ltd., Calgary, AB, Canada

PVP2011-57001: AN INVESTIGATION INTO THE EFFECTS OF MODELLING CYLINDRICAL NOZZLE TO CYLINDRICAL VESSEL INTERSECTIONS USING 2D AXISYMMETRIC FINITE ELEMENT MODELS AND A PROPOSED METHOD FOR CORRECTING THE RESULTS
M. Walter, Structural Integrity Associated, Inc., Centennial, CO, USA; D. Sommerville, Structural Integrity Associates, Inc., Centennial, CO, USA

PVP2011-57314: STUDY ON SKIRT TO SHELL ATTACHMENT OF COKE DRUM BY EVALUATION OF FATIGUE STRENGTH OF WELD METAL
Y. Sasaki, S. Niimoto, Sumitomo Heavy Industries Process Equipment Co., Ltd., Ehime, Japan

PVP2011-57735: FATIGUE DESIGN AND EVALUATION OF HEAD TO SKIRT WELDED JOINT OF A PRESSURE SWING ADSORBER VESSEL
M. Zhao, UOP LLC, Des Plaines, IL, USA

SESSION 1.3I (DA-5-1)
Monday, July 18, 2:00 pm – 3:45 pm, Essex C

INELASTIC AND NONLINEAR ANALYSIS
Sponsored by Design & Analysis Technical Committee

Developed by: M. Y. A. Younan, American University in Cairo, Cairo, Egypt; D. Vlaicu, Ontario Power Generation, Pickering, ON, Canada
Chair: H. Chen, University of Strathclyde, Glasgow, United Kingdom
Co-Chair: M. Y. A. Younan, American University in Cairo, Cairo, Egypt

PVP2011-57477: DETERMINATION OF MATERIAL CONSTANTS OF INTERNAL TIME THEORY OF PLASTICITY AND CREEP FOR FATIGUE ANALYSIS AND CREEP-FATIGUE ANALYSIS
O. Watanabe, University of Tsukuba, Tsukuba, Ibaraki, Japan

PVP2011-57220: MECHANICAL BEHAVIOUR OF SFR MATERIALS: PROPOSITION OF FATIGUE WELD JOINT COEFFICIENT FOR MOD9CR-1MO
O. Ancelet, P. Matheron, CEA Saclay, Gif sur Yvette, France

PVP2011-57486: COMPARISON OF PLASTIC LOADS FOR ELBOWS WITH EXPERIMENTAL DATA
J.-J. Han, K.-H. Lee, Y.-J. Kim, Korea University, Seoul, Korea (Republic); T.-E. Jin, KEPCO E&C, Yongin, Korea (Republic); P. Budden, EDF Energy, Gloucester, United Kingdom


SESSION 1.3J (DA-16-1)
Monday, July 18, 2:00 pm – 3:45 pm, Essex B

BUCKLING CONSIDERATIONS & EMERGING TECHNOLOGIES OF SMALL MODULAR REACTORS
SESSION 1.3K (NED-1-2)
Monday, July 18, 2:00 pm – 3:45 pm, Essex A
SYSTEM, STRUCTURE, AND COMPONENT DESIGN AND ANALYSIS DEALING WITH REACTOR VESSELS AND PIPING—II
Sponsored by ASME Nuclear Engineering Division

Developed by: A. Arastu, Bechtel Power Corporation, San Francisco, CA, USA
Chair: J. S. Miller, EDA, Inc, Vienna, VA, USA
Co-Chair: R. Schultz, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2011-57231: THE 3D FE ANALYSES OF RESIDUAL STRESS FOR J-GROOVE WELDS OF CRDM NOZZLES
W. J. Han, Doosan Heavy Industries & Construction, Changwon, Korea (Republic)

PVP2011-57344: EFFECT OF OXIDE FILM MECHANICAL PROPERTY ON STRESS CORROSION CRACKING GROWTH RATE
W. Tang, H. Xue, D. Zhao, X. Fang, Xi’an University of Science and Technology, Xi’an, Shannxi, China

PVP2011-57588: HELICAL STEAM GENERATOR TUBES CONTAINING CRACK UNDER EXTERNAL PRESSURE: A REVIEW OF APPLICABILITY FOR EXISTING INTEGRITY EVALUATION METHOD
T.-Y. Ryu, H.-B. Seo, Sungkyunkwan University, Suwon, Gyeonggi-do, Korea (Republic); J.-M. Kim, Korea Atomic Research Institute, Daejeon, Korea (Republic); J.-B. Choi, Y.-J. Kim, Sungkyunkwan University, Suwon, Gyeonggi-do, Korea (Republic); Y.-S. Chang, Kyung-Hee University, Youngin, Gyeonggi-do, Korea (Republic); J.-W. Kim, S.-Y. Park, Korea Atomic Energy Research Institute, Daejeon, Korea (Republic)

PVP2011-57605: DIAGNOSTICS OF THERMAL CYCLE BASED ON RESIDUALS BETWEEN ACTUAL AND EXPECTED STATES
J. Pliska, L. Havlat, V. Horky, Z. Machat, P. Sury, K. Londynova, I & C Energo plc, Trebic, Czech Republic

SESSION 1.3L (MF-4-2)
Monday, July 18, 2:00 pm – 3:45 pm, Harborside D
WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT II
Sponsored by Materials & Fabrication Technical Committee

Developed by: D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; Z. Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Chair: D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-57618: PLASTIC BUCKLING OF CONES SUBJECTED TO AXIAL COMPRESSION AND EXTERNAL PRESSURE
J. Biachut, University of Liverpool, Liverpool, United Kingdom; A. Muc, J. Rys, Cracow University of Technology, Krakow, Poland

PVP2011-57642: NRC WELDING RESIDUAL STRESS VALIDATION PROGRAM – INTERNATIONAL ROUND ROBIN DETAILS AND FINDINGS
H. J. Rathbun, U. S. Nuclear Regulatory Commission, Washington, DC, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; L. Fredette, Battelle Memorial Institute, Columbus, OH, USA; A. A. Csongos, U. S. Nuclear Regulatory Commission, Washington, DC, USA; P. Scott, Battelle, Columbus, OH, USA

PVP2011-57645: NRC/EPRI WELDING RESIDUAL STRESS VALIDATION PROGRAM—PHASE III DETAILS AND FINDINGS
L. Fredette, Battelle Memorial Institute, Columbus, OH, USA; M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA; J. Broussard, Dominion Engineering, Inc., Reston, VA, USA; H. J. Rathbun, U. S. Nuclear Regulatory Commission, Washington, DC, USA

PVP2011-57677: NRC/EPRI RESIDUAL STRESS VALIDATION PROGRAM PHASE I—EXPERIMENTAL SPECIMEN MODELING AND MEASUREMENT
J. Broussard, Dominion Engineering, Inc., Reston, VA, USA; P. Crooker, Electric Power Research Institute, Palo Alto, CA, USA

PVP2011-57687: CHARACTERIZATION OF A PLATE SPECIMEN FROM PHASE I OF THE NRC/EPRI WELD RESIDUAL STRESS PROGRAM
M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; B. Clausen, Lujan Center, Los Alamos, NM, USA; M. B. Prime, H. Swenson, M. Buechler, W-division, Los Alamos, NM, USA

SESSION 1.3M (MF-5-2)
Monday, July 18, 2:00 pm – 3:45 pm, Laurel A
EUROPEAN PROGRAMS IN STRUCTURAL INTEGRITY—PART II
Sponsored by Materials & Fabrication Technical Committee

Developed by: E. Keim, AREVA NP GmbH, Erlangen, Germany; Lidbury, Serco Technical Consulting Services, Warrington, United Kingdom; T. Nicak, AREVA NP GmbH, Erlangen, Germany; P. James, Serco TCS, Warrington, Cheshire, United Kingdom; D. Moineau, EDF R&D, Moret sur Loing, France
Chair: T. Nicak, AREVA NP GmbH, Erlangen, Germany
Co-Chair: P. James, Serco TCS, Warrington, Cheshire, United Kingdom

PVP2011-57259: PROVISIONAL RESULTS FOR AN EXPERIMENTAL INVESTIGATION INTO THE EFFECT OF COMBINED PRIMARY AND
SECONDARY STRESSES WHEN CONSIDERING THE APPROACHES OF R6 AND THE RECENTLY DEVELOPED G() METHOD
P. James, P. Hutchinson, C. Madew, Serco TCS, Warrington, Cheshire, United Kingdom
PVP2011-57810: INTEGRITY CONCEPT FOR PIPING SYSTEMS WITH CORRESPONDING LEAK AND BREAK POSTULATES IN GERMAN NUCLEAR POWER PLANTS
U. Ilg, EnBW, Philippsburg, Germany; G. Koenig, EnBW Kernkraft, Neckarwestheim, Germany; W. Mayinger, G. Nagel, E.ON Kernkraft GmbH, Hannover, Germany; D. Schuemann, Vattenfall Europe Nuclear Energy GmbH, Hamburg, Germany; M. Widera, RWE Power AG, Essen, Germany
PVP2011-58080: EVALUATION OF THE INFLUENCE OF RESIDUAL STRESSES ON DUCTILE FRACTURE
T. Bolinder, Inspecta Technology AB, Stockholm, Sweden; J. Faleskog, Royal Institute of Technology, Stockholm, Sweden; I. Sattari-Far, Inspecta Technology AB, Stockholm, Sweden
PVP2011-57190: EVALUATION OF THE ACTIVE PLASTICITY HYPOTHESIS AS A RELEVANT JUSTIFICATION OF THE WARM PRE STRESSING EFFECT
C. Jacquemoud, S. Marie, CEA Saclay, Gif-sur-Yvette, France; M. Nedelec, IRSN, Fontenay-aux-Roses, France
SESSION 1.3N (MF-19-3)
Monday, July 18, 2:00 pm – 3:45 pm, Laurel B
CREEP-FATIGUE INTERACTION
Sponsored by Materials & Fabrication Technical Committee
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan; R. Ainsworth, University of Manchester, Manchester, United Kingdom
Chair: Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan
Co-Chairs: R. Ainsworth, University of Manchester, Manchester, United Kingdom; R. Dennis, Frazer-Nash Consultancy Ltd., Bristol, Avon, United Kingdom
PVP2011-57641: MEASUREMENT OF THREE DIMENSIONAL GEOMETRY OF CREEP VOID AND GRAIN BOUNDARY WITH COMBINING 3D-EBSD METHOD AND SEM IMAGES
K. Yamagiwa, Nat. Inst. for Occupational Safety and Health, Japan, Tokyo, Japan; S. Kataoka, Panasonic System Networks Co., Ltd., Fukuoka City, Japan; S. Izumi, S. Sakai, University of Tokyo, Tokyo, Tokyo, Japan
PVP2011-57745: EQUILIBRIUM AND EQUIVALENCY (E2) LINEAR SURFACE FITTING METHOD FOR DATA WITH TWO INDEPENDENT VARIABLES
Z. Wei, F. Yang, Tenneco, Grass Lake, MI, USA; K. Nikbin, Imperial College, London, United Kingdom
PVP2011-57976: CREEP-FATIGUE BEHAVIOR OF GRADE 92 STEEL AND ITS PREDICTABILITY
Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan; D. Gandy, Electric Power Research Institute, Charlotte, NC, USA
PVP2011-57033: THERMOMECHANICAL ANALYSIS OF A PRESSURISED PIPE UNDER PLANT CONDITIONS
T. P. Farragher, National University of Ireland, Galway, Galway, Ireland; N. P. O’Dowd, University of Limerick, Limerick, Ireland; S. Scully, ESB Energy International, Dublin, Ireland; S. B. Leen, National University of Ireland, Galway, Galway, Ireland
SESSION 1.3O (NDE-3-1)
Monday, July 18, 2:00 pm – 3:45 pm, Iron
PLANT INSPECTION AND LIFE EXTENSION I
Sponsored by NDE Engineering Division, and the PVP Codes & Standards, Materials & Fabrication, and Operations, Applications & Components Technical Committees
Developed by: B. Wright, Stress Engineering Services, Inc., Houston, TX, USA; B. Wiersma, Savannah River Nuclear Solutions, Aiken, SC, USA
Chair: W. T. Springer, University of Arkansas, Fayetteville, AR, USA
PVP2011-57077: ULTRASOUND AND NON-LINEAR RESONANT TESTING OF NUCLEAR REACTOR INTERNALS BOLTS
S. Glass, AREVA NDE Solutions, Lyon, France; J. B Renshaw, B. A. Thigpen, AREVA NDE Solutions, Charlotte, NC, USA
PVP2011-57638: IN-SERVICE INSPECTION OF HAZARDOUS RADIOACTIVE WASTE TANKS (Presentation Only)
M. Maryak, Savannah River Remediation, Aiken, SC, USA; B. Wiersma, Savannah River Nuclear Solutions, Aiken, SC, USA
PVP2011-57909: ULTRASONIC PHASED ARRAY EVALUATIONS OF IMPLANTED AND IN-SITU GROWN FLAWS IN CAST AUSTENITIC STAINLESS STEEL PRESSURIZER SURGE LINE PIPING
S. Crawford, A. Cinson, T. Moran, M. Prowant, A. Diaz, M. Anderson, Pacific Northwest National Laboratory, Richland, WA, USA
PVP2011-57971: RISK-INFORMED EXTENSION OF THE REACTOR VESSEL NOZZLE INSERVICE INSPECTION INTERVAL
S. M. Parker, N. A. Palm, P. R. Stevenson, B. A. Bishop, Westinghouse Electric Company, Cranberry Township, PA, USA
PVP2011-57011: STATISTICAL SAMPLING FOR IN-SERVICE INSPECTION OF LIQUID WASTE TANKS AT THE SAVANNAH RIVER SITE
S. Harris, L. Baxter, Savannah River National Laboratory, Aiken, SC, USA
SESSION 1.3P (OAC-8-2)
Monday, July 18, 2:00 pm – 3:45 pm, James
AGING MANAGEMENT AND LIFE EXTENSION II
Sponsored by Operations, Applications & Components Technical Committee
Developed by: M. Sanwarwalla, Sargent & Lundy, Chicago, IL, USA; G. Bezdikian, Georges Bezdikian Consulting Co., Le Vesinet, France
Chair: G. G. Young, Entergy Nuclear, Jackson, MS, USA
Co-Chair: K. Woods, InnoTech Engineering Solutions, Omaha, NE, USA
PVP2011-57235: DISPOSAL OF ORIGINAL STEAM GENERATORS AT SAN ONOFRE NUCLEAR GENERATING STATION (Presentation Only)
J. Chan, Southern California Edison, San Clemente, CA, USA
PVP2011-57895: HOW A KNOWLEDGE DATA BASE ASSISTS THE PROCESS OF AGING MANAGEMENT
H. Rothenhöfer, F. Schöckle, AMTEC Services, Lauffen, Germany; G. Koenig, EnBW Kernkraft, Neckarwestheim, Germany

PVP2011-57088: REACTOR PRESSURE VESSEL: EDF R&D PROGRAM TO SUPPORT LIFETIME MANAGEMENT
J.-P. Fontes, EDF R&D, Clamart, France; C. Raynaud, A. Martin, Electricité de France, Chatou, France; A. Parrot, A. Dahl, EDF R&D, Moret-sur-Loing, France; D. Moinereau, P. Todeschini, Electricité de France EDF, Ecuelles, Moret-sur-Loing, France; H. Churier-Bossennec, EDF/DIN/SEPTEN, Villeurbanne, France; C. Pages, Electricité de France EDF, Saint-Denis, France

PVP2011-58058: EDF AGEING MANAGEMENT: STATUS AND ONGOING DEVELOPMENTS
C. Faidy, EDF-SEPTEN, Villeurbanne, France

PVP2011-57265: ANALYSIS OF CURED IN PLACE PIPING FOR A NUCLEAR PLANT APPLICATION
A. Reich, V. Newman, R. DiSalvo, Streamline Automation, LLC, Huntsville, AL, USA; J. Charest, Altran Solutions, Boston, MA, USA

SESSION 1.3Q (OAC-2-1)
Monday, July 18, 2:00 pm – 3:45 pm; Kent A
QUALIFICATION, TESTING AND EXPERTISES FOR RESOLUTION OF PROBLEMS
Sponsored by Operations, Applications & Components Technical Committee

Developed by: G. Bezdikian, Georges Bezdikian Consulting Co., Le Vesinet, France; G. G. Young, Entergy Nuclear, Jackson, MS, USA
Chair: G. Bezdikian, Georges Bezdikian Consulting Co., Le Vesinet, France
Co-Chair: H. Rothenhöfer, AMTEC Services, Lauffen, Germany

PVP2011-57643: UNDERWATER TESTING OF A TYPICAL AMBIENT-CURE EPOXY RESIN FOR COMPOSITE REPAIRS OF STRUCTURAL PIPING AND VESSELS
T. S. Mally, A. L. Johnston, Citadel Technologies, Tulsa, OK, USA; M. W. Keller, University of Tulsa, Tulsa, OK, USA; R. H. Walker, Citadel Technologies, Tulsa, OK, USA

PVP2011-57581: INFLUENCES OF CYCLIC PRE-OVERLOAD ON LOW CYCLE FATIGUE BEHAVIORS OF ELBOW PIPE
K. Matsuo, K. Takahashi, K. Sato, Yokohama National University, Yokohama, Kanagawa, Japan

PVP2011-57334: MODIFIED J. ESTIMATION BY GE/EPRI METHOD FOR CIRCUMFERENTIAL SURFACE CRACKED PIPES UNDER BENDING OR COMBINED BENDING AND PRESSURE LOADS
C. Liu, J. Zhang, F.-Z. Xuan, P. Li, East China University of Science and Technology, Shanghai, China

SESSION 1.3S (TT-1-5)
Monday, July 18, 2:00 pm – 3:45 pm, Harborside B
TECHNICAL TUTORIAL: ASME SECTION VIII, DIVISION 3 ALTERNATIVE RULES FOR CONSTRUCTION OF HIGH PRESSURE VESSELS—PART I
Sponsored by the PVP Division Conference Committee

Developed by: M. Nitzel, M. E. Nitzel Engineering Services, Nampa, ID, USA
Chair: M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA
Presented by: J. R. Sims, Becht Engineering Co., Inc., Liberty Corner, NJ, USA

SESSION 1.3T (MF-15-3)
Monday, July 18, 2:00 pm – 3:45 pm, Harborside Foyer
NDE DEMONSTRATION FORUM—III
Sponsored by PVP Senate, PVP Materials & Fabrication Committee, and the ASME NDE Engineering Division

Developed by: C. Jaske, DNV Columbus, Inc., Dublin, OH, USA; B. Wright, Stress Engineering Services, Inc., Houston, TX, USA

Block 1.4: Monday, July 18 (4:00 pm – 5:45 pm)

SESSION 1.4B (CS-23-5)
Monday, July 18, 4:00 pm – 5:45 pm, Harborside E
ASME CODE SECTION XI ACTIVITIES: PART 2
Sponsored by Codes & Standards Technical Committee

Developed by: R. Cipolla, Intertek APTECH, Sunnyvale, CA, USA; R. Crane, ASME, New York, NY, USA; D. Scarth, Kinetics Inc., Toronto, ON, Canada
Chair: D. Scarth, Kinetics Inc., Toronto, ON, Canada
SESSION 1.4C (CS-2-2)
Monday, July 18, 4:00 pm – 5:45 pm, Laurel C

STRUCTURAL INTEGRITY OF PRESSURE COMPONENTS—II
Sponsored by Codes & Standards Technical Committee

Developed by: Y. Hari, University Of North Carolina at Charlotte, Charlotte, NC, USA
Chair: B. Antaal, ADVENT Engineering Services Inc., San Ramon, CA, USA
Co-Chair: D. K. Williams, NuScale Power, Inc., Corvallis, OR, USA

PVP2011-57173: A PROPOSAL FOR THE MAXIMUM KIC FOR USE IN ASME CODE FLAW AND FRACTURE TOUGHNESS EVALUATIONS
G. Stevens, U.S. Nuclear Regulatory Commission, Rockville, MD, USA; M. Kirk, U. S. Nuclear Regulatory Commission, Washington, DC, USA; S. Yin, Oak Ridge National Laboratory, Oak Ridge, TN, USA; M. Erickson, Phoenix Engineering Associates, Inc., Davidsonville, MD, USA

PVP2011-57454: SENSITIVITY ANALYSIS OF SCC CRACK EXTENSION SIMULATION
N. Ogawa, Mitsubishi Heavy Industries, Ltd., Hyogo, Japan; K. Hojo, Mitsubishi Heavy Industries, Ltd., Kobe, Japan; D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; K. Ogawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan

PVP2011-57914: A NUMERICAL INVESTIGATION OF RESIDUAL STRESSES IN BUTT WELDED PIPE
G. Brar, H. Singh, Guru Nanak Dev Engineering College, Ludhiana, Punjab, India

PVP2011-57015: ADDITIONAL IMPROVEMENTS TO APPENDIX G OF ASME SECTION XI CODE FOR NOZZLES AND STRESSES EXCEEDING YIELD
G. Stevens, U.S. Nuclear Regulatory Commission, Rockville, MD, USA; H. Mehta, GE Hitachi Nuclear Energy, San Jose, CA, USA; D. Sommerville, Structural Integrity Associates, Inc., Centennial, CO, USA; T. J. Griesbach, Structural Integrity Associates, San Jose, CA, USA

SESSION 1.4D (CS-14-1)
Monday, July 18, 4:00 pm – 5:45 pm, Laurel D

COLD STRETCHED AUSTENITIC STAINLESS STEEL PRESSURE VESSELS
Sponsored by Codes & Standards Technical Committee

Developed by: J. Zheng, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China
Chair: J. Zheng, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China
Co-Chair: H. Qian, Structural Integrity Associates, Inc., San Jose, CA, USA

PVP2011-57331: COLD STRETCHING OF CRYOGENIC PRESSURE VESSELS FROM AUSTENITIC STAINLESS STEEL
J. Zheng, A. Guo, C. Miao, Zhejiang Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China; P. Xu, Institute of Applied Mechanics, Zhejiang University, Hangzhou, Zhejiang, China; J. Yang, J. Ye, L. Ma, L. Wu, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China; G. Yang, China Special Equipment Inspection and Research Institute, Beijing, China

PVP2011-57410: RESEARCH AND APPLICATION ON MECHANICAL BEHAVIOR OF AUSTENITIC STAINLESS STEELS FOR COLD STRETCHED PRESSURE VESSEL
Y. Han, Hefei University of Technology/Hefei General Machinery Research Institute, Hefei, Anhui, China; X. Chen, Q. Liu, Hefei University of Technology, Hefei, Hefei, China

PVP2011-57216: CARRYING CAPACITY OF STRAIN-HARDENING AUSTENITIC STAINLESS STEEL PRESSURE VESSELS UNDER HYDROSTATIC PRESSURE
Y. Deng, Hubei Special Equipment Safety Inspection and Research Institute, Wuhan, Hubei, China; G. Chen, Bureau of Special Equipment Safety Supervision, AOSIQ, China; Beijing, Beijing, China

PVP2011-57226: NUMERICAL SIMULATION ON HYDROGEN DISPERSION IN AUTOMOBILES DUE TO STORAGE CYLINDER FAILURE
Y. Liu, Hangzhou Special Equipment Inspection Institute, Hangzhou, China; J. Zheng, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China; S. Han, Hangzhou Special Equipment Inspection Institute, Hang Zhou, China; Y. Zhao, Institute of Process Equipment, Zhejiang University, Hangzhou, China

SESSION 1.4E (SE-6-1)
Monday, July 18, 4:00 pm – 5:45 pm, Falkland

SEISMIC ISOLATION AND ENERGY ABSORPTION SYSTEMS
Sponsored by Seismic Engineering Technical Committee

Developed by: C.-S. Tsai, Feng Chia University, Taichung, Taiwan
Chair: C.-S. Tsai, Feng Chia University, Taichung, Taiwan
Co-Chair: T. Taniguchi, Tottori University, Tottori, Japan

PVP2011-57148: SEISMIC ISOLATION OF BASE-ISOLATED VENDING MACHINE WITH AIR DAMPERS
T. Chiba, NIE, Yokohama, Japan; T. Mikoshiba, NIED, Tukuba, Japan; T. Sato, Ideal Brain Inc., Ltd., Tokyo, Japan; M. Terai, Fukuyama University, Fukuyama, Japan; T. Suzuki, Ideal Brain Inc., Tokyo, Japan

PVP2011-57160: DESIGN CRITERIA FOR A NEW WEIR SURFACE
REPAIR METHOD CONTAINING SHOCK ABSORBING CUSHIONS
T.-S. Hsu, Y.-L. Hsieh, Feng-Chia University, Taichung, Taiwan

PVP2011-57717: THE SEISMIC RESPONSE ANALYSIS OF LNG STORAGE TANK ISOLATED BY MULTIPLE FRICTION PENDULUM SYSTEM
D. Weng, R. Zhang, X. Ren, Tongji University, Shanghai, China

PVP2011-57726: THE PARAMETER STUDY OF THE SEISMICALLY ISOLATED BRIDGE SYSTEM BY LEAD RUBBER BEARING BASED ON ENERGY ANALYSIS
T. Zhong, C. Zhang, Beijing Jiaotong University, Beijing, China; F. Yang, China Electric Power Research Institute, Beijing, China

SESSION 1.4F (FSI-2-3)
Monday, July 18, 4:00 pm – 5:45 pm, Galena

VIBRATION OF PLANT COMPONENTS
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: N. Mureithi, Ecole Polytechnique de Montreal, Montreal, QC, Canada; V. Janzen, T. Nakamura, Osaka Sangyo University, Daito, Osaka, Japan
Chair: S. Ziada, McMaster University, Hamilton, ON, Canada
Co-Chair: A. Mohany, University of New Brunswick, Fredericton, NB, Canada

PVP2011-57610: APPLICATION OF A NEW CARCASS DESIGN FOR PREVENTION OF SINGING BEHAVIOUR IN FLEXIBLE RISERS
S. Belfroid, H. Korst, TNO, Delft, Netherlands; K. G. Nielsen, E. Bendiksen, NKT Flexibles, Broendby, Denmark

PVP2011-57103: TWO-PHASE FLOW EXCITATION FORCES ON A VERTICAL U-BEND TUBE
M. Giraudeau, N. Mureithi, M. J. Pettigrew, École Polytechnique de Montréal, Montréal, QC, Canada

PVP2011-57133: THE DANGER OF PIPING FAILURE DUE TO ACOUSTIC INDUCED FATIGUE IN INFREQUENT OPERATIONS: 2 CASE STUDIES
H. Al-Muslim, N. I. Al-Nasri, M. Al-Hashem, Saudi Aramco, Dhahran, Saudi Arabia

PVP2011-57326: LOCA SIMULATION: ANALYSIS OF RAREFACTION WAVES PROPAGATING THROUGH GEOMETRIC SINGULARITIES
M. Crouzet, V. Faucher, Laboratoire des Structures Industrielles Durables—UMR EDF-CEA-CNRS 2832, Clamart, France; P. Piteau, P. Izquierdo, CEA, Gif sur Yvette, France; P. Galon, Laboratoire des Structures Industrielles Durables—UMR EDF-CEA-CNRS 2832, Clamart, France

SESSION 1.4G (CT-3-1)
Monday, July 18, 4:00 pm – 5:45 pm, Heron

DESIGN AND ANALYSIS OF PACKINGS AND VALVES
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: M. Schaaf, Amtec Services GmbH, Lauffen, Germany
Chair: M. Schaaf, Amtec Services GmbH, Lauffen, Germany
Co-Chair: J. Waterland, VSP Technologies, Prince George, VA, USA

PVP2011-57271: CREEP CONSTITUTIVE LAW OF PACKING MATERIALS BASED ON RELAXATION TESTS
M. Diahy, Université Sultan Moulay Slimane, Beni Mellal, Morocco; H. Bouzid, Ecole de Technologie Superieure, Montreal, QC, Canada

PVP2011-57751: THE INFLUENCE ON THE STUFFING BOX OF THE FORCES GENERATED BY THE PACKING THERMAL EXPANSION
C. Girao, J. Veiga, A. Carro, C. Cipolatti, Teadit Industria e Comercio Ltd.a, Rio de Janeiro, Brazil

PVP2011-57936: MEASUREMENT OF FUGITIVE EMISSIONS OF INDUSTRIAL VALVES
M. Schaaf, Amtec Services GmbH, Lauffen, Germany; F. Schöckle, AMTEC Services, Lauffen, Germany

SESSION 1.4H (DA-2-3)
Monday, July 18, 4:00 pm – 5:45 pm, Harborside A

DESIGN AND ANALYSIS OF VESSELS: HEAT EXCHANGERS AND STORAGE TANKS
Sponsored by Design & Analysis Technical Committee
Developed by: T. Seipp, Becht Engineering Canada, Ltd., Calgary, AB, Canada; J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA
Chair: T. Seipp, Becht Engineering Canada, Ltd., Calgary, AB, Canada
Co-Chair: J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA

PVP2011-57475: RESEARCH ON THE TIGHTNESS FOR THE HYDRAULICALLY EXPANDED TUBE-TO-TUBESHEET JOINT
X. Li, G. Jia, H. Wang, Chinese Special Equipment Inspection and Research Institute, Beijing, China; X. Ma, Jiangsu Province Special Equipment Safety Supervision Inspection Institute, Nanjing, Jiangsu, China

PVP2011-57601: THE SIMPLIFIED METHOD FOR STRESS ANALYSIS ON TUBESHEET OF FIXED TUBULAR HEAT EXCHANGER WITH EXPANSION JOINT
L. Zhou, X. He, C. Zhou, X. Zhang, Nanjing University of Technology, Nanjing, Jiangsu Province, China

PVP2011-57988: EFFECT OF ANNULAR PLATE PROJECTION LENGTH ON THE STRESSES IN THE ABOVE GROUND STEEL STORAGE TANKS
S. Sathyanarayanan, S. M. R Adluri, Memorial University of Newfoundland, St. John’s, NF, Canada

SESSION 1.4I (DA-5-2)
Monday, July 18, 4:00 pm – 5:45 pm, Essex C

LIMIT LOAD, SHAKEDEWON, AND RATCHETTING
Sponsored by Design & Analysis Technical Committee
Developed by: M. Y. A. Younan, American University in Cairo, Cairo, Egypt; D. Viliau, Ontario Power Generation, Pickering, ON, Canada
Co-Chair: D. Viliau, Ontario Power Generation, Pickering, ON, Canada
Chair: H. Chen, University of Strathclyde, Glasgow, United Kingdom

PVP2011-57041: FINITE ELEMENT BASED AUTOMATED ANALYSIS FOR DETERMINING RATCHET, SHAKEDEWON AND ELASTIC LIMITS
M. Paluszkiewicz, J. Abou-Hanna, Bradley University, Peoria, IL, USA

PVP2011-57108: DETERMINATION OF SHAKEDEWON LIMIT LOADS FOR A CYLINDRICAL VESSEL-NOZZLE INTERSECTION VIA A SIMPLIFIED TECHNIQUE
M. Paluszkiewicz, J. Abou-Hanna, Bradley University, Peoria, IL, USA
H. Abdalla, M. Y. A. Younan, The American University in Cairo, Cairo, Egypt; M. Megahed, Cairo University, Cairo, Egypt

PVP2011-57884: STRUCTURAL INTEGRITY EVALUATION OF A CORRUGATED TYPE RADIATOR FOR A HERMETICALLY SEALED OIL TRANSFORMER
J. C. Yun, Hyundai Heavy Industries, Yongin-si, Korea (Republic); S. W. Lee, J. Y. Park, J. Y. Lee, Hyundai Heavy Industries, Yong-In, Gyeonggi-do, Korea (Republic)

