2011 ANS Winter Meeting and Nuclear Technology Expo

"The Status of Global Nuclear Deployment"

October 30-November 3, 2011
Washington, DC
Omni Shoreham Hotel

EMBEDDED TOPICAL MEETINGS:

- 1st ANS SMR 2011 Conference
- Young Professionals Congress 2011

PROFESSIONAL DEVELOPMENT WORKSHOPS:

- Nuclear Export Control and Legal Aspects of Nuclear Regulations
- Neutron Cross Sections for Nuclear Engineers

Official Program

our most sincere ***thanks***
to the ***following contributors***
for their support of the

2011 ANS Winter Meeting and Nuclear Technology Expo:

"The Status of Global Nuclear Deployment"

and Embedded Topical Meetings:

1st ANS SMR 2011 Conference

Young Professional Congress

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Thank You!

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8:00 a.m. - 5:00 p.m. Professional Development Workshop: "Nuclear Export Control and Legal Aspects of Nuclear Regulations"
8:00 a.m. - 5:00 p.m. Professional Development Workshop: "Neutron Cross Sections for Nuclear Engineers"
1:00 p.m. - 1:30 p.m. First-Time Attendees Orientation
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**(see page 9 for additional information)*
8:30 a.m. - 11:30 a.m. 2011 ANS Winter Meeting: Technical Sessions
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(Location: Regency Ballroom, Omni Shoreham Hotel)

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8:30 a.m. - 11:30 a.m. 2011 ANS Winter Meeting: Technical Sessions
8:30 a.m. - 1:00 p.m. YPC 2011: Capitol Hill Visit
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1:00 p.m. - 4:00 p.m. SMR 2011: Technical Sessions

2011 ANS Winter Meeting: Meeting Officials

GENERAL CHAIR:
Joe C. Turnage
Unistar Nuclear Energy

TECHNICAL PROGRAM CHAIR (TPC):
David R. Anderson
Electric Boat Corporation

ASSISTANT TPC:
Sedat Goluoglu
Oak Ridge National Laboratory

FINANCE CHAIR:
Angelina Howard
Howard-Johnson Associates

STUDENT CHAIR:
Brian Hinderliter
Virginia Commonwealth University

Embedded Topical Meeting: 1st ANS SMR 2011 Conference: Meeting Officials

GENERAL CHAIR:
Thomas Sanders
Savannah River National Laboratory

TECHNICAL PROGRAM CHAIR:
Donald R. Hoffman
EXCEL Services Corporation

Embedded Topical Meeting: Young Professionals Congress 2011: Meeting Officials

GENERAL CHAIR:
Peter F. Caracappa
Rensselaer Polytechnic Institute

TECHNICAL PROGRAM CHAIR:
Allison D. Miller

"The Status of Global Nuclear Deployment"

Meeting Information

The 2011 ANS Winter Meeting will be held October 30 - November 3, 2011, in Washington, DC. There will be two embedded topical meetings held in conjunction with the 2011 ANS Winter Meeting: the 1st ANS SMR 2011 Conference and the Young Professionals Congress 2011. There will also be two Professional Development Workshops held in conjunction with the 2011 ANS Winter Meeting: "Nuclear Export Control and Legal Aspects of Nuclear Regulations" and "Neutron Cross Sections for Nuclear Engineers," as well as the Nuclear Technology Expo.

Accommodations/ Hotel Information

The Omni Shoreham Hotel will be the location for the 2011 ANS Winter Meeting, where all activities, technical sessions and governance committee meetings will take place. The hotel address is: 2500 Calvert Street, NW, Washington, DC 20008; Telephone: 202-234-0700.

ANS Nuclear Technology Expo

The ANS Nuclear Technology Expo will be held in conjunction with the 2011 ANS Winter Meeting in the Lower Level Exhibit Hall of the hotel. Please turn to page 59 for additional information.

First-Time Attendee Orientation

The ANS Membership Committee will offer an orientation session for the first-time ANS meeting attendees. Learn what goes on at national meetings, how the national organization works, and how to get involved at the national and local levels. Whether you are a member or not, student or professional, if this is your first ANS national meeting, the Membership Committee invites you to attend this session, which will be held 1:00-1:30 p.m. on Sunday, October 30, 2011, in the Forum Room.

ANS Registration

ANS Registration will be located at the West Registration Desk of the hotel on Saturday, October 29, 2011 through Thursday, November 3, 2011. Meeting and workshop registration, speakers' & session chairs' desk and the message desk will also be located in the ANS registration area. Meeting registration is required for all attendees and presenters. Badges are required for admission to all technical sessions, workshops and events.

Registration Hours:

SATURDAY, OCTOBER 29, 2011
2:00 P.M. - 5:00 P.M.
SUNDAY, OCTOBER 30, 2011
11:00 A.M. - 7:00 P.M.
MONDAY, OCTOBER 31 2011
7:30 A.M. - 5:00 P.M.
TUESDAY, NOVEMBER 1, 2011
7:30 A.M. - 5:00 P.M.
WEDNESDAY, NOVEMBER 2, 2011
7:30 A.M. - 5:00 P.M.
THURSDAY, NOVEMBER 3, 2011
7:30 A.M. - 2:00 P.M.

**** Sunday workshop attendees only***

Registration for the ANS Professional Development Workshops will take place at the West Registration Desk of the hotel on Sunday, October 30, 2011, 7:00 A.M. - 8:30 A.M. Please note: only workshop information will be available; all other registrants see times and location above.

Student Assistant Program

Attendance at the 2011 ANS Winter Meeting is an exciting professional opportunity for college and graduate students. To help defray travel and living expenses, students can sign up to work as session chairs' assistants. Student assistants must attend the student training session on Sunday, October 30, 2011, 4:00 p.m. - 5:00 p.m. in the Capitol Room.

Student assistants receive free meeting registration and a copy of the meeting TRANSACTIONS.

All students are responsible for paying their own room, tax, and incidentals. ANS student members who register for the meeting and/or work as session chairs'assistants should pick up a travel assistance form which can be found in the student headquarters room. Student travel assistance is provided through contributions from the ANS professional divisions. The student headquarters room will be located in the Director's Room.

STUDENT POSTER SESSION

Monday, October 31, 2011
4:00 PM - 6:00 PM
Location: Blue Room Pre-Function Area

Posters will be presented in the following categories:

Aerospace Nuclear Science and Technology:
Laura K. Sudderth

Biology & Medicine:
Ivana Dokic

Education and Training:
Gregory Toussaint

Fuel Cycle & Waste Management:
Marie Cuvelier
Sathish K. Lakshmipathy
Aditi Verma

Isotopes and Radiation:
Anagha S. Iyengar

Materials Science & Technology:
Nicholas M. Brickner
Nathan A. Capps
Brianna R. Coulson
Mahima Gupta
Jackson R. Harter
Kage A. Lammi
Aaron J. Oaks
Clemente J. Parga

Mathematics & Computation:
Rachel N. Slaybaugh
Kristofer J. Zieb

Nuclear Criticality Safety:
Christopher M. Perfetti

Operations and Power:
Jacob D. DeWitte

Reactor Physics:
Russell Gocht
Adam J. Hoffman

Thermal Hydraulics:
Lane B. Carasik
Ryan C. Coulson
Matthew R. Dodds
Ngoc T. Nguyen
Vivek I. Sharma
Mohan S. Yadav

Professional Development:
Sherry A. Faye

Co-op or Internship Experience & Results:
Guy T. Wilson

Mentoring Program

A special mentoring program will be held from 5:00 p.m. - 6:00 p.m. on Sunday, October 30, 2011, in the Embassy Room.

ANS members who will serve as mentors hold a variety of positions within the Society, serving on governance committees and working within the divisions. The mentors encompass a wide range of careers and technical specialties, all of which they hope to share with first-time attendees, student members, new members, and those seeking career advancement and networking opportunities.

Notice for Speakers

All speakers and session chairs must sign in at the "Speakers' Desk," located in the West Registration Foyer of the hotel during registration hours. A Speakers' Preview Room, Presidential Boardroom of the hotel, will be available during the following hours:

Sunday, October 30, 2011
7:30 a.m. - 3:00 p.m.
Monday, October 31, 2011
7:00 a.m. - 4:00 p.m.
Tuesday, November 1, 2011
7:00 a.m. - 4:00 p.m.
Wednesday, November 2, 2011
7:00 a.m. - 4:00 p.m.
Thursday, November 3, 2011
7:00 a.m. - 12:00 p.m.

Audio/visual equipment will be set up so that speakers may preview their presentation material.

Conference Office

Location: Sales Conference Room

ANS Secretariat

Location: Executive Room

ANS Media Center

Monday, October 31, 2011
7:45 a.m. - 4:00 p.m.
Tuesday, November 1, 2011
8:00 a.m. - 4:00 p.m.
Wednesday, November 2, 2011
8:00 a.m. - 4:00 p.m.

Location: Committee Room

Green Bag Lunch

"ANS Vermont Public Information Project"
Monday, October 31, 2011
11:45 a.m. - 12:45 p.m.
Location: Capitol Room

Please bring your own lunch and join us for an interactive discussion of tips and techniques for engaging in grassroots nuclear information initiatives. Howard Shaffer, Coordinator of the ANS Vermont Public Information Project, and Meredith Angwin, Director of the Vermont Energy Education Project, will discuss lessons learned in Vermont.

ANS PUBLIC COMMUNICATIONS

Young Professionals Congress Hill Day Orientation
Wednesday, November 2, 2011
4:00 PM - 4:30 PM
Location: Hampton Ballroom

Public Information Workshop: Focus on Communications: Talking about Nuclear Energy with the Policy Makers and the Public
Wednesday, November 2, 2011
4:30 PM - 6:00 PM
Location: Hampton Ballroom

Spouse/Guest Hospitality

Spouse/guest hospitality breakfast will be served from 8:00 a.m. - 10:00 a.m., Monday, October 31, 2011, through Wednesday, November 2, 2011, in the Presidential Suite #225.

Continental breakfast will be served each morning. Spouse/guest registration is required for admittance to the spouse/guest hospitality breakfast. Spouse/guest registration includes one ticket to the president's reception and admittance to the spouse/guest breakfast only - it does not include technical sessions or other events. Spouse/guest tours are scheduled. Registration for the tours is separate from the spouse/guest meeting registration.

Attention Runners: ANS Fun Run

On Tuesday, November 1, 2011, there will be a noncompetitive run starting at 6:00 a.m. from the front entrance of the hotel. We are looking forward to seeing you at the fun run in Washington, DC. Bring shoes and a big smile.

Professional Development Workshops

"Nuclear Export Control and Legal Aspects of Nuclear Regulations"
Sunday, October 30, 2011
8:00 a.m. - 5:00 p.m.
Location: Congressional A

Registration price for the workshop is $450 for ANS members and $550 for non-members.

"Neutron Cross Sections for Nuclear Engineers"
Sunday, October 30, 2011
8:00 a.m. - 5:00 p.m.
Location: Congressional B

Registration price for the workshop is $450 for ANS members and $550 for non-members.

Special Events

CONFERENCE LUNCHEONS

Attendee Luncheon in the Nuclear Technology Expo

MONDAY, OCTOBER 31, 2011
11:30 A.M. - 1:00 P.M.
Location: Exhibit Hall

One ticket to the Attendee Luncheon in the Nuclear Technology Expo is included in the full meeting registration fee.

Additional tickets can be purchased in advance or on-site at the ANS Registration Desk for $65.

Honors and Awards Luncheon

TUESDAY, NOVEMBER 1, 2011
11:30 A.M. - 1:00 P.M.
Location: Regency Ballroom

Plan to attend the Honors and Awards Luncheon held to recognize the outstanding efforts of the award winners and to celebrate their accomplishments.

Tickets can be purchased on-site at the ANS Registration Desk for $65.

EVENING EVENTS

PLEASE NOTE:

- *You must be registered for the meeting to attend evening events.*
- *Times listed are departure times and return times to/from the hotel. Busses will leave promptly from the Parkview Entrance of the Omni Shoreham Hotel, located just outside of the Blue Room.*

ANS President's Reception

SUNDAY, OCTOBER 30, 2011
6:00 P.M. - 7:30 P.M.
Location: Exhibit Hall

The ANS President's Reception kicks off the meeting on Sunday, October 30, 2011.

One ticket to the ANS President's Reception is included in the full meeting registration fee.

Additional tickets can be purchased on-site at the ANS Registration Desk for $85.

Reception at the Smithsonian's National Museum of American History

MONDAY, OCTOBER 31, 2011
6:30 P.M. - 10:30 P.M.

The National Museum of American History opened to the public in January 1964 as the Museum of History and Technology. It was the sixth Smithsonian building on the National Mall in Washington, D.C. In 1980, the Museum's name was changed to the National Museum of American History to better represent its basic mission—the collection, care and study of objects that reflect the experience of the American people.

The Museum collects and preserves more than 3 million artifacts—all true national treasures. We take care of everything from the original Star-Spangled Banner and Abraham Lincoln's top hat to Dizzy Gillespie's angled trumpet and Dorothy's ruby slippers from "The Wizard of Oz." Our collections form a fascinating mosaic of American life and comprise the greatest single collection of American history.

Science in American Life — This major exhibition explores significant "intersections" of science and society, from 1876 to the present.

The Museum has recently completed a two-year, $85 million renovation of the building's center core, dramatically transforming the museum's architectural appeal while reorganizing and renewing the presentation of its extensive collections.

Tickets can be acquired on-site at the ANS Registration Desk.

Dinner with Entertainment by the Capitol Steps

WEDNESDAY, NOVEMBER 2, 2011
7:30 P.M. - 10:00 P.M.
Location: Empire Ballroom
(Omni Shoreham Hotel)

The Capitol Steps

The Capitol Steps began as a group of Senate staffers who set out to satirize the very people and places that employed them.

The group was born in December, 1981 when some staffers for Senator Charles Percy were planning entertainment for a Christmas party. Their first idea was to stage a nativity play, but in the whole Congress they couldn't find three wise men or a virgin. So, they decided to dig into the headlines of the day, and they created song parodies & skits which conveyed a special brand of satirical humor.

In the years that followed, many of the Steps ignored the conventional wisdom ("Don't quit your day job!"), and although not all of the current members of the Steps are former Capitol Hill staffers, taken together the performers have worked in a total of eighteen Congressional offices and represent 62 years of collective House and Senate staff experience.

Since they began, the Capitol Steps have recorded over 30 albums, including their latest, Desperate Housemembers and Barackin' Around the Christmas Tree.

Tickets can be purchased on-site at the ANS Registration Desk for $65.

SPOUSE/GUEST TOURS

America's Most Wanted — A Tour of the National Museum of Crime and Punishment

MONDAY, OCTOBER 31, 2011
12:30 P.M. - 4:30 P.M.

America's Most Wanted

The National Museum of Crime and Punishment, opened in spring 2008, and is Washington, DC's interactive foray into the world of CSI. A partnership with John Walsh, of *America's Most Wanted*, allows the museum to use artifacts and interactive exhibits to tap into the public's fascination with crime. Exhibitions allow guests to creep into the worlds of pirates, serial killers, gangsters and white-collar criminals.

You can view an entire level of the museum which is devoted to the year-round filming studios of *America's Most Wanted*. As an added bonus, John Walsh profiles guests as fugitives in a spoof created through green-screen technology.

A collection of crime-and punishment-related artifacts include an electric chair and the car used in the filming of "Bonnie and Clyde," to make this one of DC's most fascinating experiences!

In addition to the self guided tour of the museum, you will participate in the CSI Experience: Forensic Lab. This multi-station lab features a murder investigation in which you will play both forensic scientist and police detective, learning how forensics really work by experiencing evidence stations that demonstrate blood splatter analysis, fingerprint collection, fiber analysis, fracture matching, and more.

Tickets can be purchased on-site at the ANS Registration Desk for $76.

Russian Art, Gardens, Porcelain... The Hillwood Museum!

TUESDAY, NOVEMBER 1, 2011
12:30 P.M. - 4:30 P.M.

You will enjoy a unique experience at the Hillwood Museum. The former residence of Marjorie Merriweather Post, cereal heiress, collector and philanthropist, Post was once one of the grande dames of Washington society. Post collected art throughout her life, emphasizing only the finest French and Russian objects. The opulent Georgian, 40-room mansion, built in 1926, and subsequent auxiliary buildings, house her collection as well as the turn-of-the century collection of her father, Charles W. Post, founder of the Postum Cereal Company. To visit Hillwood is to step into a lifestyle that is quickly disappearing. Both the physical setting and the vast number of objects on display are of rare significance and great beauty. Eighteenth century French tapestries, furniture, and Severes porcelain formed a magnificent setting for Post's entertaining. Her collection of Russian icons, gold and silver pieces, porcelain and Fabergé eggs has been called the most representative outside of the former Soviet Union.

The grounds of the estate are equally magnificent. The 25 acres of land bordering Rock Creek Park contain Japanese and formal French gardens, a small dacha - or Russian summer house - and a greenhouse built in 1930 with a vast collection of orchids, the heiress's favorite flower.

Tickets can be purchased on-site at the ANS Registration Desk for $67.

Japanese Garden

A DDRD Special Event —
Offsite Session onboard the Nuclear Ship Savannah in Baltimore

Wednesday, November 2, 2011
8:00 a.m – 3:30 p.m.

Wednesday's Radium Girls Legacy Panel will be held offsite in nearby Baltimore. Attendees will be transported by bus to the National Historic Landmark / ANS Nuclear Historic Landmark vessel N.S. Savannah.

The world's first nuclear-powered merchant ship is maintained in protective storage in Baltimore, pending funding for DECON and license termination.

The panel session will be held in the Eisenhower Room, formerly the passenger main lounge. The lounge was rededicated in 2009 to honor President Dwight D. Eisenhower as the father of *Atoms for Peace.* Lunch will be served in the Veranda, after which attendees will be provided a guided tour and Q&A session by the licensee staff.

Pre-registration is encouraged, and attendees will be selected on a first-come basis. A fee of $25 is required for transportation and lunch. Bus departs Washington at 8 a.m.; returns to the conference hotel approximately 3:30 p.m.

To pre-register, please contact Dave Hillyer at dave.hillyer@shawgrp.com or call at 860.599.3540. This event is being sponsored by the DD&R Division of ANS. All ANS Winter Meeting Attendees are welcome to attend. We look forward to having you aboard.

Condensed Schedule

ROOM	MONDAY, OCTOBER 31, 2011				TUESDAY, NOVEMBER 1, 2011	
	8:30–11:30 a.m.	1:00–2:30 p.m.	2:30–4:00 p.m.	4:00–6:00 p.m.	8:30–11:30 a.m.	1:00–4:00 p.m.
Regency Ballroom	Opening Plenary: The Status of Global Nuclear Deployment	ANS President's Special Session				
Ambassador Ballroom			Current Issues in Computational Methods—Roundtable: Mathematics and Computation in the Real World	Developing Environmentally Safe and Secure Nuclear Power Programs in South/Central America and the Caribbean—Panel	Transport Methods: General	Uncertainty Qualification and Sensitivity Analysis
Empire Ballroom			Environmental Sciences: General	Nonproliferation and Radwaste Management Education at University	Planning and Prepardness for Long-Term Recovery Operations Following Radiological and Nuclear Events—I: Policy Issues—Panel	Planning and Prepardness for Long-Term Recovery Operations Following Radiological and Nuclear Events—II: Topical Issues—Panel
Diplomat Ballroom			Experimental Two-Phase Flow—I	Experimental Two-Phase Flow—II	Computational Thermal Hydraulics—I	Thermal Hydraulics: General—I
Palladian Ballroom			Reactor Physics: General—I	Model Adaptation and Data Assimilation for Reactor Core Calculations	Reactor Physics: General—II	Current Activities in Reactor Physics Methods Validation Based on Experimental Measurements
Cabinet Room			Operations and Power: General—I	Helium-3 Alternative Shortage—Panel	Power Uprates: Status and Lessons Learned—Panel	Licensing a Digital Upgrade—Panel
Forum Room			Focus on Communications: Meet the Media—Panel	Focus on Communications: Communicating with Policy Makers—Panel	Status on Cyber Security Implementation—Panel	On-Line Monitoring to Prognostics for Light Water Reactors
Hampton Ballroom			Modeling and Simulation in Fuel Cycle Separations and Waste Form Development	Nuclear Graphite Developments for the Beginning and End of the Fuel Cycle	Future of the Nuclear Fuel Cycle and Waste Management—Panel	Path Forward for Spent Fuel Management Blue Ribbon Commission and the Next Step—Panel
Calvert Room			Student Design Competition		The Innovations in Fuel Cycle Research Awards Program—A Student Competition	Kent W. Hamlin Memorial Session—Best of CONTE 2011
Capitol Room			Nuclear Fuels and Materials: LWR and Fast Reactors		Data Analysis in Nuclear Criticality Safety—I	Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—I
Senate Room			General Safety		Applications of Probabilistic Safety Assessment	The Effect of Selected Aging Topics on Nuclear Reactor Safety—Panel
Council Room			Neutron Activation Analysis— Frontiers and Sustained Performance—Tutorial	Neutron Detection for Nonproliferation Applications	Radiation Protection and Shielding: General	Walk the Talk, Ethics in Professional Engineering—Panel
Governors Room			Current Topics in Radiation Shielding and Protection—Roundtable	Treaty Verification and Arms Control Policy—Panel	Fukushima Daiichi—Event Sequence, Dose to Public, Current Status, and Proposed Decommissioning Path—Panel	Best of DD&R 2010 Topical Meeting—Panel
Embassy Room			Robotics and Remote Systems: General		Nuclear Fuels and Materials: VHTR and Other Advanced Reactors	Materials Science and Technology: General

ROOM	4:00-6:00 p.m.	WEDNESDAY, NOVEMBER 2, 2011 8:30–11:30 a.m.	1:00–4:00 p.m.	THURSDAY, NOVEMBER 3, 2011 8:30-11:30 a.m.	1:00-4:00 p.m.
Regency Ballroom					
Ambassador Ballroom	Computational Methods, Uncertainty Quantification, and Sensitivity Analysis	Transport and Computational Methods			
Empire Ballroom	Transportation Options for the Future—Panel	Understanding Subsurface Radionuclide Contamination at Commercial Nuclear Power Plants—Panel	Subsurface Radionuclide Contamination: What Are the Long-Term Concerns?—Panel	Isotopes and Radiation: General	Nuclear Security Education Program
Diplomat Ballroom	Thermal Hydraulics Code Verification and Validation	Young Professional Thermal Hydraulics Research Competition—I	Young Professional Thermal Hydraulics Research Competition—II	Thermal Hydraulics: General—II	Computational Thermal Hydraulics—II
Palladian Ballroom		Reactor Physics Design, Validation, and Operating Experience	Reactor Analysis Methods	Fuel Cycle and Waste Management: General	VESTA Tutorial
Cabinet Room		Nuclear Energy Growth in Emerging Markets—Panel	Domestic Perspectives on Nuclear Energy Growth in the U.S. and Around the World—Panel	Operations and Power: General—II	Advanced/Gen-IV Reactors
Forum Room		Digital Instrumentation and Control in Research Reactors	Methods for Nonproliferation Risk Assessment and Safeguards—Next Generation Technology Applications	Human Factors, Instrumentation, and Controls: General—I	Human Factors, Instrumentation, and Controls: General—II
Hampton Ballroom	Nuclear Fuel Resources and Sustainability	Used Fuel Component Recycle to Minimize Wastes and Recover Valuable Materials	Nuclear Nonproliferational International Safeguards (NNIS) Graduate Fellowship Program: NNIS Fellows Perspective on Specializing in Nuclear Nonproliferational Technology and Policy in a Doctoral Program—Panel	Nuclear Nonproliferation and International Safeguards Graduate Fellowship Program: University Program Realign to Meet the Needs for a New Workforce in Nuclear Nonproliferation—Panel	Treaty Verification and Arms Control Technologies—Panel
Calvert Room	International Workforce Development Needs—Panel	Education and Training and Workforce Development: General	Therapeutic Beams—The Wider I/O Chain --- Monte Carlo Simulations Demonstrated Using FLUKA—Tutorial	Partnerships with Minority Serving Institutions and Nuclear Engineering Education—Panel	
Capitol Room	Environment Impacts of Disposal	Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—II --- Data Analysis in Nuclear Criticality Safety—II	Recent Nuclear Criticality Safety Program Technical Accomplishments	ANS-8 Standards Forum	
Senate Room	Molten Salt Reactor Safety		Tutorial on Proposed ANS 10.7, Non-Real Time, High Integrity Software for the Nuclear Industry—Requirements for Software Developers, ANSI/ANS-10.7-201X	High Reliability Organizations—Panel	Emerging Issues in Nuclear Facility Safety
Council Room	Advances in Nuclear Forensics: Research, Applications, and New Educational Programs	Computational Resources in Radiation Protection and Shielding	Monte Carlo Dice Seminar—Tutorial	SCALE/ORIGEN Tutorial	Tutorial on Nuclear Space Propulsion Technologies
Governors Room	Fukushima—Evaluation and Impacts—Panel	Is There a Need to Reestablish Radioecology Education and Training in the United States?—Panel	Computational Methods and Mathematical Modeling	ARRA Program Success—Panel	
Embassy Room	Regulatory Gaps for the Sodium Reactor, a DOE Perspective—Panel	Aerospace Nuclear Science and Technology: General	Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial and Space Applications		Accelerator Applications: General

Technical Sessions by Division

(Asterisks indicate special sessions. Parentheses indicate cosponsorship)

Special Sessions

*Opening Plenary: The Status of Global Nuclear Deployment, Mon. a.m. (8:30-11:30 a.m.)

Accelerator Applications (AAD)

Accelerator Applications: General, Thurs. p.m.

Aerospace Nuclear Science and Technology (ANSTD)

Aerospace Nuclear Science and Technology: General, Wed. a.m.

(Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial and Space Applications, Wed. p.m.)

Tutorial on Nuclear Space Propulsion Technologies, Thurs. p.m.

Biology and Medicine (BMD)

Neutron Activation Analysis—Frontiers and Sustained Performance-Tutorial, Mon. p.m.

(Neutron Detection for Nonproliferation Applications, Mon. p.m.)

Therapeutic Beams—The Wider I/O Chain, Wed. p.m.

Monte Carlo Simulations Demonstrated Using FLUKA-Tutorial, Wed. p.m.

(Isotopes and Radiation: General, Thurs. a.m.)

Decommissioning, Decontamination, and Reutilization (DD&RD)

Fukushima Daiichi—Event Sequence, Dose to Public, Current Status, and Proposed Decommissioning Path, Tues. a.m.

Best of DD&R 2010 Topical Meeting-Panel, Tues. p.m.

Radium Girls and the D&D of Their Legacy-Panel, Wed. a.m.

ARRA Program Success-Panel, Thurs. a.m.

Education, Training, and Workforce Development (ETWDD)

Focus on Communications: Meet the Media-Panel, Mon. p.m.

Focus on Communications: Communicating with Policy Makers-Panel, Mon. p.m.

Student Design Competition, Mon. p.m.

(Nonproliferation and Radwaste Management Education at University, Mon. p.m.)

The Innovations in Fuel Cycle Research Awards Program— A Student Competition, Tues. a.m.

Kent W. Hamlin Memorial Session—Best of CONTE 2011, Tues. p.m.

International Workforce Development Needs-Panel, Tues. p.m.

Education and Training and Workforce Development: General, Wed. a.m.

Is There a Need to Reestablish Radioecology Education and Training in the United States?-Panel, Wed. a.m.

Partnerships with Minority Serving Institutions and Nuclear Engineering Education-Panel, Thurs. a.m.

(Nuclear Security Education Program, Thurs. p.m.)

(Methods for Nonproliferation Risk Assessment and Safeguards—Next Generation Technology Applications, Wed. p.m.)

Environmental Sciences (ESD)

Environmental Sciences: General, Mon. p.m.

(Developing Environmentally Safe and Secure Nuclear Power Programs in South/Central America and the Caribbean-Panel, Mon. p.m.)

Planning and Preparedness for Long-Term Recovery Operations Following Radiological and Nuclear Events—I: Policy Issues-Panel, Tues. a.m.

Planning and Preparedness for Long-Term Recovery Operations Following Radiological and Nuclear Events—II: Topical Issues-Panel, Tues. p.m.

Transportation Options for the Future-Panel, Tues. p.m.

Environmental Impacts of Disposal, Tues. p.m.

Understanding Subsurface Radionuclide Contamination at Commercial Nuclear Power Plants-Panel, Wed. a.m.

Subsurface Radionuclide Contamination: What Are the Long-Term Concerns?-Panel, Wed. p.m.

Fuel Cycle and Waste Management (FCWMD)

Modeling and Simulation in Fuel Cycle Separations and Waste Form Development, Mon. p.m.

Nonproliferation and Radwaste Management Education at University, Mon. p.m.

Helium-3 Alternative Shortage-Panel, Mon. p.m.

Nuclear Graphite Developments for the Beginning and End of the Fuel Cycle, Mon p.m.

Treaty Verification and Arms Control Policy-Panel, Mon. p.m.

Future of the Nuclear Fuel Cycle and Waste Management-Panel, Tues. a.m.

Path Forward for Spent Fuel Management Blue Ribbon Commission and the Next Step-Panel, Tues. p.m.

Nuclear Fuel Resources and Sustainability, Tues. p.m.

Used Fuel Component Recycle to Minimize Wastes and Recover Valuable Materials, Wed. a.m.

Nuclear Nonproliferation International Safeguards (NNIS) Graduate Fellowship Program: NNIS Fellows Perspective on Specializing in Nuclear Nonproliferation Technology and Policy in a Doctoral Program-Panel, Wed. p.m.

Fuel Cycle and Waste Management: General, Thurs. a.m.

Nuclear Nonproliferation and International Safeguards Graduate Fellowship Program: University Program Realign to Meet the Needs for a New Workforce in Nuclear Nonproliferation-Panel, Thurs. a.m.

Treaty Verification and Arms Control Technologies-Panel, Thurs. p.m.

Methods for Nonproliferation Risk Assessment and Safeguards— Next Generation Technology Applications, Wed. p.m.

Human Factors, Instrumentation, and Controls (HFICD)

Status on Cyber Security Implementation-Panel, Tues. a.m

On-Line Monitoring to Prognostics for Light Water Reactors, Tues. p.m.

Digital Instrumentation and Control in Research Reactors, Wed. a.m.

Human Factors, Instrumentation, and Controls: General—I, Thurs. a.m.

Human Factors, Instrumentation, and Controls: General—II, Thurs. p.m.

Isotopes and Radiation (IRD)

(Neutron Activation Analysis—Frontiers and Sustained Performance-Tutorial, Mon. p.m.)

Neutron Detection for Nonproliferation Applications, Mon. p.m.

Advances in Nuclear Forensics: Research, Applications, and New Educational Programs, Tues. p.m.

Isotopes and Radiation: General, Thurs. a.m.

Nuclear Security Education Program, Thurs. p.m.

Materials Science and Technology (MSTD)

Nuclear Fuels and Materials: LWR and Fast Reactors, Mon. p.m.

Nuclear Fuels and Materials: VHTR and Other Advanced Reactors, Tues. a.m.

Materials Science and Technology: General, Tues. p.m.

Mathematics and Computation (MCD)

Current Issues in Computational Methods-Roundtable: Mathematics and Computation in the Real World, Mon. p.m.

Transport Methods: General, Tues. a.m.

