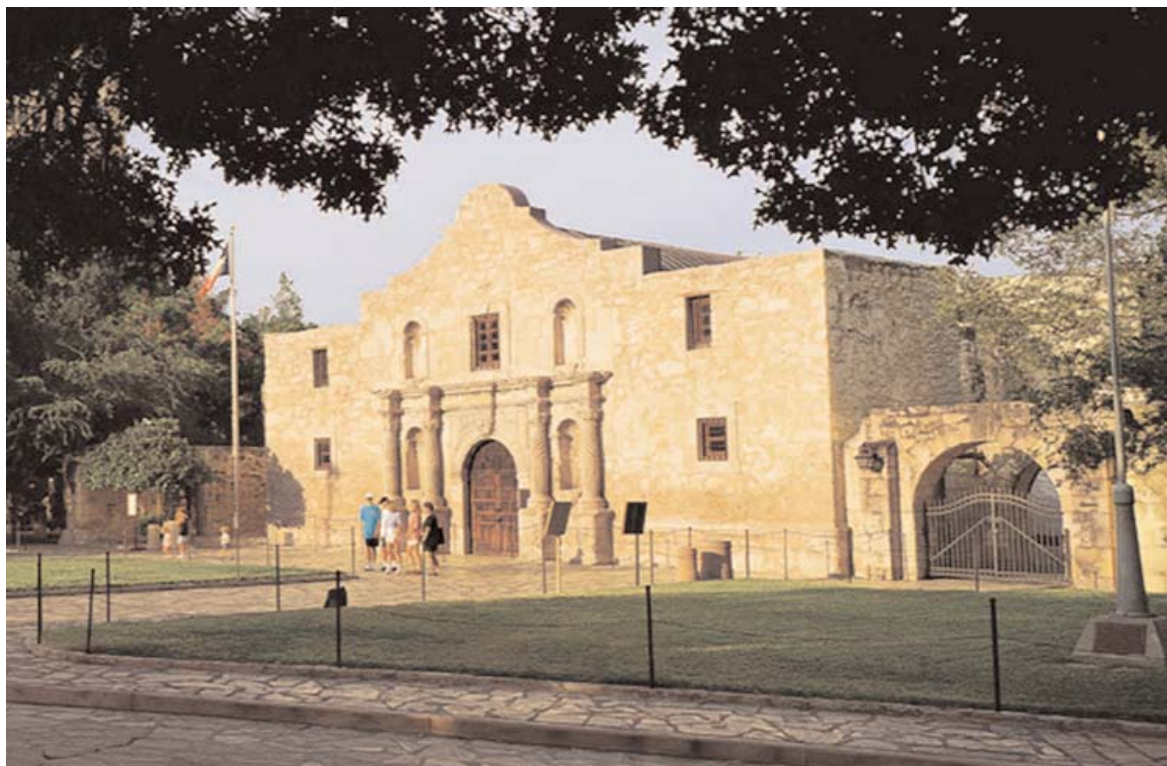


# Final Program



## PVP 2007/CREEP8

**2007 Pressure Vessels & Piping Conference  
and The Eighth International Conference on  
Creep and Fatigue at Elevated Temperatures**



**CREEP8**

**July 22 - 26, 2007  
Hyatt Regency San Antonio  
San Antonio, Texas  
USA**



## DAILY SESSION LISTING

Sessions are arranged in Session Blocks in the format "X.VZ", where: "X" indicates the Day, "V" indicates the Session Block, and "Z" indicates the Conference Session Room. Conference Session Rooms are as follows: A = Regency East #1; B = Regency East #2; C = Regency East #3; D = Rio Grande East; E = Rio Grande Central; F = Rio Grande West; G = Nueces/Frio; H = Blanco/Llano; J = Live Oak; K = Pecan; L = Bowie A/B; M = Bowie C; N = Navaro; O = Maverick A; P = Maverick B; Q = Sequin; R = Regency Foyer; S = Regency Ballroom. Refer to the Hotel Floor Plan in the back of this Program for room locations. Rooms L–Q are in the Losoya Conference Center on Losoya Street, across from the hotel. The parenthetical designations are the Technical Committee session references.

### SUNDAY, JULY 22

July 22, 2007 (9:00 am – 6:00 pm)

#### SESSION 0.1K

Sunday, July 22, 9:00 am – 11:30 am, Pecan A-Level

##### ANSYS WORKSHOP: RAPID STRUCTURAL ANALYSIS FOR PRESSURE VESSEL DESIGN

Sponsored by: The PVP Division Conference Committee and ANSYS, Inc.

Presented by: J. Wolf, ANSYS, Inc., Houston, TX, USA

#### SESSION 0.2K

Sunday, July 22, 1:00 pm – 3:30 pm, Pecan A-Level

##### ANSYS WORKSHOP: MODELING FLUID STRUCTURE INTERACTION

Sponsored by: The PVP Division Conference Committee and ANSYS, Inc.

Presented by: H. Vinh, ANSYS, Inc., El Dorado Hills, CA, USA

#### SESSION 0.3J

Sunday, July 22, 4:00 pm – 6:00 pm, Live Oak A-Level

##### SPECIAL TUTORIAL: COMMUNICATING ENGINEERING SOLUTIONS AND THE CONCEPT OF RISK TO THE PUBLIC

Sponsored by: The PVP Division Conference Committee

Presented by: C. Bajwa, US Nuclear Regulatory Commission, Rockville, MD, USA

### MONDAY, JULY 23

#### Block 1.1: Monday, July 23 (8:30 am – 10:15 am)

#### SESSION 1.1A (NT-1)

Monday, July 23, 8:30 am – 10:15 am, Regency East #1, B-Level

##### PANEL SESSION: NANOTECHNOLOGY PANEL

Sponsored by: The PVP Division Conference Committee

Developed by: Y. W. Kwon, Naval Postgraduate School, Monterey, CA, USA; X. Li, University of South Carolina, Columbia, SC, USA

Chair: Y. W. Kwon, Naval Postgraduate School, Monterey, CA, USA

Co-Chair: X. Li, University of South Carolina, Columbia, SC, USA

##### PVP2007-26858: FABRICATION OF NANOCOMPOSITE MATERIALS—LESSONS FROM NATURE

X. Li, University of South Carolina, Columbia, SC, USA

##### PVP2007-26859: NANOMATERIALS FOR HEAT TRANSFER AND MULTIFUNCTIONAL APPLICATIONS

F. Marquis, Naval Postgraduate School, Monterey, USA

##### PVP2007-26860: FERROELECTRIC/PIEZOELECTRIC THIN FILMS FOR NANO ACTIVE SENSING SYSTEMS

C. Chen, University of Texas-San Antonio, San Antonio, USA

##### PVP2007-26861: MINIATURE CHEMICAL ANALYZERS FOR HARSH INDUSTRIAL APPLICATIONS

A. Reich, Streamline Automation, LLC, Huntsville, AL, USA

##### PVP2007-26862: NANOCOMPOSITES FOR STRUCTURAL SYSTEMS: POLYMER AND METAL BASE

E. V. Barrera, Rice University, Houston, USA

#### SESSION 1.1B (SE-7-1)

Monday, July 23, 8:30 am – 10:15 am, Regency East #2, B-Level

##### SEISMIC EVALUATION OF SYSTEMS, STRUCTURES, & COMPONENTS—I

Sponsored by: Seismic Engineering Committee

Developed by: M. Nitzel, Idaho National Laboratory, Idaho Falls, ID, USA

Chair: M. Nitzel, Idaho National Laboratory, Idaho Falls, ID, USA

Co-Chair: T. Clark, Idaho National Laboratory, Idaho Falls, ID, USA

##### PVP2007-26134: HEALTH DIAGNOSIS OF STRUCTURAL SYSTEMS USING A REPETITIVE MODEL UPDATING APPROACH

J.-W. Lin, C.-S. Tsai, C.-W. Huang, Feng Chia University, Taichung, Taiwan, China

##### PVP2007-26283: EVALUATION OF STORAGE TANK FLOATING ROOFS FOR STRESS AND STABILITY DUE TO EARTHQUAKE INDUCED LIQUID SLOSHING