PVP2011-57916: STRESS REDISTRIBUTION LOCUS OF PERFORATED PLATE UNDER DISPLACEMENT-CONTROLLED LOADING, FORCE-CONTROLLED LOADING AND THERMAL LOADING
O. Watanabe, A. Matsuda, University of Tsukuba, Tsukuba, Ibaraki, Japan

SESSION 1.4J (DA-17-1)
Monday, July 18, 4:00 pm – 5:45 pm, Essex B
PROBABILISTIC METHODS IN DESIGN AND ANALYSIS
Sponsored by Design & Analysis Technical Committee
Developed by: D. Vlaicu, Ontario Power Generation, Pickering, ON, Canada; M. Y. A. Younan, American University in Cairo, Cairo, Egypt
Co-Chair: A. Baniak, University of Toronto, Toronto, ON, Canada
Chair: D. Vlaicu, Ontario Power Generation, Pickering, ON, Canada

PVP2011-57528: USING A PROBABILISTIC APPROACH IN THE BRITTLE FRACTURE DETERMINISTIC INTEGRITY ASSESSMENT OF THE NUCLEAR REACTOR PRESSURE VESSEL
R. Beaufils, EDF-SEPTEN, Villeurbanne, France; E. Meister, EDF-SEPTEN, Lyon, France; E. Ardillon, EDF R&D, Chatou, France

PVP2011-57421: FATIGUE DESIGN MARGIN EVALUATION FOR CARBON AND LOW-ALLOY STEELS BY RELIABILITY-BASED LOAD AND RESISTANCE FACTOR METHOD
M. Takanashi, IHI Corporation, Yokohama, Japan; M. Higuchi, IHI Technology Solutions Inc., Yokohama, Japan; J. Maeda, S. Sakai, University of Tokyo, Tokyo, Japan

SESSION 1.4K (NED-2-1)
Monday, July 18, 4:00 pm – 5:45 pm, Essex A
NUCLEAR PLANT OPERATIONAL AND STEADY-STATE ANALYSIS AND MODEL VALIDATION
Sponsored by ASME Nuclear Engineering Division
Developed by: R. Schultz, Idaho National Laboratory, Idaho Falls, ID, USA
Chair: R. Schultz, Idaho National Laboratory, Idaho Falls, ID, USA
Co-Chair: J. S. Miller, EDA, Inc, Vienna, VA, USA

PVP2011-58039: PRECURSOR BASED PTS SCREENING METHODOLOGY OF THE EOP OPERATOR ACTIONS FOR PWR PLANT
T. Bajs, I. Ivekovic, Enconet d.o.o., Zagreb, Croatia; D. Grgic, University of Zagreb, Zagreb, Croatia; I. Basic, APOSS d.o.o., Zabok, Croatia

PVP2011-58068: EVALUATION OF A NOVEL MICROWAVE BASED NDT INSPECTION METHOD FOR POLYETHYLENE JOINTS
K. Murphy, Exova, Salford, United Kingdom; D. Lowe, Exova, Centenary Park, Manchester, United Kingdom

SESSION 1.4L (MF-4-3)
Monday, July 18, 4:00 pm – 5:45 pm, Harborside D
WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT III
Sponsored by Materials & Fabrication Technical Committee
Developed by: C. Truman, University of Bristol, Bristol, United Kingdom; A. H. Mahmoudi, Bu-Ali Sina University, Hamedan, Iran
Chair: P. Gilles, AREVA, Paris La Défense, France
Co-Chair: Z. Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Developed by: D. Moinereau, EDF R&D, Moret sur Loing, France; T. Nicak, AREVA NP GmbH, Erlangen, Germany; A. Sherry, University of Manchester, Manchester, Lancs, United Kingdom

Chair: D. Moinereau, EDF R&D, Moret sur Loing, France
Co-Chair: T. Nicak, AREVA NP GmbH, Erlangen, Germany

PVP2011-58029: FRACTURE TOUGHNESS OF A HIGHLY IRRADIATED PRESSURE VESSEL STEEL IN WARM PRE-STRESS LOADING CONDITION (WPS)
E. Molinie, G. Chas, E. Garbay, EDF Ceidre, Avoine, France; D. Moinereau, EDF R&D, Moret sur Loing, France; F. Clemendot, EDF Ceidre, Saint Denis, France; H. Churier-Bosennec, EDF/DIN/SEPTEN, Villeurbanne, France; C. Pages, Electricite de France EDF, Saint-Denis, France

PVP2011-57189: NESC VII EUROPEAN PROJECT: DEMONSTRATION OF WARM PRE STRESSING EFFECT IN BIAXIAL LOADING CONDITIONS—BENDING TESTS ON 18MND5 CRUCIFORM SPECIMENS
C. Jacquemoud, T. Yuritzinn, S. Marie, CEA Saclay, Gif-sur-Yvette, France; S. Chapuliot, AREVA NP, Paris La Défense, France; D. Moinereau, EDF R&D, Moret sur Loing, France; M. Nedelec, IRSN, Fontenay-aux-Roses, France

SESSION 1.4O (NDE-4-1)
Monday, July 18, 4:00 pm – 5:45 pm, Iron

CODE APPLICATIONS IN THE POWER AND PETROCHEMICAL INDUSTRIES
Sponsored by: NDE Engineering Division, and the PVP Codes & Standards Technical Committee
Developed by: B. Wright, Stress Engineering Services, Inc., Houston, TX, USA; O. F. Hedden, Codes and Standards Consulting, Fort Worth, TX, USA
Chair: W. T. Springer, University of Arkansas, Fayetteville, AR, USA

PVP2011-57163: RECENT DEVELOPMENTS IN APPLICATIONS IN THE PETROCHEMICAL INDUSTRY
O. F. Hedden, Codes and Standards Consulting, Fort Worth, TX, USA; C. D. Cowfer, Cowfer Consulting, Aiken, SC, USA

PVP2011-57164: EXPANDED INFLUENCE OF UT PERFORMANCE DEMONSTRATION AND FITNESS-FOR-SERVICE ANALYSIS IN THE NUCLEAR POWER INDUSTRY
O. F. Hedden, Codes and Standards Consulting, Fort Worth, TX, USA; C. D. Cowfer, Cowfer Consulting, Aiken, SC, USA

PVP2011-57395: APPLICATION OF CC 2235 IN THE PETROCHEMICAL INDUSTRY (Presentation Only)
N. Faransso, KBR, Houston, TX, USA

PVP2011-57686: AN INTEGRATED APPROACH TO PIPING SYSTEM ASSESSMENT: INCORPORATING ASME CODE STANDARDS INTO NDE INSPECTION TECHNIQUES OF SAFETY RELATED PIPING AT WOLF CREEK GENERATING STATION
K. Rach, Structural Integrity Associates, Hebron, IL, USA; E. Houston, Structural Integrity Associates, Centennial, CO, USA; M. Walter, Structural Integrity Associated, Inc., Centennial, CO, USA

SESSION 1.4P (OAC-8-3)
Monday, July 18, 4:00 pm – 5:45 pm, James

AGING MANAGEMENT AND LIFE EXTENSION III
Sponsored by Operations, Applications & Components Technical Committee
PVP2011-57325: CONTINUOUS CREEP DAMAGE MONITORING USING A NOVEL POTENTIAL DROP TECHNIQUE
C. M. Davies, A. Narayanan, Imperial College London, London, United Kingdom; P. Nagy, University of Cincinnati, Cincinnati, OH, USA; P. Cawley, Imperial College London, London, United Kingdom

PVP2011-57470: THE INFLUENCE OF CHEMISTRY CONCENTRATION UNCERTAINTY ON THE PROBABILISTIC FRACTURE MECHANICS ANALYSIS
B.-Y. Chen, C.-C. H.-W. Chou, R.-F. Liu, H.-C. Lin, Institute of Nuclear Energy Research, Taoyuan County, Taiwan

SESSION 1.4Q (OAC-3-1)  
Monday, July 18, 4:00 pm – 5:45 pm, Kent A
MONITORING, DIAGNOSTICS AND INSPECTION
Sponsored by Operations, Applications & Components Technical Committee
Developed by: M. Brumovsky, Nuclear Research Institute Rez plc, Rez, Czech Republic
Chair: M. Brumovsky, Nuclear Research Institute Rez plc, Rez, Czech Republic
Co-Chair: I. Ezekoye, Westinghouse Electric Co. LLC, Cranberry Woods, PA, USA

PVP2011-57021: NON DESTRUCTIVE INSPECTION OF NICKEL BASE ALLOYS IN FRANCE
F. Champigny, D. Deforge, EDF/Ceidre, Saint-Denis, France; E. Lemaire, EDF/UNIE, Saint-Denis, France

PVP2011-57036: ON IDENTIFICATION OF LEAKY PIPELINE PARAMETERS VIA MONTE CARLO SIMULATION
A. F. M. Kamal, S. Emam, Y. Haik, United Arab Emirates University, Al Ain, United Arab Emir.

PVP2011-57105: OVERVIEW OF REGULATIONS AND CODES/STANDARDS FOR INSPECTION INTERVALS OF ABOVE GROUND STORAGE TANKS
T. Tahara, T&T Technology, Fujiyoshi-shi/Saitama-Pref., Japan; S. Sando, Chiyoda Advanced Solutions Corporation, Yokohama, Japan

PVP2011-57811: NEW COMPUTATIONAL PROCEDURES FOR EVALUATION OF FRACTURE SURFACES OF THE DROP WEIGHT TEAR TEST OF THE PIPING STEEL
P. Zidlík, P. Ferfecki, B. Strnadel, VSB - Technical University of Ostrava, Ostrava-Poruba, Czech Republic; I. Dlouhy, Institute of Physics of Material, Academy of Science of the Czech Republic, Brno, Czech Republic

E. J. Sullivan, M. Anderson, Pacific Northwest National Laboratory, Richland, WA, USA; W. Norris, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

SESSION 1.4R (SPC-1-3)  
Monday, July 18, 4:00 pm – 5:45 pm, Kent B
STUDENT PAPER SYMPOSIUM AND COMPETITION PHD—1
Sponsored by PVP Division Senate
Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium

PVP2011-57347: INVESTIGATION ON FATIGUE PROPERTIES OF COLD STRETCHED AUSTENITIC STAINLESS STEEL
C. Miao, J. Zheng, L. Ma, D. Ye, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China

PVP2011-57479: PROPOSAL OF LIMIT MOMENT EQUATION APPLICABLE TO PLANAR/NON-PLANAR FLAW IN WALL THINNED PIPES UNDER BENDING AND INTERNAL PRESSURE
M. Tsuji, T. Meshii, University of Fukui, Fukui, Fukui, Japan

PVP2011-57793: NEW APPROACH TO STRESS-STRAIN CURVE PREDICTION USING BALL INDENTATION TEST
J. Brumek, B. Strnadel, VSB - Technical University of Ostrava, Ostrava-Poruba, Czech Republic; I. Dlouhy, Institute of Physics of Material, Academy of Science of the Czech Republic, Brno, Czech Republic

SESSION 1.4S (TT-1-6)  
Monday, July 18, 4:00 pm – 5:45 pm, Harborside B
TECHNICAL TUTORIAL: ASME SECTION VIII, DIVISION 3 ALTERNATIVE RULES FOR CONSTRUCTION OF HIGH PRESSURE VESSELS—PART II
Sponsored by the PVP Division Conference Committee
Developed by: M. Nitzel, M. E. Nitzel Engineering Services, Nampa, ID, USA
Chair: M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA
Presented by: J R. Sims, Becht Engineering Co., Inc., Liberty Corner, NJ, USA

SESSION 1.4T (MF-15-4)  
Monday, July 18, 4:00 pm – 5:45 pm, Harborside Foyer
NDE DEMONSTRATION FORUM—IV
Sponsored by PVP Senate, PVP Materials & Fabrication Committee, and the ASME NDE Engineering Division
Block 2.1: Tuesday, July 19 (8:30 am – 10:15 am)

SESSION 2.1B (CS-23-1)
Tuesday, July 19, 8:30 am – 10:15 am, Harborside E
ASME CODE PROCESS AND INCORPORATION INTO REGULATIONS
Sponsored by Codes & Standards Technical Committee
Developed by: D. Rudland, G. Stevens, U.S. Nuclear Regulatory Commission, Rockville, MD, USA; D. Scarth, Kinetics Inc., Toronto, ON, Canada
Chair: G. Stevens, U.S. Nuclear Regulatory Commission, Washington, DC, USA
Co-Chair: D. Rudland, U.S. Nuclear Regulatory Commission, Washington, DC, USA
PVP2011-58091: OVERVIEW OF ASME CODE PROCEDURES (Presentation Only)
B. Erler, Erler Engineering Ltd., Chicago, USA
PVP2011-58092: NRC RULEMAKING INCORPORATION OF ASME CODE UPDATES (Presentation Only)
T. McGinty, U.S. Nuclear Regulatory Commission, Washington, USA
PVP2011-58093: SUCCESSES AND CHALLENGES IN DEVELOPING INSERVICE INSPECTION REQUIREMENTS FOR NUCLEAR POWER PLANT COMPONENTS (Presentation Only)
J. Lubinski, U. S. Nuclear Regulatory Commission, Washington, USA

SESSION 2.1C (CS-6-2)
Tuesday, July 19, 8:30 am – 10:15 am, Laurel C
INTERACTION AND FLAW MODELLING FOR MULTIPLE FLAWS—II
Sponsored by Codes & Standards and Material & Fabrication Technical Committees
Developed by: K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom
Chair: J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom
Co-Chair: Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan
PVP2011-57559: EFFECT OF FLAW DIMENSIONS ON DUCTILE FRACTURE BEHAVIOR OF NON-ALIGNED MULTIPLE FLAWS IN A PLATE
K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan
PVP2011-57841: PLASTIC COLLAPSE LOADS FOR FLAT PLATES WITH DISSIMILAR NON-ALIGNED THROUGH-WALL CRACKS
K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; K. Saito, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Ibaraki, Japan

SESSION 2.1D (CS-16-1)
Tuesday, July 19, 8:30 am – 10:15 am, Laurel D
HIGH TEMPERATURE CODES: CREEP
Sponsored by Codes & Standards Technical Committee
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; N. Kasahara, University of Tokyo, Tokyo, Japan
Chair: H.-Y. Lee, Korea Atomic Energy Research Institute, Daejeon, Korea (Republic)
Co-Chair: P. J. Bouchard, The Open University, Milton Keynes, Buckinghamshire, United Kingdom
PVP2011-57285: THE CREEP-FATIGUE EVALUATION METHOD FOR INTERMEDIATE HOLD CONDITIONS: PROPOSAL AND VALIDATION
S. Okajima, N. Kawasaki, S. Kato, Japan Atomic Energy Agency, Ibaraki, Japan; N. Kasahara, University of Tokyo, Tokyo, Japan
PVP2011-57074: SIMPLIFIED ANALYSIS METHODS FOR PRIMARY LOAD DESIGNS AT ELEVATED TEMPERATURES
P. Carter, Stress Engineering Services, Mason, OH, USA; T.-L. Sham, Oak Ridge National Laboratory, Oak Ridge, TN, USA; R. I. Jetter, Consultant, Pebble Beach, CA, USA
PVP2011-57843: AN AUTOMATIC PROCEDURE FOR THE APPLICATION OF THE ITALIAN STANDARD FOR CREEP-OPERATED EQUIPMENT
O. Grisolia, INAIL-ISPESL, Rome, Rome, Italy
PVP2011-57585: THERMAL FATIGUE ANALYSIS AT A MIXING TEE BY A FLUID-STRUCTURAL SIMULATION
M. Kamaya, Y. Utanohara, A. Nakamura, Institute of Nuclear Safety System, Inc., Fukui, Japan
PVP2011-57842: A DESIGN APPROACH FOR ESTABLISHING CREEP STRENGTH REDUCTION FACTOR FOR REPAIR WELDS FOR FAST REACTOR FUEL PINS END PLUGS (Presentation Only)
P. Chellapandi, R. Sarkar, B. Raj, Indira Gandhi Center for Atomic Research, Tamil Nadu, India

SESSION 2.1E (SE-2-1)
Tuesday, July 19, 8:30 am – 10:15 am, Falkland
STRUCTURAL DYNAMICS—LINEAR AND NONLINEAR 1
Sponsored by Seismic Engineering Technical Committee
Developed by: K. Fujita, Osaka City University, Osaka, Japan; C. C. O’Brien, Idaho National Laboratory, Idaho Falls, ID, USA
Chair: K. Fujita, Osaka City University, Osaka, Japan
PVP2011-57188: EVALUATION OF INTERACTION OF MULTIPLE FLOWS IN DUCTILE FRACTURE PROCESS
K. Suga, Tokyo University of Science, Noda, Chiba, Japan; K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; S. Kawasaki, Y. Arai, M. Kikuchi, Tokyo University of Science, Noda, Chiba, Japan
PVP2011-57147: DUCTILE FRACTURE SIMULATION OF MULTIPLE SURFACE FLAWS
K. Suga, Tokyo University of Science, Noda, Chiba, Japan; K. Miyazaki, Hitachi, Ltd., Hitachi-shi, Japan; R. Senda, M. Kikuchi, Tokyo University of Science, Noda, Chiba, Japan
Co-Chair: A. Maekawa, Institute of Nuclear Safety System, Inc., Fukui, Japan

PVP2011-57187: IMPACT RESPONSE ANALYSIS OF A COAXIAL DOUBLE-PIPE STRUCTURE BY USING SPECTRAL ELEMENT METHOD
A. Nishida, Japan Atomic Energy Agency, Tokyo, Japan; K. Iigaki, Japan Atomic Energy Agency, Ibaraki, Japan

PVP2011-57915: A SIMPLE METHOD TO ESTIMATE THE VIBRATION CHARACTERISTICS OF A PWR FUEL ASSEMBLY

PVP2011-57933: EVALUATION OF THE SLIDING BEHAVIOR OF THE RACK USING CAV CONCEPT
A. Iwasaki, Y. Nekomoto, S. Nishida, M. Nagaya, D. Okuno, Mitsubishi Heavy Industries, Ltd., Hyogo, Japan; N. Chigusa, The Kansai Electric Power Co., Inc., Fukui, Japan; H. Morita, Mitsubishi Heavy Industries, Ltd., Takasago, Japan

SESSION 2.1F (FSI-2-4)
Tuesday, July 19, 8:30 am – 10:15 am, Galena

VORTEX-INDUCED VIBRATIONS AND WAKE DYNAMICS
Sponsored by Fluid-Structure Interaction Technical Committee

Developed by: L. Baranyi, University of Miskolc, Miskolc, Hungary; T. Nakamura, Osaka Sangyo University, Daito, Osaka, Japan
Chair: N. Mureithi, Ecole Polytechnique de Montreal, Montreal, QC, Canada
Co-Chair: T. Nakamura, Osaka Sangyo University, Daito, Osaka, Japan

PVP2011-57471: COMPUTATION OF LOW REYNOLDS NUMBER FLOW AROUND A CIRCULAR CYLINDER FOLLOWING A HORSESHOE-SHAPED PATH
L. Baranyi, University of Miskolc, Miskolc, Hungary

PVP2011-57554: SIMULATION OF LOW-REYNOLDS NUMBER FLOW AROUND AN OSCILLATED CYLINDER USING TWO COMPUTATIONAL METHODS
L. Baranyi, B. Bolló, University of Miskolc, Miskolc, Hungary; L. Daróczy, Miskolci Egyetem, Miskolc, Hungary

PVP2011-57078: WAKE FORMATION FOR AN OSCILLATING SMALL-INCIDENCE-ANGLE CYLINDER PAIR IN CROSS-FLOW
M. Hayder, University of Texas at El Paso, El Paso, TX, USA

PVP2011-57068: STUDY ON IN-FLOW VIBRATION OF CYLINDER ARRAYS CAUSED BY CROSS FLOW
T. Nakamura, Y. Fujita, K. Nishimura, C. Kohara, Osaka Sangyo University, Daito, Osaka, Japan

SESSION 2.1G (CT-5-1)
Tuesday, July 19, 8:30 am – 10:15 am, Heron

ASSEMBLY AND LEAK TIGHTNESS OF BOLTED JOINTS I
Sponsored by Computer Technology & Bolted Joints Technical Committee

Developed by: T. Kobayashi, Numazu National College of Technology, Numazu, Shizuoka, Japan
Chair: T. Kobayashi, Numazu National College of Technology, Numazu, Shizuoka, Japan
Co-Chair: J. Veiga, Teadit Industria e Comercio Ltd.a, Rio de Janeiro, Brazil

PVP2011-57445: EFFECTS OF NUT THINNING DUE TO CORROSION ON THE STRENGTH CHARACTERISTICS AND THE SEALING PERFORMANCE OF BOLTED FLANGE JOINTS UNDER INTERNAL PRESSURE
T. Kikuchi, Idemitsu Engineering Co., Ltd., Chiba, Japan; T. Sawa, Y. Omiya, Hiroshima University, Higashi-hiroshima, Japan

PVP2011-57602: THE SEALING BEHAVIOR OF LARGE DIAMETER FLANGED CONNECTIONS AND A METHOD TO DETERMINE BOLT LOADS TO SATISFY TIGHTNESS CRITERIA
T. Kobayashi, M. Kogasaka, Numazu National College of Technology, Numazu, Shizuoka, Japan; K. Nishiura, Mitsubishi Chemical Corporation, Kurashiki, Okayama, Japan; K. Uchiyama, Nichias Corporation, Minato-ku, Tokyo, Japan

PVP2011-57682: OPTIMIZATION OF RE-TORQUE PARAMETERS OF BOLT JOINED SYSTEMS
A. P. Gordon, B. Drilling, K. Williams, University of Central Florida, Orlando, FL, USA; S. J. Hebert, Innovative Employee Solutions/State of Florida, Titusville, FL, USA; C. C. Kammerer, F. Baldwin, United Space Alliance, LLC., Cape Canaveral, FL, USA

PVP2011-5719: VARIABLES AFFECTING NUT FACTORS FOR FIELD ASSEMBLED JOINTS
W. G. Cooper, T. M. Heartwell, VSP Technologies, Prince George, VA, USA

SESSION 2.1H (DA-4-1)
Tuesday, July 19, 8:30 am – 10:15 am, Harborside A

CREEP AND TIME DEPENDANT BEHAVIOR
Sponsored by Design & Analysis Technical Committee

Developed by: Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan
Chair: Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan
Co-Chair: S. Marie, CEA, Gif sur Yvette, France

PVP2011-57185: ELASTIC FOLLOW-UP FACTORS FOR CRUCIFORM PLATE UNDER BI-AXIAL LOADING
K.-H. Lee, Y.-J. Kim, Korea University, Seoul, Korea (Republic); R. Ainsworth, University of Manchester, Manchester, United Kingdom; D. Dean, EDF Energy, Gloucester, United Kingdom; T.-E. Jin, KEPCO E&C, Yongin, Korea (Republic)

PVP2011-57467: FINITE ELEMENT DAMAGE SIMULATIONS FOR CREEP CRACK GROWTH OF SS316H WITH DIFFERENT GEOMETRIES
C.-S. Oh, N.-H. Kim, H.-S. Lee, Y.-J. Kim, Korea University, Seoul, Korea (Republic)

PVP2011-57480: EFFECT OF CREEP MISMATCH FACTOR ON STEADY STATE CREEP STRESSES IN WELDED COMPONENTS WITH HEAT AFFECTED ZONE
J.-H. Han, K.-H. Lee, Y.-J. Kim, Korea University, Seoul, Korea (Republic);
K. Nikbin, Imperial College, London, United Kingdom; D. Dean, EDF Energy, Gloucester, United Kingdom

PVP2011-57991: INFLUENCE OF CREEP ON LOW-CYCLE FATIGUE LIFE ASSESSMENT OF ULTRA-SUPERCRITICAL STEAM TURBINE ROTOR
J. Zhang, Shanghai Turbine Company, Shanghai, China; W. Z. Wang, P. Jiang, H. F. Liu, Y. Z. Liu, Shanghai Jiao Tong University, Shanghai, China

PVP2011-57632: DYNAMIC FRACTURE USING MESHLESS METHODS: COMPARATIVE STUDIES
S Rajagopal, IIT Delhi, New Delhi, India

SESSION 2.1I (DA-3-1)
Tuesday, July 19, 8:30 am – 10:15 am, Essex C

D & A OF PIPING & PIPING COMPONENTS I
Sponsored by Design & Analysis Technical Committee

Developed by: J. McCabe, General Dynamics–Electric Boat, Groton, CT, USA; C. Basavaraju, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

Chair: J. McCabe, General Dynamics–Electric Boat, Groton, CT, USA
Co-Chair: C. Basavaraju, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2011-57045: FIV CONSIDERATIONS FOR BWR STEAM DRYERS FOR EPU OPERATION
C. Basavaraju, K. A. Manoly, M. Khanna, U.S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2011-57056: THE LIMIT LOAD AND SAFETY ASSESSMENT OF PRESSURE PIPE WITH AN EXTERNAL PIT DEFECT AT HIGH TEMPERATURE
Bo Wang, C. Zhou, X. He, J. Xue, Nanjing University of Technology, Nanjing, Jiangsu, China

PVP2011-57661: REVISIONS FOR ASME B31.3 OPERATING STRESS AND STRESS RANGE ALLOWABLES
D. Edwards, ConocoPhillips Company, Bartlesville, OK, USA

PVP2011-57930: DEVELOPMENT OF ENGINEERING FORMULAE FOR STRESS CONCENTRATION FACTORS OF LOCAL WALL THINNING IN CANDU FEEDER PIPE UNDER PRESSURE
J. S. Kim, J.-S. Seo, Sunchon National University, Sunchoen, Korea (Republic)

SESSION 2.1J (DA-18-1)
Tuesday, July 19, 8:30 am – 10:15 am, Essex B

CFD IN PIPING AND PRESSURE VESSEL DESIGN AND ANALYSIS
Sponsored by Design & Analysis Technical Committee

Developed by: S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA

Chair: S. McGuffie, Porter McGuffie, Inc., Lawrence, KS, USA
Co-Chair: S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA

PVP2011-57625: COMBINING CFD DERIVED INFORMATION AND THERMODYNAMIC ANALYSES TO INVESTIGATE WASTE HEAT BOILER CHARACTERISTICS
S. McGuffie, M. Porter, D. Martens, Porter McGuffie, Inc., Lawrence, KS, USA; M. Demskie, Flint Hills Resources, Rosemount, MN, USA

PVP2011-57650: CFD ANALYSES OF BWR STEAM PLENUM TO INVESTIGATE A POSSIBLE CAUSE FOR STEAM DRYER OUTER HOOD VISUAL EXAMINATION ANOMALIES
S. Sowah, Structural Integrity Associates, Inc., San Jose, CA, USA; D. Sommerville, Structural Integrity Associates, Inc., Centennial, CO, USA; B. P. Belley, Structural Integrity Associates, Inc., San Jose, CA, USA

PVP2011-57817: COMPARATIVE ASSESSMENT OF TURBULENCE MODELS FOR PREDICTION OF FLOW-INDUCED CORROSION DAMAGES
K. Das, D. Basu, T. Mintz, Southwest Research Institute, San Antonio, TX, USA

SESSION 2.1K (NED-3-1)
Tuesday, July 19, 8:30 am – 10:15 am, Essex A

BEPU (BEST ESTIMATE PLUS UNCERTAINTY) CHALLENGES FOR SYSTEM, STRUCTURE AND COMPONENT ANALYSIS IN PRESSURE VESSELS AND PIPING
Sponsored by ASME Nuclear Engineering Division

Developed by: A. Petruzzi, University of Pisa, Pisa, Italy; R. Schultz, Idaho National Laboratory, Idaho Falls, ID, USA

Chair: A. Petruzzi, University of Pisa, Pisa, Italy
Co-Chair: R. Schultz, Idaho National Laboratory, Idaho Falls, ID, USA

PVP2011-57564: BEST ESTIMATE PLUS UNCERTAINTY ANALYSIS OF LBLOCA FOR INDIAN PHWR
A. Srivastava, Bhabha Atomic Research Centre, Mumbai, Maharashtra, India; A. Trivedi, Indian Institute of Technology, Kanpur, Uttar Pradesh, India; H. G. Lele, Bhabha Atomic Research Centre, Mumbai, Maharashtra, India; P. Munshi, Indian Institute of Technology, Kanpur, Uttar Pradesh, India; K. K. Vaze, Bhabha Atomic Research Centre, Mumbai, Maharashtra, India

PVP2011-57794: THE BEPU (BEST ESTIMATE PLUS UNCERTAINTY) CHALLENGE IN CURRENT LICENSING OF NUCLEAR REACTORS
A. Petruzzi, F. D’Auria, N. Muellner, University of Pisa, Pisa, Italy; O. Mazzantini, Nucleoeléctrica Argentina SA, Lima, Buenos Aires, Argentina

PVP2011-57240: GLOBAL BALANCE OF PLANT USING PROCESS DATA RECONCILIATION ACCORDING TO VDI2048— THEORY AND BENEFITS
M. Langenstein, B. Laipple, BTB Jansky GmbH, Leonberg, Germany

PVP2011-57433: ANALYSIS OF ASME PRESSURIZATION TRANSIENT FOR LUNGME ABWR USING RETRAN AND TRACe
H.-T. Lin, Institute of Nuclear Energy Research, Atomic Energy Council, R.O.C., Taoyuan, Taiwan; C.-W. Tsai, Institute of Nuclear Engineering and Science, National Tsing Hua University, HsinChu, Taiwan; J.-R. Wang, Institute of Nuclear Energy Research, Atomic Energy Council, R.O.C., Taoyuan, Taiwan; C. Shih, Institute of Nuclear Engineering and Science, National Tsing Hua University, HsinChu, Taiwan
SESSION 2.1L (MF-4-4)
Tuesday, July 19, 8:30 am – 10:15 am, Harborside D
WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT IV
Sponsored by Materials & Fabrication Technical Committee
Developed by: Z. Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA
Chair: H. J. Rathbun, U. S. Nuclear Regulatory Commission, Washington, DC, USA
Co-Chair: E. Keim, AREVA NP GmbH, Erlangen, Germany
PVP2011-57506: ANALYSIS OF RESIDUAL STRESSES IN A PRESSURIZER SURGE—NOZZLE WELDMENT
F. Obermeier, E. Keim, T. Nicak, G. Meier, AREVA NP GmbH, Erlangen, Germany
PVP2011-57767: VALIDATION OF WELDING RESIDUAL STRESS MODEL USING RESULTS FROM A PRESSURIZER SURGE NOZZLE MOCKUP
D. Killian, AREVA NP Inc., Lynchburg, VA, USA
PVP2011-58078: RESIDUAL STRESS MEASUREMENTS THROUGH THE THICKNESS OF THE DISSIMILAR WELD PIPE USING NEUTRON DIFFRACTION
W. Woo, V. Em, H.-J. Lee, B.-S. Seong, Korea Atomic Energy Research Institute, Yuseong-gu, Daejeon, Korea (Republic); K. S. Park, J. G. Byeon, Doosan Heavy Industries & Construction, Changwon, Gyeongnam, Korea (Republic); C. R. Hubbard, Oak Ridge National Laboratory, Oak Ridge, TN, USA
PVP2011-57935: MODELING CRACK GROWTH IN WELD RESIDUAL STRESS FIELDS USING THE FINITE ELEMENT ALTERNATING METHOD
B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; T. Zhang, D.-J. Shim, G. Wilkowski, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

