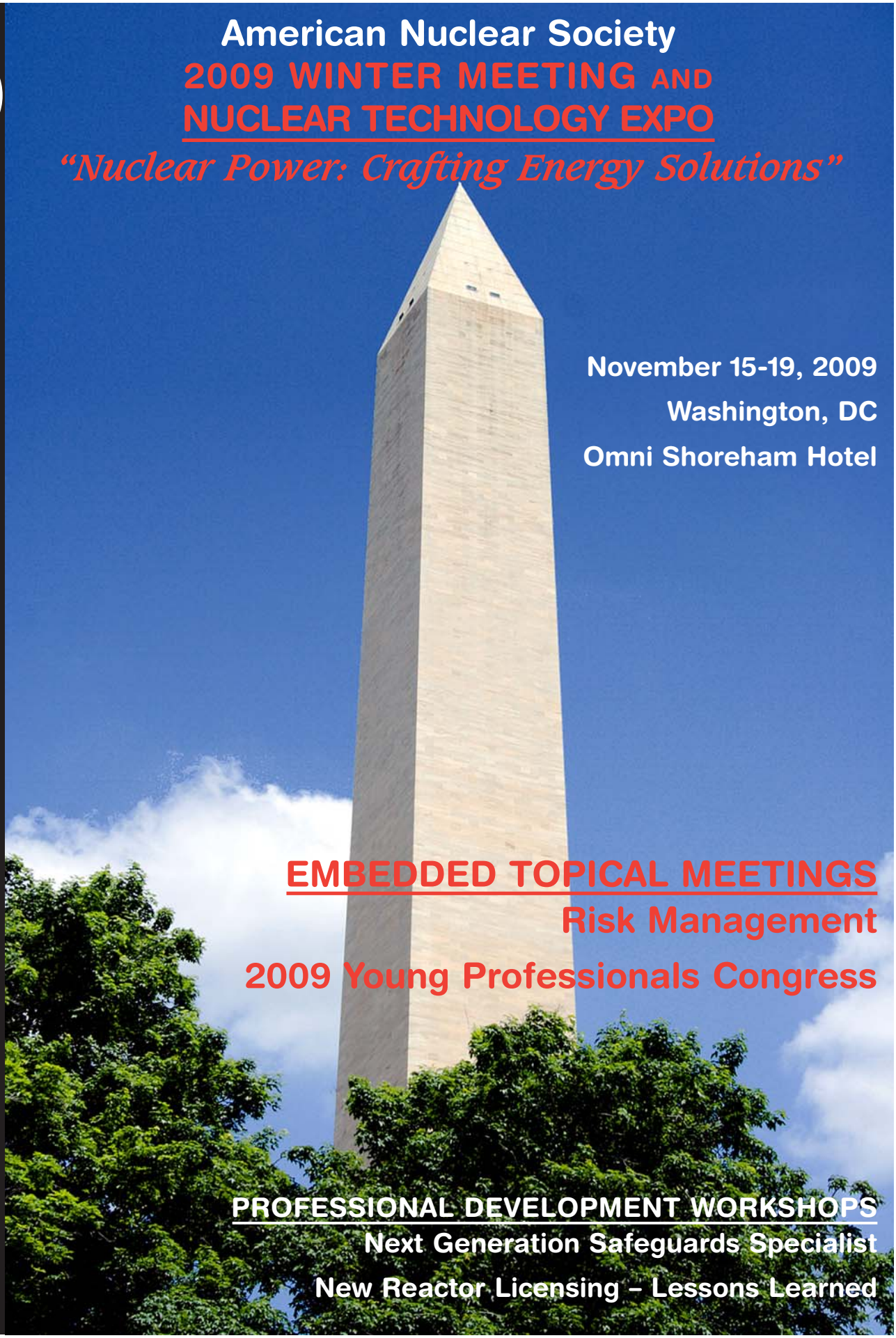

American Nuclear Society

2009 WINTER MEETING AND NUCLEAR TECHNOLOGY EXPO

"Nuclear Power: Crafting Energy Solutions"

November 15-19, 2009

Washington, DC

Omni Shoreham Hotel

EMBEDDED TOPICAL MEETINGS

Risk Management

2009 Young Professionals Congress

PROFESSIONAL DEVELOPMENT WORKSHOPS

Next Generation Safeguards Specialist

New Reactor Licensing – Lessons Learned

OFFICIAL PROGRAM

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

2009 ANS Winter Meeting

"Nuclear Power: Crafting Energy Solutions"

Embedded Topical Meetings:

Risk Management

2009 Young Professionals Congress

PLATINUM

Bechtel Nuclear

GOLD

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EXCEL Services Corporation

Southern California Edison

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AREVA

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URS Corporation, Washington Division

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Thank You!