P. J. Cacciatore, B. F. Hantz IV, L. M. Gustafsson, ExxonMobil Research and Engineering Company, Fairfax, VA, USA

**PVP2007-26265: STATISTICAL ANALYSIS OF EXPERIMENTAL AND NUMERICAL WELD RESIDUAL STRESSES**

B. Nadri, University of Bristol, Bristol, United Kingdom; P. J. Bouchard, British Energy Ltd., Gloucester, United Kingdom; C. Truman, D. Smith, University of Bristol, Bristol, United Kingdom

**PVP2007-26586: NUMERICAL SIMULATION OF RESIDUAL STRESSES DUE TO CLADDING PROCESS**

D. Siegele, M. Brand, Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany

**PVP2007-26729: DEVELOPMENT OF ENGINEERING FORMULAE FOR WELDING RESIDUAL STRESS DISTRIBUTIONS OF DISSIMILAR WELDS ON NOZZLE IN NUCLEAR COMPONENT**

J.-S. Kim, T.-E. Jin, KOPEC, Yongin, South Korea, Korea (Republic)

**SESSION 1.1N (OAC-3-5)**

*Monday, July 23, 8:30 am – 10:15 am, Navarro, Losoya*

**AGING MANAGEMENT AND RELIABILITY I**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* V. Shah, Argonne National Laboratory, Argonne, IL, USA

*Chair:* V. Shah, Argonne National Laboratory, Argonne, IL, USA

*Co-Chair:* A. Morris, E.ON UK, Nottingham, United Kingdom

**PVP2007-26196: APPLICATION OF RISK-BASED INSPECTION (RBI) IN ETHYLENE PLANT**

H. Jianyu, Sinopec Maoming Company, Maoming, Guangdong, China; G. Jinji, Beijing University of Chemical Technology, Beijing, Beijing, China; G. H. Chen, South China University of Technology, Guangzhou, Guangdong, China

**PVP2007-26281: THE PROBABILITY OF PIPE FAILURE ON THE BASIS OF OPERATING EXPERIENCE**

B. Lydell, Sigma-Phase, Inc., Vail, AZ, USA

**PVP2007-26538: PROBABILISTIC ANALYSIS OF CRACKING PHENOMENON IN A MIXING TEE UNDER THERMAL FATIGUE**

I. Varfolomeyev, Fraunhofer IWM, Freiburg, Germany

**PVP2007-26625: APPLICATION OF ENTRY-TIME PROCESSES WITHIN PROBABILISTIC RISK ASSESSMENT (PRA) AND GENERATION RISK ASSESSMENT (GRA)**

S. Wang, P. Nelson, Texas A&M University, College Station, TX, USA; E. Kee, South Texas Project Nuclear Operating Company, Wadsworth, TX, USA

**SESSION 1.1O (OAC-2-1)**

*Monday, July 23, 8:30 am – 10:15 am, Maverick A, Losoya*

**RADIOACTIVE MATERIALS PACKAGING LICENSING AND OPERATIONAL ISSUES**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Co-Chair:* M. Feldman, Oak Ridge National Laboratory, Knoxville, TN, USA

**PVP2007-26279: DEVELOPMENT OF A NEW TRANSPORTATION/STORAGE CASK SYSTEM FOR USE BY THE DOE RUSSIAN RESEARCH REACTOR FUEL RETURN PROGRAM**

M. Tyacke, Idaho National Laboratory, Idaho Falls, ID, USA; F. Sviták, J. Rycheký, Nuclear Research Institute Rez plc, Rez, Czech Republic; M. Pícek, ŠKODA JS a.s., Plzeň, Czech Republic; A. Smirnov, S. Komarov, R&D SOSNY Company, Dimitrovgrad, Ulyanovsk Region, Russia, E. Bradley, International Atomic Energy Agency, A-1400 Vienna, Austria; A. Dudchenko, K. Golubkin, FSUE Mayak Production Association, Ozersk, Russia

**PVP2007-26289: CERTIFICATION OF DOT 7A TYPE A PACKAGING IN TYPE AF CONFIGURATIONS**

Y. Liu, J. Liaw, Z. Li, Argonne National Laboratory, Argonne, IL, USA; J. Shuler, DOE, Washington D.C., DC, USA

**PVP2007-26370: TYPE B RADIOACTIVE MATERIAL PACKAGE FAILURE MODES AND CONTENTS COMPLIANCE**

S. Hensel, Savannah River National Laboratory, Aiken, SC, USA; R. Watkins, WSRC, Aiken, SC, USA; A. C. Smith, Savannah River National Laboratory, Aiken, SC, USA

**SESSION 1.1P (DA-2-1)**

*Monday, July 23, 8:30 am – 10:15 am, Maverick B, Losoya*

**DESIGN AND ANALYSIS OF PRESSURE VESSELS, HX, AND COMPONENTS**

**Sponsored by: Design and Analysis Committee**

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

*Chair:* T. Seipp, Becht Engineering Canada Ltd., Calgary, AB, Canada

*Co-Chair:* J. Taagepera, Chevron ETC, Richmond, CA, USA

**PVP2007-26093: A SIMPLIFIED APPROACH TO FINITE ELEMENT MODELING OF ANISOTROPIC SCREENS**

S. Krishnamurthy, UOP LLC, Des Plaines, IL, USA; W. Koves, UOP LLC, Des Plaines, IL, USA

**PVP2007-26233: DETERMINING AN ACCEPTABLE VALUE OF LAMBDA C FOR MULTI-DIAMETER AND MULTI-THICKNESS PRESSURE VESSELS**

K. Bardia, D. LaBounty, Fluor Corporation, Aliso Viejo, CA, USA

**PVP2007-26486: STRUCTURAL ANALYSIS FOR ETHYLENE OXIDE REACTOR**

H.-S. Woo, Y.-S. Hong, Y.-S. Lim, J.-Y. Park, H.-J. Ahn, C.-D. Lee, Hyundai Heavy Industries. Co., Ltd., Youngin-Si, Gyeonggi-Do, Korea (Republic)

**SESSION 1.1Q (DA-4-1)**

*Monday, July 23, 8:30 am – 10:15 am, Seguin, Losoya*

**FATIGUE, FRACTURE MECHANICS, AND DAMAGE**

**PVP2007-26736: TENSILE TESTING OF CARBON STEEL IN HIGH PRESSURE HYDROGEN**

A. Duncan, P.-S. Lam, T. Adams, Savannah River National Laboratory, Aiken, SC, , USA

**PVP2007-26496: EVALUATION OF HYDROGEN ENVIRONMENT EMBRITTLEMENT AND FATIGUE PROPERTIES OF STAINLESS STEELS IN HIGH PRESSURE GASEOUS HYDROGEN (INVESTIGATION OF MATERIALS PROPERTIES IN HIGH PRESSURE GASEOUS HYDROGEN-2)**

T. Omura, M. Miyahara, H. Semba, M. Igarashi, H. Hirata, Sumitomo Metal Industries, Ltd., Amagasaki, Hyogo, Japan

**SESSION 1.3N (OAC-3-6)**

*Monday, July 23, 2:00 pm – 3:45 pm, Navarro, Losoya*

**AGING MANAGEMENT AND RELIABILITY II**

**Sponsored by:** Operations, Applications, and Components Committee

*Developed by:* A. Martin, Electricité De France, Chatou, France

*Chair:* A. Martin, Electricité De France, Chatou, France

*Co-Chair:* B. Lydell, Sigma-Phase, Inc., Vail, AZ, USA

**PVP2007-26322: NUCLEAR PWR 3-LOOP PLANTS—REACTOR COOLANT CIRCUIT**

G. Bezdikian, Electricite de France, Saint Denis, France (Metro)

**PVP2007-26333: DEMONSTRATION RESULTS OF THE ROBOTIZED REPAIR OF UNDERCLAD CRACKS IN THE MAIN VESSEL**

B. Delaunay, J. Guillet, M. Tortolano, EDF, Chatou, France

**PVP2007-26349: DEGRADATION MECHANISMS: OVERVIEW IN CONNECTION WITH AMP**

C. Faigy, EDF-SEPTEN, Villeurbanne Cedex, France

**PVP2007-26578: PROJECT PRIORITIZATION VIA OPTIMIZATION**

D. Morton, A. Koc, E. Popova, The University of Texas at Austin, Austin, TX, USA; E. Kee, D. Richards, A. Sun, South Texas Project Nuclear Operating Company, Wadsworth, TX, USA; S. Hess, Electric Power Research Institute, Glen Mills, PA, USA