SESSION 2.1M (MF-2-1)
Tuesday, July 19, 8:30 am – 10:15 am, Laurel A
THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT I
Sponsored by Materials & Fabrication Technical Committee
Developed by: P.-S. Lam, Savannah River National Laboratory, Aiken, SC, USA; S. Xu, Kinectrics Inc., Toronto, ON, Canada
Chair: A. Sherry, University of Manchester, Manchester, United Kingdom
Co-Chair: P.-S. Lam, Savannah River National Laboratory, Aiken, SC, USA
PVP2011-57174: ADVANCES IN DEVELOPMENT OF J-INTEGRAL EXPERIMENTAL ESTIMATION, TESTING AND STANDARDIZATION
X.-K. Zhu, Battelle Memorial Institute, Columbus, OH, USA
PVP2011-57266: EFFECTS OF WELD GEOMETRY ON STRESS INTENSITY FACTOR SOLUTIONS FOR LASER WELDS IN LAP-SHEAR SPECIMENS
K. Sriwichai, K. Asim, J. Pan, University of Michigan, Ann Arbor, MI, USA
PVP2011-57270: PROBABILISTIC MODELS OF RELIABILITY OF CAST AUSTENITIC STAINLESS STEEL PIPING
T. J. Griesbach, H. Qian, D. Harris, Structural Integrity Associates, Inc., San Jose, CA, USA
PVP2011-57316: CRACK TIP BEHAVIOUR IN RESIDUAL STRESS FIELD: FINITE ELEMENT MODELLING AND NEUTRON DIFFRACTION MEASUREMENTS
H. Dai, University of Manchester, Manchester, United Kingdom; J. Kelleher, STFC Rutherford Appleton Laboratory, Didcot, United Kingdom; P. J. Withers, University of Manchester, Manchester, United Kingdom

SESSION 2.1N (MF-25-1)
Tuesday, July 19, 8:30 am – 10:15 am, Laurel B
COMPOSITE PRESSURE VESSELS
Sponsored by Materials & Fabrication and Design & Analysis Technical Committees
Developed by: H. Faria, INEGI, Porto, Portugal; S.-S. Pang, Louisiana State University, Baton Rouge, LA, USA
Chair: S.-S. Pang, Louisiana State University, Baton Rouge, LA, USA
Co-Chair: M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA
PVP2011-57644: RESEARCH AND ACHIEVEMENTS ON CARBON FIBER REINFORCED THERMOPLASTIC COMPOSITES FOR HIGH PRESSURE STORAGE
F. Nony, S. Villalonga, C. Thomas, C. Magnier, CEA, Monts, France
PVP2011-57423: DESIGN AND ANALYSIS OF THE WORLD’S FIRST FILAMENT-WOUND SECTION X CLASS II TANKS
J. Du, J. Richter, P. DiCarlo, C. Guess, Strand Composite Engineering & Construction LLC, Harrison, AR, USA
PVP2011-57848: STUDY OF DIFFERENT COMPOSITE LAY-UP CONFIGURATIONS IN THICK-WALLED COMPOSITE OVERWRAPPED PRESSURE VESSELS (Presentation Only)
H. Faria, INEGI, Porto, Portugal
PVP2011-57668: OSIRHYS IV PROJECT, 700 BAR ON-BOARD COMPOSITE PRESSURE VESSEL MECHANICAL BEHAVIOUR PREDICTION WITH UNCERTAINTIES KNOWLEDGE
S. Villalonga, CEA, Monts, France; M. Kempeneers, SAMTECH France, Toulouse, France; P. Saffre, Polytech Savoie, Annecy Le Vieux, France; J. Renard, ENSMP Paris Tech, Evry, France; D. Halm, ENSMA, Futuroscope-Chasseneuil, France; F. Nony, CEA, Monts, France

SESSION 2.1O (NDE-5-1)
Tuesday, July 19, 8:30 am – 10:15 am, Iron
NDE ISSUES ASSOCIATED WITH HDPE AND WELDED COMPOSITE MATERIALS
Sponsored by NDE Engineering Division, and the PVP Codes & Standards, Materials & Fabrication, and Operations, Applications & Components Technical Committees
Developed by: R. Stakenborghs, Evisive, Inc., Baton Rouge, LA, USA
Chair: R. Stakenborghs, ILD, Inc., Baton Rouge, LA, USA
Co-Chair: W. T. Springer, University of Arkansas, Fayetteville, AR, USA
PVP2011-57952: EXAMPLES OF PRACTICAL APPLICATION OF THE
SESSION 2.2B (CS-23-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Harborside E
PANEL SESSION: CURRENT REGULATORY ISSUES WITHIN ASME CODE
Sponsored by Codes & Standards Technical Committee
Developed by: D. Rudland, Stevens, U.S. Nuclear Regulatory Commission, Rockville, MD, USA
Chair: D. Rudland, U.S. Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: G. Stevens, U.S. Nuclear Regulatory Commission, Washington, DC, USA
Panelists:
D. Terao, U.S. Nuclear Regulatory Commission, Washington, USA
R. Barnes, Anric Enterprises Inc., Toronto, Canada
T. Lupold, U.S. Nuclear Regulatory Commission, Washington, USA
K. A. Manoly, U.S. Nuclear Regulatory Commission, Washington, DC, USA
R. Swayne, Reedy Engineering, Campbell, USA
K. B. Thomas, Nebraska Public Power District, Brownville, NE, USA
A. Hiser, U.S. Nuclear Regulatory Commission, Washington, USA
G. G. Young, Entergy Nuclear, Jackson, MS, USA
R. Tregoning, U.S. Nuclear Regulatory Commission, Washington, DC, USA
C. Hoffman, Westinghouse Electric Co. LLC, Windsor, USA
M. Golliet, Westinghouse Electric Company, Madison, USA
T. Lupold, U.S. Nuclear Regulatory Commission, Washington, USA
D. Lamond, Automated Engineering Services, Naperville, USA
R. Hardies, U.S. Nuclear Regulatory Commission, Washington, USA

SESSION 2.2C (CS-4-1)
Tuesday, July 19, 10:30 am – 12:15 pm, Laurel C
RATCHETING AND FATIGUE ISSUES IN PRESSURE VESSEL AND PIPING DESIGN—I
Sponsored by Codes & Standards Technical Committee
Developed by: W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada; R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada
Chair: W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada
Co-Chair: R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada
PVP2011-57196: GLOBAL RATCHETING BY ELASTIC-PLASTIC FEA ACCORDING TO ASME SECTION VIII RULES
A. Kalnins, Lehigh University, Bethlehem, PA, USA; J. Rudolph, AREVA NP GmbH, Erlangen, Germany
PVP2011-57229: LOCAL RATCHETING BY ELASTIC-PLASTIC FEA—CRITERIA AND CODE BASED APPROACHES
J. Rudolph, AREVA NP GmbH, Erlangen, Germany; A. Kalnins, Lehigh University, Bethlehem, PA, USA; A. Götz, R. Hilpert, AREVA NP GmbH, Erlangen, Germany

SESSION 2.2D (CS-22-1)
Tuesday, July 19, 10:30 am – 12:15 pm, Laurel D
COMBINATION OF MULTI-AXIAL LOADS IN DESIGN AND FITNESS-FOR-SERVICE
Sponsored by Codes & Standards Technical Committee
Developed by: Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan; P. Hoang, Sargent Lundy, Chicago, IL, USA
Chair: S. Xu, Kinectrics Inc., Toronto, ON, Canada
Co-Chair: H. Qian, Structural Integrity Associates, Inc., San Jose, CA, USA
PVP2011-57856: INCLUSION OF TORSION WITH BENDING AND PRESSURE LOADS FOR PIPES WITH THIN-WALL REGIONS
B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; K. Hasegawa, Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan; P. Hoang, Sargent Lundy, Chicago, IL, USA
PVP2011-57839: EVALUATION OF TORSION AND BENDING COLLAPSE MOMENTS FOR PIPES WITH LOCAL WALL THINNING
K. Hasegawa, Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan; B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; P. Hoang, Sargent Lundy, Chicago, IL, USA
PVP2011-57731: EFFECTS OF BENDING MOMENT AND TORSION ON THE INTERNAL PRESSURE LIMIT LOAD OF LOCALLY THINNED PIPES
P. Hoang, Sargent Lundy, Chicago, IL, USA; Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan; N. Miura, K. Hoshino, Central Research Institute of Electric Power Industry, Yokosuka, Kanagawa, Japan
PVP2011-57455: EXPERIMENTAL INVESTIGATION ON FAILURE ESTIMATION METHOD ABOUT CRACKED PIPES SUBJECTED TO MULTI-AXIAL LOADS
Y. Li, K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; N. Miura, K. Hoshino, Central Research Institute of Electric Power Industry, Yokosuka, Kanagawa, Japan
PVP2011-57144: STUDY ON STRESS INTENSITY FACTORS OF FATIGUE CRACK IN ROUND BAR UNDER ROTARY BENDING
M. Maitreyimu, M. Kikuchi, H. Kilano, Tokyo University of Science, Noda, Chiba, Japan

SESSION 2.2E (SE-2-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Falkland
STRUCTURAL DYNAMICS—LINEAR AND NONLINEAR 2
Sponsored by Seismic Engineering Technical Committee
Developed by: K. Fujita, Osaka City University, Osaka, Japan; C. C. O’Brien, Idaho National Laboratory, Idaho Falls, ID, USA
Chair: S. A. Karamanos, University of Thessaly, Volos, Greece
Co-Chair: K. Fujita, Osaka City University, Osaka, Japan
PVP2011-57064: EXPERIMENTAL INVESTIGATION ON FAILURE ESTIMATION METHOD ABOUT CRACKED PIPES SUBJECTED TO MULTI-AXIAL LOADS
Y. Li, K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; N. Miura, K. Hoshino, Central Research Institute of Electric Power Industry, Yokosuka, Kanagawa, Japan
PVP2011-57144: STUDY ON STRESS INTENSITY FACTORS OF FATIGUE CRACK IN ROUND BAR UNDER ROTARY BENDING
C.-S. Tsai, H.-C. Su, Feng Chia University, Taichung, Taiwan; T. C. Chiang, Earthquake Proof Systems, Inc., Taichung, Taiwan
PVP2011-57116: A CONSIDERATION ON NONLINEAR SLOSHING OF A RECTANGULAR LIQUID STORAGE CONTAINER SUBJECTED TO SEISMIC EXCITATIONS
K. Fujita, S. Asano, Osaka City University, Osaka, Japan
PVP2011-57925: A STUDY OF FLUID-STRUCTURE COUPLED ANALYSIS FOR LARGE LNG STORAGE TANKS IN CONSIDERATION OF UPLIFT
Hayashi, Kawasaki Heavy Industries, Ltd., Hyogo, Japan; T. Taniguchi, Tottori University, Shoichiro Tottori, Japan; A. Umeda, H. Yamada, T. Kawasaki, Hitoshi Nagahara, Kawasaki Heavy Industries, Ltd., Hyogo, Japan
PVP2011-57241: SEISMIC SAFETY MARGIN OF CYLINDRICAL LIQUID STORAGE TANKS IN NUCLEAR POWER PLANTS
A. Maekawa, T. Takahashi, Institute of Nuclear Safety System, Inc., Fukui, Japan; K. Fujita, Osaka City University, Osaka, Japan
SESSION 2.2F (FSI-2-5)
Tuesday, July 19, 10:30 am – 12:15 pm, Galena
AXIAL AND LEAKAGE-FLOW-INDUCED VIBRATION
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: N. Mureithi, Ecole Polytechnique de Montreal, Montreal, QC, Canada; D. Weaver, McMaster University, Hamilton, ON, Canada
Chair: B. Collard, CEA: Atomic and Alternative Energies Commission, Saint Paul lez Durance, France
Co-Chair: W. G. Sim, Hannam University, Taejeon, Korea (Republic)
PVP2011-58038: DYNAMICS OF A FREE-CLAMPED CYLINDER IN CONFINED AXIAL AIR-FLOW
S. Rinaldi, M. Paidoussis, McGill University, Montreal, QC, Canada
PVP2011-57117: INFLUENCE OF FLUID VISCOSITY AND STRUCTURAL SPECIFICATIONS ON DYNAMIC STABILITY, ESPECIALLY ON THE VICINITY OF CRITICAL VELOCITIES OF ELASTIC BEAM SUBJECTED TO AXIAL FLOW CONFINED IN NARROW PASSAGE
K. Fujita, Osaka City University, Osaka, Japan
PVP2011-57337: CFD ESTIMATION OF THE UNSTEADY FLUID FORCE ALONG A FUEL ROD DOWNSTREAM A MIXING GRID
P. Moussou, C. Bodel, EDF, Clamart, France; S. Benhamadouche, EDF R&D, Chatou, France
PVP2011-57227: STUDY ON GENERATION MECHANISM OF ABNORMAL VIBRATION OF FLOW DYNAMIC CONVEYER
K. Ishihara, University of Tokushima, Tokushima City, Japan
SESSION 2.2G (CT-5-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Heron
ASSEMBLY AND LEAK TIGHTNESS OF BOLTED JOINTS 2
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: J. Payne, JPAC Inc., Long Valley, NJ, USA
Chair: J. Payne, JPAC Inc., Long Valley, NJ, USA
Co-Chair: T. Kobayashi, Numazu National College of Technology, Numazu, Shizuoka, Japan
PVP2011-57121: EVALUATION OF TIGHTENING PROCESS OF REAMER BOLTS BY COOLED FITTING
S. Inagaki, M. Nomura, T. Fukuoka, Kobe University, Kobe, Japan
PVP2011-57213: PRACTICAL CONSIDERATIONS IN IMPROVING PRACTICES RELATED TO BOLTED PIPING JOINTS IN A CHEMICAL MANUFACTURING SITE
W. Lick, Eastman Chemical Company, Kingsport, TN, USA
PVP2011-57525: INVESTIGATION ON DIFFERENT TIGHTENING SEQUENCES ON SEVERAL BOLTED FLANGE TYPES, DIMENSIONS AND ASSOCIATED GASKET TYPES
H. Lejeune, Y. Birembaut, CETIM, Nantes, France; A. Riedl, A. Schunemann, Fachhochschule Münster—Center of Sealing Technologies, Steinfurt, Germany
PVP2011-57626: IMPLEMENTING THE NEW CERTIFICATION AND TRAINING GUIDELINES PER PCC-1 APPENDIX A (Presentation Only)
D. Lay, Hytorc, Highland, UT, USA; J. Waterland, VSP Technologies, Prince George, VA, USA
PVP2011-57165: NOT BY GASKET ALONE
C. Neely, Becht Engineering Co. Inc., St. Albans, WV, USA
SESSION 2.2H (DA-4-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Harborside A
THERMAL FATIGUE—FATHER EXPERIMENT ON MIXING ZONE
Sponsored by Design & Analysis Technical Committee
Developed by: D. Moineureau, EDF R&D, Moret sur Loing, France; P. Gilles, AREVA, Paris La Défense, France
Chair: D. Moineureau, EDF R&D, Moret sur Loing, France
Co-Chair: I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany
PVP2011-57951: HIGH CYCLE THERMAL FATIGUE ISSUES IN RHRS MIXING TEES AND THERMAL FATIGUE TEST ON A REPRESENTATIVE 304 L MIXING ZONE
J. A. Le Duff, B. Tacchini, AREVA NP, Paris La Défense, France; J.-M. Stephan, EDF R&D MMC, Moret-sur-Loing, France; R. Tampigny, EDF - CEIDRE, Avoine, France; A. Fissolo, Ludovic Vincent, CEA, Gif sur Yvette, France
PVP2011-57537: NUMERICAL INTERPRETATION OF THE ENDURANCE TEST ON FATHER MIXING ZONE MOCK-UP
J.-M. Stephan, EDF R&D MMC, Moret-sur-Loing, France
PVP2011-57630: ANALYSIS OF THE FATHER EXPERIMENT WITH AN ENGINEERING METHOD DEVOTED TO HIGH CYCLE THERMAL FATIGUE
R. Beaufils, EDF-SEPTEN, Villeurbanne, France; S. Courtin, AREVA NP, Paris La Défense, France
SESSION 2.2I (DA-3-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Essex C
D & A OF PIPING & PIPING COMPONENTS II
Sponsored by Design & Analysis Technical Committee
Developed by: C. Basavaraju, U.S. Nuclear Regulatory Commission, Rockville, MD, USA; J. McCabe, General Dynamics–Electric Boat, Groton, CT, USA
Chair: C. Basavaraju, U.S. Nuclear Regulatory Commission, Rockville, MD, USA
Co-Chair: J. McCabe, General Dynamics–Electric Boat, Groton, CT, USA

PVP2011-57101: A PROCEDURE TO INCLUDE THE FATIGUE EFFECTS OF THERMAL GRADIENTS IN A B31.1 BUTT WELD OF DISSIMILAR METALS AND TAPERED TRANSITION JOINT (TTJ) OF SIMILAR METALS FOR DESIGN AND PLANT LIFE EXTENSION
D. H. Creates, Ontario Power Generation Inc, Pickering, ON, Canada

PVP2011-57123: OPTIMIZATION OF PIPE REPAIR SLEEVE DESIGN

PVP2011-57131: FATIGUE STRENGTH REDUCTION FACTORS FOR SOCKET WELDS AS A FUNCTION OF LEG LENGTH
P. Hirschberg, Structural Integrity Associates, Inc., San Jose, CA, USA; A. M. Crompton, Structural Integrity Associates, Centennial, CO, USA; R. D. Couch, Electric Power Research Institute, Charlotte, NC, USA

PVP2011-57512: RESEARCH ON THE APPLICABILITY OF BULLETIN WRC107 FOR NOZZLE PEAK STRESS INTENSITY CALCULATION
F. Liu, Zhejiang Provincial Special Equipment Inspection and Research Institute, Hangzhou, Zhejiang, China; Y. Qian, ZJ TJ, Hangzhou, China; Z. Ling, S. Kong, M. Zheng, Zhejiang Provincial Special Equipment Inspection and Research Institute, Hangzhou, Zhejiang, China

SESSION 2.2J (FSI-4-1)
Tuesday, July 19, 10:30 am – 12:15 pm, Essex B

STRUCTURES UNDER EXTREME LOADING
Sponsored by Fluid-Structure Interaction Technical Committee

Developed by: H. Levine, Weidlinger Associates, Inc, Mountain View, CA, USA; D. Littlefield, University of Alabama at Birmingham, Birmingham, AL, USA

PVP2011-57136: FRACTURE OF IMPLOSIVELY LOADED PIPES
C. Gato, Harbin Engineering University, Harbin, China

PVP2011-57743: BOILING WATER REACTOR CORE SHROUD ACOUSTIC LOADS RESULTING FROM A RECIRCULATION OUTLET LINE BREAK LOSS OF COOLANT ACCIDENT—A CASE STUDY
D. Sommerville, Structural Integrity Associates, Inc., Centennial, CO, USA; K. Karpanan, Structural Integrity Associates, Huntsville, NC, USA

PVP2011-57981: ON DETERMINING CONDITIONS FOR OPTIMAL PERFORMANCE OF CASED MUNITIONS
K. C. Walls, D. Littlefield, University of Alabama at Birmingham, Birmingham, AL, USA; D. Lambert, Air Force Research Laboratory, Eglin Air Force Base, FL, USA

PVP2011-57992: VALIDATION OF THE KERLEY SOIL MODEL IN CTH
D. Littlefield, K. C. Walls, University of Alabama at Birmingham, Birmingham, AL, USA; K. T. Danielson, J. B. Jordan, U. S. Army Engineer Research and Development Center, Vicksburg, MS, USA

SESSION 2.2K (HP-3-1)
Tuesday, July 19, 10:30 am – 12:15 pm, Essex A

STRUCTURAL RESPONSE OF VESSELS TO HIGH-EXPLOSIVE DETONATIONS—I

Sponsored by High-Pressure Technology Technical Committee

Developed by: R. Nickell, Applied Science & Technology, San Diego, CA, USA; E. Rodriguez, Global Nuclear Network Analysis, LLC, Santa Fe, NM, USA

Chair: E. Rodriguez, Global Nuclear Network Analysis, LLC, Santa Fe, NM, USA

Co-Chair: K. Simpson, ExxonMobil Chemical Company, Baton Rouge, LA, USA

PVP2011-57129: THE DESIGN, ANALYSIS, TESTING, AND USE OF A SMALL CONFINEMENT VESSEL FOR MATERIAL SHOCK PHYSICS EXPERIMENTS
R. Valdiviez, P. P. Sandoval, W. V. McNeil, Los Alamos National Laboratory, Los Alamos, NM, USA

PVP2011-57158: LARGE IMPULSIVE LOADING OF OPEN ENDED RINGS
A. M. Clayton, A M Clayton Ltd., Warrington, United Kingdom; Rowland C. J. Booth, AWE plc, Reading, United Kingdom

PVP2011-57685: CFD MODELING OF BLAST LOADS FROM A PRESSURE VESSEL FAILURE
M. Edel, Baker Engineering and Risk Consultants, San Antonio, TX, USA; M. Novia, Baker Hughes, Houston, TX, USA; D. Ketchum, J. Geng, Baker Engineering and Risk Consultants, San Antonio, TX, USA

PVP2011-57210: THE DYNAMIC LOAD FACTOR OF PRESSURE VESSELS IN DEFLAGRATION EVENTS
Y. Xu, K.-J. Young, DuPont, Wilmington, DE, USA

SESSION 2.2L (MF-4-5)
Tuesday, July 19, 10:30 am – 12:15 pm, Harborside D

WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT V
Sponsored by Materials & Fabrication Technical Committee

Developed by: E. Keim, AREVA NP GmbH, Erlangen, Germany; M. Mochizuki, Osaka University, Suita, Japan

Chair: M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA

Co-Chair: H. J. Rathbun, U. S. Nuclear Regulatory Commission, Washington, DC, USA

PVP2011-57329: MODELLING THE INTERPASS TEMPERATURE EFFECT ON RESIDUAL STRESS IN LOW TRANSFORMATION TEMPERATURE STAINLESS STEEL WELDS
H. Dai, R. J. Moat, P. J. Withers, University of Manchester, Manchester, United Kingdom

PVP2011-57720: MEASUREMENT OF WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT V

Developed by: A. DeWald, Hill Engineering, LLC, Rancho Cordova, CA, USA; M. R. Hill, University of California, Davis, Davis, CA, USA; E. Willis, EPRI, Palo Alto, CA, USA

PVP2011-57434: RESIDUAL STRESS BY X-RAY DIFFRACTION AND MICROSTRUCTURE FOR MULTI-PASS GIRTH WELDED PIPE JOINT OF AUSTENITIC STAINLESS STEEL TYPE 316L
T. Hashimoto, S. Okano, Osaka University, Suita, Japan; S. Hirano, Kansai Electric Power Co., Inc., Fukui, Japan; M. Mochizuki, K. Nishimoto, Osaka University, Suita, Japan
SESSION 2.2M (MF-2-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Laurel A
THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT II
Sponsored by Materials & Fabrication Technical Committee
Developed by: D. Scarth, Kinetics Inc., Toronto, ON, Canada
Chair: D. Scarth, Kinetics Inc., Toronto, ON, Canada
Co-Chair: S. Xu, Kinetics Inc., Toronto, ON, Canada
PVP2011-57624: EFFECT OF HYDROGEN CONCENTRATION ON THE THRESHOLD STRESS INTENSITY FACTOR FOR DELAYED HYDRIDE CRACKING IN ZR-2.5NB PRESSURE TUBES
G. Shek, Kinetics Inc., Toronto, ON, Canada; D. Metzger, Atomic Energy of Canada Ltd., Mississauga, ON, Canada
PVP2011-57633: ADJUSTMENTS TO MASTER CURVE METHODOLOGY AND DEVELOPMENT OF FRACTURE TOUGHNESS ESTIMATION
R. Kulka, Frazer-Nash Consultancy, Dorking, Surrey, United Kingdom
PVP2011-57634: DEVELOPMENT OF FRACTURE TOUGHNESS TESTING OF THIN-WIDTH SEN (B) SPECIMENS
R. Kulka, Frazer-Nash Consultancy, Dorking, Surrey, United Kingdom
PVP2011-57715: ELASTIC-PLASTIC CONSTRAINT ANALYSIS OF SEMI-ELLIPSTIC SURFACE CRACKS IN X100 PIPELINE STEEL
Z. Wang, R. Zhang, Jiangsu University, Zhenjiang, Jiangsu Province, China; Y.-J. Chao, University of South Carolina, South Carolina, SC, USA; P.-S. Lam, Savannah River National Laboratory, Aiken, SC, USA

SESSION 2.2N (MF-25-2)
Tuesday, July 19, 10:30 am – 12:15 pm, Laurel B
COMPOSITE MANUFACTURING TECHNOLOGIES FOR VESSELS AND PIPING
Sponsored by Materials & Fabrication and Design & Analysis Technical Committees
Developed by: H. Faria, INEGI, Porto, Portugal; S.-S. Pang, Louisiana State University, Baton Rouge, LA, USA
Chair: H. Faria, INEGI, Porto, Portugal
Co-Chair: P. Mertiny, University of Alberta, Edmonton, AB, Canada
PVP2011-57540: RING WINDING TECHNOLOGY—INCREASED PROCESS EFFICIENCY AND EFFECTS ON THE MECHANICAL PROPERTIES OF RING SPECIMENS
M. Paessler, A. Miaris, Institut fuer Verbundwerkstoffe GmbH, Kaiserslautern, Germany; R. Schledjewski, Montanuniversitaet Leoben Chair in Processing of Composites, Leoben, Austria; P. Mitschang, Institut fuer Verbundwerkstoffe GmbH, Kaiserslautern, Germany
PVP2011-58008: SELF SEALING PNEUMATIC PRESSURE VESSEL WITH PASSIVE AND ACTIVE METHODS
D. Hurley, D. Huston, University of Vermont, Burlington, VT, USA
PVP2011-58082: HEALABLE AND REPEATABLE ADHESIVE BONDED JOINT
G. Ji, Z. Ouyang, G. Li, Louisiana State University, Baton Rouge, LA, USA; S. Ibekwe, Southern University and A&M College, Baton Rouge, LA, USA; S.-S. Pang, Louisiana State University, Baton Rouge, LA, USA
PVP2011-57543: MODELING THE IMPREGNATION PROCESS OF A SIPHON IMPREGNATION SYSTEM DURING FILAMENT WINDING
A. Miaris, M. Paessler, Institut fuer Verbundwerkstoffe GmbH, Kaiserslautern, Germany; R. Schledjewski, Montanuniversitaet Leoben Chair in Processing of Composites, Leoben, Austria; P. Mitschang, Institut fuer Verbundwerkstoffe GmbH, Kaiserslautern, Germany

SESSION 2.2Q (NDE-10-1)
Tuesday, July 19, 10:30 am – 12:15 pm, Iron
NDE FOR CORROSION ASSESSMENT
Sponsored by NDE Engineering Division, and the PVP Codes & Standards, Materials & Fabrication, and Operations, Applications & Components Technical Committees
Developed by: M. Carte, Olympus NDT, Houston, Texas, USA
Chair: W. T. Springer, University of Arkansas, Fayetteville, AR, USA
PVP2011-5804: CORROSION IN THE REFINING AND PROCESS INDUSTRIES (Presentation Only)
Marc McConnell, Pinnacle Asset Integrity Services, Pearland, TX, USA
PVP2011-58046: DETECTION OF CORROSION ON RAISED FACED FLANGES IN-SITU DURING OPERATION USING ULTRASONIC FLAW DETECTION (Presentation Only)
M. Sens, Petrochem Inspection, Pasadena, TX, USA
PVP2011-58047: CORROSION MAPPING USING PHASED ARRAY ULTRASONICS (Presentation Only)
M. Carte, Olympus NDT, Houston, Texas, USA
PVP2011-58048: DETECTION OF CREVICE CORROSION BETWEEN PIPING AND PIPE SUPPORTS (Presentation Only)
M. Adams, Spectrum Sales & Services, The Woodlands, TX, USA

SESSION 2.2P (OAC-6-4)
Tuesday, July 19, 10:30 am – 12:15 pm, James
REPAIR WELDING GUIDELINES II
Sponsored by Operations, Applications & Components Technical Committee
Developed by: Y. Shoji, Chiyoda Advanced Solutions Corp., Yokohama, Japan; A. M. Cheta, Shell Projects and Technology, Paris, France
Chair: T. Tahara, Petroleum Association of Japan, Tokyo, Japan
Co-Chair: Y. Shoji, Chiyoda Advanced Solutions Corp., Yokohama, Japan
PVP2011-57142: GUIDELINE FOR REPAIR WELDING OF PRESSURE EQUIPMENT IN REFINERY AND CHEMICAL PLANTS PART 4: REPAIR WELDING FOR SPECIFIC MATERIALS- STAINLESS STEEL, CLAD STEEL AND DISSIMILAR JOINTS
T. Okazaki, Taseto Co. Ltd., Fujisawa, Kanagawa, Japan; R. Kayano, Japan Steel Works, Ltd., Muroran, Hokkaido, Japan; S. Niimoto, Sumitomo Heavy Industries Process Equipment Co., Ltd., Ehime, Japan; T. Hoshika, Sumitomo Chemical Co., Ltd., Niihama, Ehime, Japan
PVP2011-57788: GUIDELINE FOR REPAIR WELDING OF PRESSURE EQUIPMENT IN REFINERIES AND CHEMICAL PLANTS—PART 5: REPAIR WELDING FOR SPECIFIC MATERIALS HEAT RESISTANCE
ALLOY AND NON-FERROUS METALS
H. Watanabe, Kobe Steel, Ltd., Fujisawa, Kanagawa, Japan; K. Shiga, Shinko Plantech Co., Ltd., Yokohama, Kanagawa-ken, Japan; A. Ohno, Mitsui Chemicals, Inc., Osaka, Osaka, Japan

PVP2011-57281: GUIDELINES FOR WELDING REPAIRS OF PRESSURE EQUIPMENT IN REFINERIES AND CHEMICAL PLANTS—PART 6: MATERIAL DEGRADATION AND WELDING REPAIRS
T. Kiso, JGC Corporation, Yokohama, Kanagawa, Japan; R. Kayano, Japan Steel Works, Ltd., Muroran, Hokkaido, Japan; E. Nagashima, Toyo Engineering Corporation, Narashino, Chiba, Japan; Y. Hara, Waseda University Research Institute for Materials Science and Technology, Tokyo, Japan

SESSION 2.2Q (OAC-4-2)
Tuesday, July 19, 2:00 pm – 3:45 pm, Kent A
TOXIC SUBSTANCE PACKAGING—PERFORMANCE EVALUATION II
Sponsored by Operations, Applications & Components Technical Committee
Developed by: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA
Chair: A. C. Smith, Savannah River National Laboratory (Retired), North Augusta, SC, USA
Co-Chair: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA
PVP2011-57203: RADIOACTIVE MATERIAL PACKAGING TORQUE REQUIREMENTS COMPLIANCE
R. W. Watkins, D. R. Leduc, Savannah River National Laboratory, Aiken, SC, USA; A. C. Smith, Savannah River National Laboratory (Retired), North Augusta, SC, USA
PVP2011-57999: SEVERE TRANSPORTATION ACCIDENTS: DO USED NUCLEAR FUEL TRANSPORTATION PACKAGES SURVIVE REAL WORLD ACCIDENTS?
C. Bajwa, E. Easton, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; H. Adkins, J. Cuta, N. Klymyshyn, S. Suffield, Pacific Northwest National Laboratory, Richland, WA, USA
PVP2011-58031: THERMAL MODELING ANALYSIS OF SRS 70 TON CASK
Si Lee, J. M. Jordan, S. Hensel, Savannah River National Laboratory, Aiken, SC, USA
PVP2011-57688: DYNAMIC STRUCTURAL ANALYSIS OF THE 9979 TYPE AF SHIPPING PACKAGE
Z. Han, Vic Shah, Yung Y. Liu, Argonne National Laboratory, Argonne, IL, USA