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AMERICAN NUCLEAR SOCIETY: 2009 WINTER MEETING
AND NUCLEAR TECHNOLOGY EXPO

"Nuclear Power: Crafting Energy Solutions"

EMBEDDED TOPICAL MEETINGS:

- **Risk Management**
- **2009 Young Professionals Congress**

November 15-19, 2009 • Washington, DC • Omni Shoreham Hotel

UPDATED: 11/10/2009

This image of the Washington Monument, Washington D.C. (also on the front cover) is courtesy of David Bjorgen.

Meeting Highlights

SATURDAY, NOVEMBER 14, 2009

8:00 AM – 5:00 PM	Teachers' Workshop
5:00 PM – 8:00 PM	Professional Divisions Workshop

SUNDAY, NOVEMBER 15, 2009

9:00 AM – 5:00 PM	Professional Development Workshop: "Next Generation Safeguards Specialist"
9:00 AM – 5:00 PM	Professional Development Workshop: "New Reactor Licensing – Lessons Learned"
1:00 PM – 1:30 PM	First-Time Attendees Orientation
4:00 PM – 5:00 PM	Student Assistant Training Session
5:00 PM – 6:00 PM	Mentoring Program
6:00 PM – 7:30 PM	ANS President's Reception

MONDAY, NOVEMBER 16, 2009

8:00 AM – 10:00 AM	Spouse/Guest Hospitality
8:00 AM – 11:30 AM	2009 ANS Winter Meeting: Plenary Session: "Nuclear Power: Crafting Energy Solutions"
9:00 AM – 1:00 PM	Spouse/Guest Tour: "The Newseum Tour"
11:30 AM – 1:00 PM	Attendee Luncheon in the Nuclear Technology Expo
12:00 PM – 1:00 PM	Green Bag Lunch: "Hands-On Activities: Teacher Workshops, Boy Scout Merit Badges & Girl Scout Patches"
1:00 PM – 2:30 PM	2009 ANS Winter Meeting: ANS President's Special Session: "Global Opportunities for Right-Sized Reactors"
1:00 PM – 6:00 PM	2009 Risk Management: Opening Plenary
2:30 PM – 4:00 PM	2009 ANS Winter Meeting: Technical Sessions
2:30 PM – 4:30 PM	2009 Young Professionals Congress: Plenary Session
4:30 PM – 6:00 PM	ANS Expo Fest in the Nuclear Technology Expo
4:30 PM – 6:30 PM	2009 Young Professionals Congress: Professional Development Session: "Industry Involvement"
4:30 PM – 6:30 PM	Workshop: "Alternative Financing Techniques for Emerging and Mid-Sized Nuclear Companies"
7:00 PM – 10:30 PM	Evening Event: "Reception at the Smithsonian National Portrait Gallery"

TUESDAY, NOVEMBER 17, 2009

8:00 AM – 10:00 AM	Spouse/Guest Hospitality
8:30 AM – 11:30 PM	2009 ANS Winter Meeting: Technical Sessions
8:30 AM – 11:30 AM	2009 Risk Management: Technical Sessions
8:30 AM – 11:30 AM	2009 Young Professionals Congress: Technical Sessions
11:30 AM – 1:00 PM	ANS Honors and Awards Luncheon

TUESDAY, NOVEMBER 17, 2009 (CONTINUED)

12:00 PM – 1:00 PM	Dessert Reception in the Nuclear Technology Expo
1:00 PM – 4:00 PM	2009 ANS Winter Meeting: Technical Sessions
1:00 PM – 4:00 PM	2009 Young Professionals Congress: Technical Session
1:00 PM – 5:00 PM	Spouse/Guest Tour: "Boutique Shopping in Old Town Alexandria"
1:00 PM – 6:00 PM	2009 Risk Management: Technical Sessions
4:00 PM – 6:00 PM	Thermal Hydraulic Division Best Paper and Technical Achievement Award Ceremony
4:00 PM – 6:00 PM	Student Poster Session
4:30 PM – 6:30 PM	2009 Young Professionals Congress: Professional Development Session: "Your Personal Career"