Uncertainty Quantification and Sensitivity Analysis, Tues. p.m.

Computational Methods, Uncertainty Quantification, and Sensitivity Analysis, Tues. p.m.

Transport and Computational Methods, Wed. a.m.

(Reactor Analysis Methods, Wed. p.m.)

Computational Methods and Mathematical Modeling, Wed. p.m.

Nuclear Criticality Safety (NCSD)

Data Analysis in Nuclear Criticality Safety—I, Tues. a.m.

Data Analysis in Nuclear Criticality Safety—II, Wed. a.m.

Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—I, Tues. p.m.

Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—II, Wed. a.m.

Recent Nuclear Criticality Program Technical Accomplishments, Wed. p.m.

ANS-8 Standards Forum, Thurs. a.m.

Nuclear Installations Safety (NISD)

*ANS President's Special Session: Nuclear Safety in a Post-Fukushima World (1:00-1:30 p.m.) / Adjudication in the Licensing Process— Fact and Fiction (1:00-2:30 p.m.), Mon. p.m.

General Safety, Mon. p.m.

Applications of Probabilistic Safety Assessment, Tues. a.m.

The Effect of Selected Aging Topics on Nuclear Reactor Safety-Panel, Tues. p.m.

Regulatory Gaps for the Sodium Reactor, a DOE Perspective-Panel, Tues. p.m.

Molten Salt Reactor Safety, Tues. p.m.

Tutorial on Proposed ANS 10.7, Non-Real Time, High Integrity Software for the Nuclear Industry—Requirements for Software Developers, ANSI/ANS-10.7-201X, Wed. p.m.

High Reliability Organizations-Panel, Thurs. a.m.

Emerging Issues in Nuclear Facility Safety, Thurs. p.m.

Technical Sessions by Division

Operations and Power (OPD)
Operations and Power: General—I, Mon. p.m.

Operations and Power: General—II, Thurs. a.m.

Developing Environmentally Safe and Secure Nuclear Power Programs in South/Central America and the Caribbean-Panel, Mon. p.m.

Power Uprates: Status and Lessons Learned-Panel, Tues. a.m.

Licensing a Digital Upgrade-Panel, Tues. p.m.

Fukushima—Evaluation and Impacts-Panel, Tues. p.m.

Nuclear Energy Growth in Emerging Markets-Panel, Wed. a.m.

Domestic Perspectives on Nuclear Energy Growth in the U.S. and Around the World-Panel, Wed. p.m.

Advanced/Gen-IV Reactors, Thurs. p.m.

Radiation Protection and Shielding (RPSD)
Current Topics in Radiation Shielding and Protection-Roundtable, Mon. p.m.

Radiation Protection and Shielding: General, Tues. a.m.

Walk the Talk, Ethics in Professional Engineering-Panel, Tues. p.m.

Computational Resources in Radiation Protection and Shielding, Wed. a.m.

Monte Carlo Dice Seminar-Tutorial, Wed. p.m.

SCALE/ORIGEN Tutorial, Thurs. a.m.

(VESTA Tutorial, Thurs. p.m.)

Reactor Physics (RPD)
Reactor Physics: General—I, Mon. p.m.

Reactor Physics: General—II, Tues. a.m.

Model Adaptation and Data Assimilation for Reactor Core Calculations, Mon. p.m.

Current Activities in Reactor Physics Methods Validation Based on Experimental Measurements, Tues. p.m.

Reactor Physics Design, Validation, and Operating Experience, Wed. a.m.

(Aerospace Nuclear Science and Technology: General, Wed. a.m.)

Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial and Space Applications, Wed. p.m.

Reactor Analysis Methods, Wed. p.m.

VESTA Tutorial, Thurs. p.m.

Robotics and Remote Systems (RRSD)
Robotics and Remote Systems: General, Mon. p.m.

Thermal Hydraulics (THD)
Experimental Two-Phase Flow—I, Mon. p.m.

Experimental Two-Phase Flow—II, Mon. p.m.

Computational Thermal Hydraulics—I, Tues. a.m.

Computational Thermal Hydraulics—II, Thurs. p.m.

Thermal Hydraulics: General—I, Tues. p.m.

Thermal Hydraulics: General—II, Thurs. a.m.

Thermal Hydraulics Code Verification and Validation, Tues. p.m.

Young Professional Thermal Hydraulics Research Competition—I, Wed. a.m.

Young Professional Thermal Hydraulics Research Competition—II, Wed. p.m.

Young Members Group (YMG)
(Monte Carlo Dice Seminar-Tutorial, Wed. p.m.)

(VESTA Tutorial, Thurs. p.m.)

Nuclear Non-Proliferation Technical Group (NNTG)
(Nonproliferation and Radwaste Management Education at University, Mon. p.m.)

(Helium-3 Alternative Shortage-Panel, Mon. p.m.)

(Treaty Verification and Arms Control Policy-Panel, Mon. p.m.)

(Nuclear Nonproliferation International Safeguards (NNIS) Graduate Fellowship Program: NNIS Fellows Perspective on Specializing in Nuclear Nonproliferation Technology and Policy in a Doctoral Program-Panel, Wed. p.m.)

(Nuclear Nonproliferation and International Safeguards Graduate Fellowship Program: University Program Realign to Meet the Needs for a New Workforce in Nuclear Nonproliferation-Panel, Thurs. a.m.)

(Treaty Verification and Arms Control Technologies-Panel, Thurs. p.m.)

(Methods for Nonproliferation Risk Assessment and Safeguards—Next Generation Technology Applications, Wed. p.m.)

MONDAY • OCTOBER 31, 2011

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:30 AM – 11:30 AM	**2011 ANS WINTER MEETING: OPENING PLENARY** "The Status of Global Nuclear Deployment"
11:30 AM – 1:00 PM	**ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXPO**
11:45 AM – 1:00 PM	**GREEN BAG LUNCH**
12:30 PM – 4:30 PM	**SPOUSE/GUEST TOUR:** "America's Most Wanted — A Tour of the National Museum of Crime and Punishment"
1:00 PM – 2:30 PM	**2011 ANS WINTER MEETING:** **ANS PRESIDENT'S SPECIAL SESSION** "Nuclear Safety in a Post-Fukushima World" (1:00-1:30 p.m.) "Adjudication in the Licensing Process—Fact and Fiction" (1:30-2:30 p.m.)
2:30 PM – 4:00 PM	**2011 ANS WINTER MEETING: TECHNICAL SESSIONS** • Current Issues in Computational Methods–Roundtable: Mathematical and Computation in the Real World • Environmental Sciences: General • Experimental Two-Phase Flow—I • Reactor Physics: General—I • Operations and Power: General—I • Focus on Communications: Meet the Media–Panel • Modeling and Simulation in Fuel Cycle Separations and Waste Form Development • Student Design Competition • Nuclear Fuels and Materials: LWR and Fast Reactors • Neutron Activation Analysis—Frontiers and Sustained Performance–Tutorial • Current Topics in Radiation Shielding and Protection–Roundtable • Robotics and Remote Systems: General • General Safety
2:30 PM – 4:00 PM	**YPC 2011: OPENING PLENARY**
4:00 PM – 6:00 PM	**2011 ANS WINTER MEETING: TECHNICAL SESSIONS** • Developing Environmentally Safe and Secure Nuclear Power Programs in South/Central America and the Caribbean–Panel • Nonproliferation and Radwaste Management Education at University • Experimental Two-Phase Flow—II • Model Adaptation and Data Assimilation for Reactor Core Calculations • Helium-3 Alternative Shortage–Panel • Focus on Communications: Communicating with Policy Makers–Panel • Nuclear Graphite Developments for the Beginning and End of the Fuel Cycle • Neutron Detection for Nonproliferation Applications • Treaty Verification and Arms Control Policy–Panel
6:30 PM – 10:30 PM	**EVENING EVENT:** "Reception at the Smithsonian's National Museum of American History"

MONDAY, OCTOBER 31, 2011, 8:30 A.M.

Opening Plenary: The Status of Global Nuclear Deployment. *Chair:* Joe C. Turnage *(Consultant)*

Regency Ballroom
8:30 a.m.

SPEAKERS:
- Dr. Richard Lester *(MIT)*
- Dr. Phil Sharp *(RFF)*
- John Hamre *(CSIS)*
- Michael Wallace *(retired Cochairman, Constellation Energy)*
- Representative Steny H. Hoyer *(Congressman-Democratic Whip, MD)*
- Dr. Richard A. Meserve *(Carnegie Institution for Science)*

MONDAY, OCTOBER 31, 2011, 1:00 P.M.

ANS President's Special Session, sponsored by NISD. *Session Organizer:* Anthony J. Baratta *(ASLBP). Chair:* Eric Loewen *(President, ANS)*

Regency Ballroom

Nuclear Safety in a Post-Fukushima World

1:00 p.m.

Chairman Jaczko will discuss how the NRC has worked to strengthen the agency's approach for nuclear safety, in light of the nuclear accident at the Fukushima Dai-ichi site earlier this year. He will discuss the comprehensive set of 12 safety recommendations made by the Near-Term Task Force, as well as the Commission's progress in deciding how to move forward on these important issues. Chairman Jaczko will place the agency's ongoing efforts in a broader historical context, as the latest step in a decades-long effort to learn from and adapt to new information, research, and experience.

Adjudication in the Licensing Process—Fact and Fiction

1:30 p.m.

Under the Atomic Energy Act, Congress established an adjudicatory process that promotes public involvement in hearings on a variety of civilian nuclear matters. Through this hearing process, independent judges on the Atomic Safety and Licensing Board Panel *(ASLBP)* hear and address concerns of individuals or entities that are directly affected by any licensing or enforcement action involving a facility that produces or uses nuclear materials. Hearings often involve difficult, interdisciplinary questions at the cutting edge of science and technology. In addition, NRC hearings air local concerns about the consequences of severe accidents and continue the national debate over the role nuclear power should play in meeting the nation's energy needs. This special session will describe the role that these hearings play in the licensing process and the hearing process and the roles of the various hearing participants.

SPEAKERS:
- Honorable Gregory Jaczko *(Chairman, NRC)*
- Anthony J. Baratta *(Associate Chief Administrative Judge, ASLBP)*
- E. Roy Hawkens *(Chief Administrative Judge, ASLBP)*
- Stephen G. Burns, esq. *(General Counsel, NRC)*
- Richard Webster, esq. *(Public Justice)*
- Kathryn Sutton, esq. *(Morgan Lewis)*

MONDAY, OCTOBER 31, 2011, 2:30 P.M.

Current Issues in Computational Methods–Roundtable: Mathematics and Computation in the Real World, sponsored by MCD. *Session Organizer:* Todd Urbatsch *(LANL) Chair:* Todd Urbatsch

Ambassador Ballroom

2:30 p.m.

SPEAKERS:
- Joseph Schumer *(Naval Research Lab)*
- Andrew Cook *(AREVA)*
- Steven A. Arndt *(NRC)*
- Kord Smith *(MIT)*

Environmental Sciences: General, sponsored by ESD.
Chair: Jan Van Erp *(Consultant)*

Empire Ballroom
2:30 p.m.
Energy and Position of a Large Explosion in an Urban Environment, William Culbreth *(UNLV)*, Trevor Wilcox *(LANL)*

2:50 p.m.
Emergency Response for Radionuclides in Food, William Cunningham, Patricia Hansen *(U.S. Food and Drug Administration)*

3:10 p.m.
Background Radiation Variation Correlation with Tidal Fluctuation, John E. Gunning, Alexander L. Enders *(ORNL)*

3:30 p.m.
The Cost of Clean Energy, Gustavo Alonso *(ININ)*, Edmundo del Valle *(IPN)*

Experimental Two-Phase Flow—I, sponsored by THD.
Chair: Kurshad Muftuoglu *(GE Hitachi)*

Diplomat Ballroom
2:30 p.m.
Experimental Study of Post-Dryout Heat Transfer in Annuli with Various Flow Obstacles, I. G. Anghel, H. Anglart *(KTH)*

2:50 p.m.
Liquid Interface Tracking in Annular Flow Using PLIF: Test of Concept, Wesley W. Kokomoor, DuWayne Schubring *(Univ of Florida)*

3:10 p.m.
Experimental Study on the Characteristics of CHF Enhancement Using Magnetite-Water Nanofluid, Jong Hyuk Lee, Taeseung Lee, Yong Hoon Jeong *(KAIST)*

3:30 p.m.
Experimental Observation and Measurements of Pool Boiling Heat Transfer Using PIV, LIF, RICM Techniques, Yuan Di, Carlos Estrada-Perez, Yassin Hassan *(Texas A&M)*

Reactor Physics: General—I, sponsored by RPD.
Session Organizer: Fausto Franceschini *(Westinghouse)*.
Cochairs: Sandra Dulla *(Politecnico di Torino)*, Javier Ortensi *(INL)*

Palladian Ballroom

2:30 p.m.
Neutron Kinetic Calculations Using a Quasi-Static Method with the COCAGNE Code, S. Dulla *(Politecnico di Torino-Italy)*, E. Girardi, P. Guerin *(EDF Clamart)*, M. Nervo, P. Ravetto *(Politecnico di Torino-Italy)*

2:50 p.m.
Subgroup Data Generation by Conserving Self-Shielded Cross Sections for PWR Fuel Cell with Am-241, Aung Tharn Daing, Myung-Hyun Kim *(Kyung Hee Univ)*, Han-Gyu Joo *(Seoul Natl Univ- Korea)*

3:10 p.m.
ATR ORIGEN2.2 Library Upgrade Based on ENDF/B-VII by MCNP Method, G. S. Chang, C. R. Glass *(INL)*

3:30 p.m.
Comparisons Between WIMS-AECL, RFSP, and MCNP for Prediction of Reactivity in Bare Cores of Various Sizes, Blair P. Bromley *(AECL Chalk River)*, John Vandersleen *(Queen's Univ)*

Operations and Power: General—I, sponsored by OPD.
Chair: Tyler Schweitzer *(GE Hitachi Nuclear Energy)*

Cabinet Room
2:30 p.m.
Effects of Inner Axial Blanket and Minor Actinides on Extension of Core Life-time of Large-scale FBR, Erina Hamase, Masaki Saito, Hiroshi Sagara *(Tokyo Inst Technol)*

2:55 p.m.
A Conceptual Framework for Reconstructing Japan's Nuclear Energy Policy, Akihiro Takamoto *(Ritsumeikan Asia Pacific Univ)*

3:20 p.m.
Conceptual Design of Nuclear-Geothermal Energy Storage Systems for Variable Electricity Production, Youho Lee, Charles W. Forsberg, Michael J. Driscoll *(MIT)*

Focus on Communications: Meet the Media–Panel, sponsored by ETWDD. *Session Organizer:* Mimi Limbach *(Potomac Communications Group)*. *Chair:* Mimi Limbach

Forum Room
2:30 p.m.
With the American nuclear energy renaissance on the horizon, media interest in the future of nuclear science and technology continues to expand in both breadth and depth across the nation and around the globe. American Nuclear Society members are actively engaging the media in discussions about the benefits of safe, clean, and reliable nuclear energy and the important contributions of nuclear science and technology to our quality of life. This session will provide a forum for the Society's members to meet the media, learn how reporters and editors develop their stories and determine what is newsworthy, and better understand how the industry can support the media's rising interest in nuclear science and technology issues.

PANELISTS:
- Matt Wald *(New York Times)*
- Bill Loveless *(Platt's Energy Week)*
- Jeff Beattie *(Energy Daily)*

Modeling and Simulation in Fuel Cycle Separations and Waste Form Development, sponsored by FCWMD. *Session Organizer:* Jack D. Law *(INL)*. *Chair:* Jack D. Law *(INL)*.

Hampton Ballroom
2:30 p.m.
Spectroscopic pH Monitoring for Various Nuclear Fuel Reprocessing Schemes, Amanda Casella, Tatiana Levitskaia, James Peterson *(PNNL)*, Emily Valerio *(Idaho State Univ)*, Omed Muzaffery, Mikael Nilsson *(Univ of California-Irvine)*, Sam Bryan *(PNNL)*

2:50 p.m.
Digital Mathematics Module for Spent Fuel Dry Storage System Design, Wei-Keng Lin, Chun-Khan Shih *(Natl Tsing Hua Univ)*, Jong-Rong Wang, Yung-Shin Tseng *(INER)*, Jui-En Chang *(Natl Tsing Hua Univ)*

3:10 p.m.
The Development of a 1-Dimensional Electrorefiner Model, Riley Cumberland, Man-Sung Yim *(NCSU)*

3:30 p.m.
Reactive Gas Recycle of Used Nuclear Fuel—Theoretical Analysis, J. Gray, S. Sherman, M. Martinez-Rodriguez, R. Torres, B. Garcia-Diaz, A. Visser, P. Korinko, T. Adams *(SRNL)*

Student Design Competition, sponsored by ETWDD. *Session Organizer:* H. Lee Dodds *(Univ of Tennessee)*. *Chair:* H. Lee Dodds. All invited.

Calvert Room
The following undergraduate entries have been selected by a panel of judges from industry as finalists in the 2011 Student Design Competition. Oral presentations will be made by students in front of a second panel of judges who will determine the undergraduate winner.

Undergraduate Category

2:30 p.m.
Modular Boiling Water Concept, Robert Steinbock, Yi Liao, Matthew Frantz *(Univ of Michigan)*

3:00 p.m.
RINSC Thermal Column Cooling System Upgrade, Marc Tetreault, Rick Hogan, Francis Stanton, Eric Rom *(Univ of Rhode Island)*

3:30 p.m.
Design and Analysis of a 1-MWe Transportable Heat Pipe-Cooled Fast Reactor, William J. Sames, Daniel R. Eichel, Wesley R. Deason, Joshua E. Hansel *(Texas A&M Univ)*

Graduate Category

4:00 p.m.
Device for Detection of Defects in Steam Generator Tubes Using Acoustic Analysis, J. Beard, P. Howard, L. Mackie, S. Morris, T. Ramis, D. Rowekamp, M. Urffer *(Univ of Tennessee)*

4:30 p.m.
Concluding Remarks by Judges and Announcement of Contest Results

Nuclear Fuels and Materials: LWR and Fast Reactors, sponsored by MSTD. *Session Organizer:* Ken Geelhood *(PNNL)*. *Chair:* Rory Kennedy *(INL)*

Capitol Room
2:30 p.m.
Hot Cell Examination of MOX Fuel from Nonproliferation Programs, Kevin McCoy *(AREVA NP)*, Robert Morris, Bruce Bevard *(ORNL)*, Patrick Blanpain *(AREVA NP SAS)*

2:50 p.m.
Control of Inner Diameter Precision of Sintered Annular Pellet for Dual Cooled Fuel, Young Woo Rhee, Dong Joo Kim, Jong Hun Kim, Jae Ho Yang, Keon Sik Kim *(KAERI-Korea)*

3:10 p.m.
Fabrication of UO_2 Annular Pellet with High Thermal Stability for Dual Cooled Fuel, Dong-Joo Kim, Young Woo Rhee, Jae Ho Yang, Jong Hun Kim, Ik-Hui Nam, Keon Sik Kim *(KAERI- Korea)*

3:30 p.m.
Immobilization of Fission Product Lanthanides in Metallic Fast Reactor Fuel, Yeon Soo Kim, T. Wiencek, E. O'Hare, G. Hofman, J. Fortner *(ANL)*

3:50 p.m.
Microstructural Characteristics of U-Zr Ingot Slug and Atomized Powder for SFR Metal Fuel, S. J. Oh, K. H. Kim, C. T. Lee, C. B. Lee *(KAERI-Korea)*

Neutron Activation Analysis—Frontiers and Sustained Performance-Tutorial, sponsored by BMD; cosponsored by IRD. *Session Organizer:* Rolf Zeisler *(NIST)*. *Chair:* Rolf Zeisler

Council Room
2:30 p.m.
The tutorial aims to refresh knowledge of professionals in the nuclear science and applications domain and to provide a glance at the synergistic opportunities for young professionals and older hands alike to integrate activation analysis into

today's methods and practice. The speakers present the basic principles of activation analysis and detail different types of activation analysis. Emphasis is given to instrumental neutron activation analysis and radiochemical separations for the determination of trace and ultra-trace elements. Location-sensitive analysis is also included. With descriptions of the uses of research reactors, neutron beam facilities, and neutron generators, the tutorial will illustrate performance of the NAA techniques.

SPEAKERS:
- R. Zeisler *(NIST)*
- R. M. Lindstrom *(NIST)*
- W. D. James *(Texas A&M Univ)*

Current Topics in Radiation Shielding and Protection–Roundtable, sponsored by RPSD. *Session Organizer:* Arzu Alpan *(Westinghouse). Chair:* Eric Burgett *(ISU)*

Governors Room
2:30 p.m.
Everyone is invited to give a short presentation on any radiation protection and shielding topic of interest. Ten-minute time slots will be allotted on a first-come/first-serve basis. This session is meant to be fast, informal, and fun.

Robotics and Remote Systems: General, sponsored by RRSD. *Chair:* Reid Kress *(Y-12 NSC)*

Embassy Room
2:30 p.m.
3D Simulation for the Device Arrangement and the Remote Accessibility Analysis in a Hotcell, Hee Seoung Park, Chang Hwan Choi, Ki Ho Kim, Ho Dong Kim *(KAERI-Korea)*

2:55 p.m.
A Bridge Transporter for Remote Handling Tasks in Nuclear Facility, Hyo-Jik Lee, Byung-Suk Park, Jong Kwang Lee, Kiho Kim *(KAERI-Korea)*

3:20 p.m.
Remote Disassembly System for Annular Targets During Production of Mo-99, Emily Ferner, Annemarie Hoyer, A. Sherif El-Gizawy *(Univ of Missouri, Columbia)*

General Safety, sponsored by NISD. *Chair:* Kevin O'Kula *(URS Safety Management Solutions)*

Senate Room
2:30 p.m.
Location Dependencies of Vital Area Identification Caused by the Cables and Pipe Runs, Yoon-Hwan Lee, Woo Sik Jung *(KAERI-Korea)*, Jin-Hong Lee *(Chungnam National University)*

2:50 p.m.
Short-Term Analysis of LOCA for Mark-III Containment, Po-Hao Peng, Zhen-Yu Hung *(Natl Tsing Hua Univ)*, Yen-Shu Chen *(Institute of Nuclear Energy Research, Taiwan)*, Yuh-Ming Ferng, ChunKuan Shih, Bau-Shei Pei *(Natl Tsing Hua Univ)*

3:10 p.m.
On RPV Depressurization Strategy and Alternate Water Systems in SBO of Nuclear Power Plants, Chunkuan Shih, Tsong-Sheng Feng, Kai-Chuen Huang, Chin-Cheh Chang *(Natl Tsing Hua Univ)*, Jong-Rong Wang *(Inst. of Nuclear Energy Research, ROCAEC)*

3:30 p.m.
CFD Simulation of Air-Ingress Problem Following a Double-Ended Guillotine Break in GT-MHR, Hong-Chan Wei, Jessica Hartley, Yassin A. Hassan *(Texas A&M)*

MONDAY, OCTOBER 31, 4:00 P.M.

Developing Environmentally Safe and Secure Nuclear Power Programs in South/Central America and the Caribbean–Panel, sponsored by OPD; cosponsored by ESD. *Chair:* Gene Carpenter *(NRC)*

Ambassador Ballroom
4:00 p.m.
Countries in South/Central America that have existing programs include Mexico, Argentina, and Brazil. Some 30 countries worldwide, including Chile, Ecuador, and Venezuela, are actively considering nuclear power programs. As nuclear power is an environmentally clean and non-greenhouse gas emitting energy source, it is timely to give consideration to its safe and nonproliferating use in South/Central America and the Caribbean as a replacement for fossil fuels. This panel would consider the (1) education, training, and workforce development issues; (2) environmental issues; (3) security; and (4) financial and regulatory issues.

PANELISTS:
- M. Lambrides *(Organization of American States)*
- J. Kelly *(DOE)*
- J. Williams *(Caricom)*
- A. Cardoso *(IAEA)*
- A National Representative from Argentina, Brazil, or Mexico
- A National Representative from a country that is considering nuclear power program

Nonproliferation and Radwaste Management Education at University, sponsored by FCWMD; cosponsored by NNTG, ETWDD. *Session Organizer:* Mary Lou Dunzik-Gougar *(Idaho State Univ). Chair:* Denise L. S. Lee *(ORNL)*

Empire Ballroom
4:00 p.m.
What Radwaste Professionals Want Students to Know, M. L. Dunzik-Gougar *(Idaho State Univ)*

4:20 p.m.
ORNL Engagement with University Safeguards Education, Steven Skutnik *(NCSU)*, Dawn Eipeldauer, Bernadette Kirk, Michael Whitaker *(ORNL)*

4:40 p.m.
Nonproliferation Education at North Carolina State University, Steven E. Skutnik, Man-Sung Yim *(NCSU)*

5:00 p.m.
Nonproliferation-Focused Laboratory Internships as a Catalyst for University Safeguards Education, Bernadette Kirk *(ORNL)*, Steven Skutnik *(NCSU)*, Dawn Eipeldauer, Michael Whitaker *(ORNL)*

5:20 p.m.
A Systems Approach to Teaching Radioactive Waste Management, Steven L. Krahn, David S. Kosson, James H. Clarke *(Vanderbilt University)*

5:40 p.m.
Radioactive Waste Management Education at Nuclear Engineering Department, UC Berkeley, Joonhong Ahn *(Univ of California)*

6:00 p.m.
Adapting Waste Management Education at UNLV for an Evolving Fuel Cycle, Gary Cerefice *(UNLV)*

Experimental Two-Phase Flow—II, sponsored by THD. *Chair:* Seungjin Kim *(Penn State)*

Diplomat Ballroom
4:00 p.m.
Two-Phase Flow Parameter Measurements in Vertical Air-Water Flows, B. Doup, X. Sun *(Ohio State)*

4:25 p.m.
Study of Undeveloped Nucleate Boiling on the Horizontal Tube Heated by Condensing Steam, A. V. Morozov, O. V. Remizov, D. S. Kalyakin *(IPPE-Russia)*

4:50 p.m.
Study of Heat Transfer Characteristics at the Ex-Vessel Bottom, Huai-En Hsieh, Yuh-Ming Ferng, Mei-Shiue Chen, Bau-Shi Pei *(Natl Tsing Hua Univ)*

5:15 p.m.
Application of Ultrasonic Sensor Technique to Measurement of Water Film Thickness in the Condenser Tubes of Passive Auxiliary Feedwater System for APR1400+, Byong Guk Jeon, Hee Cheon No, Chang Wook Shin *(KAIST)*, Bong Yo Yun *(KAIST/KNHP)*

5:40 p.m.
Design of Single-Tube Condensation Experiment Facility for Passive Auxiliary Feedwater System of APR1400+, Chang Wook Shin, Hee Cheon No *(KAIST)*, Bong Yo Yun *(KAIST/KNHP)*, Byong Guk Jeon *(KAIST)*

Model Adaptation and Data Assimilation for Reactor Core Calculations, sponsored by RPD. *Session Organizers:* Aldo Dall'Osso *(AREVA NP)*, Hany Abdel-Khalik *(NCSU)*. *Chair:* Aldo Dall'Osso

Palladian Ballroom
4:00 p.m.
Adaptation Methods for Core Calculation in AREVA, Aldo Dall'Osso *(AREVA NP)*

4:25 p.m.
Verification & Validation of KARMA/ASTRA with Benchmark and Core-Follow Analyses, Joo Il Yoon, Sang Weon Park *(KEPCO Nuclear Fuel)*, Hyun Soo Park *(Ministry of National Defense)*

4:50 p.m.
Bayesian Uncertainty Analysis of BWR Core Parameters Based on Flux Measurements, Augusto Hernandez-Solis, Christophe Demaziere, Christian Ekberg *(Chalmers Univ of Technol)*

5:15 p.m.
Regression-Based Approach for Second Order Perturbation Theory, Youngsuk Bang, Hany S. Abdel-Khalik *(NCSU)*

5:40 p.m.
Comparison of Calculated and Measured Neutron Fluence in Fuel/Cladding Irradiation Experiments in HFIR, Ronald J. Ellis *(ORNL)*

Helium-3 Alternative Shortage–Panel, sponsored by FCWMD; cosponsored by NNTG. *Session Organizer:* Michaela Eddy *(INSPIRE)*. *Chair:* Michaela Eddy

Cabinet Room
4:00 p.m.
Given the high demand for He-3, significant effort is being devoted to identify alternative technologies for the various applications of He-3, including neutron detectors for safeguards, oil well drilling, road construction, basic science research that requires absolute zero temperatures, and medical imaging. In this session, results of research efforts to develop and demonstrate alternative technologies to He-3 as well as novel means to optimize use of the available He-3 supply will be presented.

PANELISTS:
- Dave Beach *(DOE)*
- Joseph Glaser *(DOE)*
- Greg Slovick *(DNDO)*

Focus on Communications: Communicating with Policy Makers–Panel, sponsored by ETWDD. *Session Organizer:* Teri Ehresman *(INL)*. *Chair:* Teri Ehresman

Forum Room
4:00 p.m.
With the American Nuclear Society's continued emphasis on grassroots communications, providing members with skills needed to communicate with policymakers has acquired a new significance. This session will explore communication between constituents and policymakers regarding highly technical topics from both perspectives. Effective approaches for building relationships with policymakers and reliable strategies for communications between the scientific and public policy communities will be highlighted.

PANELISTS:
- Matt Bennett *(Third Way)*
- Annie Caputo *(U.S. Senate Committee on Environment and Public Works)*
- Jonathan Epstein *(U.S. Senate Committee Energy and Natural Resources)*
- Other panelists to be determined.