SESSION 2.2R (SPC-1-5)
Tuesday, July 19, 2:00 pm – 3:45 pm, Kent B
Student Paper Symposium and Competition BS/MS—3
Sponsored by PVP Division Senate
Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium
PVP2011-57295: THEORETICAL AND EXPERIMENTAL ANALYSIS OF THE NON-LINEAR CHARACTERISTICS OF AN AIR SPRING WITH AN ORIFICE
Y. Yokota, T. Asami, T. Ise, I. Honda, University of Hyogo, Himeji-shi, Hyogo, Japan; H. Sakamoto, Tokkyokiki Corporation, Amagasaki-shi, Hyogo, Japan

SESSION 2.3B (CS-23-3)
Tuesday, July 19, 2:00 pm – 3:45 pm, Harborside E
PANEL SESSION: RECENT DEVELOPMENTS IN ASME CODE SECTION III—1
Sponsored by Codes & Standards Technical Committee
Developed by: R. Barnes, Anric Enterprises Inc., Toronto, Canada
Chair: R. Barnes, Anric Enterprises Inc., Toronto, Canada
Co-Chair: K. Manoly, U. S. Nuclear Regulatory Commission, Washington, DC, USA
Panelists:
R. Barnes, Anric Enterprises Inc., Toronto, Canada
K. Morton, Idaho National Laboratory, Idaho Falls, ID, USA
K. Sowder, Idaho National Laboratory, Idaho Falls, ID, USA
J. Nestell, MPR Associates, Inc., Alexandria, VA, USA

SESSION 2.3C (CS-18-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, Laurel C
REPAIR, REPLACEMENT AND MITIGATION FOR FITNESS-FOR-SERVICE ACTIVITIES
Sponsored by Codes & Standards Technical Committee
Developed by: R. Yonekawa, Bechtel Power Corporation, San Francisco, CA, USA; K. Dozaki, Japan Atomic Power Company, Tokyo, Japan
PVP2011-57493: MITIGATION OF STRESS CORROSION CRACKING BASED ON RESIDUAL STRESS IMPROVEMENT BY WATER JET PENING (WJP)
M. Fukaya, Hitachi, Ltd., Hitachinaka, Ibaraki, Japan; F. Yoshikubo, Hitachi-GE Nuclear Energy, Ltd., Hitachi-shi, Ibaraki, Japan; H. Hatoh, Y. Matsui, Hitachi, Ltd., Hitachi-shi, Ibaraki, Japan; Y. Tamura, Toyo University, Kawagoe, Saitama, Japan; Y. Matsumoto, University of Tokyo, Bunkyo-ku, Tokyo, Japan

PVP2011-57495: APPLICATION OF USP TO STEAM GENERATOR NOZZLES
N. Mori, T. Yamamoto, M. Eto, M. Narita, J. Fujita, A. Kamiyoshi, Mitsubishi Heavy Industries, Ltd., Kobe, Japan

PVP2011-57496: APPLICATION OF L-SIP TO PRESSURIZER NOZZLES
M. Watanabe, T. Ueda, K. Okimura, K. Wakabayashi, T. Akaba, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; K. Kamo, T. Ohta, Mitsubishi Heavy Industries, Ltd., Takasago, Japan; H. Kobayashi, S. Nakama, Plant Maintenance Office, Tsuruga Power Station, The Japan Atomic Energy Company, Fukui, Japan

PVP2011-57501: LASER PENING TECHNOLOGY AS THE SCC MITIGATION FOR REACTOR INTERNALS
H. Miyasaka, M. Yoda, I. Chida, T. Ishigaki, Toshiba Corporation, Yokohama, Japan

PVP2011-57675: PROPOSED ASME SECTION III CODE—REDUCTION OF NDE WELD REPAIRS
S. Ranganathan, XGEN Engineering, San Jose, CA, USA; O. F. Hedden, Codes and Standards Consulting, Fort Worth, TX, USA; S. L. McCracken, S. M. Swilley, Y. Sekinuma, Electric Power Research Institute, Charlotte, NC, USA; C. D. Cowfer, Scandpower Risk Management, Inc, Richland, WA, USA

SESSION 2.3D (CS-16-2)
Tuesday, July 19, 2:00 pm – 3:45 pm, Laurel D
HIGH TEMPERATURE CODES: CREEP-FATIGUE
Sponsored by Codes & Standards Technical Committee
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; A. Saxena, University of Arkansas, Fayetteville, AR, USA
Chair: M. Brumovsky, Nuclear Research Institute Rez plc, Rez, Czech Republic
Co-Chair: C. M. Davies, Imperial College London, London, United Kingdom

PVP2011-57478: CRACK INITIATION/PROPAGATION OF PERFORATED PLATE UNDER DISPLACEMENT-CONTROLLED FATIGUE TEST AT ELEVATED TEMPERATURE
O. Watanabe, University of Tsukuba, Tsukuba, Ibaraki, Japan; T. Akiyama, Hitachi Construction Machinery, Tsuchiura, Ibaraki, Japan; A. Matsuda, University of Tsukuba, Tsukuba, Ibaraki, Japan

PVP2011-57756: HIGH TEMPERATURE DESIGN AND DAMAGE EVALUATION OF MOD.9CR-1MO STEEL HEAT EXCHANGER
H.-Y. Lee, J.-B. Kim, Y.-B. Lee, J.-H. Eoh, Korea Atomic Energy Research Institute, Daejeon, Daejeon, Korea (Republic); H.-Y. Park, AD Solution, Ltd., Daejeon, Daejeon, Korea (Republic)

T. Lebarbè, S. Marie, D. Hyvert, CEA, GIF sur Yvette, France; O. Gelineau, D. Bonne, Areva NP, Lyon, France; F. De La Burgade, Areva TA, St Paul Les Durance, France

PVP2011-57620: PRESENTATION OF FP7 MATTER PROJECT: GENERAL OVERVIEW
T. Lebarbè, S. Marie, CEA, GIF sur Yvette, France; C. Fazio, KIT, Eggenstein Leopoldshafen, Germany; S. Gavrilov, SCK-CEN, Mol, Belgium; P. Agostini, ENEA, Camugnano, Italy

SESSION 2.3E (SE-3-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, Falkland
SEISMIC ANALYSIS AND TESTING OF PIPING
Sponsored by Seismic Engineering Technical Committee
Developed by: G. Slagis, G C Slagis Associates, Pleasant Hill, CA, USA
Chair: G. Slagis, G C Slagis Associates, Pleasant Hill, CA, USA
Co-Chair: S. A. Karamanos, University of Thessaly, Volos, Greece

PVP2011-57560: INVESTIGATION OF THE SEISMIC SAFETY CAPACITY OF AGED PIPING SYSTEM—SHAKE TABLE TEST ON PIPING SYSTEMS WITH WALL THINNING BY E-DEFENSE
I. Nakamura, National Research Institute for Earth Science and Disaster Prevention, Tsukuba, Ibaraki, Japan; A. Otani, Y. Sato, IHI Corporation, Yokohama, Kanagawa, Japan; H. Takada, K. Takahashi, T. Shibutani, Yokohama National University, Yokohama, Kanagawa, Japan

PVP2011-57580: FAILURE ANALYSIS OF PIPING SYSTEMS WITH THINNED ELBOWS ON TRI-AXIAL SHAKE TABLE TESTS
T. Shibutani, Yokohama National University, Yokohama, Kanagawa, Japan; I. Nakamura, National Research Institute for Earth Science and Disaster Prevention, Tsukuba, Ibaraki, Japan; A. Otani, IHI Corporation, Yokohama, Kanagawa, Japan

PVP2011-57146: CONSIDERATION ON SEISMIC DESIGN MARGIN OF ELBOW IN PIPING
A. Otani, IHI Corporation, Yokohama, Kanagawa, Japan; I. Nakamura, National Research Institute for Earth Science and Disaster Prevention, Tsukuba, Ibaraki, Japan; H. Takada, M. Shiratori, Yokohama National University, Yokohama, Kanagawa, Japan

SESSION 2.3F (FSI-2-6)
Tuesday, July 19, 2:00 pm – 3:45 pm, Galena
FIV IN HEAT EXCHANGER TUBE ARRAYS II
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: T. Nakamura, Osaka Sangyo University, Daito, Osaka, Japan; M. Hassan, University of New Brunswick, Fredericton, NB, Canada
Chair: M. Paidoussis, McGill University, Montreal, QC, Canada
Co-Chair: K. Fujita, Osaka City University, Osaka, Japan

PVP2011-57257: DEVELOPMENT OF A NUMERICAL MODEL TO REPRESENT TWO-PHASE FLOW CONFIGURATIONS IN A TUBE BUNDLE
SESSION 2.3G (CT-6-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, Heron
ANALYSIS OF THREADED FASTENERS
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by:  S. Nassar, Oakland University, Rochester, MI, USA
Chair: S. Nassar, Oakland University, Rochester, MI, USA
Co-Chair:  T. Fukuoka, Kobe University, Kobe, Japan
PVP2011-57118: ANALYSIS OF THE TIGHTENING PROCESS AND THE CYCLIC STRESS AMPLITUDE OF STUDS AND TAP BOLTS
T. Fukuoka, M. Nomura, Y. Takeda, U. Mori, Kobe University, Kobe, Japan
PVP2011-57132: DEVELOPMENT OF TIGHTENING TORQUE FOR SELF TAPPING AND THREAD ROLLING FASTENERS
A. Alkelani, B. Housari, BMW Manufacturing Co., LLC, Greer, SC, USA
PVP2011-57183: CONCENTRATION AT THE ROOT OF THE BOLT UNDER TWIST WITH DEFORMABLE FLANGES
Y. Shoji, Chiyoda Advanced Solutions Corp., Yokohama, Japan; T. Sawa, Hiroshima University, Higashihiroshima, Japan
PVP2011-57594: STUDY OF PULLOUT PERFORMANCE OF SELF-TAPPING SCREWS FOR HUMAN BONE
Z. Wu, S. Nassar, X. Yang, Oakland University, Rochester, MI, USA

SESSION 2.3H (DA-4-3)
Tuesday, July 19, 2:00 pm – 3:45 pm, Harborside A
CRACK PROPAGATION ANALYSIS
Sponsored by Design & Analysis Technical Committee
Developed by:  Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan
Chair: Y.-J. Kim, Korea University, Seoul, Korea (Republic)
Co-Chair:  P. Gilles, AREVA, Paris La Défense, France
PVP2011-57362: PLASTIC AMPLIFICATION BETA OF THE STRESS INTENSITY FACTOR FOR UNDERCLAD DEFECT IN A VESSEL SUBMITTED TO A PRESSURISED THERMAL SHOCK
S. Marie, CEA, Gif sur Yvette, France
PVP2011-57582: CONSIDERATION OF THERMALLY INDUCED BENDING LOAD IN FAILURE ASSESSMENT OF PIPING COMPONENTS
I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany; W. Mayinger, Fennovoima, Helsinki, Finland
PVP2011-57893: SMALL BORE PIPE BRANCH CONNECTIONS FATIGUE
J. Economou, Y. Thebault, Electricite de France, Saint-Denis, France; P.-E. Costes, Electricite de France, Marseille, France
PVP2011-57233: SHAKEDOWN AND FATIGUE EVALUATIONS OF OVERLAY CLADDING ON REACTOR PRESSURE VESSELS
S. Asada, H. Suzuki, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; T. Saruwatari, Kyushu Electric Power Co., Inc., Fukuoka, Fukuoka, Japan
PVP2011-58062: APPLICATION OF AN IMPROVED SHELL THEORY IN FAILURE ANALYSIS OF PRESSURE VESSELS
R. Liu, J. Zhao, Carleton University, Ottawa, ON, Canada; X. Wu, National Research Council Canada, Ottawa, ON, Canada

SESSION 2.3I (DA-3-3)
Tuesday, July 19, 2:00 pm – 3:45 pm, Essex C
D & A OF PIPING & PIPING COMPONENTS III
Sponsored by Design & Analysis Technical Committee
Developed by:  S. Iyer, Atomic Energy of Canada, Ltd., Miller’s Grove, Ontario, Canada; N. Zobeiry, Atomic Energy of Canada, Ltd., Mississauga, ON, Canada
Chair: S. Iyer, Atomic Energy of Canada, Ltd., Miller’s Grove, Ontario, Canada
Co-Chair:  N. Zobeiry, Atomic Energy of Canada, Ltd., Mississauga, ON, Canada
PVP2011-57297: DESIGN OF A LARGE DIAMETER STEEL REINFORCED PLASTIC PIPE
J. Shi, J. Rao, J. Shi, P. Xu, Zhejiang University, Hangzhou, Zhejiang, China; T. Shao, H. Shao, D. Chen, G. Li, X. He, Huangsheng Pipe Industrial Group Co. Ltd., Wenzhou, Zhejiang, China
PVP2011-57360: STEAM AND FEEDWATER PIPING ASSESSMENT OUTSIDE THE CONTAINMENT AT METSAMOR NPP
J. Rydlova, J. Fetter, Nuclear Research Institute Rez plc, Rez, Czech Republic
PVP2011-57370: DETERMINATION OF PIPE WHIP RESTRAINT LOCATION TO PREVENT PLASTIC HINGE FORMATION IN HIGH ENERGY PIPING SYSTEMS
S. Vongmongkol, Westinghouse Electric Company LLC, Charlotte, NC, USA; A. Faal-Amiri, H. Srivastava, Westinghouse Electric Company LLC, San Jose, CA, USA
PVP2011-57371: ACOUSTIC FATIGUE ASSESSMENT OF PIPING SYSTEM COMPONENTS BY FINITE ELEMENT ANALYSIS
A. H. Dweib, WorleyParsons, Atyrau, Kazakhstan
PVP2011-57821: CONSIDERATIONS IN A COMPREHENSIVE ASME B31.3 ANALYSIS OF THE RESTRAINT INTRODUCED BY PIPING SUPPORT FRICITION (Presentation Only)
D. K. Williams, NuScale Power, Inc., Atnauv Juarez, Mexico; B. S. Antaal, Advent Engineering, San Ramon, CA, USA

SESSION 2.3J (FSI-3-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, Essex B
FLUID-STRUCTURE INTERACTION IN TUBE BUNDLES
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by:  M. Fischer, Technical Consultant, Munich, Germany
Chair: M. Fischer, Technical Consultant, Munich, Germany
Co-Chair:  S. Itoh, Okinawa National College of Technology, Okinawa, Japan
Y. Jus, EDF, Chatou, France; E. Longatte, EDF R&D, Chatou, France; J.-C. Chassaing, P. Sagaut, UPMC Univ Paris 6, Paris, France

**PVP2011-57578**: FLUID STRUCTURE INTERACTION MODELLING FOR THE VIBRATION OF TUBE BUNDLES, PART I: ANALYSIS OF THE FLUID FLOW IN A TUBE BUNDLE
Q. Desbonnets, D. Broc, CEA Saclay, Gif-sur-Yvette, France

**PVP2011-57586**: FLUID STRUCTURE INTERACTION MODELLING FOR THE VIBRATION OF TUBE BUNDLES, PART II: HOMOGENIZATION METHOD BASED ON THE NAVIER-STOKES EQUATIONS
D. Broc, Q. Desbonnets, CEA Saclay, Gif-sur-Yvette, France

**PVP2011-57710**: LARGE SCALE DYNAMIC RESPONSE ANALYSIS OF ROD BUNDLES IN FLUID USING PARTITIONED COUPLING TECHNIQUE
S. Kataoka, JGC Corporation, Yokohama, Japan; S. Minami, H. Kawai, S. Yoshimura, University of Tokyo, Tokyo, Japan

**PVP2011-57724**: SOLID-LIQUID INTERACTIONS IN SLURRY HAMMER (Presentation Only)
H. Takahashi, K. Inaba, K. Nguon, K. Kishimoto, Tokyo Institute of Technology, Tokyo, Japan

**SESSION 2.3K (HP-3-2)**
*Tuesday, July 19, 2:00 pm – 3:45 pm, Essex A*

**STRUCTURAL RESPONSE OF VESSEL AND PIPING TO GASEOUS OR HIGH-EXPLOSIVE DETONATIONS—I**
Sponsored by High-Pressure Technology Technical Committee

Developed by: E. Rodriguez, Global Nuclear Network Analysis, LLC, Santa Fe, NM, USA; R. Nickell, Applied Science & Technology, San Diego, CA, USA

Chair: E. Rodriguez, Global Nuclear Network Analysis, LLC, Santa Fe, NM, USA

Co-Chair: K. Simpson, ExxonMobil Chemical Company, Baton Rouge, LA, USA

**PVP2011-57278**: FORCES ON PIPING BENDS DUE TO PROPAGATING DETONATIONS
T. Ligon, D. Gross, Dominion Engineering, Reston, VA, USA; J. E Shepherd, California Institute of Technology, Pasadena, CA, USA

**PVP2011-57399**: A LOWER-BOUND TEMPERATURE AND STRAIN-RATE-DEPENDENT STRENGTH MODEL FOR AISI 304 SS
P. Follansbee, Saint Vincent College, Latrobe, PA, USA; D. Gross, Dominion Engineering, Reston, VA, USA; E. Rodriguez, Global Nuclear Network Analysis, LLC, Santa Fe, NM, USA; J. Minichello, Bechtel National, Inc., Richland, WA, USA

**PVP2011-57873**: LONG-TERM AND HIGH THROUGHPUT OPERATION OF A DETONATION CHAMBER BY UTILIZING SHAKEDOWN PHENOMENON UNDER INITIAL OVERLOAD IN PLASTIC RANGE
J. K. Asahina, Kobe Steel, Ltd., Nada-ku, Kobe, Japan; R. Nickell, Applied Science & Technology, San Diego, CA, USA; E. Rodriguez, Global Nuclear Network Analysis, LLC, Santa Fe, NM, USA; T. Shirakura, Transnuclear, Ltd., Tokyo, Japan

**SESSION 2.3L (MF-4-6)**
*Tuesday, July 19, 2:00 pm – 3:45 pm, Harborside D*

**WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT VI**

Sponsored by Materials & Fabrication Technical Committee

Developed by: P. Gilles, AREVA, Paris La Défense, France; B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

Chair: Z. Feng, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Co-Chair: E. Keim, AREVA NP GmbH, Erlangen, Germany

**PVP2011-57193**: COMPLEX CRACK STABILITY IN DISSIMILAR METAL WELDS: BACKGROUND AND TEST PLAN
D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; P. Scott, R. Olson, A. Cox, Battelle, Columbus, OH, USA

**PVP2011-57676**: DEVELOPMENT OF IN SITU TECHNIQUES FOR TORSION AND TENSION TESTING IN HYDROGEN ENVIRONMENT
J.-A. Wang, F. Ren, W. Zhang, Z. Feng, L. Anovitz, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Z. Chen, Michigan State University, East Lansing, MI, USA; H. Xu, Imtech Corp, Knoxville, TN, USA

**PVP2011-57744**: ALTERNATING SLANT MODE OF THE CRACK PROPAGATION IN DUCTILE FLAT PLATES
L. Xue, Northwestern University, Evanston, IL, USA

**PVP2011-57571**: AN ENGINEERING METHOD FOR ASSESSING THE EFFECTS OF NEUTRON IRRADIATION ON THE FRACTURE TOUGHNESS OF RPV STEELS
Z. Chen, Jiangsu University, Zhenjiang, Jiangsu, China; L. Y. Wang, Jiangsu University of Science and Technology, Zhenjiang, Jiangsu, China;
Y.-J. Chao, University of South Carolina, South Carolina, SC, USA; P.-S. Lam, Savannah River National Laboratory, Aiken, SC, USA; X. S. Jin, Southwest Jiaotong University, Chengdu, Sichuan, China

SESSION 2.3N (MF-21-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, Laurel B
ADVANCED MANUFACTURING AND MATERIAL TECHNOLOGY FOR NEW NUCLEAR BUILDS
Sponsored by Materials & Fabrication Technical Committee
Developed by: B. Burdett, Rolls-Royce, Derby, United Kingdom
Chair: B. Burdett, Rolls-Royce, Derby, United Kingdom
Co-Chair: A. Sherry, University of Manchester, Manchester, United Kingdom

PVP2011-57563: THE DEVELOPMENT OF PROCESSING TO MECHANICAL PROPERTY RELATIONSHIPS VIA QUANTITATIVE MICROSTRUCTURE ASSESSMENT IN LOW ALLOY STEEL HEAVY SECTION FORGING MATERIALS
D. Cogswell, Rolls-Royce, Derby, Derbyshire, United Kingdom

PVP2011-57323: IMPROVEMENT OF CONTACT STRENGTH FOR CERAMICS BY MEANS OF SHOT PEENING AND CRACK HEALING
K. Takahashi, Yokohama National University, Yokohama, Japan

PVP2011-57892: SELECTIVE LASER MELTING OF OXIDE DISPERSION STRENGTHENED STEELS
T. Boegelein, A. Rao, A. Jones, G. J. Tatlock, University of Liverpool, Liverpool, United Kingdom

PVP2011-57194: HOT ISOSTATIC PRESSING OF INCONEL TYPE 600 AND 690 POWDERS FOR PWR APPLICATIONS
T. Jelfs, B. Burdett, Rolls-Royce, Derby, Derbyshire, United Kingdom

SESSION 2.3O (MF-9-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, Iron
WALL THINNING CAUSED BY FLOW ACCELERATED CORROSION I
Sponsored by Materials & Fabrication and Codes & Standards Technical Committees
Developed by: K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo; M. Naitoh, Institute of Applied Energy, Tokyo, Japan
Chair: H. Miyano, Hosei University, Tokyo, Japan
Co-Chair: A. Miessi, Structural Integrity Associates, San Jose, CA, USA

PVP2011-58023: REVIEW OF PIPE WALL THINNING MECHANISM STUDY AND ITS NATIONAL PROJECT IN JAPAN
H. Miyano, Hosei University, Tokyo, Japan; M. Matsumoto, M. Takizawa, Mitsubishi Research Institute, Inc., Tokyo, Japan; N. Sekimura, University of Tokyo, Tokyo, Japan

PVP2011-57120: VALIDATION OF CODE SYSTEM DRAWTHREE-FAC FOR EVALUATION OF WALL THINNING DUE TO FLOW ACCELERATED CORROSION BY PWR FEED WATER PIPING ANALYSIS
M. Naitoh, S. Uchida, H. Okada, The Institute of Applied Energy, Tokyo, Japan; S. Koshizuka, University of Tokyo, Tokyo, Japan

SESSION 2.3P (OAC-6-1)
Tuesday, July 19, 2:00 pm – 3:45 pm, James
LIFE CYCLE MANAGEMENT
Sponsored by Operations, Applications & Components Technical Committee
Developed by: Y. Shoji, Chiyoda Advanced Solutions Corp., Yokohama, Japan; A. M. Cheta, Shell Projects and Technology, Paris, France
Chair: Y. Shoji, Chiyoda Advanced Solutions Corp., Yokohama, Japan
Co-Chair: G. Bezdkian, Georges Bezdkian Consulting Co., Le Vesinet, France

PVP2011-57010: THE COMBINATION OF MODERN SEALING MATERIALS TO ASSIST IN THE REDUCTION OF FLANGE DETERIORATION
R. Currie, Flexitallic Limited, Cleckheaton, West Yorks, United Kingdom

PVP2011-57305: A REMAINING LIFE ASSESSMENT FOR SHELL-TO-SKIRT JUNCTION OF A COKE DRUM WITH CRACKS
M. Oka, S.H.I. Examination & Inspection, Ltd., Saijo, Ehime, Japan; H. Ambarita, H. Fujiki, M. Daimaru, Muroran Institute of Technology, Muroran, Hokkaido, Japan; H. Kobayashi, Osaka University, Toyonaka, Osaka, Japan

SESSION 2.3Q (OAC-4-3)
Tuesday, July 19, 2:00 pm – 3:45 pm, Kent A
TOXIC SUBSTANCE PACKAGING—DESIGN & TESTING
Sponsored by Operations, Applications & Components Technical Committee and the ASME Nuclear Engineering Division
Developed by: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA
Chair: R. W. Watkins, Savannah River National Laboratory, Aiken, SC, USA
Co-Chair: A. C. Smith, Savannah River National Laboratory (Retired), North Augusta, SC, USA

PVP2011-57006: HYDROGEN CONCENTRATIONS DURING STORAGE OF 3013 OXIDE SAMPLES
S. Hensel, N. Askew, Savannah River National Laboratory, Aiken, SC, USA; J. Laurinat, Savannah River Nuclear Solutions, Aiken, SC, USA

PVP2011-57830: 3-DIMENSIONAL HIGH-SPEED PHOTOGRAPHIC ANALYSIS OF RAM PACKAGE STRUCTURAL TESTING (Presentation Only)
M. Feldman, Oak Ridge National Laboratory, Knoxville, TN, USA; C. Caldwell, Envision Engineering, Oak Ridge, TN, USA

PVP2011-58001: ROAD TUNNELS AND FIRES: IMPLICATIONS FOR THE TRANSPORT OF USED NUCLEAR FUEL
T. Meshii, University of Fukui, Fukui, Fukui, Japan
SESSION 2.3R (SPC-1-6)
Tuesday, July 19, 2:00 pm – 3:45 pm, Kent B
STUDENT PAPER SYMPOSIUM AND COMPETITION PHD—3
Sponsored by PVP Division Senate

Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium

PVP2011-57261: J AND CTOD ESTIMATION PROCEDURE FOR CIRCUMFERENTIALLY CRACKED PIPES UNDER COMBINED BENDING AND INTERNAL PRESSURE
L. F. S. Parise, C. Ruggieri, University of Sao Paulo, Sao Paulo, Brazil

PVP2011-57587: LIMIT LOAD DETERMINATION AND MATERIAL CHARACTERIZATION OF CRACKED POLYETHYLENE MITER PIPE BENDS
T. Elbagory, Helwan University, Cairo, Egypt; M. Y. A. Younan, American University in Cairo, Cairo, Egypt; H. Sallam, Jazan University, Jazan, Saudi Arabia

PVP2011-57654: CHARACTERISATION OF THE RESIDUAL STRESS FIELD AND MECHANICAL PROPERTIES OF A NARROW-GAP GIRTH-WELDED STAINLESS STEEL PIPE AND SUBSEQUENT APPLICATION TO A NUMERICAL MODEL
R. J. A. McCluskey, A. Sherry, M. R. Goldthorpe, University of Manchester, Manchester, United Kingdom

PVP2011-57896: FLOWFORCE IN SAFETY RELIEF VALVE UNDER INCOMPRESSIBLE, COMPRESSIBLE AND TWO-PHASE FLOW CONDITIONS
V. Kourakos, von Karman Institute for Fluid Dynamics, Rhode-St-Genese, Belgium; S. Chaban, Technical Center for Mechanical Engineering, CETIM, Nantes, France; P. Rambaud, J.-M. Buchlin, von Karman Institute for Fluid Dynamics, Rhode-St-Genese, Belgium

SESSION 2.3S (TT-1-7)
Tuesday, July 19, 2:00 pm – 3:45 pm, Harborside B
TECHNICAL TUTORIAL: UNCERTAINTY ASSESSMENT IN ENGINEERING DESIGN AND ANALYSIS—PART I
Sponsored by the PVP Division Conference Committee

Developed by: M. Nitzel, M. E. Nitzel Engineering Services, Nampa, ID, USA
Chair: M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA
Presented by: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA

SESSION 2.3T (CT-15-3)
Tuesday, July 19, 2:00 pm – 3:45 pm, Harborside Foyer
SOFTWARE DEMONSTRATION FORUM III
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: J. F. Cory, Jr., Siemens PLM Software, Milford, OH, USA

Block 2.4: Tuesday, July 19 (4:00 pm – 5:45 pm)

SESSION 2.4B (CS-23-10)
Tuesday, July 19, 4:00 pm – 5:45 pm, Harborside E
PANEL SESSION: RECENT DEVELOPMENTS IN ASME CODE SECTION III—2
Sponsored by Codes & Standards Technical Committee
Developed by: R. Barnes, Anric Enterprises Inc., Toronto, Canada
Chair: R. Barnes, ANRIC Enterprises Inc
Co-Chair: K. Manoly, U. S. Nuclear Regulatory Commission, Washington, DC, USA
Panelists:
T. Adams, Stevenson & Associates, Cleveland, OH, USA
J. Nestell, MPR Associates, Inc., Alexandria, VA, USA
R. Jetter, Consultant, Pebble Beach, CA, USA
D. Terao, U. S. Nuclear Regulatory Commission, Washington, DC, USA

SESSION 2.4C (CS-13-1)
Tuesday, July 19, 4:00 pm – 5:45 pm, Laurel C
RECENT DEVELOPMENTS IN JAPANESE CODES AND STANDARDS—STRUCTURAL INTEGRITY ASSESSMENT
Sponsored by Codes & Standards Technical Committee
Developed by: Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan; K. Onizawa, Japan Atomic Energy Agency, Tokaimura, Ibaraki, Japan; H. Qian, Structural Integrity Associates, Inc., San Jose, CA, USA
Chair: I. Dlouhy, Institut of Physics of Material, Academy of Science of the Czech Republic, Brno, Czech Republic
Co-Chair: P. Hoang, Sargent Lundy, Chicago, IL, USA

PVP2011-57081: FRACTURE EVALUATION OF NICKEL-BASE ALLOY WELD JOINT OF CYLINDRICAL MODEL SUBJECTED TO 4-POINT BENDING OR INNER PRESSURE
K. Ogawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; K. Onizawa, Japan Atomic Energy Agency, Tokaimura, Ibaraki, Japan; H. Qian, Structural Integrity Associates, Inc., San Jose, CA, USA

PVP2011-57446: EXPERIMENTAL INVESTIGATION ON LIMIT LOAD ESTIMATION METHOD FOR PIPES CONTAINING A CIRCUMFERENTIAL SURFACE FLAW WITH COMPLICATED SHAPE
Y. Li, K. Hasegawa, Japan Nuclear Energy Safety Organization, Tokyo, Japan; N. Miura, K. Hoshino, Central Research Institute of Electric Power
SESSION 2.4D (CS-14-2)
Tuesday, July 19, 4:00 pm – 5:45 pm, Laurel D
ENGINEERING FAILURE ANALYSIS
Sponsored by Codes & Standards Technical Committee
Developed by: J. Zheng, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China; X. Chen, Hefei General Machinery Research Institute, Hefei, Anhui, China
Chair: X. Chen, Hefei General Machinery Research Institute, Hefei, Anhui, China
Co-Chair: G. Jia, Chinese Special Equipment Inspection and Research Institute, Beijing, China

PVP2011-57460: RESEARCH PROGRESS ON THE TECHNIQUE APPLICATION OF RISK BASED MANAGEMENT IN DOMESTIC PETROCHEMICAL PLANTS
G. Jia, H. Wang, X. Li, J. Shi, W. Wang, Chinese Special Equipment Inspection and Research Institute, Beijing, China