**SESSION 1.3O (OAC-2-2)**

*Monday, July 23, 2:00 pm – 3:45 pm, Maverick A, Losoya*

**THERMAL ANALYSIS AND TESTING—1**

**Sponsored by:** Operations, Applications, and Components Committee

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* M. Feldman, Oak Ridge National Laboratory, Knoxville, TN, USA

*Co-Chair:* M. Greiner, University of Nevada, Reno, Reno, NV, USA

**PVP2007-26029: THERMAL TESTING OF THE PROTOTYPE GENERAL PURPOSE FISSION PACKAGE USING A FURNACE**

A. C. Smith, P. Blanton, L. Gelder, R. Lutz, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26043: IMPROVING THERMAL PERFORMANCE OF RADIOACTIVE MATERIAL DRUM TYPE PACKAGES BY USING HEAT PIPES**

N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26049: THERMAL TESTING OF 9977 / 9978 GENERAL PURPOSE FISSION PACKAGE IN A POOL FIRE**

A. C. Smith, G. Abramczyk, L. Gelder, C. May, Savannah River National Laboratory, Aiken, SC, USA; J. Malloy, Novatech, Lynchburg, VA, USA

**PVP2007-26242: CFD SIMULATIONS OF NATURAL CONVECTION/RADIATION HEAT TRANSFER WITHIN THE FUEL REGIONS OF A TRUCK CASK FOR NORMAL TRANSPORT**

V. Venigalla, M. Greiner, University of Nevada, Reno, Reno, NV, USA

**SESSION 1.3P (DA-2-3)**

*Monday, July 23, 2:00 pm – 3:45 pm, Maverick B, Losoya*

**DESIGN AND ANALYSIS OF PRESSURE VESSELS, HX, AND COMPONENTS**

**Sponsored by:** Design and Analysis Committee

*Developed by:* D. LaBounty, Fluor Corporation, Aliso Viejo, CA, USA; J. Taagepera, Chevron ETC, Richmond, CA, USA

*Chair:* J. Taagepera, Chevron ETC, Richmond, CA, USA

*Co-Chair:* D. LaBounty, Fluor Corporation, Aliso Viejo, CA, USA

**PVP2007-26740: MATERIAL REMOVAL SIMULATION OF ALUMINUM COMPOUND TUBES WITH INCORPORATING REAL UNLOADING BEHAVIOR**

M. Mohammadi, The University of Western Ontario, London, ON, Canada; G. H. Farrahi, S. Hamed Hoseini, Sharif University of Technology, Tehran, Iran

**PVP2007-26780: ANALYSIS AND COMPARISON OF PAD REINFORCEMENT OF PRESSURE VESSEL BY ELASTIC AND ELASTOPLASTIC FEM**

L. H. Liang, Z. Gao, Y. Xu, K. Zhang, Zhejiang University of Technology, Hangzhou, Zhejiang, China; Z. Fan, Fushun Mechanical Equipment Manufacturing Company LTD, Fushun, Liaoning, China

**PVP2007-26647: TECHNICAL JUSTIFICATION FOR INCREASING TEMPERBEAD WELDING AREA LIMITS ON LOW ALLOY STEEL**

M. Herrera, S. Tang, Structural Integrity Associates, San Jose, CA, USA; A. Peterson, Electric Power Research Institute, Charlotte, NC, USA

**PVP2007-26722: DERIVATIONS FOR HOOP STRESSES DUE TO SHOCK WAVES IN A TUBE**

R. Leishear, Washington Savannah River Company, Aiken, SC, USA

**SESSION 1.3Q (DA-4-2)**

*Monday, July 23, 2:00 pm – 3:45 pm, Sequin, Losoya*

**FATIGUE, FRACTURE MECHANICS, AND DAMAGE**

**Sponsored by:** Design and Analysis Committee

*Developed by:* P. Mertiny, University of Alberta, Edmonton, AB, Canada; K. Yoon, AREVA NP Inc., Chantilly, VA, USA

**PVP2007-26648: FLAW EVALUATIONS USING MASTER CURVE METHODOLOGY**

T.-L. S. Sham, S. H. Mahmoud, H. P. Gunawardane, R. A. Hawileh, AREVA NP Inc, Lynchburg, VA, USA

**SESSION 1.4M (MF-4-2)**

*Monday, July 23, 4:00 pm – 5:45 pm, Bowie C, Losoya*

**MATERIALS FOR HYDROGEN SERVICE—II**

**Sponsored by: Materials and Fabrication Committee**

*Developed by:* Y. Tanaka, Nippon Steel Corp., Futtsu-city, Chiba, Japan;  
M. P. H. Brongers, CC Technologies, Inc., Dublin, OH, USA

*Chair:* Y. Tanaka, Nippon Steel Corp., Futtsu-city, Chiba, Japan

*Co-Chair:* M. P. H. Brongers, CC Technologies, Inc., Dublin, OH, USA

**PVP2007-26508: INTERNAL PRESSURE FATIGUE TEST OF CR-MO STEEL IN 45MPa GASEOUS HYDROGEN ENVIRONMENT**

K. Takasawa, Y. Wada, R. Ishigaki, Y. Tanaka, T. Iwade, K. Ohnishi, The Japan Steel Works Ltd., Hokkaido, Japan

**PVP2007-26535: EFFECT OF SURFACE MACHINING ON THE FATIGUE LIFE OF LOW ALLOY STEEL FOR HYDROGEN PRESSURE VESSELS**

Y. Wada, R. Ishigaki, Y. Tanaka, T. Iwade, K. Ohnishi, The Japan Steel Works Ltd., Hokkaido, Japan

**PVP2007-26730: LITERATURE SURVEY OF GASEOUS HYDROGEN EFFECTS ON THE MECHANICAL PROPERTIES OF CARBON AND LOW ALLOY STEELS**

P.-S. Lam, R. Sindelar, T. Adams, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26533: EFFECT OF HYDROGEN GAS PRESSURE ON THE MECHANICAL PROPERTIES OF LOW ALLOY STEEL FOR HYDROGEN PRESSURE VESSELS**

Y. Wada, R. Ishigaki, Y. Tanaka, T. Iwade, K. Ohnishi, The Japan Steel Works Ltd., Hokkaido, Japan

**PVP2007-26820: DEVELOPMENT OF NEW MATERIAL TESTING APPARATUS IN HIGH-PRESSURE HYDROGEN AND EVALUATION OF HYDROGEN GAS EMBRITTLEMENT OF METALS**

S. Fukuyama, M. Imade, K. Yokogawa, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

**SESSION 1.4N (OAC-3-7)**

*Monday, July 23, 4:00 pm – 5:45 pm, Navarro, Losoya*

**AGING MANAGEMENT AND RELIABILITY III**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* M. Sanwarwalla, Sargent & Lundy, LLC, Chicago, IL, USA

*Chair:* M. Sanwarwalla, Sargent & Lundy, LLC, Chicago, IL, USA

*Co-Chair:* E. Kee, South Texas Project Nuclear Operating Company, Wadsworth, TX, USA

**PVP2007-26229: INCORPORATION OF UNIT 1 INSPECTION RESULTS ON THE STP REACTOR VESSEL HEAD NUCLEAR ASSET MANAGEMENT ANALYSIS**

E. Kee, South Texas Project Nuclear Operating Company, Wadsworth, TX, USA; E. Popova, D. Morton, A. Galenko, The University of Texas at Austin, Austin, TX, USA; V. Moiseytseva, Texas A&M University, Engineering Experiment Station, College Station, TX, USA