Nuclear Graphite Developments for the Beginning and End of the Fuel Cycle, sponsored by FCWMD. *Session Organizer:* Mary Lou Dunzik-Gougar *(Idaho State Univ)*. *Chair:* Mary Lou Dunzik-Gougar

Hampton Ballroom
4:00 p.m.
The Next Generation Nuclear Plant Graphite R&D Program, W. E. Windes *(INL)*, T. D. Burchell *(ORNL)*, W. D. Swank, M. C. Carroll *(INL)*

4:25 p.m.
A Study to Characterize the Chemical Form of ^{14}C in Irradiated Graphite, Shilo M. McCrory, Mary Lou Dunzik-Gougar *(Idaho State Univ)*

4:50 p.m.
Removal of ^{14}C from Irradiated Graphite for Waste Volume Reduction and Bulk Graphite Recycle: Thermal Treatment, Tara E. Smith, Mary-Lou Dunzik-Gougar *(Idaho State Univ)*

5:15 p.m.
Utilization of Irradiated Graphite as Embedding Material for Radioactive Waste, J. Fachinger *(Furnaces Nuclear Applications Grenoble FNAG)*, K. H. Grosse *(FNAG)*, M. Hrovat, R. Seemann *(ALD)*

5:40 p.m.
Irradiated Graphite as Tritium Source for Nuclear Fusion, J. Fachinger *(Furnaces Nuclear Applications Grenoble)*, K. H. Grosse (FNAG), R. Seemann *(ALD)*

Neutron Detection for Nonproliferation Applications, sponsored by IRD; cosponsored by BMD. *Session Organizer:* Igor Jovanovic *(Penn State)*. *Chair:* Igor Jovanovic

Council Room
4:00 p.m.
Time Projection Chamber for Directional Fast Neutron Detection, I. Jovanovic *(Purdue Univ)*, N. S. Bowden, G. P. Carosi, M. Heffner *(LLNL)*, C. Roecker *(Purdue Univ)*

4:25 p.m.
A Neutron Detector with Gamma Discrimination, Praneeth Kandlakunta, Lei Cao *(Ohio State)*

4:50 p.m.
A Li-6 Diode-Based, Moderating Detector for Neutron Detection, Tom M. Oakes, William H. Miller *(Univ of Missouri, Columbia)*, Sudarshan Karki, Paul R. Scott, Anthony N. Caruso *(University of Missouri- Kansas City)*, Steve L. Bellinger, Douglas S. McGregor, J. Kenneth Shultis, Tim J. Sobering *(Kansas State Univ)*

5:15 p.m.
Uranium Enrichment Measurements Using Neutron Spectrometry, Scott D. Kiff, Peter Marleau, Michael Streicher *(SNL)*

Treaty Verification and Arms Control Policy–Panel, sponsored by FCWMD; cosponsored by NNTG. *Session Organizer:* Susan Turner *(Y-12)*. *Chair:* Susan Turner

Governors Room
4:00 p.m.
This panel session will include broad-perspective views of subject matter experts on the past and present policies of the U.S. Government in treaty verification and arms control. Panelists will contribute to high-level, unclassified discussions. Panelists may center discussions on current events such as the Senate ratification of the New START treaty with the Russian Federation and its verification requirements, or other current policy topics. Or, discussion may follow U.S. government policies regarding the Comprehensive Test Ban Treaty (CTBT), Nonproliferation Treaty (NPT) and its Additional Protocols, and the Fissile Material Control Treaty (FMCT) or other treaty verification policy topics. Each invited panelist will need to provide a biography, and prepare a 10- to 15-minute brief on the topic of their choice. A brief nonattributive question-and-answer period will follow. Invited panelists are from Department of State, NNSA (NA-24, NA-22), DOE Labs, DOD (USSTRATCOM), and Academia.

SPEAKER:
- Rose Gottemoeller *(DOS)*

PANELISTS:
- Greg Dwyer *(NE-24 HEU Transparency Program)*
- Mike Whitaker *(ORNL)*
- A. David Rossin *(DOE)*
- Greg Weaver *(USSTRATCOM, J5)*

TUESDAY • NOVEMBER 1, 2011	
7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:00 AM – 11:30 AM	SMR 2011: PLENARY SESSION—1
8:30 AM – 11:30 AM	2011 ANS WINTER MEETING: TECHNICAL SESSIONS • Transport Methods: General • Planning and Preparedness for Long-Term Recovery Operations Following Radiological and Nuclear Events—I: Policy Issues–Panel • Computational Thermal Hydraulics—I • Reactor Physics: General—II • Power Uprates: Status and Lessons Learned–Panel • Status on Cyber Security Implementation–Panel • Future of the Nuclear Fuel Cycle and Waste Management–Panel • The Innovations in Fuel Cycle Research Awards Program—A Student Competition • Data Analysis in Nuclear Criticality Safety—I • Radiation Protection and Shielding: General • Fukushima Daiichi—Event Sequence, Dose to Public, Current Status, and Proposed Decommissioning Path–Panel • Nuclear Fuels and Materials: VHTR and Other Advanced Reactors • Applications of Probabilistic Safety Assessment
8:30 AM – 11:30 AM	YPC 2011: TECHNICAL SESSION
11:30 AM – 1:00 PM	ANS HONORS AND AWARDS LUNCHEON
12:30 PM – 4:30 PM	SPOUSE/GUEST TOUR: "Russian Art, Gardens, Porcelain... The Hillwood Museum!"
1:00 PM – 3:00 PM	YPC 2011: TECHNICAL SESSION
1:00 PM – 4:00 PM	2011 ANS WINTER MEETING: TECHNICAL SESSIONS • Uncertainty Quantification and Sensitivity Analysis • Planning and Preparedness for Long-Term Recovery Operations Following Radiological and Nuclear Events—II: Topical Issues–Panel • Thermal Hydraulics: General—I • Current Activities in Reactor Physics Methods Validation Based on Experimental Measurements • Licensing a Digital Upgrade–Panel • On-Line Monitoring to Prognostics for Light Water Reactors • Path Forward for Spent Fuel Management Blue Ribbon Commission and the Next Step–Panel • Kent W. Hamlin Memorial Session—Best of CONTE 2011 • Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—I • Walk the Talk, Ethics in Professional Engineering–Panel • Best of DD&R 2010 Topical Meeting–Panel • Materials Science and Technology: General • The Effect of Selected Aging Topics on Nuclear Reactor Safety–Panel
1:00 PM – 5:00 PM	SMR 2011: TECHNICAL SESSIONS
3:30 PM – 5:30 PM	YPC 2011: TECHNICAL SESSION
4:00 PM – 6:00 PM	2011 ANS WINTER MEETING: TECHNICAL SESSIONS • Computational Methods, Uncertainty Quantification, and Sensitivity Analysis • Transportation Options for the Future–Panel • Thermal Hydraulics Code Verification and Validation • Nuclear Fuel Resources and Sustainability • International Workforce Development Needs–Panel • Environment Impacts of Disposal • Advances in Nuclear Forensics: Research, Applications, and New Educational Programs • Regulatory Gaps for the Sodium Reactor, a DOE Perspective–Panel • Molten Salt Reactor Safety • Fukushima—Evaluation and Impacts–Panel

TUESDAY, NOVEMBER 1, 2011, 8:30 A.M.

Transport Methods: General, sponsored by MCD. *Session Organizer:* Patrick Brantley *(LLNL)*. *Chair:* Jae Chang *(LANL)*

Ambassador Ballroom

8:30 a.m.
Solution of the Within-Group Multidimensional Discrete Ordinates Transport Equations on Massively Parallel Architectures, R. Joseph Zerr *(Penn State)*, Yousry Y. Azmy *(NCSU)*, invited, Mark Mills Award Winner

8:55 a.m.
A Davidson Method for the k-Eigenvalue Problem, Steven Hamilton *(ORNL)*, Michele Benzi *(Emory University)*

9:20 a.m.
A Cut-Cell Approach for 2D Cartesian Meshes that Preserves Orthogonal Grid Sweep Ordering, Joshua J. Jarrell, Robert E. Grove, Thomas M. Evans *(ORNL)*

9:45 a.m.
On the Matter of Time-Dependent Ray Effects, R. Joseph Zerr, Randal S. Baker *(LANL)*

10:10 a.m.
Domain Decomposition Method for the Simple Corner Balance Scheme in Problems with Diffusive Regions, Nicholas D. Stehle, Dmitriy Y. Anistratov *(NCSU)*, Marvin L. Adams *(Texas A&M)*

10:35 a.m.
Boundary Conditions for the Anisotropic Diffusion Approximation, Seth R. Johnson, Edward W. Larsen *(Univ of Michigan)*

11:00 a.m.
Diffusion Boundary Conditions in Flatland Geometry, Seth R. Johnson, Edward W. Larsen *(Univ of Michigan)*

Planning and Preparedness for Long-Term Recovery Operations Following Radiological and Nuclear Events—I: Policy Issues–Panel, sponsored by ESD. *Session Organizer:* S. Y. Chen *(ANL)*. *Chair:* S. Y. Chen

Empire Ballroom

8:30 a.m.
The 9/11 event of 2001 in New York City led to extensive efforts to strengthen the response to various postulated scenarios involving the use of radiological dispersal devices and/or improvised nuclear devices. However, a recent report by the U.S. General Accountability Office has highlighted certain deficiencies in the nation's ability to address the long-term recovery issues associated with such postulated events. Considerable effort is therefore needed to fill this gap. This session provides an overview of ongoing work and the progress achieved in this area.

PANELISTS:
- John MacKinney *(DHS)*
- Gerilee Bennett *(FEMA)*
- Sara DeClair *(EPA)*
- Patricia Milligan *(NRC)*

Computational Thermal Hydraulics—I, sponsored by THD. *Cochairs:* Si Young Lee *(SRNL)*, Baris Sarikaya *(Global Nuclear Fuels)*

Diplomat Ballroom
8:30 a.m.
CFD Study of the Generic Test Plate Assembly for Use in the Hydro-Mechanical Fuel Test Facility, G. D. Roth, W. R. Marcum, B. G. Woods *(Oregon State Univ)*

8:55 a.m.
Heat Transfer Predictions by Turbulence Models and Heat Transfer Correlations, Constantine P. Tzanos *(ANL)*

9:20 a.m.
CFD Simulation for a Reactor Cavity Cooling System of the Very High Temperature Reactors, Hong-Chan Wei, Rodolfo Vaghetto, Yassin A. Hassan *(Texas A&M)*

9:45 a.m.
Safety Analysis of KIPT Sub-Critical Assembly, E. Merzari, Z. Zhong, Y. Gohar *(ANL)*

10:10 a.m.
Theoretical Investigation of Temperature Distributions with Different Axial Power Distributions, C. H. C. M. 't Mannetje, H. Anglart *(KTH)*

10:35 a.m.
Performance of UO_2-Graphene Composite Fuel and Zircaloy4/SiC Cladding During LOCA, Seung Won Lee *(UNIST)*, Hyoung Tae Kim *(KAERI- Korea)*, In Cheol Bang *(UNIST)*

Reactor Physics: General—II, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Cochairs:* Sandra Dulla *(Politecnico di Torino)*, Javier Ortensi *(INL)*

Palladian Ballroom
8:30 a.m.
Physics Characteristic Evaluation of Fuel Assemblies Using FCM (Fully Ceramic Micro-encapsulated) Fuel for the Deep Burn Management of Transuranics in LWRs, Ser Gi Hong *(KAERI-Korea)*, Francesco Venneri *(Logos Tech)*, Kyung Hoon Lee, Jin Young Cho, Sang Yoon Park, Chang Keun Jo *(KAERI-Korea)*

8:55 a.m.
Impact of Recycle on Thorium-Uranium Fuel for Current PWRs, Fausto Franceschini *(Westinghouse)*, L. Michael Huang, Bojan Petrovic *(Georgia Tech)*, Michael Wenner *(Westinghouse)*

9:20 a.m.
Design Analysis of the ELECTRA with Oxide Fuel, Erdenechimeg Suvdantsetseg, Janne Wallenius *(KTH)*

9:45 a.m.
A One-Dimensional Benchmark Problem of Breed & Burn Reactor, Zhiwen Xu *(TerraPower LLC)*, Robert Petroski *(MIT)*, Nick Touran *(TerraPower LLC)*, Chuck Whitmer *(Intellectual Ventures)*

10:10 a.m.
Core Physics Studies and TRU Burning Potential of a Thorium-Based Fuel Fast Reactor, Alberto Sartori *(Politechnic of Milan/Westinghouse)*, Fausto Franceschini, Michael Wenner, Paolo Ferroni, Marco E. Ricotti *(Westinghouse)*

10:35 a.m.
Reaction Rate Analyses in the Thorium-Loaded Accelerator-Driven System at the Kyoto University Critical Assembly, Cheol Ho Pyeon, Jae-Yong Lim, Takahiro Yagi, Tsuyoshi Misawa *(Kyoto Univ)*

11:00 a.m.
Preliminary Neutronic Performance Evaluation on a Conceptual Design for a Transmutation Fusion Blanket, M. Tariq Siddique, Myung-Hyun Kim *(Kyung Hee University)*

Power Uprates: Status and Lessons Learned–Panel, sponsored by OPD. *Session Organizer:* Ken Ferguson (Hukari Technical Services). *Chair:* Ken Ferguson

Cabinet Room
8:30 a.m.
One of the prominent current activities for the operating fleet of nuclear power reactors in the United States has been the technical development and regulatory approval of uprates in power levels. Uprates have ranged from a few percent to Extended Power Uprates (EPU) in excess of 15% enhancements compared to original licensed power levels. This panel session will address specific uprating actions, key success factors as well as lessons learned.

PANELISTS:
- Jeff Richardson *(Entergy)*
- John Rommel *(Exelon)*
- Thomas Verbout *(Excel Energy)*
- Mike Weber *(Westinghouse)*

Status on Cyber Security Implementation–Panel, sponsored by HFICD. *Session Organizer:* Edward Quinn *(Technology Resources)*. *Chair:* Edward Quinn

Forum Room
8:30 a.m.
This session will be an "update" session on the current experience with implementing U.S. Nuclear Regulatory Commission (NRC), Nuclear Energy Institute (NEI), and other domestic and international guidance on cyber security protection for our critical systems at nuclear power plants and other nuclear facilities. Speakers will address important updates on the status of implementation, updates on the application of the guidance, and new guidance being developed to meet the

evolving threat. Speakers from NRC, NEI, vendors, industry, and international will provide their overview and lessons learned to date.

PANELISTS:
- Steve Arndt *(NRC-NRR)*
- Bill Gross *(NEI)*
- Rob Austin *(EPRI)*
- Glen Kaegi *(Exelon)*
- Edward L. Quinn *(Technology Resources)*
- Eric Lee *(NRC)*

Future of the Nuclear Fuel Cycle and Waste Management–Panel, sponsored by FCWMD. *Session Organizer:* Terry Todd *(INL)*. Chair: Andrew Griffith *(DOE)*

Hampton Ballroom
8:30 a.m.
Since the 1970s, there has been a "standard" vision of the future fuel cycle where LWR spent nuclear fuel is reprocessed and is used to start up sodium-cooled fast reactors. Changing conditions and new technologies have resulted in several major studies (Idaho National Laboratory, MIT, John Hopkins, and the European Community) on the future of the nuclear fuel cycle—resulting in some cases with similar and in other cases dissimilar recommendations. The panel, leaders in these studies, will present and discuss the basis for their conclusions.

PANELISTS:
- System Engineering Screening Analysis, Bill Halsey *(LLNL)*
- Advanced Fuels Development, Matt Fig *(INL)*
- Fuels Modeling and Simulation, Dave Hurley *(INL)*
- Innovative Waste Forms, Joe Ryan *(PNNL)*
- Separations Modeling, Kent Wardle *(ANL)*
- Uranium Extraction from Seawater, Sheng Dai *(ORNL)*

The Innovations in Fuel Cycle Research Awards Program—A Student Competition, sponsored by ETWDD. *Session Organizer:* Cathy Dixon *(West Texas Univ)*, John Bennion *(General Electric Hitachi)*. *Chair:* Robert Price *(DOE)*

Calvert Room
8:30 a.m.
Relationship Between Localized Strain and Irradiation Assisted Stress Corrosion Cracking in an Austenitic Alloy, M. D. McMurtrey, G. S. Was *(Univ of Michigan)*, L. Patrick, D. Farkas *(Virginia Tech)*

8:50 a.m.
Facile Reduction of a Uranyl(VI) β-Ketoiminate Complex to U(IV) Upon Oxo Silylation, Jessie L. Brown, Charles C. Mokhtarzadeh, Jeremie M. Lever, Guang Wu, Trevor W. Hayton *(Univ of California, Santa Barbara)*

9:10 a.m.
Non-Destructive Assay of ^{235}U and ^{239}Pu Using a Lead Slowing-Down Spectrometer, N. Thompson, B. Becker, J. Thompson *(RPI)*, D. Beller *(UNLV)*, S. Bowyer *(PNNL)*, A. Gavron *(LANL)*, G. Imel *(Idaho State Univ)*, Y. Danon *(RPI)*

9:30 a.m.
Computation of the Resonant Neutron Scattering to Higher Angular Moments, Shadi Z. Ghrayeb *(Penn State)*, Mohamed Ouisloumen *(Westinghouse)*, Abderrafi M. Ougouag *(INL)*, Kostadin N. Ivanov *(Penn State)*

9:50 a.m.
Incorporating Actinide Sorption in Models of TRISO Repository Performance, Gregory H. Schmidt, Gary S. Cerefice *(UNLV)*

10:10 a.m.
Comparison of the Redox Chemistry of Primary and Secondary Amides of U(IV): Isolation of a U(VI) Bis(imido) Complex or a Homoleptic U(VI) Amido Complex, Lani A. Seaman, Skye Fortier, Guang Wu, Trevor W. Hayton *(Univ of California, Santa Barbara)*

10:30 a.m.
Structure Studies on Lanthanide Technetium Pyrochlores as Prospective Host Phases to Immobilize 99-Tc and Fission Lanthanides in Used Nuclear Fuels, Ariana Alaniz *(UNLV)*

10:50 a.m.
Hydride Formation Process Development for the Powder Metallurgical Recycle of Zircaloy, Adam J. Parkison, Sean M. McDeavitt *(Texas A&M)*

Data Analysis in Nuclear Criticality Safety—I, sponsored by NCSD. *Session Organizer:* Larry Wetzel *(Babcock & Wilcox-NOG)*. *Chair:* Larry Wetzel

Capitol Room
8:30 a.m.
A Digital Criticality Safety Document Collection Available Through the U.S. Department of Energy's NCSP Web Site, Brian L. Koponen *(LLNL, retired)*, David P. Heinrichs, Chuck K. Lee *(LLNL)*

8:50 a.m.
Study on Particle and Absorber Effects on Multiplication Factors of Debris Beds with MVP, Tsugio Yokoyama *(Toshiba Nuclear Engineering Services Corp)*, Taiki Fujishiro, Hisashi Ninokata *(Tokyo Inst Technol)*

9:10 a.m.
Supercritical Transient Analysis in Weakly Coupling Systems, Haruka Kikuchi, Toru Obara *(Tokyo Inst Technol)*

9:30 a.m.
Acceleration of Monte Carlo Criticality Calculations Using Deterministic-Based Starting Sources, Ahmad M. Ibrahim *(Univ of Wisconsin, Madison)*, Douglas E. Peplow, John C. Wagner, Scott W. Mosher, Thomas M. Evans *(ORNL)*

9:50 a.m.
First Critical Experiment at Critical Experiment Facility, Rene Sanchez, David Hayes, Joetta Goda, William Myers *(LANL)*

10:10 a.m.
Verification of Burnable Absorber Rod Worth Evaluation for Criticality Safety Analysis of a RAJ-II BWR Shipping Package, Tanya Sloma *(Westinghouse)*, Peter Vescovi *(Transport Logistics International)*

10:30 a.m.
CritView: An Electronic Handbook for Criticality Safety, Scott H. Finfrock *(Fluor Federal Services)*, Mark B. Murphy *(CH2M HILL Plateau Remediation Company)*

10:50 a.m.
The Analysis of the Radial Thermal Expansion of Clear Polyvinyl Chloride and Polyvinylidene Fluoride (Kynar®) Columns, Katherine A. Nagley *(Central Virginia Governor's School)*, Larry L. Wetzel *(Babcock & Wilcox-NOG)*

11:10 a.m.
The Language of the Process Analysis Requirement and the Double Contingency Principle, Shean P. Monahan *(LANL)*, Thomas P. McLaughlin *(Consultant)*, Adolf Garcia *(DOE Idaho Operations Office)*, Calvin Hopper, G. Elliott Whitesides *(Retired)*

Radiation Protection and Shielding: General, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(UNLV)*. *Chair:* Eric Burgett *(ISU)*

Council Room
8:30 a.m.
A New Class of Obese Phantoms for Radiation Protection Dosimetry, Aiping Ding, Matthew Mille, Peter F. Caracappa, X. George Xu *(RPI)*

8:55 a.m.
A Study of Secondary Neutron Spectra for Solar Particle Events, S. I. Sriprisan, S. K. Aghara *(Prairie View A&M University)*, R. C. Singleterry *(NASA, Langley)*

9:20 a.m.
Assessing Internal Contamination Levels for Fission Product Inhalation Using a Portal Monitor, Emily Freibert, Nolan Hertel, Randahl Palmer *(Georgia Tech)*, Armin Ansari *(CDC)*

9:45 a.m.
Characterization of Neutron Leakage Spectra from Spherical Shells, Pete Exline, Nolan Hertel *(Georgia Tech)*

10:10 a.m.
Neutron Air Activation Analysis of an Open Brayton Cycle Heat Pipe Cooled Fast Reactor, William J. Sames, Joshua E. Hansel, Stephen B. Guetersloh *(Texas A&M)*

10:35 a.m.
Pion Thermal Model for Space Radiation Codes, Charles M. Werneth *(Univ of Tennessee)*, John W. Norbury *(NASA, Langley)*

Fukushima Daiichi—Event Sequence, Dose to Public, Current Status, and Proposed Decommissioning Path–Panel, sponsored by DD&RD. *Session Organizer:* John Gunning *(ORNL)*. *Chair:* John Gunning

Governors Room
8:30 a.m.
The tsunami associated with the 9.0 earthquake initiated events that caused the destruction of four nuclear power plants in Japan with a combined electrical output of 2812 MWe. The event has been classified as a level 7 (top of scale) and is estimated to have released radioactive material approximately 10% of that from Chernobyl. This same tsunami also caused approximately 20,000 deaths and left 600,000 homeless.

This session will begin with a description of the event sequence, summarize what is known of the dose to the public, provide a current status of the plant, and propose possible decommissioning paths.

PANELISTS:
- The Station BlackOut (SBO) Accident Sequence: Historic Perspective and Predictions of the Fukushima Daiichi SBO Event Sequence, Larry Ott *(ORNL)*
- In-Country Technical Support and Accident Reconstruction Activities Associated with the Fukushima Daiichi Accidents, Randall Gauntt *(SNL/NL)*
- Onsite Experience from an American at Fukushima Daiichi, D. E. Williams Jr. (Nick) *(Badcock)*
- Independent Operational Survey of Events at Fukushima Daiichi, Thomas Hafera *(Worley Parsons)*
- Nuclear Events at Fukushima—Insights and Experiences of the GEH/HGNE Japan Response Team, Curt Robert *(GE Hitachi)*

Nuclear Fuels and Materials: VHTR and Other Advanced Reactors, sponsored by MSTD. *Session Organizer:* Ken Geelhood *(PNNL)*. *Chair:* Travis Knight *(Univ of South Carolina)*

Embassy Room
8:30 a.m.
Thermal Simulation of TRISO Fuel Irradiation Using a Graphite Fuel Surrogate, Moon Sung Cho *(KAERI-Korea)*, Young Shin Lee *(Choongnam National Univ)*

8:55 a.m.
Oxidation Studies on NBG-18 Grade Nuclear Graphite, J. Kane, C. Karthik *(Boise State Univ/Center for Advanced Energy Studies)*, D. P. Butt *(Boise State Univ)*, W. E. Windes *(INL/Center for Advanced Energy Studies)*, R. Ubic *(Boise State Univ/Center for Advanced Energy Studies)*

9:20 a.m.
Oxidation Behavior of Pyrolytic Carbon Coatings in TRISO Fuel Particles, Eddie López-Honorato, Herwin Hein *(European Commission, JRC, ITU)*, Michael Holzhäuser *(European Commission, JRC)*, Joseph Somers *(European Commission, JRC, ITU)*

9:45 a.m.
LIBS Depth Profiling of Oxide Layers on Alloy 617 and Haynes 230, Tae-Hyeong Kim, Jong-Il Yun *(KAIST)*

10:10 a.m.
Fabrication of Uranium Nitride Microsphere, Jae Ho Yang, Jae Soon Park, Jang Soo Oh, Jong Hun Kim, Dong-Joo Kim, Young Woo Rhee, Keon Sik Kim, Jong Man Park, Yang Hyun Koo *(KAERI-Korea)*

10:35 a.m.
Candidate Heavy Salt Systems for Accelerator-Driven Sub-Critical Molten Salt Fission, Peter McIntyre, Elizabeth Sooby *(Texas A&M Univ, Accelerator Research Facility)*, Prabhat Tripathy, Michael Simpson *(INL)*, Supathorn Phongikaroon *(University of Idaho/ Center for Advanced Energy Studies)*

11:00 a.m.
Finite Element Modeling of Irradiation Induced Swelling and Creep in Metallic Mini-plate Fuel—A Preliminary Study, D. Yun, G. L. Hofman, Y. S. Kim, A. M. Yacout, M. Stan *(ANL)*

Applications of Probabilistic Safety Assessment, sponsored by NISD. *Session Organizer:* Totju Totev *(ANL)*. *Chair:* Totju Totev

Senate Room
8:30 a.m.
Uncertainty Treatment of Fire Simulation Results, JongSeuk Park, ChangJu Lee *(KINS-Korea)*, Daeil Kang *(KAERI-Korea)*

8:55 a.m.
Seismic Susceptibility in Global Nuclear Plant Siting, Mark Reed *(MIT)*

9:20 a.m.
A Probabilistic Physics-of-Failure Approach to Common Cause Failures in Reliability Assessment of Structures and Components, Zahra Mohaghegh, Mohammad Modarres *(Univ of Maryland)*

9:45 a.m.
Using the Throughput, Reliability, Availability, and Maintainability (TRAM) Methodology to Predict and Relieve "Gridlock" in Process Plant Material Flow, J. J. Nutaro, J. C. Schryver, M. J. Haire, D. L. Lee *(ORNL)*

10:10 a.m.
Operational Frequency Analysis Model Supporting the QRA for Risk-Informing the Design of a Waste Processing Facility, Michael G. Wentink *(Bechtel)*, Kevin R. O'Kula, H. A. Ford, C. Ray Lux, H. Carl Benhardt *(URS Safety Management Solutions)*

10:35 a.m.
Development of a SAUNA-TEXAS Coupled System for a FCI Uncertainty Analysis, S. H. Park, K. I Ahn, H. D. Kim *(KAERI)*

TUESDAY, NOVEMBER 1, 2011, 1:00 P.M.

Uncertainty Quantification and Sensitivity Analysis, sponsored by MCD. *Session Organizer:* Patrick Brantley *(LLNL)*. *Chair:* Jean Ragusa *(Texas A&M)*

Ambassador Ballroom
1:00 p.m.
Verification Tests for Uncertainty Quantification and Sensitivity Analysis Studies, Youngsuk Bang, Hany S. Abdel-Khalik *(NCSU)*

1:25 p.m.
Gradient Enhanced Bayesian MARS for Regression and Uncertainty Quantification, Hayes F. Stripling, Ryan G. McClarren *(Texas A&M)*

1:50 p.m.
Response Surface Modeling with Subspace-Enhanced Regression Analysis, Youngsuk Bang, Hany S. Abdel-Khalik *(NCSU)*

2:15 p.m.
On Rank Determination for Subspace Methods, Chris Kennedy *(NCSU)*, Cristian Rabiti *(INL)*, Hany Abdel-Khalik *(NCSU)*

2:40 p.m.
Nuclear Data Error Propagation in Fusion Benchmark Calculations, Edward A. Read *(Univ of Utah)*, Luiz C. Leal, Keith C. Bledsoe, Bernadette L. Kirk *(ORNL)*, Cassiano R. E. de Oliveira *(Univ of New Mexico)*

3:05 p.m.
Uncertainty Quantification of Few Group Diffusion Theory Constants from the B_1 Theory-Augmented Monte Carlo Method, Ho Jin Park, Hyung Jin Shim, Han Gyu Joo, Chang Hyo Kim *(Seoul Natl Univ-Korea)*

3:30 p.m.
On the Propagation of Uncertainties in High Dimensional Models, Youngsuk Bang, Christopher Kennedy, Hany S. Abdel-Khalik *(NCSU)*

Planning and Preparedness for Long-Term Recovery Operations Following Radiological and Nuclear Events—II: Topical Issues–Panel, sponsored by ESD. *Session Organizer:* S. Y. Chen *(ANL)*. *Chair:* S. Y. Chen

Empire Ballroom
1:00 p.m.
The 9/11 event of 2001 at New York City led to extensive efforts to strengthen the response to various postulated scenarios involving the use of radiological dispersal devices and/or improvised nuclear devices. However, a recent report by the U.S. General Accountability Office has highlighted certain

deficiencies in the nation's ability to address the long-term recovery issues associated with such postulated events. Considerable effort is therefore needed to fill this gap. This session provides an overview of ongoing work and the progress achieved in this area.

PANELISTS:
- Lake Barrett *(Consultant)*
- John Kelly *(DOE)*
- Andrew Wallo *(DOE)*
- Rick Jones *(Consultant)*
- S. Y. Chen *(ANL)*

Thermal Hydraulics: General—I, sponsored by THD.
Cochairs: Don Todd *(Numerical Applications)*, David Aumiller *(Bettis Laboratory)*

Diplomat Ballroom
1:00 p.m.
Jet Mixing Analysis for SRS High-Level Waste Recovery, S. Y. Lee *(SRNL)*, S. Hyun *(Mercer University)*

1:20 p.m.
Ex-Vessel Molten Core Solidification Behavior by MPS Method, T. Kawahara, Y. Oka *(Waseda University)*

1:40 p.m.
Method for Experimental Acquisition of Hydraulic Induced Plastic and Elastic Test Plate Deformation, W. R. Marcum *(Oregon State Univ)*, A. M. Phillips, R. G. Ambrosek, R. E. Spears, J. D. Wiest *(INL)*

2:00 p.m.
Simulation of Air Ingress Scenario in the VHTR Lower Plenum, Jessica Hartley, Carlos Estrada-Perez, Abdul Khan, Nathaniel Salpeter, Yassin Hassan *(Texas A&M)*

2:20 p.m.
Axial Gas Dispersion and Heat Transfer Coefficient in a Pebble Bed Reactor, Rahman S. Abdulmohsin, Muthanna H. Al-Dahhan *(Missouri University of Science and Technology)*

2:40 p.m.
Study on Natural Convection Capability of Liquid Gallium for PDRC, Sarah Kang, Seong Won Lee, Sung Dae Park, Ji Hyun Kim, In Cheol Bang *(UNIST)*

3:00 p.m.
Effects of Chemicals and Heater Orientation for Pool Boiling CHF of the Graphene-Oxide Nanofluid, Sung Dae Park, Sarah Kang, Seung Won Lee, Seong Man Kim, In Cheol Bang *(UNIST)*

3:20 p.m.
Critical Heat Flux Enhancement in Low Flow Boiling of Al_2O_3 Nanofluids Under Atmospheric Pressure, Seung Won Lee, Sung Dae Park, Sarah Kang, Seong Man Kim *(UNIST)*, Dong Won Lee *(KAERI-Korea)*, In Cheol Bang *(UNIST)*

Current Activities in Reactor Physics Methods Validation Based on Experimental Measurements, sponsored by RPD.
Session Organizer: Mark DeHart *(INL)*. *Chair:* Mark DeHart

Palladian Ballroom
1:00 p.m.
Current Reactor Physics Benchmark Activities at the Idaho National Laboratory, John D. Bess, Margaret A. Marshall *(INL)*, Mackenzie L. Gorham *(Idaho State Univ)*, Joseph A. Christensen *(DOE)*, James C. Turnbull *(Idaho State Univ)*, Kimberly L. Clark *(UNLV)*

1:25 p.m.
Comparison of AETNA02 and PANAC11 BWR Core Simulators Using Traversing In-Core Probe Measurements, Brian Triplett *(GE Hitachi Nuclear)*, Baris Sarikaya, Gabriel Cuevas-Vivas *(Global Nuclear Fuel Americas)*

1:50 p.m.
Parameterization of the Idaho State University AGN-201M Reactor, Mackenzie Gorham *(Idaho State Univ)*, Eric Burgett *(Georgia Tech)*

2:15 p.m.
Progress on the Pool Critical Assembly Pressure Vessel Benchmark with PENTRAN, Christopher A. Edgar, Glenn E. Sjoden *(Georgia Tech)*

2:40 p.m.
Detector Material Effect on the Bell and Glasstone Correction Factor, Alberto Talamo, Yousry Gohar *(ANL)*

3:05 p.m.
Initial Validation Measurements to Support the Neutronics Modeling, Simulation, and V&V Upgrade for the Advanced Test Reactor, David W. Nigg, Joseph Nielson, Benjamin Chase, Troy Unruh, Kirk Stueve, Craig Jackson, Ron Murray *(INL)*

3:30 p.m.
Specificity of Experimental β_{eff} Evaluation for Reactor Physics Benchmarks, Evgeny Ivanov, Sophie Pignet *(IRSN)*

Licensing a Digital Upgrade–Panel, sponsored by OPD.
Session Organizer: Scott Patterson *(PG&E)*. *Cochairs:* Scott Patterson *(PG&E)*, Sacit Cetiner *(ORNL)*

Cabinet Room
1:00 p.m.
Interim Staff Guidance 6, ISG-06, Rev 1 was approved in January 2011 and is available to help guide a licensee through the License Amendment Request process for a digital upgrade. Diablo Canyon is a pilot plant for this process and is submitting a License Amendment Request to replace the Process Protection System. This session will provide an update on experience with ISG-06 both from an industry and the NRC staff perspective. This session will also discuss the lessons learned with generating and submitting the Phase 1 documents required by ISG-06.