WEDNESDAY, NOVEMBER 18, 2009

8:00 AM – 10:00 AM	Spouse/Guest Hospitality
8:30 AM – 11:30 AM	2009 ANS Winter Meeting: Technical Sessions
8:30 AM – 11:30 AM	2009 Risk Management: Technical Sessions
8:30 AM – 11:30 AM	2009 Young Professionals Congress: Technical Sessions
1:00 PM – 4:00 PM	2009 ANS Winter Meeting: Technical Sessions
1:00 PM – 4:00 PM	2009 Young Professionals Congress: Technical Sessions
1:00 PM – 6:00 PM	2009 Risk Management: Technical Sessions
4:30 PM – 6:30 PM	ANS Public Communications Workshop: "Focus on Members of Congress"
4:30 PM – 6:30 PM	2009 Young Professionals Congress: Professional Development Session: "Focus on Members of Congress"
6:15 PM – 10:30 PM	Evening Event: "Odyssey Dinner Cruise"

THURSDAY, NOVEMBER 19, 2009

8:30 AM – 11:30 AM	2009 ANS Winter Meeting: Technical Sessions
8:30 AM – 11:30 AM	2009 Risk Management: Technical Session
8:30 AM – 11:30 AM	2009 Young Professionals Congress: Tutorial
8:30 AM – 1:00 PM	2009 Young Professionals Congress: Capitol Hill Visit
12:00 PM – 5:00 PM	Technical Tour: Armed Forces Radiobiology Research Institute (AFRRI)
1:00 PM – 2:15 PM	2009 Risk Management: Technical Session
1:00 PM – 4:00 PM	2009 ANS Winter Meeting: Technical Sessions
1:00 PM – 4:00 PM	2009 Young Professionals Congress: Tutorial

FRIDAY, NOVEMBER 20, 2009

8:00 AM – 6:00 PM	DOE Workshop

Meeting Officials

GENERAL CO-CHAIR:
Carl Rau
Bechtel

GENERAL CO-CHAIR:
Mark H. Ayers
AFL-CIO Building and Construction Trades Department

ASSISTANT GENERAL CHAIR:
Alan J. Fiorente
Bechtel

TECHNICAL PROGRAM CHAIR (TPC):
Raymond H. Gabaldon III
Sandia National Laboratories

ASSISTANT TPC:
Dr. John D. Metzger
Bechtel Marine Propulsion Corporation

ASSISTANT TPC:
Larry L. Wetzel, P.E.
B&W Nuclear Operations Group

ASSISTANT TPC:
Dr. Fausto Franceschini
Westinghouse Electric Company

FINANCE CHAIR:
Edward L. (Ted) Quinn
Consultant

SPECIAL EVENTS CHAIR:
Felicia Yohe
Bechtel

STUDENT CHAIR:
Muhammad G. Fahmy
Bechtel

ASSISTANT STUDENT CHAIR:
Alex Christian
Bechtel

TECHNICAL TOUR CHAIR:
Herbert W. Massie, Jr.
Defense Nuclear Facilities Safety Board

TECHNICAL TOUR CO-CHAIR:
Dave Ebert
Retired from NRC RES

MEDIA CHAIR:
Mimi Limbach
Potomac Communications Group

Meeting Information

"Nuclear Power: Crafting Energy Solutions"

Omni Shoreham Hotel

MEETING INFORMATION

The 2009 ANS Winter Meeting will be held November 15-19, 2009, in Washington, DC. There will be two embedded topical meetings held in conjunction with the 2009 ANS Winter Meeting: Risk Management; and the 2009 Young Professionals Congress. There will also be two Professional Development Workshops held in conjunction with the 2009 ANS Winter Meeting: "Next Generation Safeguards Specialist;" and "New Reactor Licensing – Lessons Learned," as well as the ANS Nuclear Technology Expo.

ACCOMMODATIONS/ HOTEL INFORMATION

The Omni Shoreham Hotel will be the location for the 2009 ANS Winter Meeting, where all activities, technical sessions and governance committee meetings will take place.

PLEASE NOTE:
Only valet parking is available at the Omni Shoreham Hotel at the rate of $28.00 per day.

ANS NUCLEAR TECHNOLOGY EXPO

The ANS Nuclear Technology Expo will be held in conjunction with the 2009 ANS Winter Meeting in the Lower Level Exhibit Hall of the hotel. Please turn to page 58 for additional information.

TRAINING/DEMO SESSIONS ON NEW ANS ELECTRONIC PAPER REVIEW SITE FOR ANS MEETINGS

Who Should Attend:
Division Program Reps, Professional Division Members, Technical Program Chairs, Topical Meeting Organizers and Publication Chairs, Authors, Division Reviewers, anyone who has an interest in submitting a paper for consideration at an ANS Meeting.