**PVP2007-26354: ASSET MANAGEMENT EVALUATION : EXTENDED PILOT CASE STUDIES**

P. Haik, C. Bauby, J. Lonchamp, E. Remy, EDF - R&D, Chatou, France

**PVP2007-26355: “ADAPTATIVE” USER INTERFACE FOR EXPERT KNOWLEDGE VALIDATION AND EVALUATIONS INTERPRETATION IN AN ASSET MANAGEMENT PROCESS**

P. Haik, S. Parfouru, C. Bauby, S. Mahé, EDF - R&D, Chatou, France

**SESSION 1.4O (OAC-2-3)**

*Monday, July 23, 4:00 pm – 5:45 pm, Maverick A, Losoya*

**THERMAL ANALYSIS AND TESTING—2**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* M. Greiner, University of Nevada, Reno, Reno, NV, USA

*Co-Chair:* W. L. Daugherty, Washington Savannah River Company, Aiken, SC, USA

**PVP2007-26455: COMPUTER SIMULATIONS TO ADDRESS Pu-Fe EUTECTIC TEMPERATURE ISSUE**

N. K. Gupta, A. C. Smith, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26686: USE OF REGULAR ROD ARRAYS TO MODEL HEAT TRANSFER FROM BWR FUEL ASSEMBLIES INSIDE TRANSPORT CASKS**

P. E. Araya, M. Greiner, University of Nevada, Reno, Reno, NV, USA

**PVP2007-26735: BENCHMARKING OF A THERMAL FINITE ELEMENT APPROXIMATION SCHEME FOR EXTERNALLY COOLED SPENT FUEL STORAGE CASKS**

C. Bajwa, I. Spivack, US Nuclear Regulatory Commission, Rockville, MD, USA

**SESSION 1.4P( DA-3-1)**

*Monday, July 23, 4:00 pm – 5:45 pm, Maverick B, Losoya*

**DESIGN AND ANALYSIS OF PIPING & PIPING COMPONENTS**

**Sponsored by: Design and Analysis Committee**

*Developed by:* J. McCabe, General Dynamics Electric Boat, Groton, CT, USA; S. Iyer, Atomic Energy of Canada Ltd., Mississauga, ON, Canada

*Chair:* J. McCabe, General Dynamics Electric Boat, Groton, CT, USA

*Co-Chair:* S. Iyer, Atomic Energy of Canada Ltd., Mississauga, ON, Canada

**PVP2007-26266: DEVELOPMENT OF A SEMI-ANALYTICAL MODEL OF WELD INDUCED RESIDUAL STRESS**

J. Bromley, H. Alizadeh, D. Smith, C. Truman, University of Bristol, Bristol, United Kingdom

**PVP2007-26325: RESIDUAL STRESSES IN AUSTENITIC CLADDING**  
M. Brumovsky, V. Pistora, Nuclear Research Institute Rez plc, Rez, Czech Republic; I. Kupka, SKODA JS, Plzen, Czech Republic

**PVP2007-26574: CRACK GROWTH ANALYSES OF SCC UNDER VARIOUS RESIDUAL STRESS DISTRIBUTIONS NEAR THE PIPING BUTT-WELDING**

J. Katsuyama, Japan Atomic Energy Agency, Ibaraki, Ibaraki-ken, Japan; W. Asano, Osaka University, Osaka, Japan; K. Onizawa, Japan Atomic Energy Agency, Ibaraki, Japan; M. Mochizuki, Osaka University, Suita, Osaka, Japan; M. Toyota, Osaka University, Osaka, Japan

**SESSION 2.1N (OAC-3-8)**

*Tuesday, July 24, 8:30 am – 10:15 am, Navarro, Losoya*

**AGING MANAGEMENT AND RELIABILITY IV**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* G. Bezdikian, Electricite de France, Saint Denis, France (Metro)

*Chair:* G. Bezdikian, Electricite de France, Saint Denis, France (Metro)

*Co-Chair:* I. Varfolomeyev, Fraunhofer IWM, Freiburg, Germany

**PVP2007-26313: RESOLUTION OF CREEP STRAIN MEASUREMENTS USING THE ARCMAC STRAIN MONITORING SYSTEM**

A. Morris, E.ON UK, Nottingham, United Kingdom; J. Dear, M. Kourmpetis, A. Puri, C. Maharaj, Imperial College, London, United Kingdom

**PVP2007-26314: RESEARCHING METHODS TO STUDY CREEP STRAIN VARIATIONS IN POWER STATION STEAM PLANT**

A. Morris, E.ON UK, Nottingham, United Kingdom; J. Dear, M. Kourmpetis, A. Puri, C. Maharaj, Imperial College, London, United Kingdom

**PVP2007-26316: USE OF A CFD-TOOL FOR ASSESSMENT OF THE REACTOR PRESSURE VESSEL INTEGRITY IN PRESSURE THERMAL SHOCK CONDITIONS.THERMAL-HYDRAULIC METHODOLOGY AND PRESENT LIMITATION**

A. Martin, S. Bosse, Electricité De France, Chatou, France; F. Lestang, EDF SEPTEN, Villeurbanne, France

**PVP2007-26785: EX-VESSEL NEUTRON DOSIMETRY RESULTS IN THE VICINITY OF RPV SUPPORTS**

D. Hopkins, Southwest Research Institute, San Antonio, TX, USA; E. T. Hayes, Westinghouse Electric Company, Madison, PA, USA; A. H. Ferro, Westinghouse Electric Company, Waltz Mill, PA, USA

**SESSION 2.1O (OAC-2-4)**

*Tuesday, July 24, 8:30 am – 10:15 am, Maverick A, Losoya*

**PACKAGING MATERIALS—1**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* W. L. Daugherty, Washington Savannah River Company, Aiken, SC, USA

*Co-Chair:* S. Hensel, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26114: PROPERTIES OF FIBERBOARD OVERPACK MATERIAL IN THE 9975 SHIPPING PACKAGE FOLLOWING THERMAL AGING**

W. L. Daugherty, Washington Savannah River Company, Aiken, SC, USA

**PVP2007-26161: ANODIC POLARIZATION BEHAVIOR OF TITANIUM GRADE 7 IN DUST DELIQUESCENT SALT ENVIRONMENTS**

K. J. Evans, R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26179: AGING PERFORMANCE OF VITON GLT O-RINGS IN MODEL 9975 SHIPPING PACKAGES**

T. E. Skidmore, K. A. Dunn, K. M. Counts, E. N. Hoffman, E. B. Fox, Washington Savannah River Company, Aiken, SC, USA

**PVP2007-26182: IMPACT TESTING OF STAINLESS STEEL MATERIAL AT ROOM AND ELEVATED TEMPERATURES**

D.K. Morton, S. D. Snow, T. E. Rahl, R. K. Blandford, Idaho National Laboratory, Idaho Falls, ID, USA

**SESSION 2.1P (DA-5-1)**

*Tuesday, July 24, 8:30 am – 10:15 am, Maverick B, Losoya*

**LIMIT LOAD ANALYSIS**

**Sponsored by: Design and Analysis Committee**

*Developed by:* M. Younan, The American University in Cairo, Cairo, Egypt; Atomic Energy of Canada Limited, Mississauga, ON, Canada

*Chair:* M. Younan, The American University in Cairo, Cairo, Egypt

*Co-Chair:* I. Fanous, Atomic Energy of Canada Limited, Mississauga, ON, Canada

**PVP2007-26170: SHAKEDOWN LIMIT LOAD OF A KINEMATICALLY HARDENING 90- DEGREE PIPE BEND SUBJECTED TO CONSTANT INTERNAL PRESSURE AND CYCLIC BENDING**

H. Abdalla, M. Megahed, Cairo University, Cairo, Egypt; M. Younan, The American University in Cairo, Cairo, Egypt

**PVP2007-26191: NONLINEAR FINITE ELEMENT ANALYSIS OF COLLAPSE LOADS OF CYLINDRICAL SHELLS SUBJECTED TO COMBINED THERMAL LOADS AND EXTERNAL PRESSURE**