PANELISTS:
- Lessons Learned from Using ISG-06 for Phase 1, Ken Schrader *(PG&E Licensing)*
- Update on Diablo Canyons LAR, John Hefler *(Altran)*
- International Perspective, Ted Quinn *(Technology Resources)*
- RPS/ESFAS Solutions, Gregg Clarkson *(representing Wolf Creek)*
- ISG-06; Information to be Provided, Richard Stattel *(NRC)*

On-Line Monitoring to Prognostics for Light Water Reactors, sponsored by HFICD. *Session Organizer:* Leonard J. Bond *(PNNL)*. *Chair:* Leonard J. Bond

Forum Room
1:00 p.m.
On-Line Monitoring to Prognostics: What Are the Major Research Needs for LWRS?, Wes Hines, Belle Upadhyaya *(Univ of Tennessee)*

1:20 p.m.
Recent Demonstrations of On-line Condition Monitoring Techniques for Research Reactors, H. M. Hashemian, Edwin Riggsbee, Ryan D. O'Hagan *(AMS)*, invited

1:40 p.m.
Adaptive Health Monitoring System for New Plant Designs, Jamie Coble *(PNNL)*, Matt Humberstone *(NRC)*, Wes Hines *(Univ of Tennessee)*

2:00 p.m.
Prognosis of Remaining Useful Life for Large, Oil-Filled Transformers, Jamie Coble *(PNNL)*, Eric Strong, Siobhan O'Reilly, J. Wesley Hines *(Univ of Tennessee)*

2:20 p.m.
Advanced Surveillance Scheme for the US-APWR Digital I&C Safety Systems, Windell Cox, Richard P. Samples, Hiroshi Shirasawa *(Mitsubishi Nuclear Energy Systems, Inc.)*

2:40 p.m.
Tandem Acoustic Emission and Guided Ultrasonic Waves for Online Monitoring of Material Degradation, Ryan M. Meyer, Pradeep Ramuhalli *(PNNL)*, Stephen E. Cumblidge *(NRC)*, Steven R. Doctor, Leonard J. Bond *(PNNL)*

3:00 p.m.
An Assessment of Prognostics Architectures for Nuclear Applications, Nancy J. Lybeck, Magdy S. Tawfik *(INL)*, Leonard J. Bond, Pradeep Ramuhalli *(PNNL)*

3:20 p.m.
Nuclear Structural Materials Degradation and Remaining Life Assessment Using Integrated Diagnostics and Prognostics, Pradeep Ramuhalli, Jeffrey W. Griffin, Mukul Dixit, Jacob Fricke, Charles Henager Jr., Leonard J. Bond *(PNNL)*

Path Forward for Spent Fuel Management Blue Ribbon Commission and the Next Step-Panel, sponsored by FCWMD. *Session Organizer:* Charles Forsberg *(MIT)*. *Cochairs:* Charles Forsberg *(MIT)*, Steve Nesbit *(MIT)*

Hampton Ballroom
1:00 p.m.
The Blue Ribbon Commission has made its recommendations to the Secretary of Energy and Congress on future directions of the fuel cycle and waste management in the United States. Members of the Blue Ribbon Commission and stakeholders will present and discuss their interpretations and perspectives on the BRC results and conclusions.

PANELISTS:
- Per Peterson *(Univ of California, Berkeley)*
- Dave Jones *(AREVA)*
- Everett Redmond *(NEI)*
- Brian O'Connell *(NARUC)*
- Charles Forsberg *(MIT)*

Kent W. Hamlin Memorial Session—Best of CONTE 2011, sponsored by ETWDD. *Session Organizer:* John Bennion *(General Electric Hitachi)*. *Chair:* Richard Coe *(Thomas Edison State College)*. All invited.

Calvert Room
1:00 p.m.
Computer-Based Simulator Critique and Evaluation Database, Timothy Borgen *(Xcel Energy)*

1:20 p.m.
Operations Training Program: Quad Cities and UW Nuclear Reactor Lab, Robert Agasie, Michelle Blanchard *(UW Nuclear Reactor Lab)*, Jeremy Bries *(Exelon Quad Cities Nuclear Power Generating Station)*

1:40 p.m.
Standardized Task Evaluation Process and Progress, Don Cullers (EPRI), Mike Desilets *(Entergy)*, Burl McCosh *(INPO)*

2:00 p.m.
Implementing a Two-State Nuclear Workforce Development Strategy, Mindy Mets *(SRS Community Reuse Org)*

2:20 p.m.
Process and Management Improvement Using SharePoint, Gregory Maisel, Gerald Hollingsworth *(The Westwind Group)*

2:40 p.m.
Nuclear Simulator Development and Use at Virginia Commonwealth University, Ross Anderson, A. Vennie Filippas, Sama Bilbao y Leon, Gary Tepper *(Virginia Commonwealth Univ)*

3:00 p.m.
Successful Educational Partnership Expands to Bridge Associate Degree Programs with Engineering Degree Programs, James H. Auld *(Florida Power & Light Co.)*, Jose L. Farinos *(Indian River State College)*, Gilbert J. Brown *(Univ of Massachusetts Lowell)*

3:20 p.m.
The Integration of the Nuclear Excellence Model and the NextEra Energy Leadership Academy, Daniel G. Roy *(NextEra Energy)*

3:40 p.m.
Online Education and Prior Learning Assessment—Powerful Combination to Develop Degreed Workers, Scott A. Bates *(EPCE)*, Jane LeClair *(Excelsior Coll)*

Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—I, sponsored by NCSD. *Session Organizer:* Pran Paul *(Y-12 NSC)*. *Chair:* Chris Haught *(Oak Ridge Y-12 Plant)*

Capitol Room
1:00 p.m.
Nuclear Criticality Safety Strategic Vision for Y-12 Enriched Uranium Operations, R. Scott Underwood, Jr. *(B&W Y-12)*

1:25 p.m.
Improvements to the Interface Between Facility Safety and Criticality Safety at Y-12 NSC, Chris Haught *(B&W Y-12)*

1:50 p.m.
The Evaluation of Infinite Thickness Reflectors for Neutron Generator Active Interrogation Measurements, Dennis A. Tollefson *(Navarro Research and Engineering, Inc.)*, Scott L. Creasey, Ralph V. DeMeglio *(B&W Y-12 Technical Services L.L.C.)*, John T. Mihalczo *(ORNL, UT-Battelle, LLC)*

2:15 p.m.
Integration of Criticality Safety into the Uranium Processing Facility Design, Barbara Krögfuss *(B&W Y-12)*

2:40 p.m.
Design Alternatives for Nuclear Criticality Safety Instrumented Systems, Julia W. Insalaco, Barbara I. Krogfuss, Danny A. Walker *(B&W Y-12)*

3:05 p.m.
Method of Determining Subcritical H/D Ratios for Cylindrical Systems, Daniel F. Hollenbach, Richard G. Taylor, Cindy J. Shields *(Y-12)*

3:30 p.m.
Transformation of the Y-12 Nuclear Criticality Safety Committee, Douglas W. Croucher *(The Croucher Group, Inc.)*, John Gertsen *(B&W Y-12)*

Walk the Talk, Ethics in Professional Engineering–Panel, sponsored by RPSD. *Session Organizer:* Robert Hayes *(WIPP)*. *Chair:* Robert Hayes

Council Room
1:00 p.m.
This session explores the hard-to-quantify subject of ethics in engineering. Panelists are selected from individuals who are either licensed professional engineers, involved with the ANS ethics committee (generating the ANS code of ethics), or are otherwise felt to have something meaningful to offer the society when addressing this potentially foreboding subject. The RPSD chooses to support development, investigation into, and promotion of ethics in our profession by sponsoring such focus through this recurring winter panel session at national meetings.

PANELISTS:
- Covering Up Your Mistakes, Carl Mazzola *(Shaw Environmental Inc)*
- Practicing What You Preach, Eric Burgett *(Idaho State Univ)*
- Are Ethics Relative or Subjective, and if so, When? Russell Johns *(LANL)*
- Maintaining the Commitment to Ethics, Nolan Hertel *(Georgia Tech. Univ)*
- Compromise, the Good, the Bad, and the Ugly, Rebecca Steinman *(Advent, a Tetra Tech Company)*
- Safety, Quality, Regulatory Compliance, and Ethics, Michelle Ferenci *(Penn State Hershey Cancer Institute)*
- Keynote, Walk the Talk, Vic Uotinen *(ANS Ethics Committee past Chair)*

Best of DD&R 2010 Topical Meeting–Panel, sponsored by DD&RD. *Session Organizer:* James Byrne *(Byrne & Assoc)*. *Chair:* James Byrne *(Byrne & Assoc)*

Governors Room
1:00 p.m.
The purpose of this session is to provide a forum at an ANS national meeting for some of the best papers presented at the DD&R 2010 Topical Meeting. The papers will cover a range of subjects and have been judged by their peers as the most interesting and timely papers presented at the Topical Meeting.

- The Decommissioning of AECL's Heavy Water Upgrading Plant, K. Schruder *(AECL)*
- Evolving Adjustments to External (Gamma) Slope Factors for CERCLA Risk and Dose Assessments, Stuart Andrew Walker *(U.S. EPA)*
- Innovative ALARA Tools and Work Practices Used at DOE Hanford Site, Larry Otis Waggoner *(Lancs Industries)*
- Honoring the Ghosts of Programs Past: Managing INL Historic Structures in the D&D Era, Julie Braun Williams *(Battelle Energy Alliance)*
- Progress in Remote Dismantling of the Medium and High Active Waste Storage Tanks of the German Prototype Spent Fuel Reprocessing Plant Karlsruhe, Klaus Hendrich *(Wak-gmbh)*
- La Crosse BWR Reactor Pressure Vessel Removal, Michael Brasel *(Dairyland Power Cooperative)*

Materials Science and Technology: General, sponsored by MSTD. *Session Organizer:* Ken Geelhood *(PNNL)*. *Chair:* Arthur Motta *(Penn State)*

Embassy Room
1:00 p.m.
A Methodology Supporting the Risk-Informed Management of Materials Degradation, Stephen D. Unwin, Peter P. Lowry, Michael Y. Toyooka *(PNNL)*

1:25 p.m.
The Stochastic Character of CA Corrosion Model on its Predictions, Kuan-Che Lan *(Natl Tsing Hua Univ)*, Yitung Chen *(UNLV)*, Ge-Ping Yu *(Natl Tsing Hua Univ)*, Tzu-Chen Hung *(Natl Taipei Univ of Technol)*

1:50 p.m.
An Experimental Study on Corrosion Behavior of SS 316L in Liquid Gallium and Gallium Alloys, Sang Hun Shin, Jong Jin Kim, In Cheol Bang, Ji Hyun Kim *(UNIST)*

2:15 p.m.
Ab-initio Calculation of Diffusion of Atomic Oxygen in Ni and Ni-Cr, Jong Jin Kim *(Ulsan Natl Inst Sci Tech)*, Ji Hyun Kim *(UNIST)*

2:40 p.m.
A New Joining Technology for Closure of Radioactive Materials Containers, Gary R. Cannell *(Fluor Enterprises Inc.)*, Glenn J. Grant *(PNNL)*, Thad Adams *(SRNL)*

3:05 p.m.
In Situ TEM Study of Xe Implantation in Pure Mo Single Crystal, D. Yun, M. A. Kirk, J. Rest, A. M. Yacout, Z. Insepov *(ANL)*

The Effect of Selected Aging Topics on Nuclear Reactor Safety–Panel, sponsored by NISD. *Session Organizer:* Herbert Massie *(DNFSB)*. *Chair:* Herbert Massie

Senate Room
1:00 p.m.
The nuclear industry has been accused of relaxing safety requirements as the plants age. However, each plant has to be maintained by the owners including annual updates of the safety analysis reports (SAR). Also, the majority of the commercial nuclear reactors have obtained (or are in the process of obtaining) license renewals under 10 CFR 54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants. In spite of the Fukushima accident in Japan, the nuclear industry has a good overall safety record. There is always room for improvement such as incorporation of lessons learned from the Davis Besse reactor head incident and recently the Fukushima accident, which may have implications for Beyond Design Basis Accidents and severe accident mitigation guidelines.

PANELISTS:
- Gene Carpenter *(NRC)*
- Mike Semmler *(Westinghouse)*
- James Carneal *(GE Hitachi)*
- Jim Riley *(NEI)*
- Richard Reister *(DOE)*
- Totju Totev *(ANL)*

TUESDAY, NOVEMBER 1, 4:00 P.M.

Computational Methods, Uncertainty Quantification, and Sensitivity Analysis, sponsored by MCD. *Session Organizer:* Patrick Brantley *(LLNL)*. *Chair:* Cristian Rabiti *(INL)*

Ambassador Ballroom
4:00 p.m.
Heuristic Approach for ESM-Based Reduced Order Modeling, Jason Hite, Youngsuk Bang, Congjian Wang, Hany Abdel-Khalik *(NCSU)*

4:25 p.m.
Dimensionality Reduction in Global Nonlinear Optimization, Jason M. Hite, Hany S. Abdel-Khalik *(NCSU)*

4:50 p.m.
Order Reduction Approach for Generalized Perturbation Theory, Congjian Wang, Hany S. Abdel-Khalik *(NCSU)*

5:15 p.m.
Evaluation of Correlations Among Uncertainties of Core Neutronic Parameters in Infinite Slab Geometry, Yoshihiro Yasue, Tomohiro Endo, Akio Yamamoto *(Nagoya Univ)*, Yasuhiro Kodama, Yasunori Ohoka *(Nuclear Fuel Industries Ltd.)*, Masahiro Tatsumi *(Nuclear Fuel Industries, Ltd)*

Transportation Options for the Future–Panel, sponsored by ESD. *Session Organizer:* Linda Gaines *(ANL)*. *Chair:* Linda Gaines

Empire Ballroom
4:00 p.m.
About one-third of the energy consumption in industrialized nations is for transportation, and most of this is in the form of liquid fuels from petroleum. This session will address the various options to supply motive power without the combustion of fossil fuels, with the aim of reducing both oil imports and CO_2 emissions. Among the criteria to be taken into account are economic viability and other costs to society. Of particular interest is how and to what extent nuclear energy could be used to replace combustion of fossil fuels.

PANELISTS:
- Introduction and Overview, Linda Gaines *(ANL)*
- The DOE Transportation Energy Futures Study, Jacob Ward *(DOE)*
- Novel Ways to Supply Power for Personal Transport, Ted Bohn *(ANL)*
- Novel Ways to Use Nuclear Energy for Transport, Charles Forsberg *(MIT)*

Thermal Hydraulics Code Verification and Validation, sponsored by THD. *Chair:* Paolo Ferroni *(Westinghouse)*

Diplomat Ballroom
4:00 p.m.
AETNA02 Thermal/Hydraulic Model Validation, Inseok Baek *(GE Hitachi Nuclear)*, Baris Sarikaya, Gabriel Cuevas-Vivas, Masatoshi Sugawara *(Global Nuclear Fuel Americas)*, Brian Triplett, Brian R. Moore *(GE Hitachi Nuclear)*

4:20 p.m.
Quantified PIRT and Uncertainty Quantification for Thermal Hydraulic Computer Code Validation, H. Luo, J. Luitjens, Q. Wu *(Oregon State Univ)*, Dana Kelly *(INL)*

4:40 p.m.
Modeling of Forced Convection Heat Transfer to Lead-Bismuth Eutectic in OpenFOAM, Roman Thiele, Henryk Anglart *(KTH)*

5:00 p.m.
Validation and Application of the 3D Coupled Code SPARKLE-2, Yuta Maruyama *(Mitsubishi Nuclear Energy Systems, Inc.)*, Manabu Maruyama, Junto Ogawa *(Mitsubishi Heavy Industries, Ltd.)*

5:20 p.m.
Validation on the SEPD Component of the TRACE Chinshan NPP Model with Startup Tests, Chun-Yu Chen, Chunkuan Shih *(Natl Tsing Hua Univ)*, Jong-Rong Wang, Hao-Tzu Lin *(INER)*

5:40 p.m.
The Inadvertent Startup of HPCI Transient Analysis of Chihshan BWR/4 Using TRACE, Hao-Tzu Lin, Jong-Rong Wang *(INER)*, Chunkuan Shih *(Natl Tsing Hua Univ)*

6:00 p.m.
TRACE Analysis of LBLOCA in Maanshan Nuclear Power Plant, Jung-Hua Yang, Wei Chen *(Natl Tsing Hua Univ)*, Jong-Rong Wang *(INER)*, Chunkuan Shih, Hao-Tzu Lin *(Natl Tsing Hua Univ)*

Nuclear Fuel Resources and Sustainability, sponsored by FCWMD. *Session Organizers:* G. D. DelCul, L. K. Felker *(ORNL)*. *Chair:* L. K. Felker

Hampton Ballroom

4:00 p.m.
Uranium Recovery from Fossil-Fuel Carbon-Dioxide Sequestration Operations, Charles Forsberg *(MIT)*

4:25 p.m.
Assurance of Nuclear Fuel Fabrication Services, Thomas Wood, Amy Seward, Chris Toomey, Casey Perkins *(PNNL)*

4:50 p.m.
Eliminating Uranium Mill Tailing Cells by Radium Removal, Adam Ryan, Mark A. Pierson *(Virginia Tech)*

5:15 p.m.
System Analysis of Ultra-High Burnup Fast Reactor Systems, G. Blanchard *(École Polytechnique)*, A. M. Yacout, T. K. Kim, T. A. Taiwo *(ANL)*

International Workforce Development Needs–Panel, sponsored by ETWDD. *Session Organizer:* Larry Foulke *(retired)*. *Cochairs:* Larry Foulke *(retired)*, Jennifer Reichert *(CDRF Global)*

Calvert Room
4:00 p.m.
According to the IAEA, about 60 nations (pre-Fukushima) are interested in building their first nuclear power plant. If even half of these countries go forward, the need for workforce and infrastructure development will be most important, and the human capacity challenges will be different in different countries. Clearly, the establishment of a nuclear security, safeguards, and safety culture will be vital for international and environmental security and the long-term health of global nuclear power. This panel will feature remarks from invited panelists about workforce needs and plans for meeting those needs.

PANELISTS:
- Workforce Development in the United Kingdom, Andy Clarke *(University of Manchester)*
- Overview of U.S. Engagement in International Workforce Development, Jennifer Reichert *(CRDF Global)*
- New Hire Competencies Needed by Nuclear Utilities, Henry W. Brandhorst, Jr. *(Auburn University)*
- Nuclear Workforce Developments in the Middle East and North Africa, Youssef Shatilla *(MASDAR Institute of Science and Technology)*
- The World Nuclear University—Achievements and Perspectives, Francois Perchet *(The World Nuclear Univ)*
- The International Graduate School of Nuclear Power Plant Engineering, Jae Young Yang *(KEPCO)*
- Workforce Development Issues Related to Nuclear Nonproliferation and International Educational Partnerships, Gilbert J. Brown *(Univ of Massachusetts Lowell)*
- Organizing to Educate the International Workforce, Marie-Francoise Debreville *(AREVA)*

Environment Impacts of Disposal, sponsored by ESD. *Chair:* C. E. Carpenter *(NRC)*

Capitol Room

4:00 p.m.
Development of a Risk Informed Approach to D&D Priority Setting for Department of Energy Surplus Facilities, James H. Clarke, Charles W. Powers, David S. Kosson *(Vanderbilt Univ)*

4:25 p.m.
D&D Plan: Objectives, Methodology and Results for APM, Daniel Seisson, Jean-Luc Gerber *(CEA)*

4:50 p.m.
Impact of Anthropogenic Climate Change on Near Surface Disposal Facilities, Roneisha Worthy, Mark D. Abkowitz *(Vanderbilt Univ)*, Craig H. Benson *(Univ of Wisconsin, Madison)*, James H. Clarke *(Vanderbilt Univ)*

Advances in Nuclear Forensics: Research, Applications, and New Educational Programs, sponsored by IRD. *Chair:* Stephen S. LaMont *(LANL)*

Council Room
4:00 p.m.
Short-Pulse Laser Spectroscopy for Nuclear Forensics, P. Ko, I. Jovanovic *(Penn State)*

4:25 p.m.
Monte Carlo Modeling of Compton Suppression for Spent Fuel Material Accountancy, Sarah Bender, Kenan Ünlu *(Penn State)*, Christopher Orton *(PNNL)*

4:50 p.m.
Real-Time Alpha Detection for the Monitoring of Actinides in an Airflow, William Culbreth, Daniel Lowe, Robert O'Brien *(UNLV)*

5:15 p.m.
A Second-Generation Low-Background Gamma Spectrometer, Richard M. Lindstrom *(NIST)*

5:40 p.m.
Provenance of Plutonium and Cesium-137 in Soil Samples Collected in New Mexico and Colorado, Stephen P. LaMont, Robert E. Steiner, Fred R. Roensch, Russ Gritzo *(LANL)*

Regulatory Gaps for the Sodium Reactor, a DOE Perspective–Panel, sponsored by NISD. *Chair:* Matthew Denman *(SNL)*

Embassy Room
4:00 p.m.
Since EBR-I, sodium reactors have been designed, built, tested, analyzed, and refined within the DOE/AEC complex with the objective of creating a licensable commercial reactor design. In an effort to both promote knowledge capture and create a research roadmap for the sodium reactor for the future, DOE embarked on a series of five gap analysis reports to identify gaps and weaknesses in the existing licensing case. These reports focused on Source Term, Sodium Technology, Accident Sequence Characterization, Codes/Methods, and Fuels/Materials. This panel will discuss the conclusions of these five reports.

PANELISTS:
- Michael Corradini *(Univ of Wisconsin)*
- Dana A. Powers *(SNL)*
- Leon C. Walters *(Advanced Reactor Concepts, LLC)*
- Rodney C. (Rod) Schmidt *(SNL)*
- John I. Sackett *(INL)*

Molten Salt Reactor Safety, sponsored by NISD. *Chair:* John Abrefah *(DNFSB)*

Senate Room
4:00 p.m.
Single Fluid Molten Salt Actinide Recycler and Transmuter: Fuel Cycle and Safety Related Issues, Victor Ignatiev, Olga Feynberg *(NRC "Kurchatov Institute", Institute of Nuclear Reactors)*, invited

4:25 p.m.
Molten Salts: Common Nuclear and Concentrated-Solar-Thermal Power Technologies, Charles Forsberg *(MIT)*

4:50 p.m.
Application of NF_3 Use for Purifying Molten Salt Reactor Coolant and Heat Transfer Fluoride Salts, Randall D. Scheele, Andrew M. Casella *(PNNL)*

Fukushima—Evaluation and Impacts–Panel, sponsored by OPD. *Chair:* Steven Stamm *(Shaw Nuclear)*

Governors Room
4:00 p.m.
Numerous regulatory bodies and plant owners are evaluating the events at Fukushima and assessing changes in regulatory requirements and features needed for beyond design basis events due to the events at Fukushima. The U.S. Nuclear Regulatory Commission (NRC) report is due in the early fall of this year. The U.K. evaluation report was scheduled to be issued in September 2011. The EU plant owners are evaluating plant susceptibilities using a stress test process. This session will explore the results from these and other evaluations. It is planned to draw speakers from NRC, U.K. Nuclear Installations Inspectorate, IAEA, and INPO.

PANELISTS:
- Maria Korsnick/Dennis Koehl *(U.S. Industry Steering Committee)*
- Jim Lyons *(IAEA)*
- Representative from U.K. Nuclear Installation Inspectorate to be determined
- Santiago San Antonio *(TECHNATOM, S.A.)*
- Jack Grobe *(NRC)*

Technical Sessions by Day: Wednesday

WEDNESDAY • NOVEMBER 2, 2011

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:00 AM – 11:30 AM	**SMR 2011: PLENARY SESSION—2**
8:00 AM – 3:30 PM	**DDRD SPECIAL EVENT:** • Radium Girls and D&D of Their Legacy–Panel, Offsite Session onboard the Nuclear Ship Savannah in Baltimore *(see page 9 for additional information)*
8:30 AM – 11:30 AM	**2011 ANS WINTER MEETING: TECHNICAL SESSIONS** • Transport and Computational Methods • Understanding Subsurface Radionuclide Contamination at Commercial Nuclear Power Plants–Panel • Young Professional Thermal Hydraulics Research Competition—I • Reactor Physics Design, Validation, and Operating Experience • Nuclear Energy Growth in Emerging Markets–Panel • Digital Instrumentation and Control in Research Reactors • Used Fuel Component Recycle to Minimize Wastes and Recover Valuable Materials • Education and Training and Workforce Development: General • Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—II • Data Analysis in Nuclear Criticality Safety—II • Computational Resources in Radiation Protection and Shielding • Is There a Need to Reestablish Radioecology Education and Training in the United States?–Panel • Aerospace Nuclear Science and Technology: General
8:30 AM – 11:30 AM	**YPC 2011: TECHNICAL SESSION**
1:00 PM – 4:00 PM	**2011 ANS WINTER MEETING: TECHNICAL SESSIONS** • Subsurface Radionuclide Contamination: What are the Long-Term Concerns?–Panel • Young Professional Thermal Hydraulics Research Competition—II • Reactor Analysis Methods • Domestic Perspectives on Nuclear Energy Growth in the U.S. and Around the World–Panel • Nuclear Nonproliferation International Safeguards (NNIS) Graduate Fellowship Program: NNIS Fellows Perspective on Specializing in Nuclear Nonproliferation Technology and Policy in a Doctoral Program–Panel • Therapeutic Beams-The Wider I/O Chain (1:00 PM–3:00 PM) • Monte Carlo Simulations Demonstrated Using FLUKA–Tutorial (3:00 PM–6:00 PM) • Recent Nuclear Criticality Safety Program Technical Accomplishments • Monte Carlo Dice Seminar–Tutorial • Computational Methods and Mathematical Modeling • Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial and Space Applications • Tutorial on Proposed ANS 10.7, Non-Real Time, High Integrity Software for the Nuclear Industry—Requirements for Software Developers, ANSI/ANS-10.7-201X • Methods for Nonproliferation Risk Assessment and Safeguards–Next Generation Technology Applications
1:00 PM – 4:00 PM	**YPC 2011: TECHNICAL SESSION**
1:00 PM – 5:00 PM	**SMR 2011: TECHNICAL SESSIONS**
4:00 PM – 4:30 PM	**YPC 2011:** "Capitol Hill Visit Orientation"
4:30 PM – 6:00 PM	**PUBLIC INFORMATION WORKSHOP**
7:30 PM – 10:00 PM	**EVENING EVENT:** "Dinner with Entertainment by the Capitol Steps"

WEDNESDAY, NOVEMBER 2, 2011, 8:30 A.M.

Transport and Computational Methods, sponsored by MCD. *Session Organizer:* Patrick Brantley *(LLNL). Chair:* David Griesheimer *(Bettis Atomic Power Laboratory)*

Ambassador Ballroom
8:30 a.m.
Deterministic Cost Optimization of Monte Carlo Weight-Window Variance-Reduction Parameters, C. J. Solomon, A. Sood, T. E. Booth *(LANL)*, J. K. Shultis *(Kansas State Univ)*

8:55 a.m.
Parameter Sensitivity Study on the Accuracy of Chord Length Sampling Method, Chao Liang, Wei Ji *(RPI)*

9:20 a.m.
A Levermore-Pomraning Algorithm for Implicit Monte Carlo Radiative Transfer in Binary Stochastic Media, Patrick S. Brantley, Nicholas A. Gentile, George B. Zimmerman *(LLNL)*

9:45 a.m.
The Method of Moments Applied to Spatially Continuous Transport Problems Involving Grids, Jeffery D. Densmore *(LANL)*

10:10 a.m.
Hp-FEM Automatic-Mesh Adaptivity Applied to Two Dimensional Neutron Diffusion, Kevin Dugan, Jean C. Ragusa, Damien Lebrun-Grandié *(Texas A&M)*

10:35 a.m.
A *p* Preconditioned GMRES Algorithm for Multigroup Variational Nodal Eigenvalue Problems, Yunzhao Li *(Xi'an Jiaotong Univ)*, E. E. Lewis (Northwestern Univ), Micheal A. Smith *(ANL)*

11:00 a.m.
Solution of the First-Order Form of the Multi-Dimensional Discrete Ordinates Equations on a Two-Level Heterogeneous Processing System, R. S. Baker, C. R. Ferenbaugh, B. R. Lally, J. A. Dahl *(LANL)*

Understanding Subsurface Radionuclide Contamination at Commercial Nuclear Power Plants–Panel, sponsored by ESD. *Session Organizer:* James Bollinger *(SRNL). Chair:* Todd C. Rasmussen *(UGA)*

Empire Ballroom
8:30 a.m.
Over the past several years, a few operating U.S. commercial nuclear power plants have experienced inadvertent releases of radionuclides to the subsurface. These releases have attracted considerable public attention and have resulted in on-site monitoring programs and consideration of remediation. ANSI/ANS Standard 2.17 has just been released that summarizes the state-of-the-art in addressing issues related to the characterization, monitoring, and analysis of abnormal

radionuclide releases and migration to groundwater. This consensus-based national standard was developed using technical experts from industry, academia, and state and federal agencies. The goal of the standard is to develop an understanding of the key features, events, and processes that control subsurface radionuclide transport.