PVP2011-57636: SEVERAL FAILURE ANALYSIS CASES OF PRESSURE EQUIPMENT UNDER THE CONDITIONS OF COMPLEX MEDIUM ENVIRONMENT
X. Chen, Z. Ai, T. Yang, Z. Fan, W. Guan, Hefei General Machinery Research Institute, Hefei, Anhui, China

SESSION 2.4E (SE-3-2)
Tuesday, July 19, 4:00 pm – 5:45 pm, Falkland
SEISMIC ANALYSIS AND DESIGN OF PIPING
Sponsored by Seismic Engineering Technical Committee
Developed by: G. Slagis, G C Slagis Associates, Pleasant Hill, CA, USA
Chair: G. Slagis, G C Slagis Associates, Pleasant Hill, CA, USA
Co-Chair: T. Taniguchi, Tottori University, Tottori, Japan

PVP2011-57063: TIME HISTORY BROADENING
A. T. Strzelczyk, Ontario Power Generation, Pickering, ON, Canada

PVP2011-57260: FINITE ELEMENT ANALYSIS OF INDUSTRIAL STEEL ELBOWS UNDER STRONG CYCLIC LOADING
G. E. Varelis, P. Pappa, S. A. Karamanos, University of Thessaly, Volos, Greece

PVP2011-57723: CYCLIC DEFORMATION AND BUCKLING BEHAVIOR OF PIPE WITH LOCAL METAL LOSS SUBJECTED TO SEISMIC GROUND MOTION
M. Mitsuya, H. Yatabe, Tokyo Gas, Yokohama, Kanagawa, Japan

SESSION 2.4F (FSI-2-7)
Tuesday, July 19, 4:00 pm – 5:45 pm, Galena
PIPING VIBRATIONS AND ACOUSTICS II
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: P. Moussou, EDF R&D, Clamart, France; S. Ziada, McMaster University, Hamilton, ON, Canada
Chair: H. G. D. Goyder, Cranfield University, Swindon, United Kingdom
Co-Chair: F. Crouzet, Laboratoire des Structures Industrielles Durables - UMR EDF-CEA-CNRS 2832, Clamart, France

PVP2011-58063: MODELING FOR COMBUSTION OSCILLATION EXPERIENCED IN MICRO GAS TURBINE COMBUSTOR OPERATED BY BIOMASS GAS (Presentation Only)
S. Kaneko, D. Yamazaki, H. Hwang, T. Watanabe, Y. Yamasaki, University of Tokyo, Tokyo, Japan

SESSION 2.4G (CT-6-2)
Tuesday, July 19, 4:00 pm – 5:45 pm, Heron
SELF-LOOSENING OF BOLTED JOINTS
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: T. Fukuoka, Kobe University, Kobe, Japan
Chair: T. Fukuoka, Kobe University, Kobe, Japan
Co-Chair: S. Nassar, Oakland University, Rochester, MI, USA

PVP2011-57385: CRITERION FOR PREVENTING SELF-LOOSENING
OF PRELOADED COUNTERSUNK HEAD FASTENERS
A. Zaki, S. Nassar, X. Yang, Oakland University, Rochester, MI, USA

PVP2011-57690: EFFECT OF THREAD PROFILE ANGLE AND GEOMETRY CLEARANCE ON THE LOOSENING PERFORMANCE OF A PRELOADED BOLT-NUT SYSTEM UNDER HARMONIC TRANSVERSE EXCITATION
X. Yang, S. Nassar, Oakland University, Rochester, MI, USA

SESSION 2.4H (DA-4-4)
Tuesday, July 19, 4:00 pm – 5:45 pm, Harborside A
EVALUATION OF FRACTURE TOUGHNESS
Sponsored by Design & Analysis Technical Committee
Developed by: Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan
Chair: B. Dogan, EPRI, Charlotte, NC, USA
Co-Chair: S. Asada, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan

PVP2011-57365: PREDICTION OF THE ABSENCE OF BRITTLE FAILURE RISK FOR FERRITIC STEEL PIPING COMPONENTS IN THE BRITTLE-DUCTILE REGION
S. Marie, CEA, Gif sur Yvette, France; J. Schwab, S. Vidard, EDF, Villeurbanne, France

PVP2011-57488: OBSERVATIONS ARISING FROM EXPONENTIAL FITTING METHODS TO A CHARPY V-NOTCH ENERGY DATABASE FROM TATA STEEL
A. Horn, Tata Steel Research, Development & Technology, Rotherham, United Kingdom; T. Axe, Cambridge University, Cambridge, Cambridgeshire, United Kingdom

PVP2011-58020: ASSESSMENT OF PRESSURE VESSEL STEEL IRRADIATION EMBRITTLEMENT UP TO 40 YEARS USING LOCAL APPROACH TO FRACTURE MODELLING. APPLICATION TO THE FRENCH SURVEILLANCE PROGRAM
B. Tanguy, Commissariat à l’Energie Atomique, Gif sur Yvette, France; A. Parrot, EDF R&D, Moret sur Loing, France; F. Clemendot, EDF - CEIDRE, Saint Denis, France; G. Chas, EDF/CEIDRE/DLAB, Avoine, France

PVP2011-57623: ADVANCED ASSESSMENT OF CRACK-LIKE FLAWS IN PIPELINES
T. L. Anderson, G. Brown, Quest Integrity Group, Boulder, CO, USA

PVP2011-57521: EFFECT OF WELDED MECHANICAL HETEROGENEITY ON LOCAL STRESS AND STRAIN AHEAD OF GROWING CRACK TIPS IN THE PIPING WELDS
L. Zhao, H. Xue, W. Tang, X. Fang, Xi’an University of Science and Technology, Xi’an, Shaanxi Province, China

PVP2011-57544: AN EVALUATION METHOD FOR PLASTIC BUCKLING OF CANTILEVER TYPE PIPES CONTROLLED BY DISPLACEMENT LOADS—PART 1: PROPOSAL OF THE ESTIMATION METHOD AND THE CRITERION
M. Ando, Japan Atomic Energy Agency, Oarai-Machi, Japan; T. Tezuka, Mitsubishi Heavy Industries, Nasasaki, Japan; T. Nakamura, Mitsubishi Heavy Industries, Ltd., Nagasaki, Japan; T. Okawa, Mitsubishi Heavy Industries, Kobe, Japan; Y. Enuma, Mitsubishi FBR Systems, Shibuya, Japan; N. Kawasaki, K. Tsukimori, Japan Atomic Energy Agency, Ibaraki, Japan

PVP2011-57548: AN EVALUATION METHOD FOR PLASTIC BUCKLING OF CANTILEVER TYPE PIPES CONTROLLED BY DISPLACEMENT LOADS—PART 2: VERIFICATION OF PROPOSAL METHOD BY BUCKLING TEST
M. Ando, Japan Atomic Energy Agency, Oarai-Machi, Japan; T. Tezuka, Mitsubishi Heavy Industries, Nasasaki, Japan; T. Nakamura, Mitsubishi Heavy Industries, Ltd., Nagasaki, Japan; T. Okawa, Mitsubishi Heavy Industries, Kobe, Japan; Y. Enuma, Mitsubishi FBR Systems, Shibuya, Japan; N. Kawasaki, K. Tsukimori, Japan Atomic Energy Agency, Ibaraki, Japan

PVP2011-57566: A STUDY ON THERMAL STRESS EVALUATION OF SAFETY INJECTION SYSTEM FOR NPPS CONSIDERING LEAKAGE EFFECT
H.-D. Sung, S.-H. Kim, I.-J. Kim, Y.-J. Kim, SungKyunkwan University, Suwon, Gyeonggi-do, Korea (Republic); J.-S. Park, Y. H. Choi, Korea Institute of Nuclear Safety, Daejeon, Korea (Republic)

PVP2011-57648: APPLICATION OF PCC-2 IN REAL WORLD SITUATIONS
J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA; C. Magyar, Chevron, Pascagoula, MS, USA; N. L. Tyson, M. R. Greenfield, Chevron Global Manufacturing, Richmond, CA, USA

SESSION 2.4J (FSI-3-2)
Tuesday, July 19, 4:00 pm – 5:45 pm, Essex B
SHOCK WAVE PROPAGATION
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: S. Itoh, Okinawa National College of Technology, Okinawa, Japan
Chair: S. Itoh, Okinawa National College of Technology, Okinawa, Japan
Co-Chair: D. Brochard, Commissariat à l’Energie Atomique, Gif sur Yvette, France

PVP2011-57167: PRESSURE VESSEL BURST DIRECTIONAL BLAST EFFECTS
J. Geng, Q. Baker, Kelly Thomas, Baker Engineering and Risk Consultants, San Antonio, TX, USA

PVP2011-57420: BASIC STUDY ON EXPLOSIVE EVAPORATION OF CRYOGENIC FLUIDS BY CONTACTING NORMAL TEMPERATURE
FLUIDS IN THE PRESSURE VESSEL
T. Watanabe, National Fisheries University, Shimonoseki, Yamaguchi, Japan; H. Iyama, Kumamoto National College of Technology, Yatsushiro, Kumamoto, Japan; H. Maehara, Shock Wave and Condensed Matter Research Center, Kumamoto Univ., Kumamoto, Kumamoto, Japan; S. Itoh, Okinawa National College of Technology, Okinawa, Japan

PVP2011-58032: STUDY OF THE SUITABLE PRESSURE VESSEL FOR THE RICE POWDER MANUFACTURING USING THE UNDERWATER SHOCK WAVE
K. Shimojima, K. Naha, Okinawa National College of Technology, Nago-City, Japan; Y. Miyafuji, T. Aka, S. Itoh, Okinawa National College of Technology, Okinawa, Japan; S. Tanaka, Kumamoto University, Kumamoto, Japan; H. Maehara, Shock Wave and Condensed Matter Research Center, Kumamoto Univ., Kumamoto, Kumamoto, Japan; S. Itoh, Okinawa National College of Technology, Okinawa, Japan

PVP2011-57152: XML RELATED DATA EXCHANGE AND INTEROPERABILITY TOOLS OF MATDB ONLINE
H.-H. Over, P. Haehner, T. Ojala, EC-JRC Institute for Energy, Petten, Netherlands; T. Austin, SOASYS Ltd., Alkmaar, Netherlands

PVP2011-57795: MATERIALS INFORMATION MANAGEMENT SYSTEMS FOR ENERGY APPLICATIONS
W. Marsden, Granta, Cambridge, Cambs, United Kingdom; E. R. Cope, Granta Design Ltd., Cambridge, United Kingdom

PVP2011-58123: RELATIONAL MATERIALS DATABASE APPLICATIONS IN NUCLEAR STRUCTURAL MODELING VERIFICATION AND VALIDATION (Presentation Only)
W. Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 2.4K (MF-7-2)
Tuesday, July 19, 4:00 pm – 5:45 pm, Essex A
MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS II
Sponsored by Materials & Fabrication Technical Committee
Developed by: W. Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA; R. Swindeman, Cromtech Inc, Oak Ridge, TN, USA
Chair: W. Corwin, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: W. Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2011-57029: CONSIDERATIONS OF ALLOY N FOR FLUORIDE SALT-COOLED HIGH-TEMPERATURE REACTOR APPLICATIONS
W. Ren, G. Muralidharan, D. Wilson, D. Holcomb, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2011-57152: XML RELATED DATA EXCHANGE AND INTEROPERABILITY TOOLS OF MATDB ONLINE
H.-H. Over, P. Haehner, T. Ojala, EC-JRC Institute for Energy, Petten, Netherlands; T. Austin, SOASYS Ltd., Alkmaar, Netherlands

PVP2011-57795: MATERIALS INFORMATION MANAGEMENT SYSTEMS FOR ENERGY APPLICATIONS
W. Marsden, Granta, Cambridge, Cambs, United Kingdom; E. R. Cope, Granta Design Ltd., Cambridge, United Kingdom

PVP2011-58123: RELATIONAL MATERIALS DATABASE APPLICATIONS IN NUCLEAR STRUCTURAL MODELING VERIFICATION AND VALIDATION (Presentation Only)
W. Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SESSION 2.4L (MF-4-7)
Tuesday, July 19, 4:00 pm – 5:45 pm, Harborside D
WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT VII
Sponsored by Materials & Fabrication Technical Committee
Developed by: A. H. Mahmoudi, Bu-Ali Sina University, Hamedan, Iran; C. Truman, University of Bristol, Bristol, United Kingdom
Chair: B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
Co-Chair: T. Zhang, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-57750: A COMPARISON OF RESIDUAL STRESSES IN GIRTH WELDED STEEL BOTTLES JOINED USING CONVENTIONAL GAS TUNGSTEN ARC (GTA) WELDING AND LASER BEAM (LB) WELDING (Presentation Only)
D. Brown, T. Sisneros, B. Clausen, Lujan Center, Los Alamos, NM, USA; J. Vaja, A. Johnson, AWE, Reading, United Kingdom; M. Steinzig, W-division, Los Alamos, NM, USA; D. Upshaw, Texas Tech University, Lubbock, TX, USA

PVP2011-57368: THREE DIMENSIONAL FINITE ELEMENT ANALYSIS OF WELD OVERLAY ON A PLASTICALLY FORMED FEEDER TUBE
F. Ku, P. C. Riccardella, Structural Integrity Associates Inc., San Jose, CA, USA

PVP2011-57518: THE EFFECTS OF LOADINGS ON WELDING RESIDUAL STRESSES AND THE ASSESSMENT OF FRACTURE PARAMETERS IN A WELDING RESIDUAL STRESS FIELD
L. Wei, W. He, S. Smith, TWI Ltd., Cambridge, United Kingdom

SESSION 2.4M (MF-2-4)
Tuesday, July 19, 4:00 pm – 5:45 pm, Laurel A
THE TED SMITH MEMORIAL SYMPOSIUM ON APPLICATION OF FRACTURE MECHANICS IN FAILURE ASSESSMENT IV
Sponsored by Materials & Fabrication Technical Committee
Developed by: J.-A. Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA; S. Xu, Kinetics Inc., Toronto, ON, Canada
Chair: J.-A. Wang, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: S. Yin, Oak Ridge National Laboratory, Oak Ridge, TN, USA

PVP2011-57845: A NOVEL FRACTURE MECHANICS SPECIMEN TO INVESTIGATE THE EFFECT OF RESIDUAL STRESS AND CRACK-TIP CONSTRAINT ON FRACTURE
S. Kamel, T. Vanagosoom, P. Shanthenu, C. M. Davies, K. Nikbin, Imperial College, London, United Kingdom

PVP2011-57905: STATISTICAL ASSESSMENT OF CRACK INITIATION AT SIMULATED FLAWS DUE TO HYDRIRED REGION OVERLOAD IN CANDU ZR-2.5%NB PRESSURE TUBE MATERIAL
L. Gutkin, D. Scarth, Kinectrics Inc., Toronto, ON, Canada

PVP2011-57980: ASSESSMENT OF FATIGUE CRACK GROWTH DATA AVAILABLE FOR THE P355NL1 STEEL USING A LOCAL STRAIN-BASED APPROACH
A. de Jesus, J. Correia, University of Tras-os-Montes and Alto Douro, Vila Real, Portugal
SESSION 2.4R (SPC-1-7)
Tuesday, July 19, 4:00 pm – 5:45 pm, Kent B
STUDENT PAPER SYMPOSIUM AND COMPETITION PHD—4
Sponsored by PVP Division Senate

Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium

PVP2011-57086: DEVELOPMENT OF A NEW SPECIMEN TO STUDY CRACK PROPAGATION THRESHOLD AND NON-PROPAGATION CONDITIONS
P. Bouin, S. Marie, G. Perez, CEA, Gif sur Yvette, France

PVP2011-57157: INVESTIGATION ON THE CHARACTERISTIC OF RESIDUAL STRESS DISTRIBUTION IN THE DISSIMILAR METAL WELDS OF A SMALL BORE PENETRATION NOZZLE BY THREE-DIMENSIONAL FINITE ELEMENT ANALYSIS
J. H. Seo, J. S. Kim, Sunchon National University, Suncheon, Jeollanam-Do, Korea (Republic)

PVP2011-57242: NUMERICAL SIMULATION OF A SINGLE BEAD ON PLATE AND THREE PASS SLOT WELDS IN AUSTENITIC STAINLESS STEEL
J. Xu, Shanghai Jiao Tong University, Shanghai, China; P. Gilles, AREVA, Paris La Defense, France

PVP2011-57302: STUDY ON THE MICROSTRUCTURE OF 20 STEEL WITH STRAIN AGING
M. Li, W. Wang, A. Li, Shandong University, Jinan, China

PVP2011-57509: A NOVEL CUTTING STRATEGY FOR REDUCING PLASTICITY INDUCED ERRORS IN RESIDUAL STRESS MEASUREMENTS MADE WITH THE CONTOUR METHOD
Y. Traore, P. J. Bouchard, The Open University, Milton Keynes, United Kingdom; J. Francis, University of Manchester, Manchester, United Kingdom; F. Hosseinzadeh, The Open University, Milton Keynes, United Kingdom

SESSION 2.4S (TT-1-8)
Tuesday, July 19, 4:00 pm – 5:45 pm, Harborside B

TECHNICAL TUTORIAL: UNCERTAINTY ASSESSMENT IN ENGINEERING DESIGN AND ANALYSIS—PART II
Sponsored by the PVP Division Conference Committee

Developed by: M. Nitzel, M. E. Nitzel Engineering Services, Nampa, ID, USA
Chair: M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA
Presented by: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA

SESSION 2.4T (CT-15-4)
Tuesday, July 19, 4:00 pm – 5:45 pm, Harborside Foyer

SOFTWARE DEMONSTRATION FORUM IV
Sponsored by Computer Technology & Bolted Joints Technical Committee

Developed by: J. F. Cory, Jr., Siemens PLM Software, Milford, OH, USA

WEDNESDAY, JULY 20

SESSION 3.1B (CS-23-6)
Wednesday, July 20, 8:30 am – 10:15 am, Harborside E

ISSUES WITH WELD OVERLAYS, INLAYS AND ONLAYS: PART 1
Sponsored by Codes & Standards and Materials & Fabrication Technical Committees

Developed by: B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
Chair: B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
Co-Chair: R. Yonekawa, Bechtel Power Corporation, San Francisco, CA, USA

PVP2011-57974: PWSCC CRACK GROWTH MODELING APPROACHES
B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; D.-J. Shim, G. Wilkowski, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-58035: A STUDY OF THE KEY PARAMETERS AFFECTING THE DESIGN OF OPTIMIZED WELD OVERLAYS
D. Killian, AREVA NP Inc., Lynchburg, VA, USA; S. Mahmoud, H. Xu, S. Noronha, A. Nana, AREVA NP Inc., Lynchburg, VA, USA

PVP2011-58041: IMPLEMENTATION OF ASME CODE, SECTION XI, CODE CASE N770, ON ALTERNATIVE EXAMINATION REQUIREMENTS FOR CLASS 1 BUTT WELDS FABRICATED WITH ALLOY 82/182
E. J. Sullivan, M. Anderson, Pacific Northwest National Laboratory, Richland, WA, USA

SESSION 3.1C (CS-13-2)
Wednesday, July 20, 8:30 am – 10:15 am, Laurel C

RECENT DEVELOPMENTS IN JAPANESE CODES AND STANDARDS—CRACK GROWTH RATE OF SCC AND FATIGUE
Sponsored by Codes & Standards Technical Committee

Developed by: K. Onizawa, Japan Atomic Energy Agency, Tokai-mura, Ibaraki, Japan; Y. Li, Japan Nuclear Energy Safety Organization, Tokyo, Japan
Chair: N. Kasahara, University of Tokyo, Tokyo, Japan
Co-Chair: Z. Lu, Tohoku University, Sendai, Miyagi-Ken, Japan

PVP2011-57219: TECHNICAL BASIS OF FATIGUE CRACK GROWTH RATE CURVE FOR NI-BASE ALLOY WELD METAL IN AIR ENVIRONMENT
T. Ogawa, C. Narazaki, M. Itatani, Toshiba Corporation, Yokohama, Kanagawa, Japan; A. Hirano, Hitachi, Ltd., Hitachi, Japan; H. Nagase, Hitachi-GE Nuclear Energy, Ltd., Hitachi, Japan; H. Yoneda, Hokuriku Electric Power Company, Toyama, Japan
PVP2011-57223: MECHANISTIC FORMULATION OF PWSCC GROWTH RATES OF NI-BASE ALLOYS AND WELDMENTS
Z. Lu, T. Shoji, H. Xue, C. Fu, Tohoku University, Sendai, Miyagi-Ken, Japan

PVP2011-57317: EFFECT OF MECHANICAL PARAMETER SELECTION IN QUANTITATIVE ESTIMATION OF THE GROWTH OF ENVIRONMENTALLY ASSISTED CRACKS AT FLAWS IN LIGHT WATER REACTOR COMPONENTS WITH COMPLEX MECHANICAL CONDITION
H. Xue, X. Gong, Xi'an University of Science and Technology, Xi'an, Shaanxi Province, China; L. Zhao, Z. Lu, T. Shoji, Tohoku University, Sendai, Miyagi-Ken, Japan

SESSION 3.1D (CS-24-1)
Wednesday, July 20, 8:30 am – 10:15 am, Laurel D
HDPE PIPE AND RELATED ISSUES IN CODES & STANDARDS
Sponsored by Codes & Standards and Materials & Fabrication Technical Committees
Developed by: D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; P. Rush, MPR Associates, Alexandria, VA, USA
Chair: P. Rush, MPR Associates, Alexandria, VA, USA

SESSION 3.1E (SE-4-1)
Wednesday, July 20, 8:30 am – 10:15 am, Falkland
FORUM ON APPROPRIATE CRITERIA AND METHODS FOR SEISMIC DESIGN OF PIPING SYSTEMS
Sponsored by Seismic Engineering Technical Committee
Developed by: G. Slagis, G C Slagis Associates, Pleasant Hill, CA, USA
Chair: V. Matzen North Carolina State University, Raleigh, NC, USA
Co-Chair: D. Clark, Idaho National Laboratory, Idaho Falls, ID, USA

SESSION 3.1F (FSI-2-8)
Wednesday, July 20, 8:30 am – 10:15 am, Galena
FIV IN HEAT EXCHANGER TUBE ARRAYS III
Sponsored by Fluid-Structure Interaction Technical Committee

Developed by: N. Mureithi, Ecole Polytechnique de Montreal, Montreal, QC, Canada; D. Weaver, McMaster University, Hamilton, ON, Canada
Chair: T. Nakamura, Osaka Sangyo University, Daito, Osaka, Japan
Co-Chair: L. Baranyi, University of Miskolc, Miskolc, Hungary

PVP2011-57918: DETERMINATION OF FLOW STRUCTURE IN A TUBE ARRAY BY PARTICLE IMAGE VELOCIMETRY
N. Mureithi, C. Masabarakiza, Ecole Polytechnique de Montreal, Montreal, QC, Canada

PVP2011-55028: STUDY ON MODELING METHOD OF VORTEX-ACOUSTICS INTERACTION IN ACOUSTIC RESONANCE IN HEAT EXCHANGER TUBE BUNDLES—II: EXPERIMENTAL VERIFICATION
E. Nishida, Shonan Institute of Technology, Fujisawa, Kanagawa, Japan; H. Hamakawa, Ohita University, Ohita, Ohita, Japan

PVP2011-57787: TACKLING FSI SIMULATION FOR FIV PROBLEMS IN TUBE BUNDLE SYSTEMS WITH POD APPROACH
M. Pomarede, DCNS Centre de Nantes Indret, La Montagne, France; E. Liberge, A. Hamdouni, Universite de La Rochelle, La Rochelle, France; E. Longatte, EDF R&D, Chatou, France; J.-F. Sigrist, DCNS Propulsion, Nantes, France

PVP2011-57672: TUBE ARRAYS FLOW-INDUCED VIBRATIONS SIMULATIONS WITH ALE FINITE ELEMENT METHOD
E. Stephane, D. Pelletier, Ecole Polytechnique de Montreal, Montreal, QC, Canada

SESSION 3.1G (CT-7-1)
Wednesday, July 20, 8:30 am – 10:15 am, Heron
ELEVATED TEMPERATURE BEHAVIOR OF BOLTED JOINTS
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: H. Kockelmann, Material testing Institute, University of Stuttgart, Stuttgart, BW, Germany
Co-Chair: M. Schaaf, Amtec Services GmbH, Lauffen, Germany
Chair: J. Veiga, Teadit Industria e Comercio Ltd., Rio de Janeiro, Brazil

PVP2011-57273: SEALING PERFORMANCE AND FE ANALYSIS OF PIPE FLANGE CONNECTION WITH GASKET UNDER CYCLIC THERMAL CONDITION
Y. Omiya, Hiroshima University, Higashi-Hiroshima, Japan; Y. Takagi, Tokyo Electric Power Company, Yokohama, Japan; T. Sawa, Hiroshima University, Higashi-hiroshima, Japan; H. Torii, Tokyo Electric Power Company, Yokohama, Japan

PVP2011-57522: FINITE ELEMENT SIMULATION OF SEALING PERFORMANCE IN BOLTED FLANGE JOINTS OF LONGITUDINAL BAFBLE TYPE HEAT EXCHANGER
H. Yamanaka, Idemitsu Engineering Co., Ltd., Chiba, Japan

PVP2011-57721: EFFECT OF CREEP OF NON-ASBESTOS SHEET GASKETS AT ELEVATED TEMPERATURE ON RELAXATION BEHAVIOR OF BOLTED FLANGE JOINTS
A. Yamaguchi, T. Honda, National Institute of Occupational Safety and Health, Japan, Kiyose, Tokyo, Japan; M. Hagihara, Tokyo Denki University, Hikigun, Saitama, Japan; H. Tsuji, Tokyo Denki University, Tokyo, Japan
PVP2011-57386: FORMULATION OF A STRAIN HARDENING MODEL FOR GASKET CREEP RELAXATION
A. Abboud, Oakland University, Rochester Hills, MI, USA; S. Nassar, Oakland University, Rochester, MI, USA

SESSION 3.1H (DA-4-5)
Wednesday, July 20, 8:30 am – 10:15 am, Harborside A

DUCTILE PROPAGATION
Sponsored by Design & Analysis Technical Committee
Developed by: P. Gilles, AREVA, Paris La Défense, France
Chair: S. Marie, CEA, Gif sur Yvette, France
Co-Chair: B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-57294: DUCTILE CRACK INITIATION BEHAVIOR OF PRESTRAINED STEELS
T. Yamada, Y. Yamashita, IHI Corporation, Yokohama, Kanagawa, Japan

PVP2011-57898: LARGE DUCTILE TEARING IN DISSIMILAR MATERIAL WELDS AND TRANSFERABILITY ISSUES
P. Gilles, AREVA, Paris La Défense, France; A. Brosse, P. Mourgue, ESI-France, Lyon, France

PVP2011-57947: COHESIVE ZONE MODELING OF DUCTILE CRACK GROWTH IN CIRCUMFERENTIAL THROUGH-WALL CRACKED PIPE TESTS
D.-J. Shin, M. Uddin, B. Brust, G. Wilkowski, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-57134: MESHLESS ANALYSIS OF DUCTILE FAILURE
J. Li, Xi’an Jiaotong University, Xi’an Shaanxi, China

SESSION 3.1I (DA-13-1)
Wednesday, July 20, 8:30 am – 10:15 am, Essex C

DESIGN & ANALYSIS OF BOLTED JOINTS
Sponsored by Design & Analysis Technical Committee
Developed by: W. Brown, Integrity Engineering Solutions, Dunsborough, Western Australia, Australia; W. Koves, Pi Engineering Software Inc., Hoffman Estates, IL, USA
Chair: S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA

PVP2011-57139: LEAKAGE ANALYSIS OF GASKETED FLANGE JOINTS UNDER COMBINED INTERNAL PRESSURE
M. Abid, K. A. Kamran, J. A. Chattha, GIK Institute, Topi, Pakistan; D. Nash, University of Strathclyde, Glasgow, United Kingdom

PVP2011-57179: ROTATIONAL FRICTION COEFFICIENT OF SHEAR BOLTED JOINTS AND ITS APPLICATION
T. Jiang, University of Cincinnati, Cincinnati, OH, USA

PVP2011-57738: LEAK TIGHTNESS BASED DESIGN PROCEDURE FOR GASKETED PIPE FLANGE CONNECTIONS
T. Sawa, Hiroshima University, Higashi-hiroshima, Japan; T. Kobayashi, Numazu National College of Technology, Numazu, Shizuoka, Japan; H. Tsuji, Tokyo Denki University, Tokyo, Japan; S. Nagata, Toyo Engineering Corporation, Narashino, Chiba, Japan

PVP2011-57813: STRESS AND DEFORMATION ANALYSES OF LARGE DIAMETER BLIND FLANGE CONNECTIONS SUBJECTED TO BOLT LOADS AND INTERNAL PRESSURE
T. Kobayashi, M. Kogasaka, Numazu National College of Technology, Numazu, Shizuoka, Japan; K. Nishiura, Mitsubishi Chemical Corporation, Kurashiki, Okayama, Japan; K. Uchiyama, Nichias Corporation, Minato-ku, Tokyo, Japan

SESSION 3.1J (FSI-5-1)
Wednesday, July 20, 8:30 am – 10:15 am, Essex B

FLUID STRUCTURE INTERACTION AND SLOSHING: GENERAL INTERACTION
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: D. Brochard, Commissariat à l’Energie Atomique, Gif sur Yvette, France; T. Taniguchi, Tottori University, Tottori, Japan; D. Ma
Chair: D. Brochard, Commissariat à l’Energie Atomique, Gif sur Yvette, France
Co-Chair: D. Broc, CEA Saclay, Gif-sur-Yvette, France

PVP2011-57573: A COMPARISON STUDY OF COUPLING ALGORITHMS FOR FLUID-STRUCTURE INTERACTION PROBLEMS
T. E. Rajaomazava III, M. Benaouicha, French Naval Academy Research Institute, Brest, France; J.-A. Astolfi, IRENav, Brest, France

PVP2011-57450: LAGRAGIAN FINITE ELEMENT FORMULATION TO AXISYMMETRIC LIQUID SLOSHING
S. Yoshida, K. Sekine, Yokohama National University, Yokohama, Japan; T. Tsuchida, K. Iwata, Japan Oil, Gas and Metals National Corporation, Kawasaki, Japan

PVP2011-58013: NEW TRENDS INTRINSIC SIMULATIONS FOR PREDICTION AND VERIFICATION OF SAFETY MARGINS IN THE NUCLEAR POWER PLANT INDUSTRY: APPLICATION OF VPS SIMULATION SOLUTION FOR IMMERSED STRUCTURES SUBJECTED TO EARTHQUAKES
A. Tramecon, ESI Group, Rungis, France; J. Kuhnert, Fraunhofer ITWM, Kaiserslautern, Germany; L. Mouchette, M. Perrin, ESI Group, Lyon, France

SESSION 3.1K (HP-5-1)
Wednesday, July 20, 8:30 am – 10:15 am, Essex A

COMpressors for LDPE PRODUCTION
Sponsored by High-Pressure Technology Technical Committee
Developed by: E. Giacomelli, Dott.Ing.Mario Cozzani Srl, Arcola (La Spezia), Italy; F. Riccardo, GE Oil & Gas, Firenze, Italy
Chair: E. Giacomelli, Dott.Ing.Mario Cozzani Srl, Arcola (La Spezia), Italy
Co-Chair: F. Riccardo, GE Oil & Gas, Firenze, Italy