T. Sato, T. Hirosawa, S. Kataoka, JGC Corporation, Yokohama, Japan

**PVP2007-26158: MECHANICAL BUCKLING OF FUNCTIONALLY GRADED CYLINDRICAL SHELLS BASED ON THE FIRST ORDER SHEAR DEFORMATION THEORY**

P. Khazaeinejad, Azad University, Arak Branch, Arak, Markazi, Iran; Mehdi K. Khorramabadi, Young Researchers Club, Arak Branch, Azad University, Khorramabad, Lorestan, Iran; R. Narimani, Iran University of Science and Technology, Arak Engineering and Technical Department, Arak, Iran

**PVP2007-26505: STATIC AND DYNAMIC J-R TESTS FOR LBB DESIGN APPLICATION OF FERRITIC PIPING MATERIALS**

K.-C. Kim, Doosan Heavy Industries & Construction, Changwon, Gyeongnam, Korea (Republic); J.-I. Suk, Doosan Heavy Industries & Construction, Daejeon, Gyeongnam, Korea (Republic); U.-H. Sung, B.-K. Kim, J.-T. Kim, Doosan Heavy Industries & Construction, Changwon, Gyeongnam, Korea (Republic)

**PVP2007-26573: EVALUATION OF STRENGTH CHARACTERISTICS CONSIDERING MICROSCOPIC HETEROGENEITY OF STRUCTURAL STEELS AND WELD ZONE BY USING FEM-MD COUPLING METHOD**

M. Mochizuki, R. Higuchi, Osaka University, Osaka, Japan; J. Katsuyama, Japan Atomic Energy Agency, Ibaraki, Ibaraki-ken, Japan; M. Toyoda, Osaka University, Osaka, Japan

**PVP2007-26712: COMPARISON OF METHODS FOR PREDICTING THE INFLUENCE OF RESIDUAL STRESSES ON BRITTLE FRACTURE**

A. Sisan, TWI Ltd., Cambridge, United Kingdom; S. Hadidi-Moud, D. Smith, University of Bristol, Bristol, United Kingdom

**PVP2007-26264: A COMPARISON OF 2D AND 3D FRACTURE ASSESSMENTS IN THE PRESENCE OF RESIDUAL STRESSES**

S. Lewis, D. Smith, C. Truman, University of Bristol, Bristol, United Kingdom

**SESSION 2.2M (MF-5-2)**

*Tuesday, July 24, 10:30 am – 12:15 pm, Bowie C, Losoya*

**WELDING AND RESIDUAL STRESS II**

**Sponsored by: Materials and Fabrication Committee**

*Developed by:* M. Mochizuki, Osaka University, Suita, Osaka, Japan

*Chair:* E. Keim, AREVA NP GmbH, Erlangen, Germany

*Co-Chair:* P. Dong, Battelle, Columbus, OH, USA

**PVP2007-26263: MEASUREMENT OF RESIDUAL STRESSES IN A NOZZLE-TO-CYLINDER WELD AFTER THERMAL AGEING AT 550C**

S. Hossain, C. Truman, D. Smith, University of Bristol, Bristol, United Kingdom; P. J. Bouchard, British Energy Ltd., Gloucester, United Kingdom

**PVP2007-26460: STUDY ON THICKNESS AND ACTUAL STRESS MEASUREMENT OF STEEL STRUCTURES USING ELECTROMAGNETIC ACOUSTIC TRANSDUCER**

K. Mitani, NICHIZO TECH INC., Osaka, Japan; M. Mochizuki, M. Toyoda, Osaka University, Osaka, Japan

**PVP2007-26502: ASSESSMENT OF RESIDUAL STRESS AND DETERMINATION OF STRESS DIRECTIONALITY BY INSTRUMENTED INDENTATION TECHNIQUE**

M.-J. Choi, K.-H. Kim, K.-W. Lee, Seoul National University, Seoul, Korea (Republic); K.-H. Kim, Frontics, Inc., Seoul, Korea (Republic); D. Kwon, Seoul National University, Seoul, Korea (Republic)

**PVP2007-26699: RESIDUAL STRESSES IN CANDU FEEDER BENDS- COMPARISON OF MEASUREMENTS AND PREDICTIONS**

M. Yetisir, AECL, Chalk River, ON, Canada; S. Khajepour, AECL, Mississauga, ON, Canada; Y. Ding, AECL, Chalk River, ON, Canada

**SESSION 2.2N (OAC-5-1)**

*Tuesday, July 24, 10:30 am – 12:15 pm, Navarro, Losoya*

**RISK & RELIABILITY—I**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* M. Sanwarwalla, Sargent & Lundy, LLC, Chicago, IL, USA; W. Cho, RiskSolver Communications, Irvine, CA, USA

*Chair:* M. Sanwarwalla, Sargent & Lundy, LLC, Chicago, IL, USA

*Co-Chair:* W. Cho, RiskSolver Communications, Irvine, CA, USA

**PVP2007-26129: A QUALITATIVE RISK-BASED ASSESSMENT PROCEDURE FOR HIGH TEMPERATURE HYDROGEN ATTACK OF C-1/2Mo STEEL**

J. McLaughlin, ExxonMobil Research and Engineering Company, Fairfax, VA, USA

**PVP2007-26271: REGULATORY AND INDUSTRY GUIDANCE ON USE OF RISK TECHNOLOGY IN NUCLEAR POWER PLANT APPLICATIONS**

M. Sanwarwalla, Sargent & Lundy, LLC, Chicago, IL, USA

**PVP2007-26519: NUMERICAL SIMULATION OF THE DISPERSION OF NATURAL GAS DUE TO PIPELINE FAILURE**

Y. Liu, J. Zheng, Zhejiang University, Hangzhou, Zhejiang, China

**PVP2007-26605: DATA ANALYSIS FOR RPV LIFE MANAGEMENT STUDIES OF TEMPERATURE MEASUREMENTS FROM MONITORING OF SAFETY INJECTION FLUID IN REFUELING WATER STORAGE TANK**

A. Cagnac, S. Turato, EDF R&D, Chatou, France; F. Lestang, EDF SEPTEN, Villeurbanne, France; F. Planckel, EDF CNPE de Gravelines, Gravelines, France

**SESSION 2.2O (OAC-2-5)**

*Tuesday, July 24, 10:30 am – 12:15 pm, Maverick A, Losoya*

**PACKAGING MATERIALS—2**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* S. Hensel, Savannah River National Laboratory, Aiken, SC, USA

*Co-Chair:* C. Bajwa, US Nuclear Regulatory Commission, Rockville, MD, USA

**PVP2007-26162: LONG-TERM CORROSION POTENTIAL BEHAVIOR OF ALLOY 22 IN HOT 5 m CaCl<sub>2</sub> + 5 m Ca(NO<sub>3</sub>)<sub>2</sub> BRINES**

M. A. Rodriguez, Atomic Energy Commission of Argentina, Buenos Aires, Argentina; R. M. Carranza, Atomic Energy Commission of Argentina, San Martin, Buenos Aires, Argentina; M. L. Stuart, R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26163: LONG-TERM IMMERSION TESTING OF ALLOY 22 AND TITANIUM GRADE 7 DOUBLE U-BEND SPECIMENS**

K. J. Evans, M. L. Stuart, P. D. Hailey, R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26164: CREVICE REPASSIVATION POTENTIAL OF ALLOY 22 IN HIGH-NITRATE DUST DELIQUESCENT TYPE ENVIRONMENTS**  
T. Lian, G. E. Gdowski, P. D. Hailey, R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26165: THE LONG-TERM CORROSION TEST FACILITY AT THE LAWRENCE LIVERMORE NATIONAL LABORATORY**  
D. V. Fix, R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

## **SESSION 2.2P (DA-5-2)**

*Tuesday, July 24, 10:30 am – 12:15 pm, Maverick B, Losoya*

### **INELASTIC AND NONLINEAR ANALYSIS**

**Sponsored by: Design and Analysis Committee**

*Developed by:* M Younan, The American University in Cairo, Cairo, Egypt;  
I. Fanous, Atomic Energy of Canada Limited, Mississauga, ON, Canada