ANS staff will demonstrate the new Electronic Paper Submission and Review (EPSR) system that is now in place for the ANS 2010 Annual Meeting. The small setting will allow for a general demonstration of all key features of the system, as well as more personalized instruction for those participants who wish to explore the system in greater detail. Specific detail will be provided on the submission and review process, along with answers to questions that you might have specific to reconciling reviews, adding attachments to review comments, etc.

Training/demo sessions are scheduled for 90-minute blocks of time; you are encouraged to attend a full 90-minute session. To accommodate the busy schedules of meeting attendees, multiple sessions are being offered to you during the meeting!

Monday, November 16, 2009 & Tuesday, November 17, 2009
8:00 AM - 9:30 AM
10:00 AM - 11:30 AM
1:00 PM - 2:30 PM
3:00 PM - 4:30 PM
6:00 PM - 7:30 PM

Wednesday, November 18, 2009
8:00 AM - 9:30 AM
10:00 AM - 11:30 AM
1:00 PM - 2:30 PM

Location: Parlor #309

ANS REGISTRATION

ANS Registration will be located at the West Registration Desk of the hotel on Saturday, November 14, 2009 through Thursday, November 19, 2009.

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, NOVEMBER 14TH
2:00 p.m. – 5:00 p.m.

SUNDAY, NOVEMBER 15TH
11:00 a.m. – 7:00 p.m.

MONDAY, NOVEMBER 16TH
7:30 a.m. – 5:00 p.m.

TUESDAY, NOVEMBER 17TH
7:30 a.m. – 5:00 p.m.

WEDNESDAY, NOVEMBER 18TH
7:30 a.m. – 5:00 p.m.

THURSDAY, NOVEMBER 19TH
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 Omni Shoreham Hotel on Sunday, November 15, 2009, 8:00 A.M. - 9:30 A.M.

NOTE:
Only workshop information will be available; all other registrants see times above.

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, November 15, 2009, in the Chairman's Boardroom.

STUDENT ASSISTANT PROGRAM

Attendance at the 2009 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, November 15, 2009, 4:00 p.m. – 5:00 p.m. in the Governor's Boardroom.

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.

MENTORING PROGRAM

A special mentoring program will be held from 5:00 p.m. – 6:00 p.m. on Sunday, November 15, 2009, in the Capitol 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, the Director's Room of the hotel, will be available during the following hours:

SUNDAY, NOVEMBER 15TH
7:30 a.m. – 3:00 p.m.

MONDAY, NOVEMBER 16TH
7:00 a.m. – 4:00 p.m.

TUESDAY, NOVEMBER 17TH
7:00 a.m. – 4:00 p.m.

WEDNESDAY, NOVEMBER 18TH
7:00 a.m. – 4:00 p.m.

THURSDAY, NOVEMBER 19TH
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: Convention Office

ANS SECRETARIAT

Location: Executive Room

ANS MEDIA CENTER

MONDAY, NOVEMBER 16TH
7:45 a.m. – 4:00 p.m.

TUESDAY, NOVEMBER 17TH
8:00 a.m. – 4:00 p.m.

WEDNESDAY, NOVEMBER 18TH
8:00 a.m. – 4:00 p.m.

Location: Committee Room

GREEN BAG LUNCH
"Hands-On Activities: Teacher Workshops, Boy Scout Merit Badges & Girl Scout Patches"
MONDAY, NOVEMBER 16, 2009
12:00 p.m. – 1:00 p.m.
Location: Embassy Room

Please join us for an interactive discussion of successful techniques for presenting nuclear science and technology information through hands-on activities. The program will include classroom presentations for middle school and high school teachers. Participants will also discuss how to organize sessions for earning the Boy Scout nuclear merit badge and Girl Scout nuclear patch. No registration is necessary, but seats are limited. Plan on bringing your lunch and trading ideas with other ANS members!

SPOUSE/GUEST HOSPITALITY

Spouse/guest hospitality breakfast will be served from 8:00 a.m. – 10:00 a.m., Monday, November 16, 2009, through Wednesday, November 18, 2009. (Location – Parlor 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.

PROFESSIONAL DEVELOPMENT WORKSHOPS

PLEASE NOTE:
Registration for the workshop(s) is separate from, and in addition to, the meeting registration fee.