PVP2011-57106: EXPERIENCES OF OPERATION AND MAINTENANCE OF HYPER COMPRESSOR IN LDPE PLANT
A. A. A. Mok, M. H. B. H. Ghani, A. B. Kadir, Petlin (Malaysia) SDN.BHD, Terengganu, Malaysia

PVP2011-57034: DESIGN OF OIL INJECTION QUILLS FOR HYPERCOMPRESSORS CYLINDERS
G. Volterrani, C. Maggi, M. Manetti, GE Oil & Gas - Nuovo Pignone, Florence, Italy

PVP2011-57035: CYLINDER VALVES RELIABILITY AND PERFORMANCE IN BOOSTER-PRIMARY COMPRESSORS
E. Giacomelli, M. Schiavone, C. Vaglini, Dott.Ing.Mario Cozzani Srl, Arcola (La Spezia), Italy
PVP2011-57090: DYNAMIC ANALYSIS OF LARGE INTERCOOLERS AND TUBULAR REACTORS INSTALLED IN LDPE PLANTS WITH AN HYPERCOMPRESSOR
F. Riccardo, M. Passeri, F. Paperini, GE Oil & Gas, Firenze, Italy

PVP2011-57059: THERMO-FIUID-DYNAMIC DESIGN OF RECIPROCATING COMPRESSOR CYLINDERS BY FSI
R. Traversari, Compression Service Technology srl, Florence, Italy; M. Faretra, Barbalab S.r.l., Casalecchio di Reno (Bo), Italy; A. Rossi, Compression Service Technology srl, Florence, Italy

SESSION 3.1L (MF-4-8)
Wednesday, July 20, 8:30 am – 10:15 am, Harborside D
WELDING RESIDUAL STRESS AND DISTORTION SIMULATION AND MEASUREMENT VIII
Sponsored by Materials & Fabrication Technical Committee
Developed by: M. Mochizuki, Osaka University, Suita, Japan; E. Keim, AREVA NP GmbH, Erlangen, Germany
Chair: J. Broussard, Dominion Engineering, Inc., Reston, VA, USA
Co-Chair: M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA

PVP2011-57596: NUMERICAL MODELLING OF REPAIR WELDING USING A TEMPER BEAD PROCESS: APPLICATION TO DISSIMILAR METAL WELDS
F. Gommez, V. Robin, D. Pont, AREVA NP, Lyon, France; S. Courtin, AREVA NP, Paris La Défense, France

PVP2011-57944: FINITE ELEMENT MODELLING OF A TUBE-TO-PRESSURE-VESSEL ATTACHMENT WELD AND LOCAL POST-WELD HEAT TREATMENT
B. M. E. Pellereau, P. R. Hurrell, C. M. Gill, S. L. Allen, Rolls-Royce Plc, Derby, Derbyshire, United Kingdom

PVP2011-57959: WELD RESIDUAL STRESS IN LARGE DIAMETER NUCLEAR NOZZLES
T. Zhang, B. Brust, G. Wilkowski, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

SESSION 3.1M (MF-29-1)
Wednesday, July 20, 8:30 am – 10:15 am, Laurel A
PANEL SESSION: SESSION A
Sponsored by Materials & Fabrication Technical Committee
Developed by: R. Iyengar, U. S. Nuclear Regulatory Commission, Washington, DC, United States
Chair: R. Iyengar, U. S. Nuclear Regulatory Commission, Washington, DC, United States

Panelists:
M. Kirk, U. S. Nuclear Regulatory Commission, Washington, DC, USA
Justin L. Wu, USA
D. G. Harlow, Lehigh University, Bethlehem, USA
R. Kurth, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

SESSION 3.1N (MF-17-1)
Wednesday, July 20, 8:30 am – 10:15 am, Laurel B
PROBABILISTIC LEAK-BEFORE-BREAK APPLICATIONS
Sponsored by Materials & Fabrication Technical Committee

PVP2011-57175: LIMIT LOAD ANALYSIS OF CYLINDRICAL VESSELS UNDER INTERNAL PRESSURE AND AXIAL STRAIN
X.-K. Zhu, Battelle, Columbus, OH, USA

PVP2011-57082: FAILURES OF LOCALLY REINFORCED PIPELINES
J. Shuai, W. Liu, W. Bu, Z. Wang, China University of Petroleum-Beijing, Beijing, China

SESSION 3.1P (OAC-1-1)
Wednesday, July 20, 8:30 am – 10:15 am, James
SAFETY, RELIABILITY AND RISK ASSESSMENT I
Sponsored by Operations, Applications & Components Technical Committee
Developed by: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA
Chair: D. Demoss, Sargent & Lundy, LLC, Chicago, Illinois, USA
Co-Chair: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA

PVP2011-57804: MECHANICAL COLLATERAL DAMAGE ASSESSMENT OF REACTOR VESSEL BOTTOM MOUNTED NOZZLES
Developed by: A. Chakraborty, Structural Integrity Associates, San Jose, CA, USA
Chair: H. Qian, Structural Integrity Associates, Inc., San Jose, CA, USA
Co-Chair: A. Chakraborty, Structural Integrity Associates, San Jose, CA, USA

PVP2011-57207: A SIMPLIFIED METHODOLOGY FOR EXTREMELY LOW-PROBABILITY RUPTURE PREDICTION FOR PWR LBB APPLICATIONS
H. Xu, A. Nana, S. Mahmoud, AREVA NP Inc, Lynchburg, VA, USA; D. Killian, AREVA NP Inc., Lynchburg, VA, USA

PVP2011-57595: TWO MEANS OF CALCULATING VERY LOW FAILURE PROBABILITY
M. Wang, Atomic Energy of Canada Limited, Mississauga, ON, Canada; D. Harris, D. Dedhia, Structural Integrity Associates, Inc., San Jose, CA, USA; X. Duan, M. Kozluk, Atomic Energy of Canada Ltd., Mississauga, ON, Canada

PVP2011-57740: RELIABILITY OF LBB EVALUATION CONSIDERING RANDOMNESS IN DESIGN PARAMETERS
A. Chakraborty, H. Qian, A. Miessi, Structural Integrity Associates, San Jose, CA, USA
SESSION 3.2C (CS-19-1)
Wednesday, July 20, 10:30 am – 12:15 pm, Laurel C
RISK-BASED ASSESSMENT METHODOLOGY
Sponsored by Codes & Standards Technical Committee
Developed by: I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany; A. Chockie, Chockie Group International, Inc., Seattle, WA, USA
Chair: T. Dickson, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany

PVP2011-57008: DERIVATION OF THE NEW PRESSURIZED THERMAL SHOCK SCREENING CRITERIA
T. Dickson, S. Yin, Oak Ridge National Laboratory, Oak Ridge, TN, USA; M. Kirk, U. S. Nuclear Regulatory Commission, Washington, DC, USA; H.-W. Chou, Institute of Nuclear Energy Research, Jiaan Village, Taiwan

PVP2011-57498: BENCHMARK ANALYSIS ON THE FAILURE PROBABILITY ASSESSMENT OF PIPING WITH STRESS CORROSION CRACKS
M. Arakawa, TEPCO Systems Corporation, Tokyo, Japan; N. Kentaro, Japan Atomic Energy Agency, Ibaraki pref, Japan; H. Machida, TEPCO Systems Corporation, Tokyo, Japan; K. Onizawa, Japan Atomic Energy Agency, Tokai-mura, Ibaraki, Japan

PVP2011-57747: STRENGTH ANALYSIS AND SAFETY ASSESSMENT WITH RISK-BASED INSPECTION METHODOLOGY IN THE OPERATING PRESSURE ENHANCEMENT OF LARGE DOUBLE-LAYER REACTORS
X. Ma, X. Qian, Y. Wang, Jiangsu Province Special Equipment Safety Supervision Inspection Institute, Nanjing, Jiangsu, China

SESSION 3.2E (OAC-5-1)
Wednesday, July 20, 10:30 am – 12:15 pm, Falkland
PUMPS AND VALVES
Sponsored by Operations, Applications & Components Technical Committee
Developed by: I. Ezekoye, Westinghouse Electric Co. LLC, Cranberry Woods, PA, USA
Chair: M. Brumovsky, Nuclear Research Institute Rez plc, Rez, Czech Republic
Co-Chair: J. Chan, Southern California Edison, San Clemente, CA, USA

PVP2011-57124: ADVANCES IN THE DESIGN AND QUALIFICATION OF MAIN STEAM AND MAIN FEEDWATER ISOLATION VALVES WITH GAS HYDRAULIC ACTUATORS
R. J. Gradle, F. A. Bensinger, Flowserve Corp., Raleigh, NC, USA

PVP2011-57137: TYPE ACCEPTANCE TESTING OF VALVES—PETROLEUM INDUSTRY USER EXPERIENCE
T. Smart, Shell Global Solutions International, Rijswijk, Netherlands; A. M. Cheta, Shell Projects and Technology, Paris, France

PVP2011-57647: DEVELOPMENT AND TESTING OF A BALL VALVE FOR RESIDUAL REMOVAL SYSTEM FOR NUCLEAR POWER PLANT APPLICATIONS (PRESENTATION ONLY)
T. McMahon, N. Ahrens, Emerson Process Management, Fisher Division, Marshalltown, IA, USA

PVP2011-57722: DEVELOPMENT OF AN ASME QME-1-2007 PROGRAM FOR SAFETY RELATED ACTIVE VALVE ASSEMBLIES AND LESSONS LEARNED DURING THE PROCESS
Developed by: J. Zheng, Institute of Process Equipment, Zhejiang University, Hangzhou, Zhejiang, China; Z. Chen, Zhejiang University, Hangzhou, China
Chair: Z. Chen, Zhejiang University, Hangzhou, China
SESSION 3.2F (FSI-2-9)
Wednesday, July 20, 10:30 am – 12:15 pm, Galena
PIPING VIBRATIONS AND ACOUSTICS III
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: P. Moussou, EDF R&D, Clamart, France; P. Oshkai, University of Victoria, Victoria, BC, Canada
Chair: S. Kaneko, University of Tokyo, Tokyo, Japan
Co-Chair: N. Mureithi, Ecole Polytechnique de Montreal, Montreal, QC, Canada
PVP2011-57017: ACOUSTIC AND VIBRATION ANALYSIS OF FLUID INDUCED BLOWER AND PIPING UNWANTED MOTION
N. Endres, Metrix Instruments Inc., Cincinnati, OH, USA
PVP2011-57946: ANALYSIS OF ACOUSTIC FATIGUE IN SAFETY RELIEF SYSTEMS
J. P. M. Smeulers, P. van Beek, J. Golliard, TNO, Delft, Netherlands
PVP2011-57221: EXPERIMENT AND SIMULATION ON PRESSURE PULSATION ACCOMPANIED BY ACOUSTIC RESONANCE AND PIPING VIBRATION
T. Tsuji, A. Maekawa, T. Takahashi, Institute of Nuclear Safety System, Fukui, Japan; M. Noda, Kansai Electric Power Company, Fukui, Japan; M. Kato, Kobelco Research Institute, Hyogo, Japan; K. Fujita, Osaka City University, Osaka, Japan
PVP2011-57881: STEADY-STATE POSITIONS OF A POP ACTION SAFETY VALVE
J.-F. Rit, C. Teygeman, EDF R&D, Moret-sur-Loing, France; P. Moussou, EDF R&D, Clamart, France

SESSION 3.2G (CT-9-1)
Wednesday, July 20, 10:30 am – 12:15 pm, Heron
NEW AND EMERGING METHODS OF ANALYSIS AND APPLICATIONS
Sponsored by Computer Technology & Bolted Joints Technical Committee
Developed by: Y. H. Park, New Mexico State University, Las Cruces, NM, USA; S. Marie, CEA, Gif sur Yvette, France
Chair: Y. H. Park, New Mexico State University, Las Cruces, NM, USA
Co-Chair: S. Marie, CEA, Gif sur Yvette, France
PVP2011-57169: MODELLING THE TEARING CRACK GROWTH IN A DUCTILE FERRITIC STEEL USING X-FEM ELEMENTS
A. Simatos, B. Prabel, S. Marie, CEA, Gif sur Yvette, France; M. Nedelec, IRSN, Fontenay-aux-Roses, France; A. Combescure, INSA de Lyon, Villeurbanne, France
PVP2011-57748: GROUND STATE STRUCTURE OF CU NANO-CLUSTERS
Y. H. Park, New Mexico State University, Las Cruces, NM, USA; I. Hijazi, Georgia Institute Technology, Atlanta, GA, USA
PVP2011-57822: REFERENCE VOLUME CONSIDERATION IN THE M_ALPHA-TANGENT METHOD BASED ON LINEAR ELASTIC ANALYSIS
R. Adibi-Asl, M. Hossain, AMEC NSS, Toronto, ON, Canada; S. Mahmood, P. S. R. Gudimella, R. Seshadri, Memorial University, St. John’s, NF, Canada

SESSION 3.2H (DA-4-6)
Wednesday, July 20, 10:30 am – 12:15 pm, Harborside A
J EVALUATIONS
Sponsored by Design & Analysis Technical Committee
Developed by: P. Gilles, AREVA, Paris La Défense, France
Chair: R. Beaufils, EDF-SEPTEN, Villeurbanne, France
Co-Chair: M. Smith, British Energy, Gloucester, Glos, United Kingdom
PVP2011-57030: IMPROVED J AND CTOD ESTIMATION FORMULAS FOR C(T) FRACTURE SPECIMENS INCLUDING OVERMATCHED WELDMENTS
R. G. Savioli, C. Ruggieri, University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil
PVP2011-57171: RCC-MRX APPENDIX A16 METHODOLOGY FOR THE ANALYTICAL J CALCULATION UNDER THERMAL AND COMBINED THERMAL + MECHANICAL LOADINGS FOR PIPES AND ELBOWS AND RELATED ASSESSMENT TOOL MJSAM
S. Marie, CEA, Gif sur Yvette, France; M. Nedelec, IRSN, Fontenay-aux-Roses, France; C. Delaval, IRSN, Fontenay-aux-Roses, France
PVP2011-57178: FINITE ELEMENT ANALYSIS FOR J-INTEGRAL OF AXIAL THROUGH-WALL CRACKED ELBOW UNDER BENDING MOMENT
W.-J. Liu, B.-J. Tsai, J.-J. Chen, Y.-S. Du, Institute of Nuclear Energy Research, Atomic Energy Council, Executive Yuan, Taoyuan, Taiwan; W.-S. Liu, Yuan Ze University, Chung Li, Taiwan
PVP2011-58064: FRENCH NUCLEAR REACTOR PRESSURE VESSEL INTEGRITY ASSESSMENT AND LIFE MANAGEMENT STRATEGY
H. Churier-Bossemec, EDF/DIN/SEPTEN, Villeurbanne, France; F. Clemendot, EDF - CEIDRE, Saint Denis, France; P. Todeschini, Electricite de France EDF, Ecuelles, Moret-sur-Loing, France; C. Pages, Electricite de France EDF, Saint-Denis, France; E. Meister, EDF-SEPTEN, Lyon, France; G. Balard, Electricite de France EDF/SEPTEN, Villeurbanne, France

SESSION 3.2I (DA-13-2)
Wednesday, July 20, 10:30 am – 12:15 pm, Essex C
FIELD VERIFICATION OF DESIGN AND ANALYSIS ASSUMPTIONS
Sponsored by Design & Analysis Technical Committee
Developed by: W. Brown, Integrity Engineering Solutions, Dunsborough, Western Australia, Australia; S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA
Chair: W. Koves, Pi Engineering Software Inc., Hoffman Estates, IL, USA
PVP2011-57406: ANTI-SEIZE, FRIEND OR FOE, THE PROPERTIES THAT REALLY MATTER!
D. Reeves, Chevron, Richmond, CA, USA; D. Oldiges, Jet-Lube Inc., Houston, TX, USA; W. Garrison, Chevron Products Company, Pascagoula, MS, USA
PVP2011-57406: FRENCH NUCLEAR REACTOR PRESSURE VESSEL INTEGRITY ASSESSMENT AND LIFE MANAGEMENT STRATEGY
H. Churier-Bossemec, EDF/DIN/SEPTEN, Villeurbanne, France; F. Clemendot, EDF - CEIDRE, Saint Denis, France; P. Todeschini, Electricite de France EDF, Ecuelles, Moret-sur-Loing, France; C. Pages, Electricite de France EDF, Saint-Denis, France; E. Meister, EDF-SEPTEN, Lyon, France; G. Balard, Electricite de France EDF/SEPTEN, Villeurbanne, France

SESSION 3.2J (DA-13-2)
Wednesday, July 20, 10:30 am – 12:15 pm, Essex C
FIELD VERIFICATION OF DESIGN AND ANALYSIS ASSUMPTIONS
Sponsored by Design & Analysis Technical Committee
Developed by: W. Brown, Integrity Engineering Solutions, Dunsborough, Western Australia, Australia; S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA
Chair: W. Koves, Pi Engineering Software Inc., Hoffman Estates, IL, USA
PVP2011-57406: ANTI-SEIZE, FRIEND OR FOE, THE PROPERTIES THAT REALLY MATTER!
D. Reeves, Chevron, Richmond, CA, USA; D. Oldiges, Jet-Lube Inc., Houston, TX, USA; W. Garrison, Chevron Products Company, Pascagoula, MS, USA
PVP2011-57556: THE INFLUENCE OF WINDING DENSITY IN THE SEALING BEHAVIOR OF SPIRAL WOUND GASKETS
J. Veiga, Teadit Industria e Comercio Ltd.a, Rio de Janeiro, Brazil; D. Reeves, Chevron, Richmond, CA, USA; C. Cipolatti, Teadit Industria e Comercio Ltd.a, Rio de Janeiro, Brazil; N. Kavanagh, Teadit Juntas Ltd.a, Rio de Janeiro, RJ, Brazil
SESSION 3.2M (MF-29-2)
Wednesday, July 20, 10:30 am – 12:15 pm, Laurel A
PANEL SESSION: SESSION B
Sponsored by Materials & Fabrication Technical Committee
Developed by: R. Iyengar, U. S. Nuclear Regulatory Commission, Washington, DC, United States
Chair: R. Iyengar, U. S. Nuclear Regulatory Commission, Washington, DC, United States
Panelists:
M. Rabiei, University of Maryland, College Park, USA
N. Siu, NRC, Gaithersburg, USA
C. Sallaberry, Sandia National Laboratories, Albuquerque, USA
J. C. Helton, Arizona State University, Tempe, USA

SESSION 3.2N (MF-17-2)
Wednesday, July 20, 10:30 am – 12:15 pm, Laurel B
PROBABILISTIC APPLICATIONS IN FRACTURE MECHANICS
Sponsored by Materials & Fabrication Technical Committee
Developed by: A. Chakraborty, Structural Integrity Associates, San Jose, CA, USA
Chair: A. Chakraborty, Structural Integrity Associates, San Jose, CA, USA
Co-Chair: H. Qian, Structural Integrity Associates, Inc., San Jose, CA, USA

PVP2011-57864: PROBABILISTIC FRACTURE MECHANICS APPLIED FOR DHC ASSESSMENT IN THE COOL-DOWN TRANSIENTS FOR CANDU PRESSURE TUBES
V. Radu, Institute for Nuclear Research Pitesti, Mioveni, Romania; M. Roth, Institute for Nuclear Research, Pitesti, Romania

PVP2011-57937: STRATEGIES FOR TREATING WELD RESIDUAL STRESSES IN PROBABILISTIC FRACTURE MECHANICS CODES
B. Brust, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; D.-J. Shim, R. Kurth, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

PVP2011-57591: PROBABILISTIC ASSESSMENT OF DISSIMILAR METAL WELDS IN CANDU REACTORS
M. Wang, X. Duan, M. Kozluk, Atomic Energy of Canada Ltd., Mississauga, ON, Canada

SESSION 3.2O (MF-12-2)
Wednesday, July 20, 10:30 am – 12:15 pm, Iron
PIPELINE INTEGRITY II
Sponsored by Materials & Fabrication Technical Committee
Developed by: X.-K. Zhu, Battelle Memorial Institute, Columbus, OH, USA
Chair: S. Cravero, Tenaris, Campana, Argentina
Co-Chair: X.-K. Zhu, Battelle Memorial Institute, Columbus, OH, USA

PVP2011-57176: DETERMINATION OF BURST PRESSURE FOR LINE PIPES WITH LONG BLUNT DEFECTS
X.-K. Zhu, B. Leis, Battelle, Columbus, OH, USA

PVP2011-58044: MISMATCH EFFECT ON FRACTURE DRIVING FORCE IN MISMATCHED GIRTH WELDED PIPES
G. Castelluccio, S. Cravero, R. Bravo, H. Ernst, Tenaris, Campana, Argentina

PVP2011-57199: FAILURE ANALYSIS OF EXPANSION JOINT BELLOWS OF GAS PIPELINES
L. Zhiming, Zhejiang University of Technology, Hangzhou, China; L. Zhaoai, Hangzhou Petrochemical Company Limited, Hangzhou, China; Z. Chenhui, G. Honggang, Zhejiang University of Technology, Hangzhou, China

SESSION 3.2P (OAC-1-2)
Wednesday, July 20, 10:30 am – 12:15 pm, James
SAFETY, RELIABILITY AND RISK ASSESSMENT II
Sponsored by Operations, Applications & Components Technical Committee
Developed by: N. Gupta, Savannah River National Laboratory, Aiken, SC, USA
Chair: S. Harris, Savannah River National Laboratory, Aiken, SC, USA
Co-Chair: T. Liszkai AREVA Inc, Lynchburg, VA, USA

PVP2011-57076: LIFE PREDICTION OF T91 WELDED JOINT AND ITS ENGINEERING APPLICATION UNDER CONSIDERATION OF WELDING RESIDUAL STRESSES
C. Zhou, Nanjing University of Technology, Nanjing, Jiangsu, China; G. Zhang, Suzhou Nuclear Power Research Institute, Suzhou, Jiangsu, China

PVP2011-57553: ASSESSMENT OF SAFETY INTEGRITY OF LDPE TUBULAR REACTOR WITH EMERGENCY PRESSURE RELIEF REQUIREMENT CONSIDERATION
J. Zhu, X. Chen, Z. Ai, W. Guan, L. Zhuang, Z. Fang, Hefei General Machinery Research Institute, Hefei, Anhui, China

PVP2011-57996: INFLUENCE OF CONSTRAINT AT THE CRACK-TIP FIELD ON THE FAILURE ASSESSMENT CURVE FOR THE COMPONENT WITH FLAWS
G. Chen, Shanghai Electric Power Generation Equipment Co., Ltd. Shanghai Turbine Plant, Shanghai, China; G. C. Jiao, P. Jiang, W. Z. Wang, Y. Z. Liu, Shanghai Jiao Tong University, Shanghai, China

SESSION 3.2Q (SPC-1-10)
Wednesday, July 20, 10:30 am – 12:15 pm, Kent A
STUDENT PAPER SYMPOSIUM—3
Sponsored by PVP Division Senate
Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium

J. Tan, G. Wang, F.-Z. Xuan, Z. Wang, S.-T. Tu, East China University of Science and Technology, Shanghai, China

PVP2011-57061: MICROSCALE FLOW PUMPING INSPIRED BY RHYTHMIC TRACHEAL COMPRESSIONS IN INSECTS
Y. Aboelkassem, A. E. Staples, J. J. Socha, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA
PVP2011-57186: THE DESIGN OF ULTRA-LARGE HYDRAULIC-BALANCE OIL TANK WITH DOUBLE-SHELL
G. Cao, Z. Chen, W. Guo, Zhejiang University, Hangzhou, China
PVP2011-57656: FLAW INVESTIGATION IN A MULTI-LAYER, MULTI-MATERIAL COMPOSITE: USING FEM AND AIR-COUPLED UT
R. Livings, V. Dayal, Iowa State University, Ames, IA, USA; D. Barnard, D. Hsu, Center for Nondestructive Evaluation, Ames, IA, USA
PVP2011-57590: INVESTIGATION INTO THE EFFECT OF RESIDUAL STRESS ON CRACK-TIP CONSTRAINT AND BRITTLE FRACTURE
R. Hurlston, A. Sherry, University of Manchester, Manchester, Lancs, United Kingdom; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom

SESSION 3.2R (SPC-1-9)
Wednesday, July 20, 10:30 am – 12:15 pm, Kent B
STUDENT PAPER SYMPOSIUM—2
Sponsored by PVP Division Senate
Developed by: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Chair: A. A. Dermenjian, Sargent & Lundy LLC, Chicago, IL, USA
Co-Chair: L. Geraets, GDF SUEZ Nuclear Activities, Brussels, Belgium
PVP2011-57052: REDESIGN OF AN ADJUSTABLE SLOPE MOVING GROUND PLANE WIND TUNNEL
M. Boots, M. Hubbell, G. Angle, W. Pertl, J. Smith, West Virginia University, Morgantown, WV, USA
PVP2011-57140: APPLICATION OF RBI METHOD TO INCREASE THE EFFICIENCY OF FURNACE B-1201 BELONGING TO ENAP ACONCAGUA REFINERY, CHILE
I. Fernandes, Universidad Simón Bolívar - Venezuela, Caracas, Distrito Federal, Venezuela; F. S. Peirano, ENAP (Empresa Nacional de Petróleo) Refinerías, Aconcagua, Chile, Concon, Quinta Región, Chile; O. P. Monroy, Universidad Simón Bolívar, Caracas, Distrito Federal, Venezuela
PVP2011-57024: AN EXPERIMENTAL AND NUMERICAL INVESTIGATION OF RESIDUAL STRESSES IN BUTT WELDING OF TWO MILD STEEL PLATES
G. Singh, G. Brar, Guru Nanak Dev Engineering College, Ludhiana, India
PVP2011-57497: FATIGUE CRACK GROWTH BEHAVIOR OF THREADED PIPE COUPLINGS
J. Van Wittenberghe, P. De Baets, W. De Waele, Ghent University, Gent, Belgium
PVP2011-57989: NUMERICAL SIMULATION OF THE TRANSIENT PHASE CHANGE HEAT TRANSFER IN A PRESSURIZED WATER REACTOR CORE DURING A LOSS-OF-COOLANT ACCIDENT
S. W. Jo, University of Florida, Gainesville, FL, USA; Y. K. Lee, ANFLUX, Seoul, Korea (Republic); J. C. Jo, Korea Institute of Nuclear Safety, Daejon, Korea (Republic)

SESSION 3.2S (TT-1-10)
Wednesday, July 20, 10:30 am – 12:15 pm, Harborside B
TECHNICAL TUTORIAL: FLOW-INDUCED VIBRATION OF HEAT EXCHANGERS AND STEAM GENERATORS—PART II
Sponsored by the PVP Division Conference Committee
Developed by: M. Nitzel, M. E. Nitzel Engineering Services, Nampa, ID, USA
Chair: M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA
Presented by: M. J. Pettigrew, Ecole Polytechnique, Montreal, QC, Canada

THURSDAY, JULY 21

Block 4.1: Thursday, July 21 (8:30 am – 10:15 am)

SESSION 4.1B (CS-23-8)
Thursday, July 21, 8:30 am – 10:15 am, Harborside E
ISSUES RELATED TO LEAK-BEFORE-BREAK: PROBABILISTIC METHODS
Sponsored by Codes & Standards and Materials & Fabrication Technical Committees
Developed by: J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom; B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom
Chair: J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom
Co-Chair: B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom
PVP2011-57531: EXTREMELY LOW PROBABILITY OF RUPTURE (XLPR) VERSION 1.0 CODE—PILOT STUDY PROBLEM RESULTS
D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA; C. Harrington, Electric Power Research Institute, Dallas, TX, USA
PVP2011-57871: POTENTIAL FUTURE DIRECTIONS OF LBB APPROACHES (Presentation Only)
G. Wilkowski, B. Brust, D.-J. Shim, K. Wichman, R. Kurth, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; A. Blahoianu, A. Shalabi, CNSC, Ottawa, ON, Canada
PVP2011-57680: USE OF LBB METHODOLOGY TO SUPPORT THE TRANSITION BREAK SIZE CONCEPT
PVP2011-57939: ROBUST LBB ANALYSES FOR ATUCHA II NUCLEAR PLANT

SESSION 4.1C (CS-5-1)
Thursday, July 21, 8:30 am – 10:15 am, Laurel C
ENVIRONMENTAL FATIGUE ISSUES—I
Sponsored by Codes & Standards and Material & Fabrication
Technical Committees
Developed by: H. Mehta, GE Hitachi Nuclear Energy, San Jose, CA, USA; M. Higuchi, IHI Technology Solutions Inc., Yokohama, Japan
Chair: H. Mehta, GE Hitachi Nuclear Energy, San Jose, CA, USA
Co-Chair: G. Stevens, U.S. Nuclear Regulatory Commission, Washington, DC, USA

PVP2011-57083: A CONSIDERATION OF MARGIN ON FATIGUE DESIGN CURVES FOR CARBON AND LOW-ALLOY STEELS
M. Higuchi, IHI Technology Solutions Inc., Yokohama, Japan; M. Takanashi, IHI Corporation, Yokohama, Japan; I. Tamura, Chugoku Electric Power Co., Inc., Hiroshima, Japan; T. Takada, Toshiba Corporation Power System Company, Yokohama, Japan

PVP2011-57094: SURVEY OF KE-FACTOR ON STRAIN FOR STRAIN RATE IN ENVIRONMENTAL FATIGUE EVALUATION
S. Asada, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan

PVP2011-57435: EXAMINATION OF FACTOR ON THE MODIFIED RATE APPROACH METHOD UNDER VARIOUS CONDITIONS
S. Asada, Mitsubishi Heavy Industries, Ltd., Kobe, Hyogo, Japan; Y. Fukuta, Y. Nomura, H. Kanasaki, Mitsubishi Heavy Industries, Takasago, Japan

PVP2011-57651: INVESTIGATION OF DIFFERENCES IN THE FINITE ELEMENT SOLUTION OF A SAMPLE FATIGUE CUMULATIVE USAGE FACTOR CALCULATION PROBLEM
G. Stevens, U.S. Nuclear Regulatory Commission, Rockville, MD, USA; T. Gilman, Structural Integrity Associates, San Jose, CA, USA; H. J. Rathbun, U. S. Nuclear Regulatory Commission, Washington, DC, USA

SESSION 4.1D (CS-8-1)
Thursday, July 21, 8:30 am – 10:15 am, Laurel D
API 579/ASME CODE FITNESS-FOR-SERVICE AND STORAGE TANK ACTIVITIES
Sponsored by Codes & Standards Technical Committee
Developed by: J. Janelle; D. Osage, Equity Engineering Group, Inc., Shaker Heights, OH, USA
Chair: R. Brown, Equity Engineering Group, Shaker Heights, OH, USA
Co-Chair: M. Rana, Praxair, Inc., Tonawanda, NY, USA

PVP2011-57019: TECHNICAL BASIS FOR EVALUATION OF US DOT SEAMLESS PRESSURE VESSELS WITH DEFECTS ON THREADED NECK USED FOR STRUCTURAL SUPPORT (Presentation Only)
M. Rana, Praxair, Inc., Tonawanda, NY, USA; D. Treadwell, CP Industries, McKeeports, PA, USA; S. Ramachandran, A. K. Khanal, City Machine & Welding, Inc, Amarillo, VT, USA