*Chair:* D. Mackenzie, Strathclyde University, Glasgow, United Kingdom

*Co-Chair:* I. Fanous, Atomic Energy of Canada Limited, Mississauga, ON, Canada

**PVP2007-26227: FINITE ELEMENT ANALYSIS OF A COMPRESSOR HOUSING USED IN HIGH PRESSURE REFRIGERATION SYSTEM**

R. Bosco Jr., R. A. Maciel, Embraco, Joinville, Santa Catarina, Brazil; M. Mattar, C. A. J. Miranda, IPEN - CNEN/SP, São Paulo, São Paulo, Brazil

**PVP2007-26298: GROSS PLASTIC DEFORMATION OF A HEMISPHERICAL HEAD WITH CYLINDRICAL NOZZLE: A COMPARATIVE STUDY**

T. Naruse, Hitachi, Ltd. Mechanical Engineering Research Laboratory, Hitachinaka, Ibaraki, Japan; D. Mackenzie, D. Camilleri, Strathclyde University, Glasgow, United Kingdom

**PVP2007-26426: ELASTIC-PLASTIC MODELING OF HARDENING MATERIALS USING A COROTATIONAL RATE BASED ON THE PLASTIC SPIN TENSOR**

K. Ghavam, R. Naghdabadi, Sharif University of Technology, Tehran, Iran

## **SESSION 2.2Q (DA-4-6)**

*Tuesday, July 24, 10:30 am – 12:15 pm, Seguin, Losoya*

### **FATIGUE, FRACTURE MECHANICS, AND DAMAGE**

**Sponsored by: Design and Analysis Committee**

*Developed by:* J. M. Stephan, Electricite de France R&D, Moret-Sur-Loing, France; D. Moinereau, Electricite de France - EDF R&D - Département MMC, Moret-sur-Loing, France

*Chair:* J. M. Stephan, Electricite de France R&D, Moret-Sur-Loing, France

*Co-Chair:* D. Moinereau, Electricite de France - EDF R&D - Département MMC, Moret-sur-Loing, France

**PVP2007-26144: STRESS INTENSITY FACTORS OF VARIOUS SURFACE CRACKS INSIDE A HOLLOW CYLINDER UNDER STEADY STATE THERMAL STRIPING**

T. Meshii, K. Shibata, University of Fukui, Fukui-shi, Fukui, Japan

**PVP2007-26235: AN EXPERIMENTAL INVESTIGATION INTO FATIGUE LIFE ESTIMATION OF RISERS UNDER VIV INDUCED VARIABLE AMPLITUDE LOADING**

M. Iranpour, F. Taheri, Dalhousie University, Halifax, NS, Canada

**PVP2007-26388: RESEARCH ON STRESS CORROSION CRACKING OF A REBOILER CYLINDER IN DESULFURATION SYSTEM**

Z.-M. Lu, S.-E. Sheng, Z. Gao, Zhejiang University of Technology, Hangzhou, Zhejiang, China

## **SESSION 2.2R (CT-19-2)**

*Tuesday, July 24, 10:30 am – 12:15 pm, Regency Foyer, B-Level*

### **PVP SOFTWARE DEMONSTRATION FORUM—PART 2**

**Sponsored by: Computer Technology Committee**

*Developed by:* J. Cory, Jr., Siemens - UGS PLM Software, Milford, OH, USA

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## **Block 2.3: Tuesday, July 24 (2:00 pm – 3:45 pm)**

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## **SESSION 2.3A**

*Tuesday, July 24, 2:00 pm – 3:45 pm, Regency East #1, B-Level*

**TECHNICAL TUTORIAL IIA: FAILURE ANALYSIS OF ENGINEERING EQUIPMENT**

**Sponsored by: The PVP Division Conference Committee**

*Presented by:* M. P. H. Brongers, CC Technologies, Inc. (A DNV Company), Dublin, OH, USA

## **SESSION 2.3B (SE-10-1)**

*Tuesday, July 24, 2:00 pm – 3:45 pm, Regency East #2, B-Level*

### **SEISMIC DESIGN OF PIPING SYSTEMS**

**Sponsored by: Seismic Engineering Committee**

*Developed by:* G. Slagis, GC Slagis Associates, Pleasant Hills, CA, USA

*Chair:* G. Slagis, GC Slagis Associates, Pleasant Hills, CA, USA

*Co-Chair:* M. Nitzel, Idaho National Laboratory, Idaho Falls, ID, USA

**PVP2007-26424: TECHNICAL ISSUES ON SEISMIC DESIGN OF NUCLEAR PIPING SYSTEMS**

G. Slagis, GC Slagis Associates, Pleasant Hills, CA, USA

**PVP2007-26806: APPLICATION OF EARTHQUAKE EXPERIENCE DATA TO THE EVALUATION OF MECHANICAL EQUIPMENT AND PIPING SYSTEMS—AN OVERVIEW AND SUMMARY**

T. M. Adams, Stevenson & Associates, Cleveland, OH, USA

**PVP2007-26757: THE “SPECTRUM DIP”: DYNAMIC INTERACTION OF SYSTEM COMPONENTS**

R. J. Scavuzzo, The University of Akron, Akron, OH, USA; G. D. Hill, P. Saxe, Alion Science and Technology, Arlington, VA, USA



**PVP2007-26069: LOAD AND CRACK HISTORY EFFECTS ON FRACTURE**

J. Sharples, P. James, L. A Higham, P. Wood, H. Teng, D. Beardsmore, Serco Assurance, Warrington, United Kingdom; A. H Sherry, University of Manchester, Manchester, United Kingdom; M. Goldthorpe, The University of Manchester, Manchester, United Kingdom; C. T Watson, Rolls-Royce plc., Derby, United Kingdom

**PVP2007-26125: TIMES: AN INTERNATIONAL PROJECT ON TRANSFERABILITY OF FRACTURE TOUGHNESS VALUES FOR IRRADIATED RPV STEELS**

M. Huemmer, E. Keim, AREVA NP GmbH, Erlangen, Germany; H. Hoffmann, VGB PowerTech e.V., Essen, Germany

**PVP2007-26328: CONSTRAINT EFFECTS IN UNDERCLAD CRACKS**  
M. Brumovsky, Nuclear Research Institute Rez plc, Rez, Czech Republic

**PVP2007-26506: PROGRESS ON THE NATIONAL PROJECT CARISMA: CRACK ARREST TESTING OF IRRADIATED MATERIALS**

E. Keim, H. Hein, H. Schnabel, T. Seibert, AREVA NP GmbH, Erlangen, Germany

**PVP2007-26562: REPRESENTATION AND PARTITIONING OF WELDING RESIDUAL STRESS DISTRIBUTIONS FOR USE IN STRUCTURAL INTEGRITY ASSESSMENTS (Presentation Only)**

A. Toft, D. Beardsmore, P. James, J. Sharples, Serco Assurance, Warrington, United Kingdom; M. Martin, Rolls Royce P.L.C., Derby, United Kingdom

**SESSION 2.30 (OAC-2-6)**

*Tuesday, July 24, 2:00 pm – 3:45 pm, Maverick A, Losoya*

**PACKAGING MATERIALS—3**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* C. Bajwa, US Nuclear Regulatory Commission, Rockville, MD, USA

*Co-Chair:* C. May, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26166: ENHANCED CORROSION RESISTANCE OF IRON-BASED AMORPHOUS ALLOYS**

R. B. Rebak, S. D. Day, T. Lian, Lawrence Livermore National Laboratory, Livermore, CA, USA; L. F. Aprigliano, Consultant, Berlin, MD, USA; P. D. Hailey, J. C. Farmer, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26758: HIGH PERFORMANCE COATINGS FOR SPENT FUEL CONTAINERS AND COMPONENTS**

J. C. Farmer, J.-S. Choi, S. D. Day, T. Lian, P. D. Hailey, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26775: CORROSION RESISTANT IRON-BASED AMORPHOUS ALLOY FOR CRITICALITY CONTROL (Presentation Only)**