PANELISTS:
- Industry Efforts to Address Recent Subsurface Releases, Sean Bushart *(EPRI)*
- NRC Region 1 Experiences with Abnormal Subsurface Releases, Jim Noggle *(NRC/R1)*, Thomas Nicholson *(NRC/RES)*
- Issues Associated with Insurance and Risk, Tom Wolff *(ANI)*
- Value and Application of ANSI/ANS 2.17, David Scott *(RSCS)*

Young Professional Thermal Hydraulics Research Competition—I, sponsored by THD. *Cochairs:* Elia Merzari *(ANL)*, Brian Collins *(Battelle)*

Diplomat Ballroom
8:30 a.m.
Scaling the NGNP Reactor Cavity Cooling System, Rodolfo Vaghetto, Yassin A. Hassan *(Texas A&M)*

8:50 a.m.
Model Uncertainty Quantification for Fuel Rod Damage Evaluation in SFRs, Marco Pellegrini, Yasushi Tsuboi, Hisashi Ninokata *(Tokyo Inst Technol)*, Hiroshi Endo *(Japan Nuclear Energy and Safety Organization)*, Woody Epstein *(Scandpower)*

9:10 a.m.
Scaling Analysis for the Direct Reactor Auxiliary Cooling System for AHTRs, X. Wang, Q. Lv, X. Sun, R. N. Christensen, T. E. Blue *(Ohio State)*, G. Yoder, D. Wilson *(ORNL)*, P. Sabharwall *(INL)*

9:30 a.m.
Design of a Scaled-Down DRACS Test Facility for an AHTR, X. Wang, Q. Lv, X. Sun, R. N. Christensen, T. E. Blue *(Ohio State)*, G. Yoder, D. Wilson *(ORNL)*, P. Sabharwall *(INL)*

9:50 a.m.
Ultra-Fast X-ray Visualization of Boiling Phenomena: Preliminary Demonstration, Craig Gerardi, Kamel Fezzaa *(ANL)*

10:10 a.m.
Helical-Cruciform Fuel Rods for High Power Density LWRs, T. M. Conboy *(SNL)*, T. J. McKrell, M. S. Kazimi *(MIT)*

10:30 a.m.
Full Core VHTR Steady State Thermal Hydraulic Simulation, Alex Huning, Srinivas Garimella *(Georgia Tech)*

10:50 a.m.
Multidimensional Modeling of Interfacial Boiling and Condensation, D. R. Shaver, S. P. Antal, M. Z. Podowski *(RPI)*

Reactor Physics Design, Validation, and Operating Experience, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* Gerardo Aliberti *(ANL)*

Palladian Ballroom
8:30 a.m.
The Rearrangement Method for Generating a New Loading Pattern Set in Multi-objective Simulated Annealing for Multi-cycle Optimization Problems, Tong Kyu Park *(Seoul Natl Univ/FNC Technol)*, Han Gyu Joo, Hyung Jin Shim, Chang Hyo Kim *(Seoul Natl Univ)*

8:55 p.m.
Spectral Characteristics of the Fuel Temperature Coefficient of CANDU Reactors, Gyuhong Roh *(KAERI-Korea)*, Yonghee Kim, Nam Zin Cho *(KAIST)*

9:20 a.m.
Calculation of FUGEN Power Coefficient of Reactivity Using AECL Reactor-Physics Toolset, D. Kastanya, M. Dahmani, A. Connolly, B. Fodor, A. Zkiek, A. Khaial *(AECL)*

9:45 a.m.
Utilization of AECL Reactor-Physics Toolset for Analyzing FUGEN Flux Distribution, D. Kastanya, B. Fodor, A. Zkiek, M. Dahmani, A. Connolly, A. Khaial *(AECL)*

10:10 a.m.
Knowledge Preservation at the Fast Flux Test Facility, David W. Wootan, Ronald P. Omberg *(PNNL)*, Bruce J. Makenas *(Ares Corporation)*, Deborah L. Nielsen, Joseph V. Nelson *(Indian Eyes)*, David L. Polzin *(CH2MHill PRC)*

10:35 a.m.
Model Benchmarking for Missouri S&T Reactor Part 1: Approach to Criticality and Axial Flux Profile, B. Richardson *(Missouri Univ Sci Technol)*, C. H. Castano *(Missouri S&T)*, J. King *(CSM)*, A. Alajo *(Missouri S&T)*, S. Usman *(Missouri Univ Sci Technol)*

11:00 a.m.
Model Benchmarking for Missouri S&T Reactor Part 2: Moderator Temperature and Void Coefficients of Reactivity, B. Richardson *(Missouri Univ Sci Technol)*, C. H. Castano *(Missouri S&T)*, J. King *(CSM)*, A. Alajo, S. Usman *(Missouri S&T)*

Nuclear Energy Growth in Emerging Markets–Panel, sponsored by OPD. *Session Organizers:* Edward L. Quinn *(Technology Resources)*, Jack Ramsey *(NRC)*. *Cochairs:* Edward L. Quinn, Jack Ramsey

Cabinet Room
8:30 a.m.
This session will provide an overview of progress and planning for utilization of nuclear energy in emerging markets and mature markets that are adding capacity after many years of operating nuclear plants. Speakers will be from the IAEA, energy companies, regulators, and industry consortiums that are supporting the growth of nuclear energy around the world. IAEA has been approached by 61 countries asking for help in developing nuclear

energy in their own countries. These countries are at all levels of experience in nuclear technologies from nuclear medicine, research, and test reactor experience. This session will focus on a broad spectrum of these countries looking at both countries with high levels and low levels of experience in nuclear science and technology.

PANELISTS:
- Jin Ho Lee *(KINS)*
- Mohd Zamzam Bin Jaafar *(Malaysia Nuclear Power Corp)*
- Leonam dos Santos Guimaraes *(Eletrobrás Termonuclear S/A)*
- Hashim bin Abdullah bin Hashim Al-Yamani *(King Abdullah City for Atomic and Renewable Energy)*

Digital Instrumentation and Control in Research Reactors, sponsored by HFICD. *Session Organizer:* Sacit M. Cetiner *(ORNL)*. *Chair:* Leroy A. Hardin, Jr. *(NRC)*

Forum Room

8:30 a.m.
A FPGA Based Neutron Monitoring System for Tsing Hua Open-Pool Reactor, Feng-ming Zhu, H. P. Chou *(National Tsing Hua Univ)*

8:55 a.m.
Research Reactor Control and Safety System Upgrade, Kevin L. Shaw *(ORNL)*

9:20 a.m.
Research Reactor Software Development Program, Kevin L. Shaw *(ORNL)*

9:45 a.m.
NCNR Control Room Modernization Phase I, Gerald J. Reyenga Jr. *(NIST)*

10:10 a.m.
Twenty Years of Experience with a Digital Control System at The Pennsylvania State University Research Reactor, Brenden J. Heidrich, M. E. Bryan *(Penn State)*

10:35 a.m.
Things to Consider When Upgrading a Non-Power Reactor to a Digital I&C System, M. D. Muhlheim *(ORNL)*, L. A. Hardin, Jr., D. A. Hardesty *(NRC)*, T. L. Wilson, Jr. *(ORNL)*

11:00 a.m.
Implementation of Digital Upgrades to the UFTR Protection and Control Systems, Geoffrey Bickford, Gabriel Ghita, Jason Lewis *(Univ of Florida)*

Used Fuel Component Recycle to Minimize Wastes and Recover Valuable Materials, sponsored by FCWMD. *Session Organizer:* Emory Collins *(ORNL)*, G. D. DelCul *(ORNL)*. *Chair:* Sheng Dai *(ORNL)*

Hampton Ballroom

8:30 a.m.
Use of NF_3 as the Fluorinating and Oxidizing Agent for a Fluoride Volatility Based Separations Process for Used Nuclear Fuel, Randall D. Scheele, Bruce K. McNamara, Andrew M. Casella *(PNNL)*

8:55 a.m.
Comparison of NF_3 and F_2 Reactivity on Uranium Metal, Bruce K. McNamara, Andrew M. Casella, Anne Kozelisky, Randall D. Scheele *(PNNL)*

9:20 a.m.
Kinetics of Separations of Volatile Fluorides from Used Fuel Using NF_3, Andrew M. Casella, Randall D. Scheele, Bruce K. McNamara *(PNNL)*

9:45 a.m.
Reactive Gas Recycle of Used Nuclear Fuel—Sulfur Hexafluoride, Ricardo D. Torres, Joshua R. Gray, Michael J. Martínez-Rodríguez, Paul S. Korinko, Brenda L. García-Díaz, Ann E. Visser, Thad M. Adams *(SRNL)*

10:10 a.m.
Diffusion Coefficient of Zr^{4+} in the Molten LiCl-KCl Eutectic System, Robert O. Hoover, Supathorn Phongikaroon *(Univ of Idaho)*, Michael F. Simpson, Tae-Sic Yoo *(INL)*

10:35 a.m.
Separation of CsCl from a Ternary CsCl-LiCl-KCl Salt Via a Zone Freezing Method, Ammon N. Williams, Supathorn Phongikaroon *(Univ of Idaho, Center for Advanced Energy Studies)*, Michael F. Simpson *(INL, Center for Advanced Energy Studies)*

11:00 a.m.
Study of Highly Concentrated Fission Product Sorption into Zeolite-A, James R. Allensworth, Man-Sung Yim *(NCSU)*, Michael F. Simpson *(INL)*

Education and Training and Workforce Development: General, sponsored by ETWDD. *Session Organizer:* John Bennion *(General Electric Hitachi)*. *Chair:* Jane LeClair *(Excelsior College)*

Calvert Room

8:30 a.m.
Advanced Test Reactor National Scientific User Facility Partnerships, Frances M. Marshall *(INL)*, Todd R. Allen *(Univ of Wisconsin, Madison)*, Jeff B. Benson, Mary Catherine Thelen *(INL)*

8:55 a.m.
Utilizing an Intensive Rotational Program for Early-Career Nuclear Engineers, Ryan Boscow, Andrew Prichard, Marisela Linares-Mendoza *(PNNL)*

9:20 a.m.
Virginia Commonwealth University's Visible Nuclear Reactor, Ross Anderson, A. Vennie Filippas, Sama Bilbao y Leon, Gary Tepper *(Virginia Commonwealth Univ)*

9:45 a.m.
Experience Teaching an Energy Storage Class as a Nuclear Engineering Course, George H. Miley, Magdi Ragheb, Nie Luo *(Univ of Illinois)*

10:10 a.m.
A Revolutionary Masters Degree Curriculum in Nuclear Environmental Engineering, Steven L. Krahn, David S. Kosson, James H. Clarke *(Vanderbilt Univ)*

10:35 a.m.
Pay Attention to the One Behind the Curtain: Engaged and Thinking Organizations, Jane LeClair, James R. (Randy) Fromm, Randall Braddock *(Excelsior Coll)*

11:00 a.m.
Training and Public Information Activities of Nuclear Training Center ICJT, Igor Jenčič *(Jožef Stefan Institute)*

Recent Advances in Criticality Safety Activities at the Y-12 National Security Complex—II, sponsored by NCSD. *Session Organizer:* Pran Paul *(Y-12 NSC)*. *Chair:* Chris Haught *(Oak Ridge Y-12 Plant)*

Capitol Room
8:30 a.m.
Productivity Techniques and Quality Aspects in the Criticality Safety Evaluation of Y-12 Type-B Fissile Material Packages, John F. DeClue *(B&W Technical Services)*

8:50 a.m.
Small-Angle Compton Scattering to Determine the Attenuation of Gamma Rays from HEU, Rick B. Oberer, Cynthia A. Gunn, Lisa G. Chiang, Michael C. Mattmann *(Y-12 NSC)*

9:10 a.m.
Improvements in Preventing Uranium Accumulations in Large Volume Machine Coolant Tanks, Bev A. Lomax, Jerry J. Lichtenwalter *(Y-12 NSC)*

9:30 a.m.
Innovations in CAAS and Emergency Planning/Response at Y-12 NSC, Peter L. Angelo *(Y-12 NSC)*

Data Analysis in Nuclear Criticality Safety—II, sponsored by NCSD. *Session Organizer:* Larry Wetzel *(Babcock & Wilcox-NOG)*. *Cochairs:* Thomas McLaughlin *(Consultant)*, Jerry Hicks *(DOE NNSA)*

Capitol Room
9:55 a.m.
US MOX IROFS Risk Ranking for Enhanced Criticality Safety, Michael J. Shea, Leslie E. Duncan, Robert G. Eble, Jeffrey R. Brault *(Shaw AREVA MOX Services)*

10:15 a.m.
Thermal Total Cross Section Measurement for ^{63}Cu and ^{65}Cu at the MIT Reactor, Vladimir Sobes, Ruaridh Macdonald *(MIT)*, Luiz Leal *(ORNL)*, Benoit Forget *(MIT)*, Klaus Guber *(ORNL)*, Gordon Kohse *(MIT)*

10:35 a.m.
MCNP6 Shielding Validation Suite: Past, Present, and Future, Brian C. Kiedrowski, Forrest B. Brown *(LANL)*, Nathan A. Gibson *(MIT)*, Alexander S. Bennett, Matthew A. Gonzales *(Univ of New Mexico)*

10:55 a.m.
Criticality Safety Student Training Program at DOE-ID, Adolf Garcia *(DOE, Idaho Falls)*, Mackenzie Gorham *(Idaho State Univ)*, Joseph A. Christensen *(DOE)*

NOTE: This session will immediately follow the preceding session, which will begin at 8:30 a.m.

Computational Resources in Radiation Protection and Shielding, sponsored by RPSD. *Session Organizer:* Eric Burgett *(Idaho State Univ)*. *Chair:* John Hendricks *(LANL)*

Council Room
8:30 a.m.
MCNPX NRF Library Release 6, T. Wilcox, G. W. McKinney, J. S. Hendricks, A. B. McKinney *(LANL)*, B. J. Quiter *(Univ of California, Berkeley)*

8:50 a.m.
New MCNPX Capabilities for Nuclear Safeguards, John S. Hendricks *(TechSource, Inc)*, Stephen J. Tobin *(LANL)*

9:10 a.m.
New MCNPX Capability for 3He Alternative Detectors, John S. Hendricks *(TechSource, Inc)*, Martyn T. Swinhoe, Stephen J. Tobin *(LANL)*

9:30 a.m.
An Introduction to TR-X: A Tool for Expediting MCNP Simulation & Analysis, Andrew J. Fallgren, Russell C. Johns, Laurie S. Waters *(LANL)*, Gregory G. Thoreson *(University of Texas, Austin)*

9:50 a.m.
MCNPX Correlated ENDF Neutron-Induced Photons, John S. Hendricks *(TechSource, Inc)*, Thomas H. Prettyman *(Planetary Science Institute)*

10:10 a.m.
Correlated Gammas from MCNPX Using CGM, T. Wilcox, G. W. McKinney, T. Kawano, J. S. Hendricks, M. L. Fensin *(LANL)*

10:30 a.m.
Accuracy of One-Dimensional Gamma-Ray Transport Calculations for Multidimensional Objects, Sarah Williams *(Univ of Michigan)*, Jeffrey A. Favorite *(LANL)*

10:50 a.m.
Use of Stochastic Geometry in MCNP Model of Novel Heterogeneous Radiation Shielding Material, Jonathan Toebbe, Zeev Shayer *(CSM)*

Is There a Need to Reestablish Radioecology Education and Training in the United States?–Panel, sponsored by ETWDD. *Session Organizer:* Craig Williamson *(SCUREF). Chair:* Craig Williamson *(SCUREF)*

Governors Room
8:30 a.m.
Over the course of the past three decades, colleges and universities in the United States have been disinvesting in programs that deal with the environmental effects of radioactivity. In addition, programs at U.S. national laboratories for ecological research on both the uses of radioactivity and the study of the effects of radiation in the environment have been in decline. This has occurred despite the fact that legacy materials from the nuclear weapons programs still have a long-term effect on reclaiming radioactively contaminated areas. And, it has also occurred during the time of two dramatic nuclear events at Chernobyl and Fukushima.

The panelists will focus their discussion on whether or not Radioecology research needs to receive more government and industry attention. This will include a historical review of radioecology, a discussion of the present needs in radioecological research, and whether or not there is a need to develop a new radioecology workforce.

PANELISTS:
- Tim Jannik *(SRNL)*
- Wendy Kuhne *(SRNL)*
- Kathy Higley *(Oregon State Univ)*
- Tom Hinton *(Inst for Radiation Protection and Nuclear Safety)*

Aerospace Nuclear Science and Technology: General, sponsored by ANSTD; cosponsored by RPD. *Session Organizers:* Shannon Bragg-Sitton *(INL)*, Martin Sattison *(ORNL). Cochairs:* Shannon Bragg-Sitton *(INL)*, Jeff King *(Colorado School of Mines)*

Embassy Room
8:30 a.m.
Pulsed Fusion Rocket —An Ultra High Isp Variable Thrust Deep Space Vehicle Powered by Inertial Electrostatic Confinement Fusion, George H. Miley, John Orcutt, Paul Keutelian, Ben Ulmen *(Univ of Illinois)*, Joshi Shresthra *(NPL Associates)*, Akshata Krishnamurthy *(Univ of Illinois)*

8:55 a.m.
Reactor Irradiation Issues for Restarting Plutonium-238 Production, Robert Wham, Randy Hobbs *(ORNL)*, Alice Caponiti *(DOE)*, Stephen Johnson, Bruce Schnitzler *(INL)*

9:20 a.m.
Single and Multichannel Analysis of Mars Hopper Concept, Christopher Koll, Andrew Klein *(Oregon State Univ)*

9:45 a.m.
Finite Difference Analysis of a Heat Pipe Cooled Fuel Pin, Wesley R. Deason, Richard C. Kurwitz *(Texas A&M)*

10:10 a.m.
Parametric Multiphysics Design Study of a Tungsten-Cermet NTR Core, Brad Appel *(Texas A&M)*, Jonathan A. Webb *(INL)*

10:35 a.m.
Engineering of Nuclear Thermal Propulsion System for Space Application, B. Halimi *(Seoul Natl Univ-Korea)*, Seung H. Nam *(Republic of Korea Air Force)*, Kune Y. Suh *(Seoul Natl Univ-Korea/PHILOSOPHIA)*

11:00 a.m.
Non-Nuclear Testing of Compact Reactor Technologies at NASA MSFC, Michael G. Houts, J. Boise Pearson *(NASA MSFC)*, Thomas J. Godfroy *(Maximum Technol Corpn)*

Radium Girls and the D&D of Their Legacy–Panel, sponsored by DD&RD. *Session Organizer:* Jay Peters *(Haley & Aldrich). Chair:* Jay Peters

Nuclear Ship Savannah Tour
8:00 a.m.
The use of radium for its luminescent properties was popular in the watch and dial manufacturing and repair industries during the early- and mid-20th century. The legacy of radium use has resulted in contamination of facilities that used radium-containing materials, as well as contamination of land from the processing and refining of radium. Significantly, the disposal of radium slag in soils that were subsequently used to fill in low lands for development has required D&D to address radium contamination in large multiblock sections of towns. This panel session will explore the D&D of legacy radium wastes including discovery and investigation, regulatory requirements, community impacts, and remediation technologies.

PANELISTS:
- Glenn Case *(Port Hope Area Initiative Management Office)*
- Steve Howard *(Cabrera Services)*
- Steve Workman *(ALS Lab)*
- Hans Honerlah *(USACE Baltimore District)*

NOTE: see page 9 for additional information

WEDNESDAY, NOVEMBER 2, 2011, 1:00 P.M.

Subsurface Radionuclide Contamination: What Are the Long-Term Concerns?–Panel, sponsored by ESD. *Session Organizer:* James Bollinger *(SRNL). Chair:* Thomas Nicholson *(NRC)*

Empire Ballroom
1:00 p.m.
With the exciting prospect of a "nuclear renaissance" due to growing power demands, and the need to replace existing nuclear and fossil-fuel facilities, additional programs to ensure groundwater protection are being proposed. To help guide these discussions, this session brings together a range of perspectives related to what types of programs would be effective, efficient, and protective of human and environmental health. Our goal is

to provide a forum for defining the future of ensuring the continued safety of nuclear facilities.

PANELISTS:
- Guidance for New Reactors on Groundwater Characterization and Monitoring, Richard Raione *(NRC/NRO/RHEB)*
- Canadian Perspective on Subsurface Contamination and Environmental Risk Assessments, Michael Rinker *(CNSC)*
- New Jersey State Perspective on Groundwater Protection and Monitoring, Pat Mulligan *(NJDEP)*
- NRC Review of Non-Routine Radioactive Releases to Soil, Groundwater Monitoring Programs, and the Path Forward, Richard Conatser *(NRC/NRR)*.
- EPA Perspective on Groundwater Monitoring, Remediation, and Protection, Matthew Charsky, Ronald Wilhelm *(EPA/HQ)*
- NRC Staff Guidance on Assessing Residual Radioactivity and the Need to Consider Remediation Prior to or During Decommissioning to Meet Regulatory Requirements, Jim Shephard *(NRC/FSME)*

Young Professional Thermal Hydraulics Research Competition—II, sponsored by THD. *Cochairs:* Rui Hu *(ANL)*, Wade Marcum *(Oregon State Univ)*

Diplomat Ballroom
1:00 p.m.
Uncertainty Quantification of Strongly Coupled Phenomena for BEPU Applications, Jeffrey W. Lane, D. L. Aumiller, Jr. *(BAPL)*

1:25 p.m.
Assessment of the Two-Group Interfacial Area Transport Equation in TRACE, Ted Worosz, Justin D. Talley, Seungjin Kim, John Mahaffy *(Penn State)*, Stephen M. Bajorek, Andrew Ireland *(NRC)*

1:50 p.m.
Simulation of Fission Gas Release in a Fuel Rod Bundle of a SFR, D. R. Shaver *(Rensselaer Polytechnic Inst)*, I. A. Bolotnov *(NCSU)*, S. P. Antal, M. Z. Podowski *(RPI)*

2:15 p.m.
Coherent Structure Analysis of Jet/Rod Interaction in a Staggered Rod Bundle, Noushin Amini, Yassin A. Hassan *(Texas A&M)*

2:40 p.m.
Considerations in High Fidelity Thermal Hydraulics Experiments for Code Validations, Nathaniel Salpeter, Yassin Hassan *(Texas A&M)*

3:05 p.m.
Measurement of Nucleate Pool Boiling with Synchronized Particle Imaging Velocimetry and Infrared Thermometry, X. Duan, B. Phillips, J. Buongiorno, T. McKrell *(MIT)*

3:30 p.m.
Toward Quantification of Debris Bed Coolability in Corium Risk Assessment, Liangxing Li, Weimin Ma *[Division of Nuclear Power Safety, Royal Institute of Technology (KTH)]*

Reactor Analysis Methods, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* Cristian Rabiti *(INL)*

Palladian Ballroom
1:00 p.m.
Verification of New Doubly-Heterogeneous Self-Shielding Method in SCALE, Deokjung Lee *(UNIST)*, Mark L. Williams, Brian J. Ade, Stephen M. Bowman *(ORNL)*

1:25 p.m.
Development of a Lattice Physics Code for Sensitivity Analysis Based on Generalized Perturbation Theory, Shinya Kato, Tomohiro Endo, Akio Yamamoto *(Nagoya Univ)*, Yoshio Kimura *(ChudenCTI Co.,Ltd.)*

1:50 p.m.
Application of Axial Discontinuity Factors for High Conversion Water Reactors, Bryan R. Herman, Eugene Shwageraus *(MIT)*

2:15 p.m.
Refinement of the Cross-Section Adjustment Method for Double Heterogeneity Problem in VHTGR Analysis, Sunghwan Yun, Nam Zin Cho *(KAIST)*

2:40 p.m.
Assembly Discontinuity Factor for Angular Flux in Transport Calculation, Akio Yamamoto, Tomohiro Endo *(Nagoya Univ)*

3:05 p.m.
New HELIOS2 Library for VHTR Calculations, Horia M. Gheorghiu, Charles A. Wemple *(Studsvik Scandpower)*

3:30 p.m.
PHISICS: New Features and Advancements, C. Rabiti, Y. Wang, G. Palmiotti, H. Hiruta, J. Cogliati, A. Alfonsi, A. Epiney, T. Grimmet *(INL)*

3:55 p.m.
GPT-Free Sensitivity Analysis for Eigenvalue Problems, Chris Kennedy *(NCSU)*, Cristian Rabiti *(INL)*, Hany Abdel-Khalik *(NCSU)*

4:20 p.m.
A Hybrid Variance Reduction Method Based on Gaussian Process for Core Simulation, Zeyun Wu, Qiong Zhang, Hany S. Abdel-Khalik *(NCSU)*

Domestic Perspectives on Nuclear Energy Growth in the U.S. and Around the World–Panel, sponsored by OPD. *Session Organizers:* Edward L. Quinn *(Technology Resources)*, Jack Ramsey *(NRC)*. *Cochairs:* Edward L. Quinn *(Technology Resources)*, Jack Ramsey *(NRC)*

Cabinet Room
1:00 p.m.
This session will provide an overview of progress and planning for utilization of nuclear energy in the U.S. and emerging markets around the world. Speakers from the Administration,

DOE, Department of State, NRC, and international representatives will address the growth of nuclear energy around the world, particularly after the events surrounding Fukushima.

PANELISTS:
- Laura Holgate *(National Security Council)*
- Jack Ramsey *(NRC)*
- Ed McGinnis *(DOE)*
- Peter Lyons *(DOE)*

Nuclear Nonproliferation International Safeguards (NNIS) Graduate Fellowship Program: NNIS Fellows Perspective on Specializing in Nuclear Nonproliferation Technology and Policy in a Doctoral Program–Panel, sponsored by FCWMD; cosponsored by NNTG. *Session Organizer:* Craig Williamson *(SCUREF)*. *Chair:* Craig Williamson

Hampton Ballroom
1:00 p.m.
The National Nuclear Security Administration's Office on Nonproliferation and International Security in 2010 established the Nuclear Nonproliferation International Safeguards Graduate Fellowship Program. This panel is composed of individuals who are a part of the first class of recipients of this award. They will discuss why they chose to specialize in nuclear nonproliferation as a research/career path. This discussion will include their perspective on how their chosen universities have adapted to their interests in this field.

PANELISTS:
- Perry Chodash *(Univ of California, Berkeley)*
- Jessica Feener *(Texas A&M)*
- Brenden Mervin *(Univ of Tennessee)*
- Mark Norsworthy *(Univ of Michigan)*
- Eric Forrest *(MIT)*
- Braden Goddard *(Texas A&M)*
- Christie Egnatuk *(Univ of Texas)*

Therapeutic Beams–The Wider I/O Chain, sponsored by BMD. *Session Organizer:* Mary Pik-Wai Chin *(CERN)*. *Chair:* Mary Pik-Wai Chin. All invited.

Calvert Room
1:00 p.m.
Photonuclear Dose from High Energy Medical Linear Accelerators, Omar Chibani *(King Faisal Specialist Hospital)*, Charlie C-M. Ma *(Fox Chase Cancer Center)*

1:20 p.m.
Monte Carlo Applications for Treatment Planning Calculations in Hadron Therapy, Andrea Mairani, Mario Ciocca *(CNAO)*, Katia Parodi *(HIT)*

1:40 p.m.
Fully Analog Monte Carlo: Will It Ever Be Possible?, Alberto Fassò *(Jefferson Lab)*, Mary Chin *(CERN)*

2:00 p.m.
A Dedicated Small Animal Proton Beam Delivery System for AMD Research, Bryan Bednarz, Thomas R. Mackie, Daniel M. Albert, Arthur S. Polans, Nader Sheibani *(Univ of Wisconsin, Madison)*

2:20 p.m.
New Methods for Electron Beam Radiotherapy, Robert O'Brien, Francis Tsang *(MiPod Nuclear Inc.)*

2:40 p.m.
Sample Histories from Carbon Therapy of a Human Brain, M. P. W. Chin, F. Cerutti, A. Ferrari *(CERN)*, A. Mairani *(CNAO)*, P. R. Sala *(CERN)*

Monte Carlo Simulations Demonstrated Using FLUKA–Tutorial, sponsored by BMD. *Chair:* Alberto Fassò *(Jefferson Labs)*

Calvert Room
3:00 p.m.
Monte Carlo simulations will be described and illustrated using FLUKA, which covers electromagnetic and hadronic cascades as well as heavy ions. Sample applications include therapy and imaging, dosimetry and radiation protection, high-energy physics, accelerator facility and detector design, cosmic-ray studies, activation, and shielding. The interactive tutorial is hosted by the developers' team. USB sticks packed with FLUKA will be available for distribution. Participants have the additional option of coming with laptops already installed with the code, which is downloadable from www.fluka.org.

SPEAKERS:
- Alberto Fassò *(Jefferson Labs)*
- Andrea Mairani *(Centro Nazionale di Adroterapia Oncologica)*
- Mary Pik-Wai Chin *(CERN)*

NOTE: This session will immediately follow the preceding session, which will begin at 1:00 p.m.

Recent Nuclear Criticality Safety Program Technical Accomplishments, sponsored by NCSD. *Session Organizer:* Nichole Ellis *(SAIC, Consultant)*. *Cochairs:* Jerry McKamy *(DOE)*, Gladys Udenta *(DOE)*. All invited.

Capitol Room
1:00 p.m.
US DOE NCSP Training and Education Program Plan, Calvin M. Hopper *(ORNL)*

1:25 p.m.
Planning for CEF Experiments for Stockpile Stewardship and Global Security, Robert C. Little, Todd A. Bredeweg, Peter J. Jaegers, Albert C. Kahler III, William L. Myers, Morgan C. White, Charles W. Wilkerson Jr. *(LANL)*

1:50 p.m.
MCNP Developments, Forrest B. Brown, Brian C. Kiedrowski *(LANL)*

2:15 p.m.
Current CEF/DAF Operational Update and Schedule, William L. Myers, Steven D. Clement *(LANL)*

2:40 p.m.
SILENE Benchmark Critical Experiments for Criticality Accident Alarm Systems, Thomas M. Miller *(ORNL)*, Kevin H. Reynolds *(BWXT Y-12, LLC)*

3:05 p.m.
Nuclear Accident Dosimetry Exercises at CEA-Valduc, Andrew R. Wysong, David P. Hickman *(LLNL)*

Monte Carlo Dice Seminar–Tutorial, sponsored by RPSD; cosponsored by YMG. *Session Organizer:* John Hendricks *(LANL)*. *Chair:* John Hendricks

Council Room
1:00 p.m.
The Monte Carlo Dice Seminar presents the Monte Carlo method for modeling radiation and other ANS applications in a memorable and entertaining way using dice rather than vugraphs. Free dice for everyone! No vugraphs! No Powerpoint! Nontechnical participants are welcome!

We solve for pi with dice, we determine how much radiation gets through a wall to fry somebody on the other side, and then we see if a pretend nuclear reactor will blow up. Along the way we describe Monte Carlo "variance reduction" and other methods that have revolutionized the field. We finish with a demonstration where we actually hold a Monte Carlo code in our hands.