Professional Development Workshop #1:
"Next Generation Safeguards Specialist"
SUNDAY, NOVEMBER 15, 2009
9:00 a.m. – 5:00 p.m.
Location: Forum Room

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

Professional Development Workshop #2:
"New Reactor Licensing – Lessons Learned"
SUNDAY, NOVEMBER 15, 2009
9:00 a.m. – 5:00 p.m.
Location: Calvert Room

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

WORKSHOP

"Alternative Financing Techniques for Emerging and Mid-Sized Nuclear Companies"
MONDAY, NOVEMBER 16, 2009
4:30 p.m. – 6:30 p.m.
Location: Hampton Ballroom

There is no registration fee for this workshop with meeting registration. Please note that if you plan on attending the workshop only, the registration fee is $200.00.

Additional details can be found on page 53.

ATTENTION RUNNERS: ANS FUN RUN

On Tuesday, November 17, 2009, 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.

STUDENT POSTER SESSION

TUESDAY, NOVEMBER 17, 2009
4:00 p.m. – 6:00 p.m.
Location: Blue Room
Pre-Function Area

Posters will be presented in the following categories:

Aerospace Nuclear Science and Technology
Alexander J. Mieloszyk

Education and Training
Leif A. Hansen

Fuel Cycle and Waste Management
Patrick J. Migliorini

Isotopes and Radiation
Cody R. Gibson
Jacob C. McComb
Bruce D. Pierson

Mathematics and Computation
Hayes F. Stripling

Nuclear Criticality Safety
Allison D. Barber
Mackenzie L. Gorham

Operations and Power
Yin Guo

Radiation Protection and Shielding
Gary Chen
Jeremy D. Northum

Meeting Information

Reactor Physics
Bo Feng
Lulu Li
Stephanie A. McKee

Thermal Hydraulics
Ashley Guzzetta
Yu-Chih Ko
Suchismita Sarangi
Koroush Shirvan
Justin D. Talley
Mohan S. Yadav

Co-op or Internship Experience and Results
Paul L. Nardone Jr.
Danielle M. Perez

Student Outreach Activities
Maria A. Catanach
Amanda E. Finkes

Cash prizes will be awarded for the best posters presented.

ANS PUBLIC COMMUNICATIONS

ANS Public Communications and Young Professionals Congress Hill Day Activity

Get ready to join your colleagues and visit Capitol Hill on November 19, 2009. To prepare you to speak with your Hill members, this Public Communications Workshop/ Professional Development Session will serve to sharpen communications skills (including best practices communications) and serve as the pre-job briefing for the Capitol Hill Visit Activity.

The two-hour program begins with Craig Piercy, ANS Washington Representative, and Mimi Limbach, Potomac Communications Group, presenting the basic principles of successfully communicating with members of Congress and staff members.

They will provide a specific framework, messages, and language that will result in fruitful meetings with policy makers.

Next, Christine Csizmadia, Nuclear Energy Institute, will present the pre-job briefing for Hill day. Included will be meeting schedules, team assignments, talking points, and a discussion of what to expect during your meetings on the Hill. Hill meetings will be scheduled anytime from 9:00 a.m. to 1:00 p.m. on Thursday, November 18.

DOE WORKSHOP

FRIDAY, NOVEMBER 20, 2009
8:00 a.m. – 6:00 p.m.
Location: Diplomat Ballroom

There is no registration fee for this workshop. Please turn to page 54 for additional details.

Exciting Attractions in Washington, DC

Teeming with American treasures, Washington, DC is home to many celebrated symbols of patriotism, unique neighborhoods, free attractions and special events.

Bring your walking shoes for visits to the many monuments and museums. And no trip to the nation's capitol is complete without a tour of the White House or the Capitol building.

From trendy Georgetown to energetic downtown, Washington, DC offers more than just tourist attractions. Home to a lively urban center with a variety of dining options and plenty of shopping, visitors can find culture at the Kennedy Center or activity on the Potomac River.

Special Events

CONFERENCE LUNCHEONS

ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXPO

MONDAY,
NOVEMBER 16, 2009
11:30 A.M. – 1:00 P.M.
LOCATION: Exhibit Hall

One ticket is included with the full meeting registration. Additional tickets can be purchased at the ANS Registration Desk for $50.

HONORS AND AWARDS LUNCHEON

TUESDAY,
NOVEMBER 17, 2009
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 at the ANS Registration Desk for $50.