T. Lian, J. C. Farmer, S. D. Day, J.-S. Choi, P. D. Hailey, Lawrence Livermore National Laboratory, Livermore, CA, USA

**SESSION 2.3P (CS-3-1)**

*Tuesday, July 24, 2:00 pm – 3:45 pm, Maverick B, Losoya*

**ENVIRONMENTAL FATIGUE CRACK INITIATION AND GROWTH—I**

**Sponsored by: Codes and Standards and Materials and Fabrication Committees**

*Developed by:* H. Mehta, General Electric, San Jose, CA, USA; O. Chopra, Argonne National Laboratory, Argonne, IL, USA; M. Higuchi, Ishikawajima-Harima Heavy Industries Co., Ltd., Yokohama, Japan

*Chair:* D. P. Jones, Bechtel Bettis, Inc., West Mifflin, PA, USA

*Co-Chair:* O. Chopra, Argonne National Laboratory, Argonne, IL, USA

**PVP2007-26100: FINAL PROPOSAL OF ENVIRONMENTAL FATIGUE LIFE CORRECTION FACTOR (FEN) FOR STRUCTURAL MATERIALS IN LWR WATER ENVIRONMENTS**

M. Higuchi, Ishikawajima-Harima Heavy Industries Co., Ltd., Yokohama, Japan; K. Sakaguchi, Japan Nuclear Energy Safety Organization, Tokyo, Japan; A. Hirano, Hitachi, Ltd., Hitachi, Ibaraki, Japan; Y. Nomura, Mitsubishi Heavy Industry, Takasago, Hyogo, Japan

**PVP2007-26101: EFFECTS OF STRAIN HOLDING AND CONTINUOUSLY CHANGING STRAIN RATE ON FATIGUE LIFE REDUCTION OF STRUCTURAL MATERIALS IN SIMULATED LWR WATER**

M. Higuchi, Ishikawajima-Harima Heavy Industries Co., Ltd., Yokohama, Japan; K. Sakaguchi, Japan Nuclear Energy Safety Organization, Tokyo, Japan; Y. Nomura, Mitsubishi Heavy Industry, Takasago, Hyogo, Japan

**PVP2007-26709: ENVIRONMENTAL CRACK GROWTH PREDICTIONS FOR PIPING**

S. Ranganath, XGEN Engineering, San Jose, CA, USA; G. DeBoo, Exelon Nuclear, Warrenville, IL, USA

**PVP2007-26755: INFLUENCE OF LOAD RATIO, RISE TIME AND WAVEFORM ON THE CORROSION FATIGUE CRACK GROWTH OF AUSTENITIC STAINLESS STEEL IN A PWR PRIMARY COOLANT ENVIRONMENT**

N. Platts, D. Tice, K. Rigby, J. Stairmand, Serco Assurance, Warrington, United Kingdom

**SESSION 2.3Q (DA-6-1)**

*Tuesday, July 24, 2:00 pm – 3:45 pm, Seguin, Losoya*

**STRESS CLASSIFICATION AND DESIGN BY ANALYSIS**

**Sponsored by: Design and Analysis Committee**

*Developed by:* I. Fanous, Atomic Energy of Canada Limited, Mississauga, ON, Canada

*Chair:* I. Fanous, Atomic Energy of Canada Limited, Mississauga, ON, Canada

*Co-Chair:* M. Ruggles-Wrenn, Air Force Institute of Technology, WPAFB, OH, USA

**PVP2007-26307: RESIDUAL STRESS IMPROVEMENT IN REPAIR WELDED PLATES USING WATER-SHOWER COOLING DURING WELDING PROCESS**

N. Yanagida, Hitachi, Ltd., Hitachi, Ibaraki, Japan; K. Saito, Hitachi, Ltd., Hitachi-shi, Japan; H. Koide, Hitachi, Ltd., Hitachi, Ibaraki, Japan; M. Kawakami, Hitachi Engineering & Service, Hitachi, Ibaraki, Japan

**PVP2007-26324: WELDING REPAIR OF DEFECTS IN WWER REACTOR PRESSURE VESSELS**

M. Brumovsky, J. Brynda, Nuclear Research Institute Rez plc, Rez, Czech Republic; J. Ellinger, SKODA JS, Plzen, Czech Republic

**PVP2007-26544: TRANSFORMATION TEMPERATURES AND WELDING RESIDUAL STRESSES IN FERRITIC STEELS**

J. A. Francis, University of Manchester, Manchester, United Kingdom; H. J. Stone, S. Kundu, University of Cambridge, Cambridge, United Kingdom; R. B. Rogge, Canadian Neutron Beam Centre, Chalk River, ON, Canada; H. K. D. H. Bhadeshia, University of Cambridge, Cambridge, United Kingdom; P. J. Withers, University of Manchester, Manchester, United Kingdom; L. Karlsson, ESAB AB, SE-402 77 Gothenburg, Sweden

**SESSION 2.4N (MF-9-1)**

*Tuesday, July 24, 4:00 pm – 5:45 pm, Navarro, Losoya*

**WALL THINNING—I**

**Sponsored by: Materials and Fabrication Committee**

*Developed by:* K. Hasegawa, Japan Nuclear Energy Safety Organization (JNES), Tokyo, Ibaraki-ken, Japan; Y. J. Kim, Korea University, Seoul, Korea (Republic)

*Chair:* C.-Y. Park, KEPRI, Daejeon, Korea (Republic)

*Co-Chair:* S. Hamada, Tokyo Electric Power Company, Tokyo, Japan

**PVP2007-26086: TACKLING EROSION IN NUCLEAR PIPING SYSTEMS**  
J. Horowitz, dba Jeff Horowitz, Escondido, CA, USA; H. Crockett, Electric Power Research Institute, Charlotte, NC, USA

**PVP2007-26178: PROPOSED FAC MECHANISM USING A MACRO-CELL CORROSION MODEL**

M. Matsumura, Hiroshima University, Higashi-Hiroshima, Hiroshima, Japan

**PVP2007-26225: AXIAL LENGTH AND SHAPE EFFECTS OF LOCAL WALL THINNING ON NET-SECTION LIMIT LOADS**

C.-Y. Park, S.-H. Lee, KEPRI, Daejeon, Korea (Republic); Y. J. Kim, N.-H. Myung, C.-K. Oh, Korea University, Seoul, Korea (Republic)

**PVP2007-26222: INFLUENCE OF FLAW LENGTH ON FAILURE PRESURE OF STRAIGHT PIPE WITH WALL-THINNING**

M. Kamaya, Institute of Nuclear Safety System, Fukui, Japan; T. Meshii, T. Suzuki, M. Yamada, University of Fukui, Fukui-shi, Fukui, Japan

**SESSION 2.4O (OAC-2-7)**

*Tuesday, July 24, 4:00 pm – 5:45 pm, Maverick A, Losoya*

**STRUCTURAL ANALYSIS FOR RAM PACKAGES**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* C. May, Savannah River National Laboratory, Aiken, SC, USA

*Co-Chair:* R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

**PVP2007-26294: DYNAMIC ANALYSIS OF THE BULK TRITIUM SHIPPING PACKAGE SUBJECTED TO CLOSURE TORQUES AND SEQUENTIAL IMPACTS**

T.-T. Wu, P. Blanton, K. Eberl, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26330: EFFECT OF IMPACT LIMITER MATERIAL DEGRADATION ON STRUCTURAL INTEGRITY OF 9975 PACKAGE SUBJECTED TO TWO FORKLIFT TRUCK IMPACT**

T.-T. Wu, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26130: DESIGN QUALIFICATION OF DOE RADIOACTIVE WASTE PACKAGES EMPLOYING POLYURETHANE FOAM BASED IMPACT LIMITERS (Presentation Only)**

L. Hagler, G. Mok, Lawrence Livermore Nat'l Lab, Livermore, CA, USA

**SESSION 2.4P (CS-3-2)**

*Tuesday, July 24, 4:00 pm – 5:45 pm, Maverick B, Losoya*

**ENVIRONMENTAL FATIGUE CRACK INITIATION AND GROWTH—II**

**Sponsored by: Codes and Standards and Materials and Fabrication Committees**

*Developed by:* H. Mehta, General Electric, San Jose, CA, USA; O. Chopra, Argonne National Laboratory, Argonne, IL, USA