Computational Methods and Mathematical Modeling, sponsored by MCD. *Session Organizer:* Patrick Brantley *(LLNL)*. *Chair:* Jeff Densmore *(LANL)*

Governors Room
1:00 p.m.
Mathematical Framework for Coupling the AMP and Denovo Codes, Steven Hamilton, Kevin Clarno *(ORNL)*

1:25 p.m.
Data Assimilation Applied to a Simple Inverse Radiation Transport Problem, Joshua M. Hykes, Dan G. Cacuci, John Mattingly *(NCSU)*

1:50 p.m.
Clustering on Manifolds: An Application to Scenario Analysis Using Principal Component Analysis, D. Mandelli, A. Yilmaz, T. Aldemir *(Ohio State)*

2:15 p.m.
Study on Pebble-Fluid Interaction Effect in Pebble Bed Reactors, Yanheng Li, Wei Ji *(RPI)*

2:40 p.m.
Simulation of Thermo-Mechanical Contact Between Fuel Pellet and Cladding in UO2 Nuclear Fuel Rods, Damien Lebrun-Grandié, Jean C. Ragusa *(Texas A&M)*

Reactor Physics Design and Analysis for Compact Power Systems for Terrestrial and Space Applications, sponsored by RPD; cosponsored by ANSTD. *Session Organizers:* Blair Bromley *(AECL)*, Shannon Bragg-Sitton *(INL)*, Pavel Tsvetkov *(Texas A&M)*, John Bess *(Battelle Energy Alliance)* *Cochairs:* Blair Bromley, Shannon Bragg-Sitton

Embassy Room
1:00 p.m.
Engineering of Nuclear Electric Propulsion System for Marine Application, B. Halimi *(Seoul Natl Univ- Korea)*, Kune Y. Suh *(Seoul Natl Univ- Korea/PHILOSOPHIA)*

1:25 p.m.
Neutronics Analysis of a 1-MWe Heat Pipe-Cooled Fast Reactor, Joshua E. Hansel, William J. Sames *(Texas A&M)*

1:50 p.m.
Benchmarking of Graphite Reflected Critical Assemblies of UO_2, Margaret A. Marshall, John D. Bess *(INL)*

2:15 p.m.
Alternative Reactivity Control System for a Small Fission Power System for Space and Terrestrial Applications, Michael Worrall, Zeev Shayer *(CSM)*, invited

2:40 p.m.
Thorium Fuel Considerations for Super-Critical CO_2-Cooled Integrated Multi-Modular Thermal Reactors, Andi P. Jati, Pavel Tsvetkov *(Texas A&M)*

3:05 p.m.
Compact Molten Salt-Cooled Nuclear Reactor for Autonomous Power Source, Hangbok Choi, Joshua Stone, Robert W. Schleicher *(General Atomics)*

3:30 p.m.
Pairing Accelerator-Driven Subcritical Power Systems with Conventional Power Stations, Peter McIntyre, Akhdiyor Sattarov, Pavel Tsvetkov *(Texas A&M)*, William Horak *(BNL)*, Michael Simpson, Supathorn Phongikaroon *(Center for Advanced Energy Studies)*, invited

Tutorial on Proposed ANS 10.7, Non-Real Time, High Integrity Software for the Nuclear Industry—Requirements for Software Developers, ANSI/ANS-10.7-201X, sponsored by NISD. *Session Organizer:* Charles R. (Chip) Martin *(DNFSB)*. *Chair:* Charles R. (Chip) Martin

Senate Room
1:00 p.m.
This session is a tutorial to familiarize professionals with this proposed standard. The new standard is intended to provide quality assurance criteria for non-real-time, high-integrity software developed for nuclear industry applications. It covers rigorous, systematic development of high-integrity, non-real-time safety analysis, design, and simulation software including calculations or simulations requiring high functional reliability in order to avoid undetected errors that could have serious consequences if errors are not detected. It is especially important that this standard be followed in cases where calculations are so complex that typical peer reviews are not likely to identify errors. This may include nuclear design and performance codes, codes used to analyze postulated accidents and assign safety classification levels to systems, structures, and components at nuclear facilities, computational fluid dynamics, thermal hydraulics codes, structural mechanics codes, complex Monte Carlo simulations, radiation dosimetry analysis codes, and nuclear medical physics analytical codes.

An important area covered in this standard is model development and verification (including physics validation), which is a critically important task for high-integrity analysis and simulation software. It takes into consideration several other standards for computational methods and codes, including ASME V&V 10-2006 (CSM), AIAA G-077-2002 (CFD), USNRC SRP and Reg. Guide (NUREG 800, 15.0.2 and RG 1.203 Transient and Accident Analysis), and ANSI/ANS-8.24 (Neutron Transport Methods for Criticality Safety Calculations).

SPEAKERS:
- Charles R. (Chip) Martin *(DNFSB)*
- Andrew Smetana *(SRNL)*

Methods for Nonproliferation Risk Assessment and Safeguards—Next Generation Technology Applications, sponsored by FCWMD; cosponsored by ETWDD and NNTG. *Session Organizers:* Craig Williamson *(SCUREF)*, Paul Nelson *(INL)*, Robert Bari *(BNL)*, John Gunning *(ORNL)*, Jennifer Dolan *(Univ of Michigan)*. *Chair:* Paul Nelson *(INL)*

Forum Room
1:00 p.m.
Study of Response Time for Proliferation Time Evaluation, Yoko Kawakubo, Naoko Inoue, Masaru Watahiki, Mitsutoshi Suzuki, Yusuke Kuno, Toshiro Mochiji *(JAEA-Japan)*

1:25 p.m.
Development of Methodology for Plutonium Categorization (IV)-Effect of Compression on Rossi-alpha, Yoshiki Kimura, Masaki Saito, Hiroshi Sagara *(Tokyo Inst Technol)*

1:50 p.m.
An Examination of Simplification and Uncertainty Effects on Material Attractiveness Assessment, Steven E. Skutnik, Man-Sung Yim *(NCSU)*

2:15 p.m.
The Comprehensive Nuclear-Test Ban Treaty and Recommendations for U.S. Ratification, Shikha Prasad *(Univ of Michigan)*

2:40 p.m.
Using the Uranyl Nitrate Calibration Loop Equipment (UNCLE) at ORNL for Safeguards Instrumentation, D. L. Lee, J. L. Ladd-Lively *(ORNL)*, E. B. Rauch *(LANL)*, J. A. Chapman *(ORNL)*, S. A. Dewji *(Georgia Tech)*

3:05 p.m.
Advance in Molecular Gas Sensing Studies Using Epitaxial Graphene, B. K. Daas, W. K. Nomani, K. M. Daniels, T. S. Sudarshan, Goutam Koley *(Univ of South Carolina)*, A. Méndez Torres *(SRNL)*, M. V. S. Chandrashekhar *(Univ of South Carolina)*

3:30 p.m.
Thermal Camera Imaging for Security Monitoring of GCEP Systems, Charles Morrow, Belle R. Upadhyaya *(Univ of Tennessee)*, Josè March-Leuba *(ORNL)*

THURSDAY • NOVEMBER 3, 2011

7:30 AM – 2:00 PM	**MEETING REGISTRATION**
8:00 AM – 11:30 AM	**SMR 2011: TECHNICAL SESSIONS**
8:30 AM – 11:30 AM	**2011 ANS WINTER MEETING: TECHNICAL SESSIONS** • Isotopes and Radiation: General • Thermal Hydraulics: General—II • Fuel Cycle and Waste Management: General • Operations and Power: General—II • Human Factors, Instrumentation, and Controls: General—I • Nuclear Nonproliferation and International Safeguards Graduate Fellowship Program: University Program Realign to Meet the Needs for a New Workforce in Nuclear Nonproliferation–Panel • Partnerships with Minority Serving Institutions and Nuclear Engineering Education–Panel • ANS-8 Standards Forum • SCALE/ORIGEN Tutorial • ARRA Program Success–Panel • High Reliability Organizations–Panel
8:30 AM – 1:00 PM	**YPC 2011: CAPITOL HILL VISIT**
1:00 PM – 4:00 PM	**2011 ANS WINTER MEETING: TECHNICAL SESSIONS** • Nuclear Security Education Program • Computational Thermal Hydraulics—II • VESTA Tutorial • Advanced/Gen-IV Reactors • Human Factors, Instrumentation, and Controls: General–II • Treaty Verification and Arms Control Technologies–Panel • Tutorial on Nuclear Space Propulsion Technologies • Accelerator Applications: General • Emerging Issues in Nuclear Facility Safety
1:00 PM – 4:00 PM	**SMR 2011: TECHNICAL SESSIONS**

THURSDAY, NOVEMBER 3, 2011, 8:30 A.M.

Isotopes and Radiation: General, sponsored by IRD; cosponsored by BMD. *Session Organizer:* Kenan Ünlü *(Penn State)*. Chair: Kenan Ünlü

Empire Ballroom
8:30 a.m.
Monte Carlo Simulation Study of a Flat-Panel X-Ray Source, Hyoung K. Lee, Edwin J. Grant, Chrystian M. Posada, Carlos H. Castaño *(Missouri Univ Sci Technol)*

8:55 a.m.
Thermal Initiation of Explosive Materials Using Photon-Based Active Interrogation Methods, Keith E. Holbert, William J. Bowman, Madeline McCaughey *(Arizona State Univ)*, A. Sharif Heger *(LANL)*

9:20 a.m.
^{42}Ar Production in The University of Texas Mark II TRIGA Reactor Facility, Christine M. Egnatuk, Steven R. Biegalski *(Univ of Texas, Austin)*

9:45 a.m.
Comparison of Uniform and Non-Uniform Heating in the Plate Type LEU Foil Based Molybdenum-99 Production Target, K. K. Turner, G. L. Solbrekken *(Univ of Missouri, Columbia)*

10:10 a.m.
Production Rates and Cost Estimates of ^{99m}Tc from Rhodium Targets Using Electron Accelerators, Daniel R. Lowe, Ken Czerwinski, Ralf Sudowe *(UNLV)*

10:35 a.m.
Robust Design of Assembly Process of Targets Carrying LEU Foils for Production of Mo-99, Brian Graybill, James Berlin, A. Sherif El-Gizawy *(Univ of Missouri, Columbia)*

11:00 a.m.
Characterization and Crystallization of Re, ^{99}Tc-Complexes for Radiopharmaceuticals, Vanessa Sanders, Frederic Poinaeu *(UNLV)*, Lynn Francesconi *(Hunter College)*, Ken Czerwinski *(UNLV)*

Thermal Hydraulics: General—II, sponsored by THD. *Chair:* John Luxat *(McMaster Univ)*

Diplomat Ballroom
8:30 a.m.
Steady-State Data from a Scaled Experimental Reactor Cavity Cooling System with Water, D. D. Lisowski, S. M. Albiston, M. H. Anderson, M. L. Corradini *(Univ of Wisconsin, Madison)*

8:55 a.m.
Development of Scaling Analysis for Air Ingress Experiments for a VHTR, David J. Arcilesi, Tae Kyu Ham, Xiaodong Sun, Richard N. Christensen *(Ohio State)*, Chang Oh *(INL)*

9:20 a.m.
Density-Driven Air Ingress and Hot Plenum Natural Circulation for a VHTR, David J. Arcilesi, Tae Kyu Ham, Xiaodong Sun, Richard N. Christensen *(Ohio State)*, Chang Oh *(INL)*

9:45 a.m.
Natural Circulation Scaling of PCC in the MHTGR Upper Plenum, Brian King, Brian Woods *(Oregon State Univ)*

10:10 a.m.
Fluid Structure Interaction Modeling of Parallel Plate Assemblies, John C. Kennedy, Gary L. Solbrekken *(Univ of Missouri, Columbia)*

10:35 a.m.
Application of TRACE/PARCS/LAPUR to Lungmen ABWR Stability Analysis, Jong-Rong Wang, Hao-Tzu Lin *(INER)*, Chunkuan Shih *(Natl Tsing Hua Univ)*

11:00 a.m.
The LAPUR6 Stability Analysis of Lungmen ABWR Nuclear Power Plant for the ATWS Transient, Hao-Tzu Lin, Jong-Rong Wang *(INER)*, Chiung-Wen Tsai, Chunkuan Shih *(Natl Tsing Hua Univ)*

Fuel Cycle and Waste Management: General, sponsored by FCWMD. *Session Organizer:* G. D. DelCul *(ORNL)*. *Chair:* Barry Spencer *(ORNL)*

Palladium Ballroom
8:30 a.m.
Host Rock Temperature Around a Borehole Containing HLW, F. E. Dozier, M. J. Driscoll, J. Buongiorno *(MIT)*

8:50 a.m.
Innovative Civilian Applications of Depleted Uranium, Charles W. Forsberg *(MIT)*, Massimo Zucchetti *(Politecnico di Torino/MIT)*

9:10 a.m.
Determination of TRISO Nuclear Fuel Density Using Multiple Projection X-ray Radiography, Hyoung K. Lee, Frank A. Strantz *(Missouri Univ Sci Technol)*

9:30 a.m.
Cost Analysis of Spent Fuel Storage and Disposal, Robert T. Bell, Andrew G. Osborne, Mark R. Deinert *(Univ of Texas, Austin)*

9:50 a.m.
Fluorescence Spectroscopic Study of Dy(III) in LiCl-KCl at High Temperature, Bong Young Kim, Jong-Il Yun *(KAIST)*

10:10 a.m.
Assessment of Time Dependence Isotopic Characteristics of Spent Wg-MOX, Adrián E. Méndez Torres, Dennis Vinson *(SRNL)*, Travis Knight *(Univ of South Carolina)*

10:30 a.m.
Iraq Nuclear Facility Dismantlement and Disposal Program: Liquid Radioactive Waste Tanks, Matthew L. Dennis, John R. Cochran *(SNL)*, Emad Sol Shamsaldin *(Iraq Ministry of Science and Technology)*

10:50 a.m.
Methodology for Integrated Waste Management for Advanced Fuel Cycles, Boonchawee Srimok, Man-Sung Yim *(NCSU)*

Operations and Power: General—II, sponsored by OPD. *Chair:* Sasan Etemadi *(SCE)*

Cabinet Room
8:30 a.m.
Cost-Based Optimization of Supercritical Carbon Dioxide Brayton Cycle Equipment, Anton Moisseytsev, James J. Sienicki *(ANL)*

8:50 a.m.
The Application of Gas Turbine Generator as an Emergency Power Source in a US-APWR, Hideki Tanaka, Richard A. Barnes, Shinji Kiuchi *(Mitsubishi Nuclear Energy Systems, Inc.)*

9:10 a.m.
Phased On-Line Maintenance Strategies for Non-US Utilities, Hee Seung Chang, Jung Wun Kim *(KHNP)*, Ken Huffman *(EPRI)*

9:30 a.m.
Insights of the Risk Significance of the Maintenance Rule Using Delphi Assessment, Jung-Wun Kim, Hee-Seung Chang, Seung-Ku Hong *(Nuclear Engineering & Technology Institute, Korea Hydro & Nuclear Power)*

9:50 a.m.
Run-Ahead Predictive Simulator Implementation in Nuclear Power Plant Control Rooms, Kevin A. Makinson, Joshua Graves, Andrew C. Klein *(Oregon State Univ)*

10:10 a.m.
A Comprehensive Analysis of ATWS Accident for OPR-1000 Using VISA Code, Ji-Yong Oh, Moon-Goo Chi, Young-Bu Choi *(KHNP)*

10:30 a.m.
A Comparative Evaluation of SBO and SBLOCA Using MAAP4 and MARS Code, Yeon Kyoung Bae, Moon Goo Ghi, Young Bu Choi *(KHNP)*

10:50 a.m.
Impact of Initial Basin Temperatures and Fan Availability on Wet Bulb Temperature Limits for Ultimate Heat Sink Operability, Julie M. Jarvis, Dong Zheng, Allen T. Vieira *(Bechtel)*

Human Factors, Instrumentation, and Controls: General—I, sponsored by HFICD. *Session Organizer:* Sacit M. Cetiner *(ORNL)*. *Chair:* Richard T. Wood *(ORNL)*

Forum Room
8:30 a.m.
Hitachi's Design and Results in Development of AC-Drive for NPPs, Daisuke Tan *(Hitachi Canada Ltd.)*, Hirohisa Satomi, Shunya Morita *(Hitachi Ltd.)*

8:55 a.m.
Lessons Learned from Accidents: An Intelligent Systems Perspective on Nuclear Power Plant Safety, Miltiadis Alamaniotis *(Purdue Univ)*, Andreas Ikonomopoulos *(Research Institute Demokritos)*, Rong Gao, Lefteri H. Tsoukalas *(Purdue Univ)*

9:20 a.m.
EDG Engine-Generator Controls Evolution, Steve Greuel *(Fairbanks Morse Engine)*

9:45 a.m.
Load-Following Control for APR+ Using Fuzzy Model Predictive Control, Sim Won Lee, Jae Hwan Kim, Man Gyun Na *(Chosun Univ)*, Keuk Jong Yu, Han Gon Kim *(NETEC)*

10:10 a.m.
Diagnostics of Severe Accidents for NPPs Using Artificial Intelligence, Young Gyu No, Ju Hyun Kim, Man Gyun Na *(Chosun Univ)*, Kwang-Il Ahn *(KAERI-Korea)*

10:35 a.m.
Lessons Learned Supporting First Major Safety Digital I&C Upgrade, Ryan P. Nash *(AREVA)*

11:00 a.m.
Two Issues in Reliability Quantification of Safety-Critical Software, Man Cheol Kim, Seung Cheol Jang *(KAERI-Korea)*

Nuclear Nonproliferation and International Safeguards Graduate Fellowship Program: University Program Realign to Meet the Needs for a New Workforce in Nuclear Nonproliferation–Panel, sponsored by FCWMD; cosponsored by NNTG. *Session Organizer:* Craig Williamson *(SCUREF)*. *Chair:* Craig Williamson

Hampton Ballroom
8:30 a.m.
The National Nuclear Security Administration's Office on Nonproliferation and International Security in 2010 established the Nuclear Nonproliferation International Safeguards Graduate Fellowship Program. University participation in this program requires adequate coursework, specialized faculty expertise, and appropriate training/laboratory facilities for students and faculty members. This panel is composed of university faculty members who have been chiefly responsible for ensuring that their university programs have met the standards required to participate in the fellowship program. Their discussion will include an overview of this development as well as discussion on how their program

plans to continue to be developed to meet the growing demand for a highly educated workforce in nuclear nonproliferation.

PANELISTS:
- Sara Pozzi *(Univ of Michigan)*
- Howard Hall *(Univ of Tennessee)*
- William Charlton *(Texas A&M)*
- Sheldon Landsberger *(Univ of Texas)*
- Richard Lanza *(MIT)*
- Man-Sung Yim *(NCSU)*
- Eric Norman *(Univ of California, Berkeley)*

Partnerships with Minority Serving Institutions and Nuclear Engineering Education–Panel, sponsored by ETWDD. *Session Organizer:* Lisa Marshall *(NCSU). Chair:* Lisa Marshall

Calvert Room
8:30 a.m.
This session will hear from institutions at various stages of preparing minority students for the nuclear industry. Their perspectives on starting and expanding programs will be discussed. How do you utilize human and financial capital to build a pipeline with other stakeholders? What is involved in pre-college through graduate school pipeline development for students attending Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges? How does a partnership with a "majority" serving institution develop? These panelists will provide lessons learned, best practices, and discuss challenges.

PANELISTS:
- John Gutteridge *(NRC Nuclear Education Grant Program)*
- Sheldon Landsberger *(The University of Texas at Austin)*
- Lisa Marshall *(North Carolina State University)*
- J'Tia Taylor *(Argonne National Laboratory)*
- Additional panelist(s) to be determined

ANS-8 Standards Forum, sponsored by NCSD. *Session Organizer:* Davis Reed *(ORNL). Chair:* Davis Reed

Capitol Room
8:30 a.m.
Subcommittee ANS-8, Operations with Fissile Material Outside Reactors, meets to discuss various technical and administrative aspects of the approximately 20 national consensus standards under its purview. In addition to status and progress updates by representatives of individual working groups, formal presentations on the technical bases of numerical values such as subcritical limits and experiences with applications of particular standards are solicited. Agenda topics such as new and expanded standards are also encouraged.

SCALE/ORIGEN Tutorial, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(UNLV). Chair:* Ian Gauld *(ORNL)*

Council Room
8:30 a.m.
The ORIGEN (Oak Ridge Isotope GENeration) isotopic depletion and decay code developed at Oak Ridge National Laboratory (ORNL) is recognized as an international standard for spent fuel simulations and has been widely used by the nuclear industry and research institutions for more than 35 years. The latest release of ORIGEN in the ORNL Scale 6.1 code system in July 2011 includes advanced capabilities and state-of-the-art ENDF/B-VII nuclear data. ORIGEN can be applied in the simulation of commercial nuclear reactor fuel depletion and advanced reactor fuel analysis. It includes enhanced capabilities for neutron activation analysis and neutron and gamma ray sources. This one-half day workshop will include an overview of the new capabilities and the extensive validation studies performed to assess code accuracy for a wide range of safety and licensing applications. The target audience is new users and existing users who want information on the new capabilities and benefits of upgrading to the currently supported version of the code. About half the workshop will involve discussions, and the other half hands-on demonstration problems using the ORIGEN graphical user interface. Attendees are strongly encouraged to register for Scale 6.1 prior to the workshop and bring a laptop computer with Scale 6.1 installed for use at the workshop.

ARRA Program Success–Panel, sponsored by DD&RD. *Session Organizer:* Dennis P. Ferrigno *(CAF & Assoc). Chair:* Dennis P. Ferrigno

Governors Room
8:30 a.m.
ARRA funds have been distributed, and work has been initiated at several D&D projects across the country. This panel will discuss some of the lessons learned and challenges of meeting the ARRA requirements and how to better manage economic stimulus efforts in the future.

PANELISTS:
- Jack Surash *(environmental management)*
- Vince Adams *(Portsmouth / Paducah)*
- Reinhard Knerr *(Paducah)*
- Rodrigo Rimando *(SRS)*
- Hanford ARRA manager to be determined

High Reliability Organizations–Panel, sponsored by NISD. *Session Organizer:* Richard S. Hartley *(B&W Pantex). Chair:* Richard S. Hartley

Senate Room
8:30 a.m.
A High Reliability Organization (HRO) is an organization that has succeeded in avoiding catastrophes in an environment

where normal accidents can be expected due to risk factors and complexity. Characteristics of successful HROs include preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise. HRO behaviors can be recognized and further developed into high-functioning skills of anticipation and resilience.

PANELISTS:
- Tom Houghton *(NEI)*
- Jim McConnell *(NNSA)*
- Karl Waltzer *(Pantex/NNSA)*
- John E. Mansfield *(DNFSB)*
- Cindy Caldwell *(PNNL)*
- Bill Nelson *(Det Norske Veritas)*
- Karlene Roberts *(Univ of California, Berkeley)*

THURSDAY, NOVEMBER 3, 2011, 1:00 P.M.

Nuclear Security Education Program, sponsored by IRD. *Session Organizer:* Kenan Ünlü *(Penn State)*. *Chair:* Kenan Ünlü

Empire Ballroom
1:00 p.m.
Global Nuclear Security Issues and Challenges: An Overview of the NNSA-GTRI Nuclear Security Education Project, Ioanna Iliopulos, Abigail Cuthbertson *(National Nuclear Security Administration, Global Threat Reduction Initiative)*

1:25 p.m.
Designing a Nuclear Security Education Program for the Global Threat Reduction Initiative, C. M. Marianno, W. S. Charlton, R. MacNamee *(Texas A&M)*, K. Unlu *(Penn State)*, R. C. Lanza *(MIT)*

1:50 p.m.
Nuclear Security Education Program at the Pennsylvania State University, Kenan Ünlü *(Penn State)*, invited

2:15 p.m.
Nuclear Security Education Program Development at MIT, Gordon Kohse *(MIT)*, Michael V. Hynes *(Raytheon Integrated Defense Systems)*, Richard C. Lanza, Jacquelyn C. Yanch *(MIT)*

2:40 p.m.
A Course on the Design of Nuclear Security Systems, W. S. Charlton, D. G. Ford *(Texas A&M)*

Computational Thermal Hydraulics—II, sponsored by THD. *Chair:* Brian Woods *(Oregon State Univ)*

Diplomat Ballroom
1:00 p.m.
Flow Mixing Analysis of Condensate Return Line of PAFS in APR+, Tae-Joon Kim, Sang-Hee Kang, Jong Cheon, Han-Gon Kim *(Nuclear Engineering & Technology Institute, Korea Hydro & Nuclear Power Co. Ltd)*

1:25 p.m.
Analytical Model of Steam-Gas Pressurizer and Simulated Insurge Transients, Yeon-Gun Lee *(Seoul Natl Univ-Korea)*, Jong-Won Kim *(MIT)*, Goon-Cherl Park *(Seoul Natl Univ-Korea)*

1:50 p.m.
Boron Evaluation of Distribution in the Core with Various Turbulence Model Using Fluent, Bing-Hong Lin, Jong-Rong Wang, Yung-Shin Tseng *(INER)*, Chunkuan Shih *(National Tsing Hua Univ)*

2:15 p.m.
Swirl Evolution Past Structural Grid Spacers in PWR Reactors, A. Gandhir, Y. A. Hassan *(Texas A&M)*

2:40 p.m.
TRACE Analysis of RCS Pressure Estimation Under ATWS for Maanshan, Che-Hao Chen, Chunkuan Shih *(Natl Tsing Hua Univ)*, Jong-Rong Wang *(INER)*

3:05 p.m.
Analysis of the Thermal Hydraulic Behavior in Lower Plenum of BWR Through CFD Simulation with HPCI Event, Chih-Wei Su *(Natl Tsing Hua Univ)*, Yung-Shin Tseng, Jong-Rong Wang *(INER)*, Chun-Kuan Shih *(Natl Tsing Hua Univ)*

VESTA Tutorial, sponsored by RPD; cosponsored by RPSD, YMG. *Session Organizers:* Fausto Franceschini *(Westinghouse)*, Eric Burgett *(ISU)*. *Chair:* Wim Haeck *(IRSN)*

Palladian Ballroom
1:00 p.m.
VESTA is a Monte Carlo depletion interface code that is currently under development at IRSN (France). From its inception, VESTA is intended to be a "generic" interface code so that it will ultimately be capable of using any Monte Carlo code or depletion module. For now, the current release of VESTA allows for the use of any version of MCNP(X) and ORIGEN 2.2.

In this hands-on tutorial, we will first show how to use the code to perform depletion calculations and afterwards focus on applications for reactor physics (assembly calculations or small reactors), radiation protection (activity estimation of irradiated materials and waste characterization), and criticality safety (burn up credit estimation).

Advanced /Gen-IV Reactors, sponsored by OPD. *Chair:* Art Wharton *(Westinghouse)*

Cabinet Room
1:00 p.m.
Safety Issues Affecting the Feasibility of an Early High-Flux

LFR Technology Demonstrator, Carlo Artioli *(ENEA)*, Sara Bortot, Antonio Cammi, Stefano Lorenzi, Roberto Ponciroli *(Politecnico di Milano)*

1:25 p.m.
Development and Application of a Comprehensive Model of a Lead-Cooled Fast Reactor Using the FAST Code System, Kristina Yancey *(Texas A&M)*, Konstantin Mikityuk, Jiri Krepel, Aurelia Chenu *(Paul Scherrer Institut)*

1:50 p.m.
Determination of Interaction Parameters for EDEM Based Simulations of Pebble Bed Test Reactor, Timothy Herbig, Vaibhav Khane, G. E. Mueller, Muthanna H. Al-Dahhan *(Missouri University of Sci. and Tech.)*

2:15 p.m.
Catalytic Kinetics of Fe2O3 in Sulfuric Trioxide Decomposition of SI Cycle, Young Soo Kim, Hee Cheon No, Jin Young Choi, Hyung Gon Jin *(KAIST)*

2:40 p.m.
Pebble Bed Reactor as Static Packed Bed, Vaibhav Khane, G. E. Mueller, Muthanna H. Al-Dahhan *(Missouri University of Sci. and Tech.)*

3:05 p.m.
Discrete Element Method Based Simulation of Pebble Bed Test Reactor, Vaibhav Khane, G. E. Mueller, Muthanna H. Al-Dahhan *(Missouri University of Sci. & Tech.)*

3:30 p.m.
Development of Modeling Techniques for a GenIV Gas Fast Reactor, A. Dercher, K. Vierow *(Texas A&M)*

Human Factors, Instrumentation, and Controls: General—II, sponsored by HFICD. *Session Organizer:* Sacit M. Cetiner *(ORNL)*. *Chair:* Sacit M. Cetiner

Forum Room
1:00 p.m.
Dynamic Behavior of NPP Operating Crew: An Object-Based Modeling Approach to Simulation, Mandana Azarkhil *(Univ of Maryland)*

1:25 p.m.
Understanding Team Communication Characteristics Using Social Network Analysis, Ar Ryum Kim *(KAIST)*, Jin Kyun Park *(KAERI- Korea)*, Seung Woo Lee, Hyun Gook Kang *(KAIST)*, Poong Hyun Seong *(KAIST, Khalifa University)*

1:50 p.m.
Innovative Use of Modern Technologies for Nuclear Plant Productivity Improvements, Joseph A. Naser *(EPRI)*

2:15 p.m.
Architecting a Nuclear Power Plant with SysML and a Model Driven Engineering Environment, D. W. Orellana, J. A. Turso, C. McClure *(Northrop Grumman)*

2:40 p.m.
Continuous Monitoring for Gas Voids Using Ultrasonic Technology, David L. Crandall *(Cameron Measurement and Controls)*

3:05 p.m.
Sensor Fault Detection in Reactors via a Sliding Mode Output Estimator, Günyaz Ablay, Tunc Aldemir *(Ohio State)*

Treaty Verification and Arms Control Technologies–Panel, sponsored by FCWMD; cosponsored by NNTG. *Session Organizer:* Susan Turner *(Y-12)*. *Chair:* Susan Turner

Hampton Ballroom
1:00 p.m.
This panel session will include broad-perspective views of subject matter experts on the technologies available to and needed by the U.S. Government for the purpose of treaty verification and arms control. Panelists will contribute to high-level, unclassified, open, generic discussions. Panelists may center discussions on technologies currently available and those that are still in the research and development stage, and the role of testing them, or other current technology topics. Discussion may follow certain specific technologies that are vital to the success of the verification of the New START treaty, or panelists may discuss technologies needed for the verification of the Comprehensive Test Ban Treaty (CTBT), Nonproliferation Treaty (NPT) and its Additional Protocols, and the Fissile Material Control Treaty (FMCT) or other technology application topics. Each panelist will need to provide a biography and prepare a 10- to 15-minute brief on the topic of their choice. A brief nonattributive question-and-answer period will follow. Invited panelists are from Department of State, NNSA (NA-24, NA-22), DOE Labs, DOD (USSTRATCOM), and Academia.

PANELISTS:
- Howard Hall *(Univ of Tennessee)*
- David Lagraffe *[Office of Proliferation Detection (NA-221)]*
- Jenni de Pruneda *(LLNL)*

Tutorial on Nuclear Space Propulsion Technologies, sponsored by ANSTD. *Session Organizer:* Steven D. Howe, Shannon Bragg-Sitton, Martin Sattison *(INL)*. *Chair:* Steven D. Howe

Council Room
1:00 p.m.
This tutorial will provide a status of the technology of nuclear

thermal rockets. Topics covered will include the mission benefits of nuclear thermal rockets, Tungsten fuels development, graphite fuel development, engine design, and ground testing.