PVP2011-57937: API 650 FRANGIBLE JOINT AND ALUMINUM DOME ROOF TANKS FIRE PROTECTION/SAFETY
G. L. Morovich, Tank and Environmental Technologies, Inc., The Woodlands, TX, USA; M. Baker, Baker Consulting Group, Granville, OH, USA

PVP2011-57145: EFFECT OF LOCAL GEOMETRIC DEFECTS ON AXIAL BUCKLING OF WELDED STEEL TANKS
Z. Chen, C. Yu, S. Yan, L. Yang, G. Cao, Zhejiang University, Hangzhou, China

SESSION 4.1E (MF-13-1)
Thursday, July 21, 8:30 am – 10:15 am, Falkland
SMALL PUNCH TESTING
Sponsored by Materials & Fabrication Technical Committee
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; T. H. Hyde, University of Nottingham, Nottingham, United Kingdom
Chair: A. P. Gordon, University of Central Florida, Orlando, FL, USA
Co-Chair: T. Meshii, University of Fukui, Fukui, Fukui, Japan

PVP2011-57491: DEVELOPMENT OF COMPACT SMALL PUNCH CREEP TESTING EQUIPMENT
H. Watanabe, A. Kanaya, Kyushu Electric Power Co., Inc., Fukuoka, Japan; J. Kusumoto, Kyushu Electric Power Co., Inc., Kumamoto, Japan; T. Tsurui, Kobe Material Testing Laboratory Co., Ltd., Hyogo, Japan

PVP2011-57736: INFLUENCE OF TESTING ENVIRONMENT AND RADIUS OF DIE SHOULDER ON SP CREEP RUPTURE LIFE
K. Kobayashi, M. Kaneko, H. Koyama, Chiba University, Chiba, Japan; G. C. Stratford, Swansea University, Swansea, United Kingdom; M. Tabuchi, NIMS, Tsukuba, Japan

PVP2011-57770: CREEP PROPERTY MEASUREMENT OF HEAT-RESISTANT MATERIALS BY SMALL PUNCH CREEP TEST (Presentation Only)
S. Komazaki, Kagoshima University, Kagoshima, Japan

SESSION 4.1F (FSI-1-1)
Thursday, July 21, 8:30 am – 10:15 am, Galena
FLUID TRANSIENTS/VIBRATIONS
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: A. Arastu, Bechtel Power Corporation, San Francisco, CA, USA; F. Moody, General Electric (Retired), Murphys, CA, USA
Chair: S. Martin, Georgia Institute of Technology, South Dennis, MA, USA
Co-Chair: F. Moody, General Electric (Retired), Murphys, CA, USA

PVP2011-57405: DESIGN OF AN AUTOMATIC WATERHAMMER PREVENTION SYSTEM
H. Harling, Duke Energy, Seneca, SC, USA

PVP2011-57451: MAIN LINE CONSTANT SPRING SUPPORT FAILURES
G. Szaasz, Stress Engineering Services, Inc., Metairie, LA, USA; C. Wandell, W. Borroto, Arizona Public Service, Tonopah, AZ, USA; M. Jaeger, Structural Integrity Associates, Inc., Centennial, CO, USA

PVP2011-57534: PIPE RUPTURE ANALYSIS CONSIDERING FLUID-STRUCTURE INTERACTION
Y. Hamamoto, M. Toyoda, IHI Corporation, Yokohama, Japan

PVP2011-57799: COOLANT FLUCTUATIONS CAUSED BY PULSE PERTURBATION OF PRESSURE IN THE PRIMARY CIRCUIT NPP WITH VVER-1000
K. Proskuryakov, S. Belikov, K. Novikov, Moscow Power Engineering Institute (Technical University), Moscow, Russia

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SESSION 4.1G (CT-11-1)
Thursday, July 21, 8:30 am – 10:15 am, Heron
COMPUTATIONAL MODELS FOR LIMIT LOAD, ELASTIC-PLASTIC
ANALYSIS AND CREEP
Sponsored by Computer Technology & Bolted Joints Technical
Committee
Developed by: W. Reinhardt, Atomic Energy of Canada Ltd.,
Mississauga, ON, Canada; R. Adibi-Asl, AMEC NSS,
Toronto, ON, Canada
Chair: W. Reinhardt, Atomic Energy of Canada Ltd.,
Mississauga, ON, Canada
Co-Chair: R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada
PVP2011-57046: RATCHET LIMITS FOR A CRACK IN A WELDED PIPE
SUBJECTED TO A CYCLIC TEMPERATURE LOAD AND A CONSTANT
MECHANICAL LOAD
T. Li, H. Chen, W. Chen, J. Ure, University of Strathclyde, Glasgow, United
Kingdom
PVP2011-57097: PLASTIC BEHAVIOUR OF SMALL BORE PIPING
BEND/ELBOW UNDER COMBINED INTERNAL PRESSURE AND
BENDING MOMENT
X. Duan, M. Kozluk, Atomic Energy of Canada Ltd., Mississauga, ON,
Canada
PVP2011-57161: MECHANICAL BEHAVIOUR OF ALLOY 800 STEAM
GENERATOR TUBE WITH A CIRCUMFERENTIAL CRACK LIKE
THROUGHWALL FLAW
C. Wang, X. Duan, Atomic Energy of Canada Ltd., Mississauga, ON,
Canada; M. Jain, McMaster University, Hamilton, ON, Canada
PVP2011-58005: COMPARISON OF CYCLIC AND BURST TEST
RESULT WITH FE SIMULATION OF A LOCALLY THINNED PIPE BEND
W. Reinhardt, A. Asadkarami, Atomic Energy of Canada Ltd., Mississauga,
ON, Canada

SESSION 4.1H (DA-4-7)
Thursday, July 21, 8:30 am – 10:15 am, Harborside A
PROPAGATION AND RESIDUAL STRESSES
Sponsored by Design & Analysis Technical Committee
Developed by: P. Gilles, AREVA, Paris La Défense, France
Chair: E. Molinie, EDF/CEIDRE/DLAB, Avoine, France
Co-Chair: J. A. Le Duff, AREVA NP, Paris La Défense, France
PVP2011-57998: MODEL SIZE EFFECT ON THREE-DIMENSIONAL
STRESS STATE AND CRACK-TIP CONSTRAINT FOR MT AND SET
SPECIMENS
G. C. Jiao, W. Z. Wang, Y. Z. Liu, H. P. Chen, Shanghai Jiao Tong
University, Shanghai, China
PVP2011-57168: MISMATCH EFFECT ON CT SPECIMEN
MECHANICAL EFFECT AND CONSEQUENCES ON THE WELD
toughness CHARACTERIZATION
S. Marie, CEA, GIF sur Yvette, France; M. Nedelec, IRSN, Fontenay-aux-Roses, France
PVP2011-57004: A FINITE ELEMENT STUDY OF THE EFFECT OF
PARTIAL AUTOFRETTAGE ON THE FATIGUE LIFE OF THICK-WALLED
CYLINDERS CONTAINING EROSIONS AND CRACKS
Q. Ma, Walla Walla University, College Place, WA, USA; L. Cesar, Florida
International University, Miami, FL, USA; P. Mordechai, Ben Gurion
University of the Negev, Beer Sheva, Israel

SESSION 4.1I (DA-7-1)
Thursday, July 21, 8:30 am – 10:15 am, Essex C
COMPOSITE MATERIALS AND STRUCTURES
Sponsored by Design & Analysis and Materials & Fabrication
Technical Committees
Developed by: P. Mertiny, University of Alberta, Edmonton, AB, Canada
Chair: P. Mertiny, University of Alberta, Edmonton, AB, Canada
Co-Chair: H. Faria, INEGI, Porto, Portugal
PVP2011-57692: EFFECT OF ADHESIVES ON THE MECHANICAL
BEHAVIOR OF THICK COMPOSITE JOINTS
S. Nassar, J. Mao, X. Yang, Oakland University, Rochester, MI, USA; D.
Templeton, Tardec, Warren, MI, USA
PVP2011-57870: MANUFACTURING OF LARGE-SCALE
POLYURETHANE-LINED FRP PIPING
P. Mertiny, R. Popella, University of Alberta, Edmonton, AB, Canada; K.
Juss, Canusa-CPS, Toronto, ON, Canada
PVP2011-58084: EFFECTS OF ADHESIVE THICKNESS ON GLOBAL
AND LOCAL MIXED MODE I/III INTERFACIAL FRACTURE OF BONDED
JOINTS
G. Ji, Z. Ouyang, G. Li, W. Xu, Louisiana State University, Baton Rouge,
LA, USA; D. Jerro, Southern University and A&M College, Baton Rouge,
LA, USA; S.-S. Pang, Louisiana State University, Baton Rouge, LA, USA

SESSION 4.1J (DA-6-1)
Thursday, July 21, 8:30 am – 10:15 am, Essex B
STRESS CLASSIFICATION
Sponsored by Design & Analysis Technical Committee
Developed by: I. F. Z. Fanous, Atomic Energy of Canada Ltd.,
Mississauga, ON, Canada; D. Vlaicu, Ontario Power
Generation, Pickering, ON, Canada
Chair: I. F. Z. Fanous, Atomic Energy of Canada Ltd.,
Mississauga, ON, Canada
Co-Chair: D. Vlaicu, Ontario Power Generation, Pickering, ON,
Canada
PVP2011-57457: AXISYMMETRIC FINITE ELEMENT ANALYSIS FOR
FLOATING ROOFS OF ABOVEGROUND STORAGE TANKS UNDER
ACCUMULATED RAIN WATER CONDITION
S. Yoshida, Yokohama National University, Yokohama, Japan
PVP2011-57599: ESTIMATION OF V* FACTOR FOR
CIRCUMFERENTIAL CRACKED PIPES UNDER COMBINED THERMAL
AND MECHANICAL STRESSES USING STRAIN-BASED FAILURE
ASSESSMENT DIAGRAM
C.-Y. Oh, Y.-J. Kim, D. Ryu, Korea University, Seoul, Korea (Republic); P.
Budden, EDF Energy, Gloucester, Gloucestershire, United Kingdom; R.
Ainsworth, University of Manchester, Manchester, United Kingdom
PVP2011-57149: STRENGTH EVALUATION FOR PRESSURE-
CONTAINING PARTS OF ULTRA-HIGH-PRESSURE COMPRESSOR BY
USING STANDARDS OF ULTRA-HIGH-PRESSURE GAS EQUIPMENT
Y. Tanno, T. Naruse, Hitachi, Ltd. Mechanical Engineering Research Laboratory, Hitachinaka, Ibaraki, Japan; S. Arai, S. Kurita, Hitachi Plant Technologies, Ltd., Tsuchiura, Ibaraki, Japan

SESSION 4.1L (MF-20-1)
Thursday, July 21, 8:30 am – 10:15 am, Harborside D
MATERIAL, SYSTEM DEGRADATION AND MODELING IN AGING PVP OR COMPLEX SYSTEMS NETWORKS
Sponsored by Materials & Fabrication Technical Committee
Developed by: A. Duncan, Savannah River National Laboratory, Aiken, SC, USA; B. Wiersma, Savannah River Nuclear Solutions, Aiken, SC, USA
Chair: A. J. Duncan, Savannah River National Laboratory, Aiken, SC, USA
Co-Chair: K. Reifsnider, University South Carolina, Columbia, SC, USA
PVP2011-57885: HIGH TEMPERATURE DAMAGE AND FAILURE ASSESSMENT OF PLANT COMPONENTS
B. Dogan, EPRI, Charlotte, NC, USA
PVP2011-57877: DURABILITY METHODOLOGIES FOR MATERIAL SYSTEMS
K. Reifsnider, R. Raihan, P. Majumdar, University of South Carolina, Columbia, SC, USA
PVP2011-57570: DETERMINATION OF MATERIAL DEGRADATION AT VARIOUS ENVIRONMENTAL CONDITIONS
Z. Wang, C. Liu, F.-Z. Xuan, S.-T. Tu, East China University of Science and Technology, Shanghai, China

SESSION 4.1M (MF-7-3)
Thursday, July 21, 8:30 am – 10:15 am, Laurel A
MATERIALS AND TECHNOLOGIES FOR NUCLEAR POWER PLANTS III
Sponsored by Materials & Fabrication Technical Committee
Developed by: W. Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA; R. Swindeman, Cromtech Inc, Oak Ridge, TN, USA
Chair: T.-L. Sham, Oak Ridge National Laboratory, Oak Ridge, TN, USA
Co-Chair: W. Ren, Oak Ridge National Laboratory, Oak Ridge, TN, USA
PVP2011-57156: TENSILE CHARACTERIZATION OF A GTAW BIMETALLIC WELD MOD 9CR-1MO316L(N) WITH A NEW MEASUREMENT SYSTEM FOR TENSILE TESTING
O. Ancelet, G. Perez, CEA, Gif sur Yvette, France; I. Forest, CEA, Gif-sur-Yvette, France
PVP2011-57891: RELIABILITY ASSESSMENT OF CREEP RUPTURE LIFE FOR GR. 91 STEEL BY INTERFERENCE MODEL
W.-G. Kim, Korea Atomic Energy Research Institute, Daejeon, Korea (Republic); J.-Y. Park, Pukyong National University, Busan, Korea (Republic); S.-N. Yin, D.-W. Kim, J.-Y. Park, Korea Atomic Energy Research Institute, Daejeon, Korea (Republic); S.-J. Kim, Pukyong National University, Busan, Korea (Republic)
PVP2011-58089: STRUCTURAL ANALYSIS OF MECHANICAL MODULES FOR MODULAR DESIGNED NUCLEAR PLANTS
S. K. Sherfey, Westinghouse Electric Company, Chattanooga, TN, USA

SESSION 4.1N (MF-11-1)
Thursday, July 21, 8:30 am – 10:15 am, Laurel B
SCC AND CORROSION FATIGUE—EXPERIMENTS
Sponsored by Materials & Fabrication Technical Committee
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
Chair: D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA
PVP2011-57026: DELAYED FRACTURE OF AN ALUMINUM ALLOY SUBJECTED TO HG LME
S. Keller, A. P. Gordon, University of Central Florida, Orlando, FL, USA
PVP2011-57463: CYCLIC AND SCC BEHAVIOR OF ALLOY 152 WELD IN PWR ENVIRONMENT
B. Alexandreanu, Y. Chen, K. Natesan, W. Shack, Argonne National Laboratory, Argonne, IL, USA
PVP2011-57728: CYCLIC CRACK GROWTH RATE OF IRRADIATED AUSTENITIC STAINLESS STEEL WELDS IN SIMULATED BWR ENVIRONMENT
Y. Chen, B. Alexandreanu, W. Shack, Argonne K. Natesan, Argonne National Laboratory, Argonne, IL, USA; A. Rao, US NRC, Rockville, MD, USA
PVP2011-58051: INITIATION STRESS THRESHOLD IRRADIATION ASSISTED STRESS CORROSION CRACKING CRITERION ASSESSMENT FOR CORE INTERNALS IN PWR ENVIRONMENT
B. Tanguy, Commissariat à l'Energie Atomique, Gif sur Yvette, France; C. Pokor, EDF R&D, Moret sur Loing, France; A. Stern, P. Bossis, Commissariat à l'Energie Atomique, Gif sur Yvette, France

SESSION 4.1O (MF-6-1)
Thursday, July 21, 8:30 am – 10:15 am, Iron
FITNESS FOR SERVICE AND FAILURE ASSESSMENT 1
Sponsored by Materials & Fabrication Technical Committee
Developed by: M. Cohn, Intertek APTECH, Sunnyvale, CA, USA
Chair: M. Cohn, Intertek APTECH, Sunnyvale, CA, USA
Co-Chair: B. Wiersma, Savannah River Nuclear Solutions, Aiken, SC, USA
PVP2011-57099: INELASTIC FRACTURE MECHANICS MODEL FOR ASSESSMENT OF CRACK-LIKE FLAWS
C. Jaske, S. J. Polasik, C. Maier, DNV Columbus, Inc., Dublin, OH, USA
PVP2011-57022: STRUCTURAL INTEGRITY ASSESSMENT OF NOTCHED COMPONENTS
S. Cicero, V. Madrazo, I. Carrascal, University of Cantabria, Santander, Cantabria, Spain; M. Laporta, University of Cantabria, Santander, Spain
PVP2011-57438: CREEP DAMAGE ASSESSMENT PROCEDURE FOR WELDMENT PARTS OF P91 BOILER PIPING IN USC PLANTS. (PART I: DEVELOPMENT OF STRESS ANALYSIS CODE FOR BOILER PIPING SYSTEMS)
T. Sakai, T. Ogata, Central Research Institute of Electric Power Industry,
Kanagawa, Japan

SESSION 4.1P (SE-12-1)
Thursday, July 21, 8:30 am – 10:15 am, James
BASE ISOLATION AND VIBRATION CONTROL SYSTEMS I
Sponsored by Seismic Engineering Technical Committee
Developed by: O. Furuya, Tokyo City University, Tokyo, Japan
Chair: O. Furuya, Tokyo City University, Tokyo, Japan
Co-Chair: K. Minagawa, Saitama Institute of Technology, Saitama, Japan

PVP2011-57016: A LOAD COMBINATION METHOD FOR SEISMIC DESIGN OF MULTIPLE SUPPORTED PIPING SYSTEMS WITH FRICTION CHARACTERISTICS: PART 2, CORRELATED EXCITATIONS CONSIDERING CHARACTERISTICS OF SUPPORTS
T. Yamauchi, K. Tsuchikawa, A. Yokota, A. Masuda, A. Sone, Kyoto Institute of Technology, Kyoto, Japan

PVP2011-57037: SEISMIC RESPONSE ANALYSIS OF MULTIPLE SUPPORTED PIPING SYSTEM CONSIDERING FRICTION CHARACTERISTICS OF SUPPORT
A. Sone, K. Tsuchikawa, T. Yamauchi, A. Masuda, Kyoto Institute of Technology, Kyoto, Japan

PVP2011-57252: STOCHASTIC FLOOR RESPONSE SPECTRA FOR AN ACTIVELY-CONTROLLED SECONDARY SYSTEM
T. Mochio, Kinki University, Kinokawa, Japan

PVP2011-57886: SEMI-ACTIVE CONTROL OF CIVIL STRUCTURES WITH A SIMULTANEOUS REDUCED-ORDER MODELING AND A TUNING OF THE CONTROL LAW
K. Hiramato, Niigata University, Niigata, Japan; T. Matsuoka, Meiji University, Kawasaki, Kanagawa, Japan; K. Sunakoda, Sanwa Tekki Corporation, Shinagawa-ku, Tokyo, Tokyo, Japan

Block 4.2: Thursday, July 21 (10:30 am – 12:15 pm)

SESSION 4.2B (CS-23-9)
Thursday, July 21, 10:30 am – 12:15 pm, Harborside E
ISSUES RELATED TO LEAK-BEFORE-BREAK: DETERMINISTIC METHODS
Sponsored by Codes & Standards and Materials & Fabrication Technical Committees
Developed by: G. Wilkowski, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom
Chair: B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom
Co-Chair: J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom

PVP2011-57941: LESSON LEARNED FOR NUCLEAR PIPING INTEGRITY IN NEW REACTORS
G. Wilkowski, B. Brust, P. Krishnaswamy, K. Wichman, D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA

SESSION 4.2D (CS-20-2)
Thursday, July 21, 10:30 am – 12:15 pm, Laurel D
FUSION REACTOR COMPONENT RULES FOR STRUCTURAL INTEGRITY—I
Sponsored by Codes & Standards Technical Committee and the ASME Nuclear Engineering Division

PVP2011-57978: LEAK BEFORE BREAK ASSESSMENT IN JSME STANDARD
Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan

PVP2011-57321: FAILURE PROBABILITY ASSESSMENT OF PIPING SYSTEMS AFFECTED BY SCC AND PIPE WALL THINNING FOR LBB ANALYSIS
H. Chitose, H. Machida, Tepco Systems Corporation, Tokyo, Japan; I. Saito, Japan Nuclear Technology Institute, Tokyo, Japan

PVP2011-57351: LBB PRACTISE IN THE CZECH REPUBLIC (Presentation Only)
J. Zdarek, P. Samohyl, J. Rydlova, Nuclear Research Institute Rez plc, Rez, Czech Republic

SESSION 4.2C (CS-4-2)
Thursday, July 21, 10:30 am – 12:15 pm, Laurel C
RATCHETING AND FATIGUE ISSUES IN PRESSURE VESSEL AND PIPING DESIGN—I
Sponsored by Codes & Standards Technical Committee
Developed by: R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada; W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada
Chair: R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada
Co-Chair: W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada

PVP2011-57205: RATCHETTING RESPONSES OF STRAIN HARDENING PLASTICITY MODELS
H. Indermohan, W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada

PVP2011-58009: PROGRESSIVE DEFORMATION IN PIPING SUBJECTED TO INTERNAL PRESSURE AND CYCLIC SECONDARY BENDING
M. Möller, A. Olsson, Areva NP Uddcomb AB, Helsingborg, Sweden

PVP2011-58024: THERMAL FATIGUE TESTING AND ANALYSIS OF STAINLESS STEEL GIRTH BUTT WELD PIPING
T. Damiani, M. Zechmeister, R. D. Reinheimer, Bechtel Marine Propulsion Corp., West Mifflin, PA, USA; D. Jones, DP Jones and Associates, Pittsburgh, PA, USA

PVP2011-57249: LIFE ENHANCEMENT TECHNIQUES FOR AUTOFRETTAGED STRUCTURAL INTEGRITY AND DURABILITY: AN APPROACH FOR FATIGUE LIFE OF MATERIALS
M. Khan, Y. Mashal, University of Engineering and Technology Taxila, Taxila, Punjab, Pakistan; M. A. Malik, National University of Science and Technology, Islamabad, Pakistan; S. Khushnood, University of Engineering and Technology Taxila, Taxila, Pakistan; M. Khan, Zamurd Zabud Tehqiq Home, Islamabad, Pakistan; M. A. Khan, HIT Education City, Taxila, Pakistan
SESSION 4.2E (MF-13-2) 
Thursday, July 21, 10:30 am – 12:15 pm, Falkland 
MINIATURE SPECIMEN TESTING 
Sponsored by Materials & Fabrication Technical Committee 
Developed by: B. Dogan, EPRI, Charlotte, NC, USA; D. Kwon, Seoul National University, Seoul, Korea (Republic) 
Chair: H. Watanabe, Chiba University, Chiba, Japan 
Co-Chair: W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada 
PVP2011-57114: FRAMEWORK TO CORRELATE TEST SPECIMEN THICKNESS EFFECT ON FRACTURE TOUGHNESS WITH T33-STRESS 
T. Meshii, T. Tanaka, University of Fukui, Fukui-city, Fukui, Japan 
PVP2011-57718: ANALYTICAL MODELING OF THE MECHANICS OF RE-TORQUE 
A. P. Gordon, J. Williams, University of Central Florida, Orlando, FL, USA; M. De Santiago, Lockheed Martin Aeronautics Company, Marietta, GA, USA 
PVP2011-57204: MODELLING AND DATA INTERPRETATION OF SMALL PUNCH CREEP TESTING 
R. Li, T. H. Hyde, W. Sun, University of Nottingham, Nottingham, United Kingdom; B. Dogan, EPRI, Charlotte, NC, USA 
PVP2011-58050: INSTRUMENTED INDENTATION TESTING TO EVALUATE HIGH-TEMPERATURE MATERIAL PROPERTIES 
C. Park, K.-H. Kim, S.-K. Kang, W. J. Jo, C. Kwon, Seoul National University, Seoul, Korea (Republic) 

SESSION 4.2F (FSI-1-2) 
Thursday, July 21, 10:30 am – 12:15 pm, Galena 
THERMAL HYDRAULIC/FSI RELATED 
Sponsored by Fluid-Structure Interaction Technical Committee 
Developed by: F. Moody, General Electric (Retired), Murphys, CA, USA; S. Martin, Georgia Institute of Technology, South Dennis, MA, USA 
Chair: F. Moody, General Electric (Retired), Murphys, CA, USA 
Co-Chair: S. Martin, Georgia Institute of Technology, South Dennis, MA, USA 
PVP2011-57276: INVESTIGATION OF BULGING BEHAVIOR OF COKE DRUM—FEASIBLE STUDY ON CAUSES OF BULGING 
M. Ohata, N. Kawai, T. Tagawa, F. Minami, Osaka University, Osaka, Japan; T. Yamamoto, K. Arii, S. Niimoto, Sumitomo Heavy Industries Process Equipment Co., Ltd., Ehime, Japan 
PVP2011-57301: MULTIPHASE MIXTURE FLOW NUMERICAL SIMULATION AND ANALYSIS FOR THE LEAK ACCIDENT OF FUEL UNDERGROUND STORAGE TANK IN POROUS ENVIRONMENT 
R. Zhang, Zhongkai University of Agriculture and Engineering, Guangzhou, China; G. Chen, South China University of Technology, Guangzhou, China 
PVP2011-57404: DEVELOPMENT OF PROTOTYPE VALVE TO SEPARATE TWO-PHASE AIR-WATER FLOWS 
H. Harling, Duke Energy, Seneca, SC, USA 
PVP2011-57428: INVESTIGATION OF BULGING BEHAVIOR OF COKE DRUM—A PRACTICAL ANALYSIS OF BULGING UNDER COMPLEX QUENCH CONDITIONS 
T. Yamamoto, K. Arii, Huhetaoli, S. Niimoto, Sumitomo Heavy Industries Process Equipment Co., Ltd., Ehime, Japan; M. Ohata, T. Tagawa, F. Minami, Osaka University, Osaka, Japan 

SESSION 4.2G (CT-13-1) 
Thursday, July 21, 10:30 am – 12:15 pm, Heron 
COMPUTATIONAL TOPICS IN EXPLICIT FEA 
Sponsored by Computer Technology & Bolted Joints Technical Committee 
Chair: N. Zobeiry, Atomic Energy of Canada, Ltd., Mississauga, ON, Canada 
Co-Chair: W. Reinhardt, Atomic Energy of Canada Ltd., Mississauga, ON, Canada 
PVP2011-57705: MESH CONVERGENCE STUDIES FOR THIN SHELL ELEMENTS DEVELOPED BY THE ASME TASK GROUP ON COMPUTATIONAL MODELING 
G. Bjorkman, Jr., Nuclear Regulatory Commission, Washington, DC, DC, USA; D. Molitoris, Westinghouse Electric Company, Cranberry Township, PA, USA 
PVP2011-58065: PROPPED CANTILEVER MESH CONVERGENCE STUDY USING HEXAHEDRAL ELEMENTS (Presentation Only) 
C.-F. Tso, Arup, London, United Kingdom; D. Molitoris, Westinghouse Electric Company, Cranberry Township, PA, USA; S. Snow, Idaho National Laboratory, Idaho Falls, ID, USA; D. Ammerman, Sandia National Laboratories, Albuquerque, NM, USA 
PVP2011-57889: OPTIMAL SHAPE DESIGN UNDER ELASTIC-PLASTIC BEHAVIOR BASED ON REFERENCE VOLUME METHOD 
R. Adibi-Asl, AMEC NSS, Toronto, ON, Canada
SESSION 4.2H (DA-4-8)
Thursday, July 21, 10:30 am – 12:15 pm, Harborside A
FATIGUE INITIATION
Sponsored by Design & Analysis Technical Committee
Developed by: J.-M. Stephan, EDF R&D MMC, Moret-sur-Loing, France
Chair: J.-M. Stephan, EDF R&D MMC, Moret-sur-Loing, France
Co-Chair: S. Chattopadhyay, Penn State University, DuBois, PA, USA
PVP2011-57860: DESIGN OF SKIRT TO CONE JOINT IN COKE DRUM: A PARAMETRIC APPROACH BASED ON FATIGUE ANALYSIS
M. S. Panwala, S. Jaiswal, Larsen & Toubro Limited, Surat, Gujarat, India
PVP2011-57708: FATIGUE ANALYSIS OF PRELOADED THREADED FASTENERS
S. Nassar, R. A. Ali, Oakland University, Rochester, MI, USA
PVP2011-57700: SIMULATION AND EVALUATION OF THERMAL STRATIFICATION IN A SLOPED SURGE NOZZLE CORRELATED WITH PLANT MEASUREMENTS
T. Meikle V, E. Johnson, M. Gray, N. Glunt, Westinghouse Electric Company, Cranberry, PA, USA; J. D. Burr, Westinghouse Electric Company LLC, Cranberry Township, PA, USA
PVP2011-57234: INVESTIGATION ON THE CRACK PROPAGATION BEHAVIOUR OF AISI 304L austenitic stainless steel under thermal fatigue
P. Bouin, C. Gourdin, A. Fissolo, CEA, Gif sur Yvette, France

SESSION 4.2I (DA-9-1)
Thursday, July 21, 10:30 am – 12:15 pm, Essex C
THERMAL STRESSES IN VESSELS, PIPING, AND COMPONENTS
Sponsored by Design & Analysis Technical Committee
Developed by: A. Segall, Penn State University, University Park, PA, USA
Chair: A. Segall, Penn State University, University Park, PA, USA
Co-Chair: J. F. McCabe, General Dynamics–Electric Boat, Groton, CT, USA
PVP2011-57275: APPLICATION OF SIMPLIFIED ELASTIC PLASTIC ANALYSIS METHODS TO DELAYED COKER DRUM DESIGN
J. Aumuller, Z. Xia, F. Ju, University of Alberta, Edmonton, AB, Canada
PVP2011-57604: DEFECT EVOLUTION IN COATED TUBES UNDER SEVERE THERMAL TRANSIENTS APPLIED TO THE ID
J. Harris, A. Segall, Penn State University, University Park, PA, USA; R. Carter, U. S. Army Research Laboratory, Aberdeen Proving Ground, PA, USA
PVP2011-57612: ELEMENT FREE GALERKIN ANALYSIS FOR TWO DIMENSIONAL THERMOMECHANICAL FRACTURE PROBLEMS
S Wang, State Key Lab Subtrop Bldfg Scie, Guangzhou, China
PVP2011-57621: ANALYSIS OF THE THERMAL FATIGUE CRACKING OF 316L MODEL PIPE COMPONENTS AT FAST REACTOR TEMPERATURES
E. Paffumi, K. F. Nilsson, European Commission Joint Research Centre Institute for Energy, Petten, Netherlands
PVP2011-57530: EVALUATION OF LEAKAGE PROBABILITY OF NON-ASBESTOS FIBER SHEET GASKET AT ELEVATED TEMPERATURE BASED ON PERCOLATION THEORY—CHARACTERISTICS UNDER INTERNAL PRESSURE
M. Hagiwara, Tokyo Denki University, Hikigun, Saitama, Japan; H. Tsuji, Tokyo Denki University, Tokyo, Japan; A. Yamaguchi, National Institute of Occupational Safety and Health, Japan, Kiyose, Tokyo, Japan

SESSION 4.2J (CS-19-2)
Thursday, July 21, 10:30 am – 12:15 pm, Essex B
COMPUTATIONAL METHODS IN PROBABILISTIC ASSESSMENT
Sponsored by Codes & Standards Technical Committee
Developed by: I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany; A. Chockie, Chockie Group International, Inc., Seattle, WA, USA
Chair: N. Maeda, Japan Nuclear Energy Safety Organization, Tokyo, Japan
Co-Chair: I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany
PVP2011-57058: NON-PROBABILISTIC FAILURE ASSESSMENT METHODOLOGY ABOUT TITANIUM PIPES WITH CRACKS
Q. Dai, C. Zhou, J. Peng, Nanjing University of Technology, Nanjing, Jiangsu, China
PVP2011-57528: A CRITICAL EVALUATION OF METHODS FOR COMPUTING SMALL FAILURE PROBABILITIES FOR DUCTILE PIPING COMPONENTS
I. Varfolomeev, D. Ivanov, D. Siegele, Fraunhofer IWM, Freiburg, Germany