*Chair:* R. Cipolla, Aptech Engineering Services, Inc., Sunnyvale, CA, USA

*Co-Chair:* M. Higuchi, Ishikawajima-Harima Heavy Industries Co., Ltd., Yokohama, Japan

**PVP2007-26143: APPLICATION OF DRAFT REGULATORY GUIDE DG-1144 GUIDELINES FOR ENVIRONMENTAL FATIGUE EVALUATION TO A BWR FEEDWATER PIPING SYSTEM**

H. Mehta, General Electric, San Jose, CA, USA; Henry Hwang, GE Nuclear Energy, Sunol, CA, USA

**PVP2007-26210: EVALUATION OF CONTROLLING TRANSIENT RAMP TIMES USING PIPING METHODOLOGIES CONSIDERING ENVIRONMENTAL FATIGUE (FEN) EFFECTS**

G. Stevens, Structural Integrity Associates, Inc., Centennial, CO, USA; J. M. Davis, Duke Energy Corporation, Charlotte, NC, USA

**PVP2007-26211: SAMPLE ENVIRONMENTAL FATIGUE CALCULATIONS ASSOCIATED WITH THE REVIEW OF DRAFT REGULATORY GUIDE DG-1144**

G. Stevens, Structural Integrity Associates, Inc., Centennial, CO, USA; J. M. Davis, Duke Energy Corporation, Charlotte, NC, USA; L. Spain, Dominion, Glen Allen, VA, USA

**PVP2007-26556: EFFECTS OF RESIDUAL STRESS BY WELD OVERLAY CLADDING AND PWHT ON THE STRUCTURAL INTEGRITY OF RPV DURING PTS**

M. Udagawa, J. Katsuyama, K. Onizawa, Japan Atomic Energy Agency, Ibaraki, Ibaraki-ken, Japan

**SESSION 3.1N (MF-17-1)**

*Wednesday, July 25, 8:30 am – 10:15 am, Navarro, Losoya*

**PIPELINE STRUCTURAL INTEGRITY AND ASSESSMENT I**

**Sponsored by: Materials and Fabrication Committee**

*Developed by:* X.-K. Zhu, Battelle Memorial Institute, Columbus, OH, USA

*Chair:* X.-K. Zhu, Battelle Memorial Institute, Columbus, OH, USA

*Co-Chair:* X. Zhao, Tubular Research Goods Center of CNPC, Xi'an, China

**PVP2007-26217: LOWER BOUND NET-SECTION LIMIT LOADS FOR CIRCUMFERENTIAL PART-THROUGH SURFACE CRACKED PIPES UNDER COMBINED PRESSURE AND BENDING**

C.-K. Oh, Korea University, Seoul, Korea (Republic); Y. J. Kim, J.-S. Kim, T.-E. Jin, KOPEC, Yongin, South Korea, Korea (Republic)

**PVP2007-26473: ANALYSIS OF CAUSES FOR CRACKING OF CHINESE LARGE HIGH-STRENGTH STEEL SPHERIC TANK AND SUGGESTION ABOUT ITS PREVENTION**

C. Xuedong, Y. Rong, W. Bing, Y. Tiecheng, L. Pingjin, C. Chuanqing, Hefei General Machinery Research Institute, Hefei, Anhui, China

**PVP2007-26808: THE RESEARCHES ON TOUGHNESS INDEX OF REHEATED HIGH GRADE LINEPIPE BEND PIPES**

Z. X. Li, F. Y. Rong, Z. W. Zhen, L. Y. Lai, C. Zhuang, J. Ling Kang, L. Weiwei, C. Huo, Tubular Goods Research Center of China National Petroleum Co., Xi'an, Shaanxi, China

**SESSION 3.1O (OAC-2-8)**

*Wednesday, July 25, 8:30 am – 10:15 am, Maverick A, Losoya*

**RADIOACTIVE MATERIALS PACKAGING TESTING**

**Sponsored by: Operations, Applications, and Components Committee**

*Developed by:* N. K. Gupta, Savannah River National Laboratory, Aiken, SC, USA

*Chair:* R. B. Rebak, Lawrence Livermore National Laboratory, Livermore, CA, USA

*Co-Chair:* T.-T. Wu, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26371: ACCIDENTAL DROP OF A CARBON STEEL/LEAD SHIPPING CASK AT LOW TEMPERATURES**

B. Hawkes, K. Durstine, Idaho National Laboratory, Idaho Falls, ID, USA

**PVP2007-26590: THE USE OF DIGITAL RADIOGRAPHY IN THE EVALUATION OF RADIOACTIVE MATERIALS PACKAGING PERFORMANCE TESTING**

C. May, L. F. Gelder, B. D. Howard, Savannah River National Laboratory, Aiken, SC, USA

**PVP2007-26786: TESTING OF THE MD-2 SHIPPING PACKAGE (Presentation Only)**

M. Feldman, Oak Ridge National Laboratory, Knoxville, TN, USA

**SESSION 3.1P (CS-3-3)**

*Wednesday, July 25, 8:30 am – 10:15 am, Maverick B, Losoya*

**ENVIRONMENTAL FATIGUE CRACK INITIATION AND GROWTH—III**

**Sponsored by: Codes and Standards and Materials and Fabrication Committees**

*Developed by:* H. Mehta, General Electric, San Jose, CA, USA; O. Chopra, Argonne National Laboratory, Argonne, IL, USA; M. Higuchi, Ishikawajima-Harima Heavy Industries Co., Ltd., Yokohama, Japan

*Chair:* G. Stevens, Structural Integrity Associates, Inc., Centennial, CO, USA

*Co-Chair:* H. Mehta, General Electric, San Jose, CA, USA

**PVP2007-26185: FATIGUE CRACK GROWTH RATES OF NICKEL-BASED ALLOYS IN PWR ENVIRONMENT**

Y. Nomura, H. Kanasaki, Mitsubishi Heavy Industry, Takasago, Hyogo, Japan

**PVP2007-26186: FATIGUE CRACK GROWTH RATE CURVE FOR NICKEL BASED ALLOYS IN PWR ENVIRONMENT**

Y. Nomura, Mitsubishi Heavy Industry, Takasago, Hyogo, Japan; K. Sakaguchi, Japan Nuclear Energy Safety Organization, Tokyo, Japan; H. Kanasaki, Mitsubishi Heavy Industry, Takasago, Japan

**PVP2007-26356: CRACK GROWTH BEHAVIOR OF NICKEL ALLOY WELDS IN A PWR ENVIRONMENT**

B. Alexandreanu, O. Chopra, W. Shack, Argonne National Laboratory, Argonne, IL, USA

**PVP2007-26379: EVALUATION FOR ENVIRONMENTAL FATIGUE OF NOTCHED SPECIMEN OF NI-BASE ALLOY**

M. Itatani, Toshiba Corporation, Yokohama, Japan; K. Sakaguchi, Japan Nuclear Energy Safety Organization, Tokyo, Japan; T. Saito, T. Hayashi, Toshiba Corporation, Yokohama, Japan

**SESSION 3.1Q (CS-2-1)**

*Wednesday, July 25, 8:30 am – 10:15 am, Seguin, Losoya*

**FATIGUE OF PRESSURE VESSELS—I**

**Sponsored by: Codes and Standards Committee**

*Developed by:* A. Kalnins, Lehigh University, Bethlehem, PA, USA; M. Sakane, Ritsumeikan University, Shiga, Japan

*Chair:* M. Rana, Praxair, Inc., Tonawanda, NY, USA

*Co-Chair:* K. S. Kim, Pohang University of Science and Technology, Pohang, Korea (Republic)

**PVP2007-26691: FATIGUE STRENGTH REDUCTION FACTORS FOR WELDED JOINTS—ANOTHER VIEW**

A. Kalnins, Lehigh University, Bethlehem, PA, USA

**PVP2007-26622: FATIGUE OF WELDED FLAT HEAD PRESSURE VESSELS**

C. Hinnant, Paulin Research Group, Houston, TX, USA