Accelerator Applications: General, sponsored by AAD. *Session Organizer:* Philip Cole *(Idaho State Univ)*. *Chair:* Philip Cole

Embassy Room
1:00 p.m.
Design of a Proton/Deuteron Microprobe Using a PETtrace Cyclotron, M. S. Beumer, P. J. Pinhero *(Univ of Missouri, Columbia)*

1:25 p.m.
800 MeV >10 MW Proton Driver for ADS Fission, Saeed Assadi, Peter McIntyre, Akhdiyor Sattarov *(Texas A&M)*, Ilan Ben-Zvi, Wu-Tsung Weng *(BNL)*

1:50 p.m.
Feasibility Study of Natural Uranium Neutron Spallation Target using FLiBe as a Coolant, Andrew J. Boulanger, Mark A. Pierson *(Virginia Tech)*

2:15 p.m.
Particle in Cell Simulation of the Electron Source for a Distributed Flat-Panel X-Ray Source, Chrystian M. Posada, Edwin J. Grant, Hyoung K. Lee, Carlos H. Castaño *(Missouri Univ Sci Tech)*

2:40 p.m.
Neutronics and Heat Transfer for an ADS Molten Salt Core, Peter McIntyre, Akhdiyor Sattarov, Pavel Tsvetkov *(Texas A&M)*, William Horak *(BNL)*

3:05 p.m.
Thermal Investigations for Solid Target Copper-64 Production, K. K. Turner, W. H. Miller *(Univ of Missouri, Columbia)*

Emerging Issues in Nuclear Facility Safety, sponsored by NISD. *Chair:* Charles R. Martin *(DNFSB)*

Senate Room
1:00 p.m.
Tritium Transport Analysis in Sodium-Cooled Fast Reactors, F. Franza *(Politecnico di Torino, Italy)*, A. Ciampichetti *(ENEA CR Brasimone, Camugnano (Bo), Italy)*, M. Zucchetti *(MIT)*

1:25 p.m.
Subsynchronous Resonance in Nuclear Power Plant, Andrija Volkanovski, Andrej Prošek *(Jožef Stefan Inst)*

1:50 p.m.
Development of Technical Standard on Fuel for Sodium-Cooled Fast Breeder Reactors, N. Nakae, T. Baba, K. Kamimura *(Japan Nuclear Energy Safety Organization)*

1st ANS SMR 2011 Conference

Sponsored by the Operations and Power Division

TUESDAY, NOVEMBER 1, 2011, 8:00-9:45 A.M.
Plenary I
Meeting Overview and the SMR Business Case–Panel.
Session Organizer: Vince Gilbert *(EXCEL)*. *Co-Chairs:* Thomas Sanders *(SRS)* and Donald Hoffman *(EXCEL)*

Congressional A and B
8:00 a.m.
SPEAKERS
- Welcome and Introductory Remarks, Thomas Sanders *(DOE SRS)*
- Technical Program Overview, Donald R. Hoffman *(EXCEL Services)*
- SMR Regulatory Perspectives, Commissioner William D. Magwood, IV *(NRC)*
- SMR Status and Direction, John Kelly *(DOE)*
- SMR Nuconomics, Glenn George *(Bates White Economic Consulting)*
- Financial Perspectives, Edward Kee *(NERA Economic Consulting)*
- SMR Financial Learning Curve, Philip Moor *(High Bridge Associates, Inc)*

TUESDAY, NOVEMBER 1, 2011, 10:00-11:30 A.M.
ANS President's Special SMR Committee–Papers/Panel.
Session Organizer: Philip Moor *(High Bridge Assoc)*. *Chair:* Philip Moor *(High Bridge Assoc)*

Congressional A
PAPERS
10:00 a.m.
Redefining Essential Personnel Staffing Levels for SMRs, Tony Grenci *(Westinghouse)*, Budd Haemer *(Pillsbury Law)*, Walt Sawruk *(ABS Consulting, Inc.)*, invited

10:20 a.m.
Small Modular Reactor Utilization of Inspections, Tests, Analyses, and Acceptance Criteria, Robert Haemer *(Pillsbury Winthrop Shaw Pittman)*, invited

PANEL DISCUSSION
10:45 a.m.
The ANS President's Special SMR Committee was established by Tom Sanders in late 2009 to stimulate interest in SMR programs and to provide input into resolution of generic licensing issues identified in SECY 10-0034. About 60 ANS members now serve on the committee. The panel will provide several representative problem statements, solutions, and uses of several papers written by the committee.

PANELISTS:
- Introductions and Overview, Philip Moor *(High Bridge Associates, Inc)*
- Multi-Module SMR Licensing, Ed Wallace *(NuScale)*
- SMR Decommissioning, Charlie Hess *(Shaw Group)*
- Manufacturing Licenses, Dick Govers *(Chamberlain Group/ Hyperion Power Generation)*

TUESDAY, NOVEMBER 1, 2011, 1:00–3:00 P.M.
SMR Nonproliferation–Panel, cosponsored by NNTG. *Session Organizer:* Robert Bari *(BNL)*. Chair: Robert Bari *(BNL)*

Congressional A
1:00 p.m.
This panel will feature multiple international perspectives about SMR nonproliferation issues. Invited panelists will discuss technology and policy issues for nonproliferation and terrorism risk management for SMRs.

PANELISTS:
- Mark Whitney *(NNSA)*
- Jeremy Whitlock *(AECL)*
- James Sprinkle *(IAEA)*
- Michael Zentner *(PNNL)*
- William Charlton *(Texas A&M Univ)*
- Kirill Danilenko *(JSC AKME Eng)* or Alexander Chebeskov *(IPPE)*
- Paul Genoa *(NEI)*

SMR Emergency Planning—Long-Term Success Path–Paper/Panel. *Session Organizer:* Vince Gilbert *(EXCEL)*. *Chair:* Vince Gilbert *(EXCEL)*

Congressional B
PAPER/ PANEL DISCUSSION
1:00 p.m.
4S Safety Features and Evaluation of the Emergency Planning Zone, Kazuhito Asano, Hisato Matsumiya, Kyoko Ishii, Yasushi Tsuboi *(Toshiba)*, Tony Grenci *(Westinghouse)*

This panel will discuss SMR Emergency Planning Issues stemming from SECY 10-0034 for the iPWR design cycle and beyond. Emphasis will be placed on discussions concerning the feasibility of a "technology neutral framework" that may be applied to each reactor design. The following related topics are also appropriate for discussion:

- The impact of recent events at Fukushima
- The NRC's Issue Identification and Ranking program
- The results from Severe Accident Management Studies and Risk Informed Regulation
- ANS Issue "White papers" and/or ANS Paper Summaries may also be presented and discussed.

PANELISTS:
- Edward G. Wallace *(NuScale Power, Inc)*
- Trish Milligan *(NRC)*
- Mike Slobodien *(Entergy)*
- EP Consultant to be determined

TUESDAY, NOVEMBER 1, 2011, 3:15-5:00 P.M.

Nonproliferation Papers, cosponsored by NNTG. *Session Organizer:* Robert Bari *(BNL)*. *Chair:* Robert Bari *(BNL)*

Congressional A
3:15 p.m.
Safeguards Considerations for Small Modular Power Reactors, J. K. Sprinkle, I. Tsvetkov, T. Killeen *(IAEA)*, S. Demuth *(LANL)*, G. Pshakin *(IPPE, Russia)*

3:40 p.m.
Methodology for Public Safety, Proliferation, and Economics Assessment of SMRs, Sunil Chirayath, Pavel Tsvetkov, Jean Ragusa, Radek Skoda, Claudio Gariazzo *(Texas A&M)*

4:05 p.m.
US MOX IROFS Risk Ranking Process, Robert Eble, Jeff Brault, Michael Shea, Les Duncan *(AREVA MOX Services)*

4:30 p.m.
Safeguards by Design: Nonproliferation and International Deployment of Small Modular Reactors, Jon D. Long *(Y-12 NSC)*

SMR R&D—I: Innovative Concepts, sponsored by OPD. *Session Organizer:* Jess Gehin *(ORNL)*. *Chair:* Jess Gehin *(ORNL)*

Congressional B
3:15 p.m.
Energy Multiplier Module (EM^2) Recycling Fuel Cycles, Hangbok Choi, Donald W. McEachern, Robert W. Schleicher *(General Atomics)*

3:40 p.m.
High Temperature Super-Critical CO_2-Cooled Integrated Multi-Modular Thermal Reactor, Pavel Tsvetkov, Sunil Chirayath, Jean Ragusa, Sean McDeavitt, Claudio Gariazzo, Jesse Johns, Ahmad Al Rashdan, Vishal Patel, Andi Jati *(Texas A&M)*, Gary E. Rochau *(SNL)*

4:05 p.m.
A Physics Study on a LEU-Loaded Small Modular Fast Reactor, Yonghee Kim, Donny Hartanto *(KAIST)*

4:30 p.m.
Conceptual Design of a Small Nuclear Reactor for Large-Diameter NTD-Si Using a PWR Fuel Assembly, Byambajav Munkhbat, Toru Obara *(Tokyo Inst Technol)*

WEDNESDAY, NOVEMBER 2, 2011, 8:00-11:30 A.M.

SMR Plenary II: SMR Development Challenges

Early SMR Deployment Barriers and the DOE Asset Revitalization Initiative–Paper/Panel, sponsored by OPD; cosponsored by DD&RD. *Session Organizers:* Mark Campagna *(Worley Parsons)*, Ben Cross *(DOE)*. *Cochairs:* Mark Campagna *(Worley Parsons)*, Ben Cross *(DOE)*.

Congressional A
PAPER
8:00 a.m.
Small Modular Reactors for Department of Defense Applications, Tom G. Lewis *(SNL)*, Gary E. Rochau *(SNL)*

PANEL DISCUSSION
8:30 a.m.
21st Century SMRs encounter significant entry barriers in the early deployment stage. Various technical, licensing/regulatory, safety-security, siting, and financial issues associated with first movers need to be considered carefully in a proactive manner. One of the key benefits that U.S. DOE assets offer is the ability to encourage the proper balance of public-private partnerships in close proximity to the extensive assets now available as the cold war mission/cleanup legacy missions change to other missions that best utilize and transition personnel and material resources. This panel will examine factors associated with this challenge—including some success stories from the similar U.S. DOD BRAC transactions completed during the past 15 years.

PANELISTS:
- SMR's Are a Natural Fit for the Hanford Mid-Columbia Energy Park, Jack Baker *(Energy Northwest and The Mid-Columbia Energy Initiative)*
- Mitigating Business Risks for SMR Deployment, Paula Flowers *(ORNL)*
- SMR Activities at the Savannah River Site, Ron Schroder *(SRNS)*
- Installations, Environment, Logistics at USAF (included BRAC Program)—DoD Lessons Learned and 3D Asset Management, Maureen Koetz-Duncan *(former Principal Deputy Assistant Secretary USAF/Koetz-Duncan, LLC)*

WEDNESDAY, NOVEMBER 2, 2011, 10:00-11:30 A.M.

iPWR SMR Design and Licensing Update–Panel, sponsored by OPD. *Session Organizers:* T. J. Kim *(B&W mPower)*, William Reckley *(NRC)*. *Cochairs:* T. J. Kim *(B&W mPower)*, William Reckley *(NRC)*

Congressional A
10:00 a.m.
This session will focus on the status and plans for designing and licensing small modular light water reactors. The presentations will summarize the activities of several vendors, with particular attention to the licensing issues being identified and the approaches being developed for the licensing and deployment of these reactor designs in the U.S. and Canada.

PANELISTS:
- Generation mPower, T. J. Kim *(B&W Nuclear Energy, Inc)*
- NuScale Power, Edward G. Wallace *(NuScale Power Inc)*
- Westinghouse SMR, Richard F. Wright *(W-SMR Licensing Lead)*
- HI-SMUR, Stephan Anton *(Holtec)*
- CNSC SMR Licensing Approach and Update, Marcel de Vos *(CNSC)*

WEDNESDAY, NOVEMBER 2, 2011, 1:00–5:00 P.M.

Codes and Standards–Paper/Panel, sponsored by OPD. *Session Organizer:* Donald Spellman *(ORNL)*. *Chair:* Donald Spellman *(ORNL)*

Congressional A

PAPER

1:00 p.m.
ANS Standards Activities Related to Sodium-Cooled Small Modular Reactors, George Flanagan *(ORNL)*

PANEL DISCUSSION

1:30 p.m.
The SMR reactor concept will likely introduce modifications to the licensing process that differ in some ways from the "normal" siting, design, construction, and operation of light water, gas cooled and liquid metal or salt cooled previous design philosophy. This panel will introduce some of those potential issues and discuss how the national and international standards processes are integrated to support these new concepts.

PANELISTS:
- Design Issues, George Flanagan, Mark Linn *(ORNL)*
- Emergency Planning, Carl Mazzola *(Shaw/Areva)*
- Defense in Depth, Prasad Kadambi *(Consultant)*
- IAEA MDEP CSWG Activities—A Discussion of the MDEP CSWG and What That Work Means for SMRs, Marcel de Vos *(CNSC)*

SMR Site Selection and Environmental Papers, sponsored by OPD. *Session Organizer:* Kenneth Ferguson *(Hukari Technical Services)*. *Chair:* Kenneth Ferguson *(Hukari Technical Services)*

Congressional A

3:15 p.m.
Seismic Design Basis for Site Selection and Licensing of SMRs, Antonio J. Fernandez Ares *(FZ Ares, LLC)*, Enrique Bazán-Zurita *(DiGioia Gray & Associates)*

3:35 p.m.
A Stress Test for a Nuclear Plant Site, Paul C. Rizzo, Albert J. Abels *(Paul C. Rizzo Associates, Inc.)*, invited

3:55 p.m.
Utility of Installing Small Modular Reactors at Underground Hydropower Plants, C. W. Myers *(LANL)*

4:15 p.m.
Siting Practices and Site Licensing Process for New Reactors in Canada, Marcel de Vos *(Canadian Nucl Safety Comm)*, invited

4:35 p.m.
Potential Sites for Small Modular Reactors, Dan Ervin *(Salisbury Univ)*

4:55 p.m.
Site Suitability Review Process and Small Modular Reactors, Mark Notich, Jack Cushing *(NRC)*

SMR R&D—II: Advanced Technologies. *Session Organizers:* Patrick McClure *(LANL)*, Chad Painter *(PNNL)*. *Cochairs:* Patrick McClure *(LANL)*, Chad Painter *(PNNL)*

Congressional B

1:00 p.m.
Can Severe Accidents Be Eliminated in Small Light Water Reactors?, Charles Forsberg *(MIT)*, James Tulenko *(Univ of Florida)*

1:20 p.m.
Once Through Helical Coil Steam Generator Design Aspects, Brent J. Webb *(BJWebb Consulting)*

1:40 p.m.
A Probabilistic Physics-of-Failure Approach for Assessing the Frequency of Steam Generator Tube Ruptures, Kaushik Chatterjee, Mohammad Modarres *(Univ of Maryland College Park)*

2:00 p.m.
Computational Analysis of Coolant Mixing in Typical Water Cooled Small Modular Reactor, M. Nazififard, Kune Y. Suh *(Seoul Natl Univ-Korea)*

2:20 p.m.
Development of Electromagnetic Pump and Electromagnetic Flow Meter for 4S, Daigo Kittaka, Takatoshi Asada *(Toshiba Corporation Power System Company)*, Rie Aizawa, Masafumi Komai, Hiroyuki Oota *(Toshiba Corporation)*

2:40 p.m.
Development of Steam Generator for 4S Reactor, Yuko Kitajima *(Toshiba Corporation/Power Systems Company)*, Tadahisa Hino, Katuhiko Sato, Noriyasu Kobayashi, Shigeki Maruyama *(Toshiba Corporation)*

3:00 p.m.
Spectrum Shift with Silicon Carbide Block in HTGR, Piyatida Trinuruk, Toru Obara *(Tokyo Inst Technol)*

3:20 p.m.
Burnup Characteristics of Thorium Fuel in a Small PBR with Peu-à-Peu Fuel-Loading Scheme, Dwi Irwanto, Toru Obara *(Tokyo Inst Technol)*

3:40 p.m.
Experimental Heat Transfer to SCO2 Upward Tubular Flow for Small Modular Reactor, Hyung M. Son, Kune Y. Suh *(Seoul Natl Univ-Korea)*

4:00 p.m.
Modeling Approaches for Dynamic Analyses of Innovative SMRs Compact Steam Generators, Sara Bortot, Antonio Cammi, Stefano Lorenzi, Roberto Ponciroli *(Politecnico di Milano)*

THURSDAY NOVEMBER 3, 8:00-10:00 A.M.

Recognizing Existing Functional Links to National Security Policy That Could Properly Accelerate Development of SMRs. *Session Organizers:* M. Campagna *(Worley Parsons)*, David Johnson *(ABS Consulting)*, Ed Davis *(Pegasus)*(Invited). *Cochairs:* M. Campagna *(Worley Parsons)*, David Johnson *(ABS Consulting)*, Ed Davis *(Pegasus)*(Invited)

Congressional A
8:00 a.m.
This session will explore the potential for achieving a breakthrough in SMR development by recognizing the existence of "functional links" and thus shifting resources from existing government funded programs to new SMR priorities in a "Net Zero" fashion. This is a leadership challenge. The compelling value proposition should be a re-design of "top notch" safeguards, security, and safety measures that are optimal for the rapidly expanding global nuclear environment. This would also significantly upgrade the attractiveness of U.S. SMR designs in the eyes of policy makers.

This approach would also require centralized leadership for program management under DOE-NNSA similar to the successful legacy approach used for over 50 years for management of Naval Reactors. This new breakthrough is judged practical and necessary by some policy analysts but additional scrutiny, definition, and review/socialization is required in order to achieve high and timely levels of government and public support.

Some key elements of the panel discussion include:

- Understanding rationale for support of SMRs in general as stated by ANS Public Policy Statement PS 25
- Addressing Nonproliferation concerns involving large numbers of SMRs that could be produced internationally without U.S. oversight, resulting in a new terrorist threat
- Recognizing the precedence for success with this type of concept in the "HEU Megatons to Megawatts Program" that shifted Russian weapons material to U.S. commercial fuel
- Optimizing the right resources at U.S. National Labs to efficiently support this type of work
- Supporting the President's Blue Ribbon Committee Study by achieving active U.S. Leadership in international efforts to address safety, waste management, nonproliferation, and security concerns
- Solving longer-term licensing process delays for First of a Kind SMR designs
- Reducing SMR export barriers due to less than optimal processes
- Recognizing Loan Guarantee/Financing difficulties have slowed reactor technology development
- Supporting DOD needs for portable nuclear powered reactors for base islanding and other systems requirements

PANELISTS:
- Introductory Remarks, U.S. NRC Commissioner William C. Ostendorff
- Anne Harrington *(NNSA)* (invited)
- Andy Kadak, MIT/Retired Utility Executive/ANS Past President (tentative acceptance)
- Martin McDonough, USN *(Retired)* - past CO USS Tunney and Operations Manager INL -Advanced Test Reactor
- Institute of Nuclear Materials Management official (invited)
- Philip Moor, Chairman of ANS/SMR Task Force (invited)
- Andrea Sterdis *(TVA)* (invited)
- Doug Walters *(NEI)*

SMR Design and Licensing Issues—Risk Management Focused-Panel, sponsored by OPD. *Session Organizers:* Mohammad Modarres *(Univ of Maryland)*, William Reckley *(NRC)*. *Cochairs:* Mohammad Modarres *(Univ of Maryland)*, William Reckley *(NRC)*

Congressional B
8:00 a.m.
PANEL DISCUSSION
This session will focus on the incorporation of risk insights and risk management processes into the design and licensing of SMRs.

Designers and analysts will discuss their experiences associated with performing Probabilistic Risk Assessment (PRA) of the SMR designs and incorporating PRA into designs, design-related standards, and licensing activities. Challenges facing the use of PRA for SMRs include passive safety systems and their associated reliability, unique equipment and structures, relevance of failure and performance data from operating reactors, in-vessel structures and equipment such as steam generators and control rod drive mechanisms, module-to-module interactions, and multi-module risks.

PANELISTS:
- PRA Challenges with the NuScale Design, Kent Welter *(NuScale Power)*
- PRA and the Design of the Generation mPower Reactor, Ken Baity *(B&W)*
- Use of PRA and Risk Insights in the NGNP Design and Licensing Processes, James Kinsey *(INL/BEA)*
- Role of PRA and Risk in SFR Design Standard, George Flanagan *(ORNL)*
- PRA Approaches for SMR Designs, Tim Leahy *(INL)*

THURSDAY, NOVEMBER 3, 2011, 10:15–11:30 A.M.

International SMR Development–Panel, sponsored by OPD. *Session Organizers:* Craig Welling *(DOE)*, Randy Beatty *(IAEA)*. *Cochairs:* Craig Welling *(DOE)*, Randy Beatty *(IAEA)*

Congressional A
10:15 a.m.

While SMR design development is in progress in the United States, several other countries have been developing Small Modular Reactors or have shown interest in acquiring SMRs. Because the economic success of SMRs depends on development of an order book so that SMRs can be deployed to the U.S. and other countries, it is useful to examine progress by other countries in developing SMRs and to obtain insight into the international interest in SMRs. This panel will engage international representatives to speak on their country development programs or to report on international interest.

PANELISTS:
- Development Status of the Korean SMART Reactor, Hark Rho Kim *(KAERI)*
- International Interest in SMRs, Mark Harper *(IAEA)*
- Japan Engagement in SMRs, Tsutomu Okubo *(JAEA)*
- Jordan's Interest in SMRs, Kamal Araj, Jordan (invited)

NOTE: The panel will also be followed on Thursday afternoon by an additional Paper Session from several other countries in early stages of SMR development.

THURSDAY, NOVEMBER 3, 2011, 1:00–4:00 P.M.

International SMR Development Papers, sponsored by OPD. *Session Organizers:* Craig Welling *(DOE)*, Randy Beatty *(IAEA)*. *Cochairs:* Craig Welling *(DOE)*, Randy Beatty *(IAEA)*

Congressional A
1:00 p.m.

Current Status of Small and Medium Reactors in Thailand, V. Bhanthumnavin *(Shinawatra Univ)*, D. Bhanthumnavin *(National Institute of Development Administration)*

1:25 p.m.

ELECTRA: European Lead Cooled Training Reactor, Janne Wallenius, Erdenechimeg Suvdantsetseg *(KTH)*

1:50 p.m.

Study on MHR-50&-100 Conceptual Design and its Business Potential, Tomomi Otani, Isao Minatsuki, Katsusuke Shimizu, Hiroki Tsukamoto *(Mitsubishi Heavy Industries, ltd.)*, Nobuhiko Nishimura *(Nagasaki Univ Faculty of Economics)*

2:15 p.m.

Design Concept of Small District Heating Reactor for Mongolia, Odmaa Sambuu *(Nuclear Research Center, National University of Mongolia)*, Toru Obara *(Tokyo Inst Technology)*

SMR Simulators, Staffing/Human Factors–Panel, sponsored by OPD. *Session Organizer:* Bruce Hallbert *(INL)*. *Chair:* Bruce Hallbert *(INL)*

Congressional B
1:00 p.m.

This panel will explore the importance and methods of completing the plant simulator as the critical path activity in placing the unit into operation. The simulator is also important during design development as it should be used as a tool for resolving regulatory questions during review of the license application and certification process. The panel will feature reactor designer, utility, simulator supplier, and regulatory perspectives. Related influences of the simulator design include control room staffing, human factors, and incorporation of new generation technology. This presents a series of challenges to the owner/supplier teams that must design SMRs to be cost effective and reliable generation assets.

PANELISTS:
- John Kvalen *(Halden)* (invited)
- Jacques Hugo *(INL)* (invited)
- Charles Weaver *(NuScale Power Inc.)* (invited)
- Gil Grady *(GSE Systems)*
- John O'Hara *(BNL)* (invited)

Young Professionals Congress 2011

MONDAY, OCTOBER 31, 2:30 – 4:00 PM

Opening Plenary. *Chair:* Peter Caracappa *(RPI)*

Blue Room
2:30 p.m.

SPEAKERS:

- Peter F. Caracappa *(General Chair, YPC)*
- Jennifer Varnedoe *(Chair, ANS Young Members Group)*
- Duncan Robinson *(President, NA-YGN)*
- Dale Klein *(University of Texas at Austin)*
- Eugene Grecheck *(Dominion)*
- Michael Kurzeja *(Exelon)*

TUESDAY, NOVEMBER 1, 8:30–11:30 A.M.

Lessons Learned from the History of Nuclear Science and Radiological Incidents. *Cochairs:* Alan Levin *(AREVA)*, Brian Sheron *(NRC)*

Blue Room
8:30 a.m.

In the last 40 years, there have been three major nuclear accidents: Three Mile Island, Chernobyl, and Fukushima. While the present focus of the nuclear community is on the events that followed the Tohoku earthquake, it is important to remember how important previous accidents were in shaping our knowledge of severe accidents. In the 25th anniversary of Chernobyl, this session aims at giving young members a historical perspective on severe accidents. The current issues raised by Fukushima will also be discussed from a technical and regulatory point of view. The session will also feature a report on the activities of the ANS special committee delivered by Dr. Corradini.

PANELISTS:

- Brian Sheron *(NRC)*
- Masanori Naitoh *(Institute of Applied Energy)*
- Michael L. Corradini *(Univ of Wisconsin)*
- Joy L. Rempe *(INL)*
- Dana A. Powers *(SNL)*

TUESDAY, NOVEMBER 1, 1:00–3:00 P.M.

The Front of the Room: Preparing and Giving Successful Presentations–Paper/Panel. *Chair:* Allison Miller *(SNL)*

Blue Room
PAPER
1:00 p.m.

Helping the Public Get Their Hands on Nuclear Science, Amanda C. Bryson *(Shaw AREVA Mox Services)*

PANEL DISCUSSION
1:30 p.m.

The discussion will cover (1) planning, (2) preparation, (3) outlining, (4) practice, (5) presentation, and (6) handling questions.

The pros and cons of giving a presentation without PowerPoint and ways to use Power Point effectively will be discussed. Once the presentation is complete, the audience will be asked to create a 5-minute presentation about a topic they are familiar with. Following the presentations, the panelists will offer feedback.

PANELISTS:

- Erik Haas *(AREVA)*
- Gale Hauck *(Westinghouse)*
- Jennifer Varnedoe *(Progress Energy)*

TUESDAY, NOVEMBER 1, 3:30–5:30 P.M.

The Hacker Within Scientific Computing Tutorial. *Cochairs:* Kathryn D. Huff, Matthew Gidden, Paul P. Wilson *(Univ of Wisconsin)*

Blue Room
3:30 p.m.

The Hacker Within (THW), a student organization at the University of Wisconsin, has developed a series of short courses addressing best practices such as version control and test driven code development, as well as basic skills such as UNIX mobility. These "Boot Camps" seek to provide time-efficient introductions to essential programming languages and tools without turning "biochemists and mechanical engineers into computer scientists." The tutorial will present the four-day bootcamp in a one-day condensed version. The possible topics will be The Shell, Version Control, Text Editors, Databases, Automated Documentation, Build Systems, Unit Testing, Debugging, Collaborative Tools, and Cloud Computing. Attendees will be able to work through examples as they are learning this new and exciting information.

PANELISTS:

- Kathryn D. Huff *(Univ of Wisconsin)*
- Mathew Gidden *(Univ of Wisconsin)*
- Paul P. Wilson *(Univ of Wisconsin)*

WEDNESDAY, NOVEMBER 2, 8:30–11:30 A.M.

Knowledge Transfer Workshop: The Power of Storytelling. *Chair:* Michael Hope *(Nuclear Fuel Services Inc.)*

Blue Room

8:30 a.m.
The transfer of knowledge from an experienced generation of professionals, including those nearing retirement, to younger members of the industry is necessary for continuity and stability. This process is complicated in the nuclear industry by the workforce history that has led to a significantly bi-modal age distribution. Formal knowledge transfer programs exist throughout the nuclear industry, and even though some companies may need to improve their individual programs, the common issue that still exists for young professionals in the U.S. is that many times they do not have the right experiences to put these knowledge transfer tools to use in an effective manner.

More experienced professionals hold nuggets of information that can make a task easier to understand and easier to perform for someone who has not conducted the task previously. The critical skills young professionals need to learn are how to solicit this information in a manner that is nonconfrontational from the experienced professionals, knowing how to solicit unique information that has not already been provided, and knowing how to capture the information they learn to improve the knowledge transfer of this task in the future.

An introduction to critical listening and critical question asking skills will be presented. Participants will then have the opportunity to develop and practice these skills in a workshop activity. The session will conclude with an opportunity for participants to share lessons and feedback from the experience.

PANELISTS:
- Michael Hope *(Nuclear Fuel Services, Inc)*
- Liz McAndrew-Benavides *(NEI)*
- Kristin Whiteside *(EPRI, Charlotte)*
- Ibrahim Mohammed *(Westinghouse)*

WEDNESDAY, NOVEMBER 2, 1:00–4:00 P.M.
Challenges Facing the Young Generation in Nuclear.
Chair: Peter Caracappa *(RPI)*

Blue Room
1:00 p.m.
The long-term health and success of the nuclear workforce requires an active effort to attract, support, develop, and retain new young professionals in the industry. In order to attract these members and to encourage active participation, the American Nuclear Society and its constituent groups similarly must provide clearly valuable services to those members. At the 2004 Winter Meeting, the North American Young Generation in Nuclear compiled a list of actions that young professionals, their employers, and professional societies should take to begin to address the specific challenges faced by young professionals in the workplace. These topics have been revisited at each biennial Young Professionals Conference ever since.

This interactive session will build upon the outcome of these previous sessions by developing a more detailed list of recommendations and actions to better meet the needs of young nuclear science and technology professionals and their employers. Session participants will develop recommendations through small-group, moderator-led discussions. The challenge areas to be addressed include:

- Knowledge Management
- Recruiting and Retention
- Access to Leadership and Career Development
- Industry Awareness
- Networking

A final report from this session will be prepared and made available to all ANS and NAYGN members.

FACILITATOR:
Peter F. Caracappa *(General Chair, YPC)*

Professional Development Workshop

"Nuclear Export Control and Legal Aspects of Nuclear Regulations"

Sunday, October 30, 2011

8:00 a.m. – 5:00 p.m.

Location: Congressional A

Workshop Organizer:
Alireza Haghighat, Ph.D. *(Professor of Nuclear Engineering, Virginia Tech)*

Workshop Instructors:
Phillip G. Lookadoo *(Partner, Reed Smith LLP)*

Michael J. Lowell *(Senior Associate, Reed Smith LLP)*

This workshop will focus on U.S. regulations that impact the nuclear power industry, with a particular emphasis on import and export controls, security requirements, and best practices for NRC-licensed facilities.