SESSION 4.2K (MF-18-1)
Thursday, July 21, 10:30 am – 12:15 pm, Essex A
EXPERIMENTAL CHARACTERIZATION OF CRACK GROWTH AND FRACTURE IN WELD METAL
Sponsored by Materials & Fabrication Technical Committee
Developed by: M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA; D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; P. Gilles, AREVA, Paris La Défense, France; F. Hosseinizadeh, Open University, Milton Keynes, United Kingdom
Chair: M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA
Co-Chair: B. Alexandreanu, Argonne National Laboratory, Argonne, IL, USA
PVP2011-57649: SCC BEHAVIOR OF ALLOY 690 HAZ IN A PWR ENVIRONMENT
B. Alexandreanu, Y. Chen, K. Natesan, W. Shack, Argonne National Laboratory, Argonne, IL, USA
PVP2011-57782: FATIGUE CRACK GROWTH RATE AND FRACTURE RESISTANCE OF HEAT AFFECTED ZONE OF TYPE 316L STAINLESS STEEL WITH NARROW GAP WELDS
H.-J. Lee, M. Kim, C. Jang, KAIST, Daejeon, Korea (Republic); S.-Y. Cho, KLES, Daejeon, Korea (Republic); J.-S. Yang, 65 Munji-ro, Yuseong-gu, Daejeon, Korea (Republic)
PVP2011-57973: FRACTURE TOUGHNESS CHARACTERIZATION OF...
WELDS AND HAZ AT VARIOUS LOADING RATES USING DIFFERING SPECIMEN GEOMETRIES

PVP2011-57990: SENSITIVITY OF HOT CRACKING TO WELD PROCEDURE PARAMETERS AND TRANSVERSE TRACTION
M. Asadi, J. Goldak, K. Kazemi, Carleton University, Ottawa, ON, Canada

SESSION 4.2L (MF-20-3)
Thursday, July 21, 10:30 am – 12:15 pm, Harborside D
MODELING AND MONITORING OF UNCERTAINTY IN PVP OR COMPLEX SYSTEMS/NETWORKS

Sponsored by Materials & Fabrication Technical Committee

Developed by: A. J. Duncan, Savannah River National Laboratory, Aiken, SC, USA, B. Wiersma, Savannah River National Laboratory, Aiken, SC, USA
Chair: S. Harris, Savannah River National Laboratory, Aiken, SC, USA
Co-Chair: S. Xu, Kinetics Inc., Toronto, ON, Canada

PVP2011-57683: PREDICTING FAILURE IN OPERATIONAL COMPLEX SYSTEMS BY PERTURBING MARKOV CHAIN MODELS
C. Dabrowski, F. Hunt, U.S. National Institute of Standards and Technology, Gaithersburg, MD, USA

PVP2011-57353: UNCERTAINTIES IN PREDICTIONS BY COMPLEX SYSTEM CODES
F. D'Auria, A. Petruzzi, University of Pisa, Pisa, Italy

SESSION 4.2M (MF-27-1)
Thursday, July 21, 10:30 am – 12:15 pm, Laurel A
ADVANCE MATERIALS

Sponsored by Materials & Fabrication Technical Committee

Developed by: A. J. Duncan, Savannah River National Laboratory, Aiken, SC, USA
Chair: A. Duncan, Savannah River National Laboratory, Aiken, SC, USA
Co-Chair: H. Faria, INEGI, Porto, Portugal; Z. Ouyang, Southern University, Baton Rouge, LA, USA

PVP2011-57730: CHARACTERIZATION OF SHORT BASALT FIBER REINFORCED SYNTACTIC FOAMS
M. Vijay, Southern University and A&M College, Baton Rouge, LA, USA; Z. Ouyang, Southern University, Baton Rouge, LA, USA; G. Ji, G. Li, Louisiana State University, Baton Rouge, LA, USA; D. Jerro, Southern University and A&M College, Baton Rouge, LA, USA

PVP2011-57725: MECHANICAL PROPERTIES OF NEW HYBRID FOAM MATERIAL: OPEN-CELL METALLIC FOAM FILLED WITH CLOSE-CELL SYNTACTIC FOAM
R. Madawela, Southern University and A&M College, Baton Rouge, LA, USA; Z. Ouyang, Southern University, Baton Rouge, LA, USA; G. Ji, G. Li, Louisiana State University, Baton Rouge, LA, USA; S. Ibekwe, Southern University and A&M College, Baton Rouge, LA, USA

PVP2011-57250: DEVELOPMENT OF 7%NI-TMCP STEEL PLATE FOR LNG STORAGE TANKS

SESSION 4.2O (MF-6-2)
Thursday, July 21, 10:30 am – 12:15 pm, Iron
FITNESS FOR SERVICE AND FAILURE ASSESSMENT—2
PVP2011-57333: CREEP DAMAGE ASSESSMENT PROCEDURE FOR WELDED PARTS OF P91 PIPING IN USC BOILERS. (PART II: VALIDATION OF A CREEP DAMAGE ASSESSMENT METHOD OF WELDED PARTS BASED ON VOID GROWTH SIMULATION)
T. Ogata, T. Sakai, M. Yaguchi, Central Research Institute of Electric Power Industry, Kanagawa, Japan; K. Hoshino, Central Research Institute of Electric Power Industry, Yokosuka, Japan

PVP2011-57697: MAIN STEAM PIPING CREEP LIFE CONSUMPTION IN CIRCUMFERENTIAL WELDS
M. Cohn, Intertek APTECH, Sunnyvale, CA, USA

PVP2011-58015: A PERSPECTIVE ON THE FAILURE RATES OF LONG SEAM-WELDED LOW ALLOY STEEL HIGH ENERGY PIPING
J. Foulds, Clarus Consulting, LLC, Charlotte, NC, USA; J. Shingledecker, Electric Power Research Institute, Charlotte, NC, USA

SESSION 4.2P (SE-12-2)
Thursday, July 21, 10:30 am – 12:15 pm, James
BASE ISOLATION AND VIBRATION CONTROL SYSTEMS II
Sponsored by Seismic Engineering Technical Committee

PVP2011-57073: LINEAR FRICTION DAMPER CONSISTED OF CYLINDRICAL BLOCK AND INCLINED LEVER (IMPROVEMENT TO AVOID SPRAG-SLIP PROBLEM AND ANALYTICAL MODEL TO VERIFY CAUSE)
H. Yamaguchi, H. Yoshida, National Defense Academy, Yokosuka, Kanagawa, Japan

PVP2011-57352: EXPERIMENTAL STUDY OF A FULL SCALE BUILDING ISOLATED WITH MULTIPLE FRICTION PENDULUM SYSTEM WITH MULTIPLE SLIDING INTERFACES
C.-S. Tsai, Y.-M. Wang, H.-C. Su, Feng Chia University, Taichung, Taiwan

SESSION 4.3C (CS-6-3)
Thursday, July 21, 2:00 pm – 3:45 pm, Laurel C
INTERACTION AND FLAW MODELLING FOR MULTIPLE FLAWS—III
Sponsored by Codes & Standards and Material & Fabrication Technical Committees

PVP2011-57584: A PLASTIC COLLAPSE ASSESSMENT PROCEDURE FOR MULTIPLE CRACKS UNDER INTERNAL PRESSURE
M. Kamaya, Institute of Nuclear Safety System, Inc., Fukui, Japan

PVP2011-57585: CHARACTERISATION OF TWIN CO-PLANAR FLAWS: GUIDANCE FOR THE LOWER SHELF REGIME
B. Bezensek, Hunting Energy Services (UK) Ltd., Aberdeen, United Kingdom; J. Sharples, Serco Technical Consulting Services, Warrington, United Kingdom

Co-Chair: F. Iwamatsu, Hitachi, Ltd., Hitachi, Japan

PVP2011-57448: NUMERICAL SIMULATION AND EXPERIMENT OF INTERACTION AND INFLUENCE ON MULTIPLE CRACKS BY FRANC2D SOFTWARE
J. Zhao, Nanjing University of Technology, Nanjing, Jiangsu, China; W. Wang, Nanjing Sunpower Group Corporation, Nanjing, Jiangsu, China

SESSION 4.3B (CS-5-2)
Thursday, July 21, 2:00 pm – 3:45 pm, Harborside E
ENVIRONMENTAL FATIGUE ISSUES—II
Sponsored by Codes & Standards and Material & Fabrication Technical Committees

PVP2011-57910: A RISK-INFORMED APPROACH TO FATIGUE BREAK CRITERION FOR ASME CLASS 1 HIGH ENERGY PIPING (Presentation Only)
S. Gosselin, F. Simonen, Scandpower, Inc., Richland, WA, USA; B. Lydell, Scandpower, Inc., Houston, TX, USA

PVP2011-57943: DISCUSSION ON FATIGUE DESIGN CURVES FOR STAINLESS STEELS
J. Solin, VTT Technical Research Centre of Finland, Espoo, Finland; S. Reese, E.ON Kernkraft GmbH, Hannover, Germany; W. Mayinger, Fennovoima, Helsinki, Finland

PVP2011-57274: USE OF NUREG/CR-6909 ENVIRONMENTALLY-ASSISTED FATIGUE RULES FOR A NUCLEAR PLANT LICENSE RENEWAL APPLICATION
W. Weitze, Structural Integrity Associates, San Jose, CA, USA; K. Evon, M. Walter, Structural Integrity Associated, Inc., Centennial, CO, USA

PVP2011-5798: AN OVERVIEW OF SECTION III FATIGUE DESIGN AND ENVIRONMENTAL EFFECTS (Presentation Only)
G. Slagis, G C Slagis Associates, Pleasant Hill, CA, USA

Block 4.3: Thursday, July 21 (2:00 pm – 3:45 pm)
BEHAVIOR OF MULTIPLE SURFACE CRACKS
M. Kikuchi, Tokyo University of Science, Noda, Chiba, Japan; Y. Wada, Tokyo University of Science, Suwa, Suwa, Japan; K. Suga, C. Ohdama, Tokyo University of Science, Noda, Chiba, Japan

SESSION 4.3D (CS-20-3)
Thursday, July 21, 2:00 pm – 3:45 pm, Laurel D
FUSION REACTOR COMPONENT RULES FOR STRUCTURAL INTEGRITY—II
Sponsored by Codes & Standards Technical Committee and the ASME Nuclear Engineering Division
Developed by: Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan; Y. Nakasone, Tokyo University of Science, Chiyoda-ku, Tokyo, Japan
Chair: H.-J. Ahn, National Fusion Research Institute, Daejeon, Korea (Republic)
Co-Chair: Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan

PVP2011-57609: APPLICATION OF ASME CODES FOR ITER COMPONENTS
A. Chaudouet, Cetim, Senlis, France; G. Bourgeois, Institut de Soudure, Villepinte, France; S. Carbonneau, Apave Sudeurope, Valence, France
PVP2011-57547: CURRENT CODE & STANDARD ACTIVITIES FOR THE REVISION AND IMPROVEMENT OF THE JSME FUSION SUPERCONDUCTING MAGNET STRUCTURAL CODE (Presentation Only)
Y. Nakasone, Tokyo University of Science, Chiyoda-ku, Tokyo, Japan; Y. Takahashi, Central Research Institute of Electric Power Industry, Kanagawa, Japan; H. Nakajima, Japan Atomic Energy Agency, Naka, Ibaraki, Japan; E. Tada, Japan Atomic Energy Agency, Naka-shi, Ibaraki, Japan

PVP2011-57611: DEVELOPMENT OF CODES & STANDARDS FOR ITER IN-VESSLE COMPONENTS
V. J. Martínez, D. Couso, IDESA, Gijón, Asturias, Spain; J. Fano, F. Fernández, J. A. Guirao, NATEC, Gijón, Asturias, Spain; J. L. Lastra, IDESA, Gijón, Asturias, Spain; J. Ordieres, NATEC, Gijón, Asturias, Spain; J. Vázquez, IDESA, Gijón, Asturias, Spain; E. Fernández, Fusion For Energy, Barcelona, Barcelona, Spain

SESSION 4.3F (FSI-1-3)
Thursday, July 21, 2:00 pm – 3:45 pm, Galena
CFD RELATED
Sponsored by Fluid-Structure Interaction Technical Committee
Developed by: A. Arastu, Bechtel Power Corporation, San Francisco, CA, USA; J. C. Jo, Korea Institute of Nuclear Safety, Daejeon, Korea (Republic)
Chair: A. Arastu, Bechtel Power Corporation, San Francisco, CA, USA
Co-Chair: J. C. Jo, Korea Institute of Nuclear Safety, Daejeon, Korea (Republic)

PVP2011-57292: LES ANALYSIS OF TEMPERATURE FLUCTUATIONS AT T-JUNCTIONS FOR PREDICTION OF THERMAL LOADING
S. Qian, JGC Corporation, Yokohama, Kanagawa, Japan; N. Kasahara, University of Tokyo, Tokyo, Japan

PVP2011-57304: STUDIES OF DOWNWARD TWO PHASE FLOW THROUGH A VERTICAL TUBE USING CFD SIMULATIONS
V. Melot, Service Technique et Scientifique, La Montagne, France
PVP2011-57396: ANALYSIS OF TECHNIQUES FOR MODELING THE PRESSURE WAVE EFFECTS OF GUILLOTINE RUPTURES OF STEAM LINES
C. Becht V, Becht Engineering Co., Inc., Liberty Corner, NJ, USA; F. Moody, General Electric (Retired), Murphys, CA, USA
PVP2011-57606: CFD STUDIES OF PRESSURE LOSS IN EXTERNAL TUBULAR HEAT EXCHANGER
T. T. d’Hamonville, V. Melot, Service Technique et Scientifique, La Montagne, France

SESSION 4.3G (DA-12-1)
Thursday, July 21, 2:00 pm – 3:45 pm, Heron
PIPING AND EQUIPMENT DYNAMICS
Sponsored by Design & Analysis Technical Committee
Developed by: R. Robleto, KBR, Houston, TX, USA; M. Porter, Porter McGuffie, Inc., Lawrence, KS, USA
Chair: R. Robleto, KBR, Houston, TX, USA
Co-Chair: M. Porter, Porter McGuffie, Inc., Lawrence, KS, USA

PVP2011-57427: DYNAMIC SIMULATION OF PIPING SYSTEM AROUND SAFETY VALVE FOR CLOSED DISCHARGE SYSTEM
Y. Sakamoto, Chiyoda Corporation, Yokohama, Japan; N. Suzuki, H. Izuchi, Chiyoda Advanced Solutions Corporation, Yokohama, Japan
PVP2011-57441: DYNAMIC ANALYSIS OF DETONATION CHAMBER AND EVALUATION BASED ON ASME CODE SECTION VIII DIV. 3 & CODE CASE 2564
T. Shirakura, Transnuclear, Ltd., Tokyo, Japan; J. K. Asahina, K. Hayashi, Kobe Steel, Ltd., Nada-ku, Kobe, Japan; M. Ouchi, Transnuclear, Ltd., Tokyo, Japan

PVP2011-58019: DYNAMIC CHARACTERISTIC ANALYSIS OF STRUCTURES FOR REACTOR COOLANT PUMP
J.-Y. Yu, J.-S. Park, KAERI, Daejeon, Korea (Republic); C.-G. Ahn, Chungnam National University, Daejeon, Korea (Republic)
PVP2011-57391: VALVE-INDUCED PIPING VIBRATION
M. Porter, D. Martens, Porter McGuffie, Inc., Lawrence, KS, USA; R. Harryyal, Phoenix Park Gas Processors, Ltd., Port of Spain, W. I., Trinidad/Tobago; C. Henley, Black & Veatch Corporation, Overland Park, KS, USA

SESSION 4.3H (DA-4-9)
Thursday, July 21, 2:00 pm – 3:45 pm, Harborside A
FATIGUE AT MICRO AND MESO LEVELS
Sponsored by Design & Analysis Technical Committee
Developed by: J.-M. Stephan, EDF R&D MMC, Moret-sur-Loing, France; D. Moïneraud, EDF R&D, Moret sur Loing, France
Chair: P. Gilles, AREVA, Paris La Défense, France
Co-Chair: I. Varfolomeev, Fraunhofer IWM, Freiburg, Germany
PVP2011-57815: NUMERICAL STUDY OF THE SHORT CRACK INITIATION IN POLYCRYSTALLINE AGGREGATES
Y. Guilhem, J.-M. Stephan, F. Curtit, EDF R&D, Moret-sur-Loing, France; G. Cailletaud, Mines ParisTech, Evry, France; S. Basseville, Université de Versailles Saint-Quentin, Versailles, France
PVP2011-57500: MODELING GRAIN BOUNDARY DAMAGE EVOLUTION IN AS-MEASURED 3D MICROSTRUCTURE
I. Simonovski, Institute for Energy, EC, DG-JRC, Petten, Netherlands; L. Cizelj, Jožef Stefan Institute, Ljubljana, Slovenia

PVP2011-57472: FRACTURE FAILURE RESEARCH ON FECULENCE DISCHARGE PIPE OF LPG SPHERICAL TANKS
C. Wang, W. Wang, J. Chen, X. Sun, East China University Of Science And Technology, Shanghai, China

PVP2011-57339: NUMERICAL ANALYSIS OF THE MESOSCALE MECHANICAL FIELD AT THE INTERGRANULAR CRACK TIP
W. Tang, H. Xue, L. Shi, X. Fang, Xi’an University of Science and Technology, Xi’an, Shannxi, China

SESSION 4.3I (DA-10-1)
Thursday, July 21, 2:00 pm – 3:45 pm, Essex C
FITNESS-FOR-SERVICE EVALUATIONS 1
Sponsored by Design & Analysis Technical Committee
Developed by: T. Seipp, Becht Engineering Canada, Ltd., Calgary, AB, Canada
Chair: T. Seipp, Becht Engineering Canada, Ltd., Calgary, AB, Canada
Co-Chair: J. Taagepera, Chevron Energy Technology Company, Richmond, CA, USA

PVP2011-57280: COMPARISON OF CREEP-FATIGUE FITNESS FOR SERVICE ASSESSMENT METHODS FOR FERRITIC-AUSTENITIC DISSIMILAR WELDS
J. Penso, Shell, Houston, TX, USA; R. Hazime, Safe Technology (U.S.) Limited, Dearborn, MI, USA; S. T. Nungesser, Huntington Ingalls Industries, Newport News, VA, USA; A. Benatar, The Ohio State University, Columbus, OH, USA

PVP2011-57657: CASE HISTORY USING ADVANCED ANALYSIS TO EVALUATE FITNESS-FOR-SERVICE OF CYCLIC VESSELS IN THE PETROCHEMICAL INDUSTRY
R. Brown, D. Dewees, Equity Engineering Group, Inc., Shaker Heights, OH, USA

PVP2011-57660: CASE HISTORY FITNESS-FOR-SERVICE ASSESSMENT OF CYCLIC CATALYTIC REFORMER MOTOR OPERATED VALVES IN THE PETROCHEMICAL INDUSTRY
K. Shiplemy, N. Carr, D. Dewees, The Equity Engineering Group, Inc., Shaker Heights, OH, USA

PVP2011-57615: FITNESS FOR SERVICE ASSESSMENT OF THE THERMAL SLEEVE WELD FAILURE FOR STEAM GENERATOR REHEAT CONDENSATE NOZZLE IN CANDU6 NUCLEAR PLANT
R. Ghafoori-Azar, A. Sze, D. Vlaicu, M. Stojakovic, Ontario Power Generation, Pickering, ON, Canada

SESSION 4.3L (MF-20-5)
Thursday, July 21, 2:00 pm – 3:45 pm, Harborside D
RISK-INFORMED IN-SERVICE INSPECTION STRATEGY AND COMPUTATIONAL RELIABILITY FOR AGING PVP OR COMPLEX SYSTEMS NETWORKS
Sponsored by Materials & Fabrication Technical Committee
Developed by: A. J. Duncan, Savannah River National Laboratory, Aiken, SC, USA; D. Scarth, Kinetics Inc., Toronto, ON, Canada
Chair: V. Giurgiutiu, University of South Carolina, Columbia, SC, USA
Co-Chair: A. J. Duncan, B. Wiersma, Savannah River Nuclear Solutions, Aiken, SC, USA

PVP2011-57358: PREDICTIVE SIMULATION IN STRUCTURAL HEALTH MONITORING WITH PIEZOELECTRIC WAFER ACTIVE SENSORS FOR RISK-INFORMED IN-SERVICE INSPECTION
V. Giurgiutiu, University of South Carolina, Columbia, SC, USA

PVP2011-57115: DEVELOPMENT OF SURFACE CRACK ANALYSIS PROGRAM SCANP AND ITS APPLICATION TO SOME PRACTICAL PROBLEMS
M. Shiratori, Yokohama National University, Yokohama, Japan; M. Nagai, N. Miura, Central Research Institute of Electric Power Industry, Yokosuka, Japan

PVP2011-57201: A RISK-INFORMED ASSESSMENT OF ASME SECTION XI, APPENDIX E
R. Gamble, SARTREX Corporation, Rockville, MD, USA; W. Server, ATI Consulting, Black Mountain, NC, USA; B. A. Bishop, C. Heinecke, N. A. Palm, Westinghouse Electric Company, Cranberry Township, PA, USA

PVP2011-57975: THE TREATMENT OF ISI UNCERTAINTY IN XLPR
P. Heasler, S. Sanborn, S. Doctor, M. Anderson, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2011-57769: THE DYNAMIC EFFECTS ON FRACTURE DUE TO EARTHQUAKES
N. Yamagata, ACT, Tokyo, Kansai, Japan; P. Marcal, MPACT Corp., Julian, CA, USA

SESSION 4.3N (MF-11-3)
Thursday, July 21, 2:00 pm – 3:45 pm, Laurel B
SCC AND CORROSION FATIGUE—MODELS
Sponsored by Materials & Fabrication Technical Committee
Developed by: M. Mochizuki, Osaka University, Suita, Japan; D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA
Chair: Y. Chen, Argonne National Laboratory, Argonne, IL, USA
Co-Chair: D. Rudland, U. S. Nuclear Regulatory Commission, Rockville, MD, USA

PVP2011-57244: FURTHER UNDERSTANDING ON DEFORMATION-OXIDATION MODEL IN STRESS CORROSION CRACKING TIP BASED ON MESO-SCALE MECHANICAL FIELD
H. Xue, Z. Li, X. Xue, Xi'an University of Science and Technology, Xi'an, Shaanxi Province, China; Z. Lu, T. Shoji, Tohoku University, Sendai, Miyagi-Ken, Japan

PVP2011-57310: MODELING OF FATIGUE CRACK GROWTH RATE OF PIPELINE STEEL IN CORROSIVE ENVIRONMENT
J. Wang, X. Li, Beijing University of Technology, Beijing, China; S. Li, Wuhan Iron and Steel (Group) Corp., Wuhan, Hubei, China

PVP2011-57826: STRESS RELAXATION BEHAVIOR IN PWHT OF WELDED COMPONENTS
J. Zhang, P. Dong, S. Song, University of New Orleans, New Orleans, LA, USA

PVP2011-57824: IMPORTANT RESIDUAL STRESS FEATURES IN REACTOR NOZZLE DISSIMILAR METAL WELDS
J. Zhang, S. Song, P. Dong, University of New Orleans, New Orleans, LA, USA

Block 4.4: Thursday, July 21 (4:00 pm – 5:45 pm)

SESSION 4.4H (DA-4-10)
Thursday, July 21, 4:00 pm – 5:45 pm, Harborside A
S/N CURVES AND ENVIRONMENT
Sponsored by Design & Analysis Technical Committee
Developed by: J.-M. Stephan, EDF R&D MMC, Moret-sur-Loing, France
Chair: J. A. Le Duff, AREVA NP, Paris La Défense, France
Co-Chair: M. Gray, Westinghouse Electric Company, Cranberry Township, PA, USA

PVP2011-57749: DEVELOPMENT OF S-N CURVES FOR SOME PRESSURE VESSEL STEELS
S. Chattopadhyay, Penn State University, DuBois, PA, USA

PVP2011-57389: THE BACKGROUND TO LIGHT WATER REACTOR ENVIRONMENT FATIGUE EVALUATION METHODS FOR AUSTENITIC STAINLESS STEEL AND THEIR APPLICATION TO SAMPLE PRESSURISED WATER REACTOR COMPONENTS
C. Watson, Rolls-Royce, Derby, United Kingdom

PVP2011-58054: AN INVESTIGATION ON THE REDUCTION SCHEMES OF ENVIRONMENTAL FATIGUE USAGE FACTOR FOR PRESSURIZER SURGE LINE
S. Y. Kang, W. H. Jo, M. S. Song, K. S. Yoon, T. Choi, Korea Electric Power Company - Engineering & Construction, Daejeon, Daejeon, Korea (Republic); J.-S. Yang, 65 Munji-ro, Yusung-gu, Daejeon, Korea (Republic)

PVP2011-57942: LONG LIFE FATIGUE PERFORMANCE OF STAINLESS STEEL
J. Solin, VTT Technical Research Centre of Finland, Espoo, Finland; S. Reese, E.ON Kernkraft GmbH, Hannover, Germany; W. Mayinger, Fennovoima, Helsinki, Finland

PVP2011-57576: FITNESS FOR PURPOSE DESIGN OF A STEEL CYLINDER FOR HYDROGEN-NATURAL GAS BLENDS
P. Bortot, M. Bellingardi, Tenaris Dalmine, Dalmine, Italy; S. Beretta, Politecnico di Milano, Milan, Italy

SESSION 4.4I (DA-11-1)
Thursday, July 21, 4:00 pm – 5:45 pm, Essex C
ELEVATED TEMPERATURE DESIGN
Sponsored by Design & Analysis Technical Committee
Developed by: S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA; M. Zhao, UOP LLC, Des Plaines, IL, USA
Chair: S. Krishnamurthy, UOP LLC, A Honeywell Company, Des Plaines, IL, USA
Co-Chair: M. Zhao, UOP LLC, Des Plaines, IL, USA

PVP2011-57049: A MULTISTAGE CREEP DAMAGE CONSTITUTIVE MODEL FOR ISOTROPIC AND ANISOTROPIC MATERIALS WITH ELASTIC DAMAGE
C. Stewart, A. P. Gordon, University of Central Florida, Orlando, FL, USA

PVP2011-57130: ISOCHRONOUS STRESS/STRAIN CURVES—ORIGINS, SCOPE AND APPLICATIONS
D. L. Marriott, Stress Engineering Services, Inc, Mason, OH, USA

PVP2011-57222: ANALYSIS OF HIGH TEMPERATURE REACTOR BY ASME SEC. III NH CODE
S. B. Ryu, O. Kim, S. Chung, J. Lee, Doosan Heavy Industries & Construction Co., Changwon, Korea (Republic); G. Koo, Korea Atomic energy Research Institute, Daejeon, Korea (Republic)

PVP2011-57844: PLANT LIFE ASPECTS OF SODIUM COOLED FAST REACTORS
K. Singh, R. Sarkar, P. Chellapandi, S.C. Chetal, B. Raj, Indira Gandhi Center for Atomic Research, Tamil Nadu, India

SESSION 4.4K (MF-18-3)
Thursday, July 21, 4:00 pm – 5:45 pm, Essex A
MICROSTRUCTURE/PROPERTY ENGINEERING IN WELDS AND HEAT AFFECTED ZONES
Sponsored by Materials & Fabrication Technical Committee
SESSION 4.4L (MF-20-6)
Thursday, July 21, 4:00 pm – 5:45 pm, Harborside D
RESEARCH, TRAINING AND APPLICATIONS IN MANAGING OR SIMULATING AGING PVP OR COMPLEX SYSTEMS/NETWORKS
Sponsored by Materials & Fabrication Technical Committee

Developed by: M. Kerr, Office of Nuclear Regulatory Research, Washington, DC, USA; D.-J. Shim, Engineering Mechanics Corporation of Columbus, Columbus, OH, USA; P. Gilles, AREVA, Paris La Défense, France; F. Hosseinzadeh, Open University, Milton Keynes, United Kingdom
Chair: J. Goldak, Carleton University, Ottawa, ON, Canada
Co-Chair: F. Hosseinzadeh, Open University, Milton Keynes, United Kingdom

PVP2011-57703: EVALUATION OF FILLER METAL 52M (ERNiCrFe-7A) HOT CRACKING WHEN WELDING ON CAST AUSTENITIC STAINLESS STEEL BASE MATERIALS
S. L. McCracken, Electric Power Research Institute, Charlotte, NC, USA; R. E. Smith, Structural Integrity Associates, Inc., Huntersville, NC, USA

PVP2011-57868: THE STABILITY OF FINE, SUB-GRAIN MICROSTRUCTURES WITHIN CARBON DEPLETED REGIONS OF DISSIMILAR METAL, FERRITIC, CREEP RESISTANT WELDS
K. Dawson, G. J. Tatlock, University of Liverpool, Liverpool, United Kingdom

PVP2011-57960: DIRECT-SEARCH OPTIMIZATION USING LEAST-SQUARE APPROXIMATION TO MITIGATE AN EDGE-WELDED-BAR DISTORTION BY SIDE HEAT SOURCE
M. Asadi, J. Goldak, Carleton University, Ottawa, ON, Canada

PVP2011-57465: SCC BEHAVIOR OF ALLOY 52M/182 WELD OVERLAY IN A PWR ENVIRONMENT
B. Alexandreanu, Y. Chen, K. Natesan, W. Shack, Argonne National Laboratory, Argonne, IL, USA

PVP2011-57382: PREDICTING MACROSCOPIC DYNAMICS IN LARGE DISTRIBUTED SYSTEMS
K. Mills, J. J. Filliben, National Institute of Standards & Technology, Gaithersburg, MD, USA; D. Y. Cho, NIH, Bethesda, MD, USA; E. J. Schwartz, Carnegie Mellon University, Pittsburgh, PA, USA

PVP2011-58119: PREDICTING MACROSCOPIC DYNAMICS IN LARGE DISTRIBUTED SYSTEMS—PART II
K. Mills, J. J. Filliben, National Institute of Standards & Technology, Gaithersburg, MD, USA; Dong Y. Cho, NIH, Bethesda, MD, USA; E. J. Schwartz, Carnegie Mellon University, Pittsburgh, PA, USA

PVP2011-57400: SENSITIVITY METHODOLOGIES: A SUCCESS STORY FOR VALIDATION OF REACTOR PHYSICS CALCULATIONS
G. Palmiotti, Idaho National Laboratory, Idaho Falls, ID, USA; M. Salvatores, CEA, Saint-Paul-Lez-Durance, France

PVP2011-58073: DEGRADATION SUSCEPTIBILITY METRICS AS THE BASES FOR BAYESIAN RELIABILITY MODELS OF AGING PASSIVE COMPONENTS AND LONG-TERM REACTOR RISK
S. D. Unwin, P. P. Lowry, M. Y. Toooka, B. E. Ford, Pacific Northwest National Laboratory, Richland, WA, USA

PVP2011-57712: A HIGH-RISK HIGH-REWARD APPROACH TO PUBLIC-PRIVATE COLLABORATIVE RESEARCH IN PREDICTIVE MODELING & CONTROL OF COMPLEX SYSTEMS
D. Swanson, J. T. Fong, National Institute of Standards and Technology, Gaithersburg, MD, USA
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