Workshop Agenda:

Time	Topic
9:00 a.m. - 10:00 a.m.	Overview of U.S. and international regulation of the nuclear power industry · Introduction of key laws and regulations · Overview of regulatory system · U.S. Government enforcement trends · Introduction to international cooperation and participation in the nuclear industry
10:00 a.m. - 10:15 a.m.	Break
10:15 a.m. - 12:00 p.m.	Regulation of domestic activity in the nuclear power industry
12:00 p.m. - 12:30 p.m.	Lunch Break
12:30 p.m. - 3:00 p.m.	International trade for the nuclear industry · Import and export controls · Security issues · International safeguards (e.g., IAEA) This session will include an overview of the controls that apply to the nuclear industry as regulated by NRC, DOE/NNSA, DDTC, and BIS, including a discussion of jurisdiction, key import/export concepts, licensing, and enforcement.
3:00 p.m. - 3:15 p.m.	Break
3:15 p.m. - 4:00 p.m.	Discussion: Key compliance issues & Best Practices · Employment of non-U.S. citizens · Handling proprietary or classified information · Managing potential liability
4:00 p.m. - 5:00 p.m.	Discussion: Recent developments and anticipated changes for the nuclear industry · Impact of the Fukushima accident · National Export Control Reform Initiative · Other topics

"Neutron Cross Sections for Nuclear Engineers"

Sunday, October 30, 2011
8:00 a.m. – 5:00 p.m.
Location: Congressional B

Workshop Organizer:
Sedat Goluoglu, Ph.D. *(Oak Ridge National Laboratory)*

Workshop Agenda:

Time	Topic
8:00 a.m. - 8:15 a.m.	Introduction/Overview
8:15 a.m. - 9:45 a.m.	Theory of Neutron Interactions with Matter a. Physics b. Self-shielding c. Equivalence theory d. Narrow resonance, Intermediate resonance, etc.
9:45 a.m. - 10:00 a.m.	Break
10:00 a.m. - 10:20 a.m.	Nuclear Data Files
10:20 a.m. - 11:50 p.m.	Cross Section Evaluations a. Thermal Kernels b. Resonance range c. High energy range
11:50 p.m. - 12:45 p.m.	Lunch
12:45 p.m. - 1:15 p.m.	Cross Section Testing
1:15 p.m. - 1:45 p.m.	Covariance Applications
1:45 p.m. - 2:00 p.m.	Break
2:00 p.m. - 3:15 p.m.	Cross Sections for Transport Codes (AMPX/SCALE) a. AMPX processing for multigroup and continuous energy transport b. Problem-dependent multigroup cross sections in SCALE c. Continuous energy cross sections in SCALE
3:15 p.m. - 3:30 p.m.	Break
3:30 p.m. - 4:30 p.m.	Cross Sections for Transport Codes (NJOY/MCNP) a. NJOY processing for transport b. Cross sections in MCNP
4:30 p.m. - 4:45 p.m.	Questions
4:45	Conclusion

Committee Meetings

NATIONAL COMMITTEES

Accreditation Policies and Procedures
SUNDAY, 11:00 A.M. - 12:00 P.M.
Location: East Parlor # 315

Board of Directors
Professional Division Reports
WEDNESDAY, 4:00 P.M. - 6:00 P.M.
Location: Ambassador Ballroom
Board of Directors
THURSDAY, 8:30 A.M. - 3:00 P.M.
Location: Ambassador Ballroom

Bylaws and Rules
SUNDAY, 4:30 P.M. - 6:00 P.M.
Location: Senate Room

Finance
TUESDAY, 4:00 P.M. - 7:00 P.M.
Location: West Parlor # 268

Honors and Awards
MONDAY, 4:00 P.M. - 6:00 P.M.
Location: East Parlor # 415

International
SUNDAY, 11:30 A.M. - 2:30 P.M.
Location: Empire Ballroom

Local Sections/Workshop
SUNDAY, 8:00 A.M. -12:00 P.M.
Location: Hampton Ballroom

Membership
SUNDAY, 11:00 A.M. - 12:00 P.M.
Location: East Parlor # 215

National Program Committee (NPC)
Program
WEDNESDAY, 4:15 P.M. - 5:30 P.M.
Location: Diplomat Ballroom
Screening and International
SUNDAY, 10:00 A.M. - 12:00 P.M.
Location: Diplomat Ballroom

NEED
SUNDAY, 7:30 P.M. - 9:30 P.M.
Location: East Parlor # 315

Planning
SUNDAY, 2:00 P.M. - 6:00 P.M.
Location: Cabinet Room

President's Meetings with ANS Committee and Division Chairs
SUNDAY, 8:00 A.M. - 9:00 A.M.
Location: Empire Ballroom

Professional Development Workshop
TUESDAY, 7:30 A.M. - 8:30 A.M.
Location: East Parlor # 300

Professional Divisions
Committee Meeting
WEDNESDAY, 5:30 P.M. - 7:00 P.M.
Location: Ambassador Ballroom
Training Workshop
SATURDAY, 5:00 P.M. - 6:30 P.M.
Location: Congressional A

Professional Engineering Exam
Committee Meeting
SUNDAY, 3:00 P.M. - 5:00 P.M.
Location: West Parlor # 368
Exam Writers Group
SATURDAY, 6:00 P.M. - 10:00 P.M.
Location: Senate Room

Professional Women in ANS
MONDAY, 11:30 A.M. - 1:00 P.M.
Location: East Parlor # 315

Public Information
SUNDAY, 4:00 P.M. - 6:00 P.M.
Location: Palladian Ballroom

Public Policy
WEDNESDAY, 11:30 A.M. - 1:30 P.M.
Location: East Parlor # 215

Publications Steering
Book Publishing
SUNDAY, 11:00 A.M. - 12:30 P.M.
Location: East Parlor # 200
Meetings, Proceedings and Transactions
SUNDAY, 9:00 A.M. - 10:00 A.M.
Location: East Parlor # 200
Nuclear News Editorial Advisory
SUNDAY, 4:00 P.M. - 5:30 P.M.
Location: East Parlor # 400
NS&E Editorial Advisory
SUNDAY, 11:00 A.M. - 12:00 P.M.
Location: East Parlor # 400
NT Editorial Advisory
SUNDAY, 4:30 P.M. - 5:30 P.M.
Location: East Parlor # 215
Publications Steering
MONDAY, 4:00 P.M. - 6:00 P.M.
Location: East Parlor # 300
Technical Journals
SUNDAY, 1:00 P.M. - 4:00 P.M.
Location: East Parlor # 215

Scholarship Policy and Coordination
MONDAY, 12:00 P.M. - 1:00 P.M.
Location: East Parlor # 400

Student Sections
Executive
MONDAY, 6:00 P.M. - 7:00 P.M.
Location: Calvert Room
Reports & Roundtable Discussion
MONDAY, 7:00 P.M. - 8:00 P.M.
Location: Calvert Room

SPECIAL COMMITTEES

Integration Oversight
TUESDAY, 9:00 A.M. - 11:00 A.M.
Location: East Parlor # 215

OTHER COMMITTEES

CNF
MONDAY, 7:30 P.M. - 10:00 P.M.
Location: East Parlor # 315

CSSG
THURSDAY, 1:00 P.M. - 4:00 P.M.
Location: Chairman's Boardroom

Eagle Alliance Board of Directors
SUNDAY, 1:00 P.M. - 3:00 P.M.
Location: East Parlor # 500

ICAPP 2012 Planning Meeting
SUNDAY, 4:30 PM - 5:30 PM
Location: Diplomat Ballroom

INSC
TUESDAY, 3:00 P.M. - 6:00 P.M.
Location: East Parlor # 315

Joint Benchmark Committee Workshop
SATURDAY, 6:00 P.M. - 9:00 P.M.
Location: East Parlor # 215

Mathematics and Computation/ Reactor Physics/ Radiation Protection & Shielding Joint Benchmark Meeting
SUNDAY, 11:00 A.M. - 1:00 P.M.
Location: East Parlor # 500

NEDHO
SUNDAY, 4:00 P.M. - 6:00 P.M.
Location: Governor's Boardroom

NEUP Outreach Activity
TUESDAY, 4:30 P.M. - 6:30 P.M.
Location: Cabinet Room

PHYSOR 2012 – Organizing Committee
MONDAY, 4:00 PM - 5:00 PM
Location: East Parlor # 215

PHYSOR 2012 - Technical Program Committee
MONDAY, 6:00 PM - 7:00 PM
Location: East Parlor # 215

PSA 2013 – Planning Committee
MONDAY, 6:45 AM - 8:00 AM
Location: East Parlor # 600

Risk Management 2013 – Organizing Committee
MONDAY, 6:30 P.M. - 8:30 P.M.
Location: East Parlor # 500

UWC 2012 Planning Committee
SUNDAY, 12:00 P.M. - 1:00 P.M.
Location: East Parlor # 415

DIVISION COMMITTEES

Accelerator Applications
Executive
MONDAY, 11:30 A.M. - 1:30 P.M.
Location: East Parlor # 215

Aerospace Nuclear Science and Technologies
SUNDAY, 12:00 P.M. - 2:00 P.M.
Location: West Parlor # 268

Biology and Medicine
Committee of the Whole
SUNDAY, 4:00 P.M. - 5:30 P.M.
Location: West Parlor # 468

Biology and Medicine
Computational Medical Physics Working Group
SUNDAY, 10:00 A.M. - 11:00 A.M.
Location: East Parlor # 400
Joint Program Committee – I&R and B&M
SUNDAY, 1:30 P.M. - 2:30 P.M.
Location: Embassy Room

Decommissioning, Decontamination and Reutilization
Executive Committee Meeting
SUNDAY, 4:30 P.M. - 5:30 P.M.
Location: West Parlor # 268
Program Committee Meeting
SUNDAY, 3:30 P.M. - 4:30 P.M.
Location: West Parlor # 268

Education, Training, and Workforce Development
Alpha Nu Sigma
SUNDAY, 1:00 P.M. - 2:00 P.M.
Location: East Parlor # 415
Executive/Membership/Honors and Awards
SUNDAY, 1:30 P.M. - 4:00 P.M.
Location: East Parlor # 300
Program
SUNDAY, 10:30 A.M. - 12:00 P.M.
Location: East Parlor # 300
University/Industry/Government Relations
SUNDAY, 9:30 A.M. - 10:30 A.M.
Location: East Parlor # 300

Environmental Sciences
ESD Special Committee on Climate Change
SUNDAY, 1:00 P.M. - 3:00 P.M.
Location: Council Room
Executive
SUNDAY, 10:00 A.M. - 12:00 P.M.
Location: Senate Room
Nuclear Production of Hydrogen Working Group
SUNDAY, 12:00 P.M. - 1:00 P.M.
Location: Senate Room
Program
SUNDAY, 8:30 A.M. - 10:00 A.M.
Location: Senate Room

Fuel Cycle and Waste Management
Executive
SUNDAY, 1:00 P.M. - 2:30 P.M.
Location: Palladian Ballroom
Program
SUNDAY, 12:00 P.M. - 1:00 P.M.
Location: Palladian Ballroom
Technical Operating and Standards Committee
SUNDAY, 2:30 P.M. - 3:30 P.M.
Location: Palladian Ballroom

Fusion Energy
Executive
SUNDAY, 3:00 P.M. - 5:00 P.M.
Location: East Parlor # 500

Human Factors, Instrumentation, and Controls
Executive
SUNDAY, 12:00 P.M. - 2:30 P.M.
Location: West Parlor # 368
Program
SUNDAY, 11:00 A.M. - 12:00 P.M.
Location: West Parlor # 368

Isotopes and Radiation
Executive
SUNDAY, 2:30 P.M. - 4:00 P.M.
Location: Senate Room
Joint Program Committee – I&R and B&M
SUNDAY, 1:30 P.M. - 2:30 P.M.
Location: Embassy Room

Materials Science and Technology
Executive
MONDAY, 7:00 P.M. - 9:00 P.M.
Location: East Parlor # 400

Mathematics and Computation
Computational Medical Physics Working Group
SUNDAY, 10:00 A.M. - 11:00 A.M.
Location: West Parlor # 468
Executive
SUNDAY, 2:00 P.M. - 4:00 P.M.
Location: West Parlor # 468
Program
SUNDAY, 1:00 P.M. - 2:00 P.M.
Location: West Parlor # 468

Nuclear Criticality Safety
Education Meeting
SUNDAY, 1:00 P.M. - 2:00 P.M.
Location: Diplomat Ballroom
Executive
SUNDAY, 3:00 P.M. - 4:30 P.M.
Location: Diplomat Ballroom
Program
SUNDAY, 2:00 P.M. - 3:00 P.M.
Location: Diplomat Ballroom

Nuclear Installation Safety
Executive
SUNDAY, 7:30 P.M. - 9:30 P.M.
Location: East Parlor # 300
Program
SUNDAY, 4:00 P.M. - 6:00 P.M.
Location: East Parlor # 300

Nuclear Nonproliferation (TG)
SUNDAY, 2:00 P.M. - 4:00 P.M.
Location: East Parlor # 600

Operations and Power
Executive
SUNDAY, 4:00 P.M. - 6:00 P.M.
Location: Hampton Ballroom
Nuclear Construction Working Group
SUNDAY, 12:30 P.M. - 2:30 P.M.
Location: Hampton Ballroom
Program
SUNDAY, 2:30 P.M. - 4:00 P.M.
Location: Hampton Ballroom

Radiation Protection and Shielding
Executive
SUNDAY, 1:30 P.M. - 2:30 P.M.
Location: East Parlor # 315
Program
SUNDAY, 12:30 P.M. - 1:30 P.M.
Location: East Parlor # 315
Shielding Standards
SUNDAY, 12:00 P.M. - 12:30 P.M.
Location: East Parlor # 315

Reactor Physics
Executive
SUNDAY, 4:00 P.M. - 6:00 P.M.
Location: East Parlor # 200
Goals and Planning
SUNDAY, 1:00 P.M. - 2:00 P.M.
Location: East Parlor # 200
Honors and Awards
SUNDAY, 10:00 A.M. - 11:00 A.M.
Location: East Parlor # 315
Program
SUNDAY, 2:00 P.M. - 4:00 P.M.
Location: East Parlor # 200

Robotics and Remote Systems
Executive
SUNDAY, 12:00 P.M. - 4:00 P.M.
Location: East Parlor # 400

Thermal Hydraulics
Executive
SUNDAY, 4:30 P.M. - 6:00 P.M.
Location: East Parlor # 415
Program
SUNDAY, 2:30 P.M. - 4:30 P.M.
Location: East Parlor # 415

Young Member Group (TG)
Executive Committee
MONDAY, 11:30 A.M. - 1:00 P.M.
Location: East Parlor # 300

Committee Meetings

STANDARDS COMMITTEES

ANS Standards Board
TUESDAY, 9:00 A.M. - 5:00 P.M.
Location: East Parlor # 200

ANS-8.1
SUNDAY, 8:00 A.M. - 12:00 P.M.
Location: Embassy Room
TUESDAY, 7:00 A.M. - 8:30 A.M.
Location: East Parlor # 600

ANS-8.3
MONDAY, 7:00 AM - 8:30 AM
Location: East Parlor # 400
Tuesday, 7:00 AM - 8:30 AM
Location: East Parlor # 400

ANS-8.12
TUESDAY, 4:00 P.M. - 6:00 P.M.
Location: East Parlor # 600

ANS-8.20
SUNDAY, 9:00 A.M. - 12:00 P.M.
Location: West Parlor # 268

ANS-8.29
MONDAY, 7:00 A.M. - 8:30 A.M.
Location: East Parlor # 215

ANS-8.X
MONDAY, 7:30 A.M. - 8:30 A.M.
Location: East Parlor # 300

ANS-10.7
SATURDAY, 8:30 A.M. - 4:30 P.M.
Location: East Parlor # 200

ANS-19
MONDAY, 8:30 A.M. - 10:30 A.M.
Location: East Parlor # 200

ANS-19.1
MONDAY, 11:30 A.M. - 12:30 P.M.
Location: East Parlor # 200

ANS-19.3
MONDAY, 10:30 A.M. - 11:30 A.M.
Location: East Parlor # 200

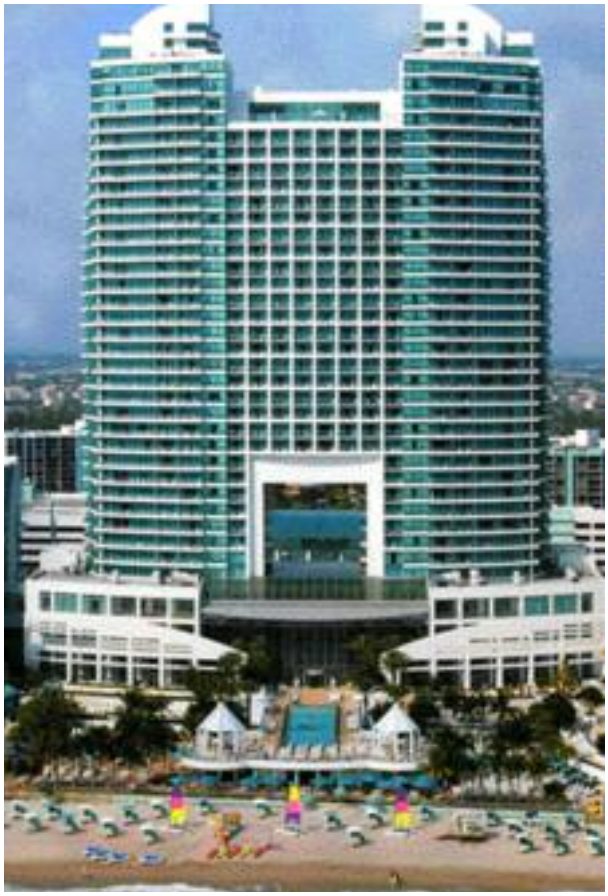
ANS-50.1
WEDNESDAY, 8:00 A.M. - 5:00 P.M.
Location: East Parlor # 600

ANS-58.25
WEDNESDAY, 8:00 A.M. - 5:00 P.M.
Location: East Parlor # 500

N16
MONDAY, 1:00 P.M. - 5:00 P.M.
Location: East Parlor # 200

NFSC
MONDAY, 8:30 A.M. - 4:30 P.M.
Location: Held offsite at NEI
1776 I Street N.W.
Washington, DC

RASC Meeting
WEDNESDAY, 9:00 AM - 12:00 PM
Location: East Parlor # 300



Utility Working Conference and Vendor Technology Expo

August 5-8, 2012
Hollywood, Florida
Westin Diplomat

Visit the ANS home page
www.ans.org
for additional information.

Mark your calendars!
Plan to attend!

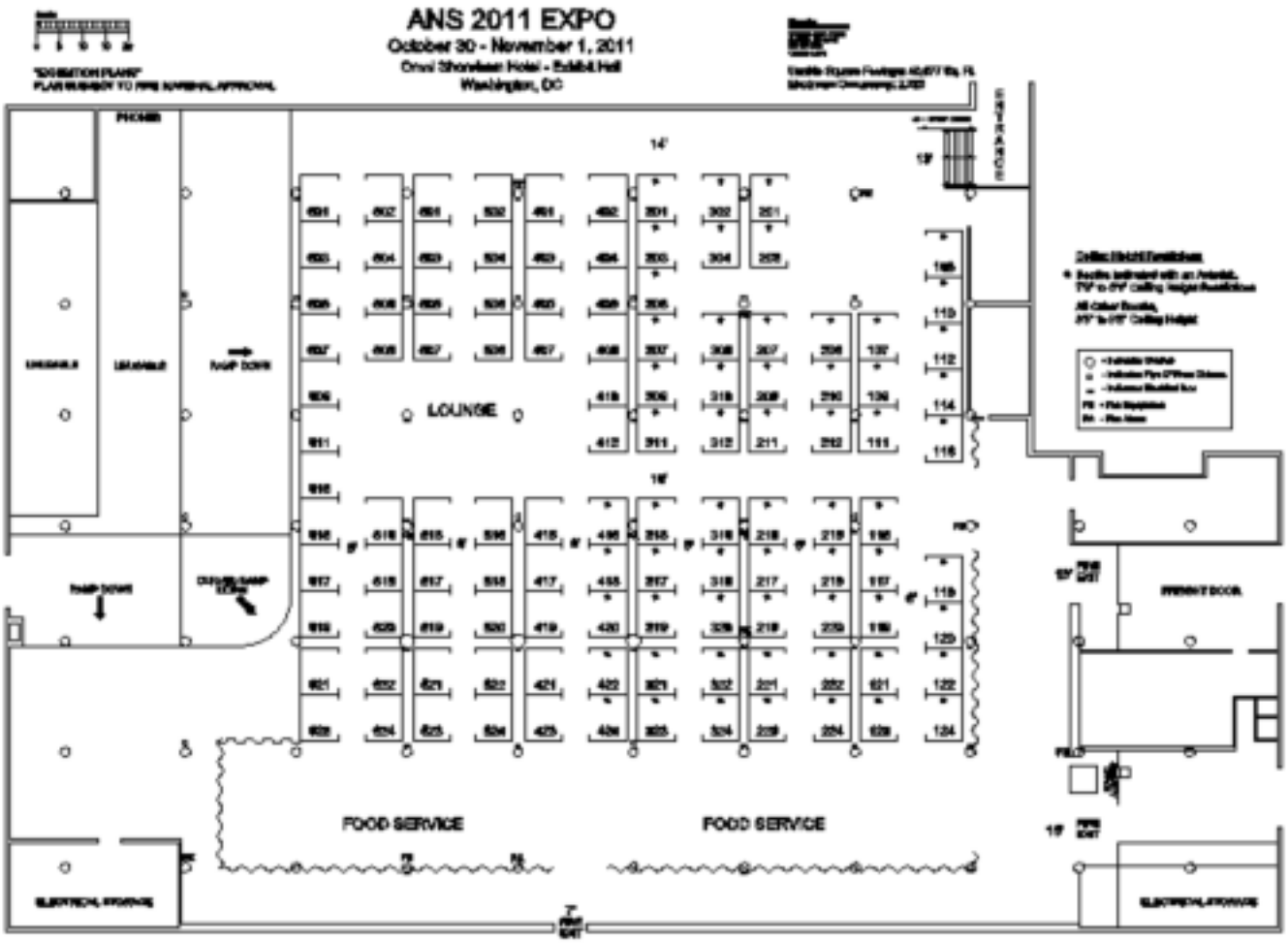
Sunday, October 30
6 - 7:30pm
(ANS President's Reception)

Monday, October 31
11:30am - 6pm
(ANS Attendee Luncheon · Prizes · ANS Expo Fest)

Tuesday, November 1
10am - 2pm
(Dessert Bar · Prizes)

The ANS Nuclear Technology Expo will be held October 30 – November 1, 2011 in the Lower Level Exhibit Hall of the Omni Shoreham Hotel. The ANS Expo will be open Sunday-Tuesday with many special events taking place in the Exhibit Area.

FLOOR PLAN
Lower Level Exhibit Hall · Omni Shoreham Hotel, Washington, DC



We thank the following companies for their generous support of the ANS Expo Special Events:

Bechtel Nuclear Power
(Attendee Prizes)

EXCEL Services Corporation
(Grand Prizes)

2012 ANS ANNUAL MEETING

June 24-28, 2012
Chicago, IL
Hyatt Regency Chicago

EMBEDDED TOPICAL MEETINGS:

- DD&R 2012
- Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors
- International Congress on Advances in Nuclear Power Plants (ICAPP 2012)

Call for Papers
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Visit the ANS home page
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for future meetings and additional information.

Mark your calendars!
Plan to attend!

American Nuclear Society *meetings and conferences are the best way to keep current with the ever changing fields of nuclear science and technology*

3 WAYS TO KEEP UP-TO-DATE

1) The national meetings feature comprehensive technical programs, professional development workshops, exhibits, tours and special events

2) Professional development workshops focus on timely issues and topics regarding the implementation, operation and regulation of the nuclear industry

3) Topical meetings provide in-depth coverage of selected technical subjects

The opportunity to meet other professionals and discuss issues with recognized authorities will enrich your professional development.

2012 ANS Annual Meeting • Chicago, Illinois

2012 ANS Winter Meeting • San Diego, California

Make plans now to attend!

2012 NATIONAL MEETINGS

DATE	TITLE	LOCATION
Jun 24-28, 2012	2012 ANS ANNUAL MEETING and EMBEDDED TOPICAL MEETINGS • D&D&R 2012 • Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors • International Congress on Advances in Nuclear Power Plants (ICAPP 2012)	Chicago, Illinois *Hyatt Regency Chicago*
Nov 11-15, 2012	2012 ANS WINTER MEETING AND NUCLEAR TECHNOLOGY EXPO and EMBEDDED TOPICAL MEETINGS • Advances in Thermal Hydraulics (ATH'12) • International Meeting on Severe Accident Assessment and Management: Lessons Learned from Fukushima Daiichi	San Diego, California *Town & Country Resort*

2012 TOPICAL AND OTHER IMPORTANT MEETINGS

DATE	TITLE	LOCATION
Mar 25-30, 2012	9th International Conference on the Methods and Applications of Radioanalytical Chemistry (MARC IX)	Kailua-Kona, Hawaii *Sheraton Keauhou Bay*
Apr 15-20, 2012	International Topical Meeting on Advances in Reactor Physics (PHYSOR 2012)	Knoxville, Tennessee *Hilton Knoxville*
Jul 22-26, 2012	6th International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human-Machine Interface Technologies (NPIC&HMIT 2012)	San Diego, California *Westin San Diego*
Aug 5-8, 2012	Utility Working Conference and Vendor Technology Expo	Hollywood, Florida *Westin Diplomat*
Aug 26-31, 2012	20th Topical Meeting on the Technology of Fusion Energy (TOFE)	Nashville, Tennessee *Hilton Hotel*
Sept 25-28, 2012	9th International Conference on Facility Operations-Safeguards Interface (ICFO-SI)	Savannah, Georgia *Hilton Savannah DeSoto*

ANS Organization Members

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DuBose National Energy Service
Duke Energy Corporation

Energy Future Holdings Corp. (Comanche Peak Nuclear Power Plant)
EnergySolutions
Energy Northwest
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Exelon Nuclear Co.

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Marshield - Div. of Mars Metal Company
McCallum-Turner, Inc.
Mega-Tech Services, LLC
Mitsubishi Nuclear Energy Systems, Inc.

Navarro Research & Engineering
Nebraska Public Power District
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Newport News Shipbuilding
Nexus Technical Services Corporation
NFT
Nordostschweizerische Kraftwerke AG
Nuclear Fuel Services, Inc.
Nuclear Plant Journal

Omaha Public Power District
Ontario Power Generation
Overly Manufacturing Company

Pacific Gas & Electric Co.
Pakistan Atomic Energy Commission
PaR Nuclear, Inc.
PaR Systems, Inc.
Phoenix Contact Inc.
PPL Susquehanna, LLC
Private Fuel Storage, LLC

Reef Industries, Inc.
Rigging International
ROS, Inc. (Remote Ocean Systems, Inc.)

S.A. Technology
SAIC
Sandia National Laboratories
Sargent & Lundy
Southern California Edison
Southern Carolina Alliance
Southern Nuclear Operating Co.
Stone & Webster Engineering Inc./ The Shaw Group

Technical Associates
Terra Power, LLC
Thermo Fisher Scientific
Toshiba America Nuclear Energy Corporation
TradeTech, LLC
TVA Nuclear Power Group
TW Metals

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USEC Inc.

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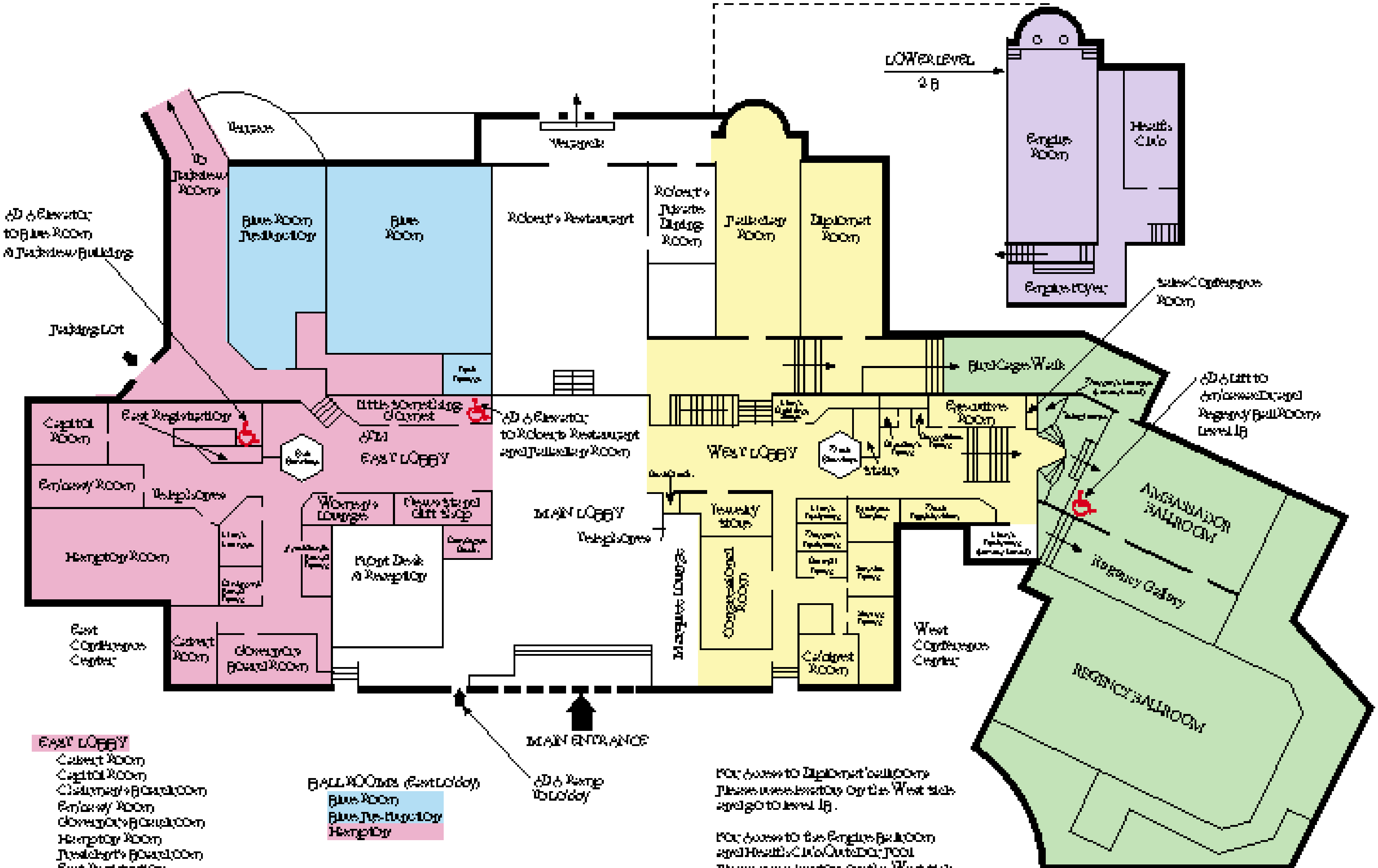
Wyle Laboratories

About the American Nuclear Society

The American Nuclear Society (ANS) is an international, not-for-profit, scientific and educational organization consisting of about 11,000 individual members, more than 1,600 organizations, 80 Organization Members, 20 professional divisions/technical groups, 51 U.S. and 9 non-U.S. local sections/affiliated societies, 14 plant branches, and 34 student sections. ANS also maintains about 30 formal agreements for cooperation with international organizations.

The Society's main objectives are the advancement of engineering and science relating to the atomic nucleus, and to the integration of the science and management disciplines constituting nuclear science and technology. Other purposes are to encourage research, establish scholarships, disseminate information, inform the general public about nuclear-related activities, conduct meetings at which scientific and technical papers are presented, and cooperate with government agencies, educational institutions, and other organizations having similar purposes.



EAST LOBBY
- Cabinet Room
- Capitol Room
- Chairman's Boardroom
- Embassy Room
- Governor's Boardroom
- Hampton Room
- President's Boardroom
- East Registration

WEST LOBBY
- Calvert Room
- Congressional A&B Room
- Council Room
- Executive Room
- Forum Room
- Sales/Conference Room
- Senate Room
- West Registration

BALLROOMS (East Lobby)
- Blue Room
- Blue Pre-function
- Hampton

BALLROOMS (West Lobby)
- Ambassador Ballroom
- Diplomat Room
- Empire Room
- Palladian Room
- Regency Room

For Access to Diplomat Ballroom Please use elevators on the West side and go to level 1B.

For Access to the Empire Ballroom and Health Club/Outdoor Pool Please use elevators on the West side of the Hotel and go to level 2B.

OMNI SHOREHAM HOTEL