EVENING EVENTS

PLEASE NOTE:
The 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,
NOVEMBER 15, 2009
6:00 P.M. – 7:30 P.M.
LOCATION: Exhibit Hall

The ANS President's Reception kicks off the meeting on Sunday, November 15, 2009.

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

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

RECEPTION AT THE SMITHSONIAN NATIONAL PORTRAIT GALLERY

MONDAY,
NOVEMBER 16, 2009
7:00 PM – 10:30 PM

The 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.

On July 1, 2006, the historic landmark building that houses both the Smithsonian American Art Museum and the National Portrait Gallery re-opened after a six year renovation, and it was well worth the wait. The structure, itself, is magnificent. Built in 1868 to serve as the nation's Patent Office, it is the third oldest federal building in the capital. With immense porticoes and columns on the outside, and colonnades, double staircases, vaulted galleries and skylights inside, the museum will dazzle you; as will the redesigned and expanded galleries, auditorium, enclosed courtyard and variety of spectacular special event space.

Together, the Portrait Gallery and the American Art Museum displays nearly 2000 works from their permanent collections. The galleries flow into one another, so you may not always realize that they have stepped from an American Art wing into the Portrait Gallery wing – nor is it necessary to notice. One of the main events is the *America's Presidents Exhibit* which features portraits of 42 presidents in depictions variously formal, dignified, casual and humorous. Other show stopping portraits feature a vast cast, including Frank Lloyd Wright, Albert Einstein, General Douglas MacArthur, Ernest Hemingway, Madonna, Arthur Ashe, Ed Sullivan, Billy Graham and Lucille Ball. You will also be dazzled by creations of such American masters as Winslow Homer, Georgia O'Keefe, David Hockney, Robert Rauschenberg, Thomas Cole, Andrew Wyeth, Mary Cassatt, and so many others.

As an added rare treat, you won't want to miss the two level glass enclosed Conservation Center, where you will be able to watch conservators working to preserve art pieces. And the Luce Foundation Center for American Art, which stores another 3,300 art works in such a way that they remain on view to you. This magnificent building and the art within will remind you that we live in a land that has fostered great and noble genius and provide you with an unforgettable experience.

The Luce Foundation Center for American Art

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

ODYSSEY DINNER CRUISE

WEDNESDAY,
NOVEMBER 18, 2009
6:15 PM – 10:30 PM

The 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.

Discover the most elegant getaway on the Potomac River

As you are boarding, the ship's photographer records the moment for your entire party. The Captain and crew greet you as you step onto the ship. From each of her three climate-controlled glass-atrium dining rooms to the outside deck, Odyssey III offers a singularly unique setting that begs to be explored: exquisitely renovated interiors; enticing dance floors, and a distinctive atmosphere reminiscent of the classic ocean liners. Be sure to visit the Captain's bridge, open to all passengers throughout most of the cruise. A menu of creative seasonal hors d'oeuvres, appetizers, entrees and desserts is prepared fresh, on board daily – complemented perfectly by an excellent wine list. Odyssey offers spacious dance floors and live music – everything from classic jazz to contemporary favorites; from a five-piece band to soft piano music – that won't end until well after the ship returns to the dock. Return, hours later: relaxed and refreshed. As you depart, you'll find your boarding photo ready for purchase.

The only vessel designed specifically to travel beneath the historic bridges spanning the Potomac, Odyssey offers exclusive river views of the nation's greatest monuments from every table. Following are some highlights that you will see on your cruise.

Jefferson Memorial
A beautiful columned rotunda, this memorial honors the nation's third president, brilliant statesman, author of the Declaration of Independence and founder of the University of Virginia. A 19-foot bronze statue of Jefferson stands beneath the rotunda, which is inscribed with inspiring passages from his writings.

Lincoln Memorial
Built to honor assassinated President Abraham Lincoln, the memorial has 36 Doric columns, one for each state at the time of Lincoln's death. Abraham Lincoln appears to be looking contemplatively over the broad expanse of the Mall from this neoclassical structure reminiscent of the Parthenon. The Gettysburg and Lincoln's Second Inaugural addresses are inscribed on the limestone walls that flank the statue.

Washington Monument
Standing 555 feet, the gleaming marble obelisk, known as the Washington Monument, is the city's most visible landmark and the tallest freestanding masonry structure in the world. The cornerstone was laid in 1848, but the Civil War brought construction to a halt, leaving an unsightly 150-foot stump until 1878, when President Grant approved the completion of the project.

Watergate Hotel
Home to the now infamous Scandal in which former CIA employees were caught trying to bug the offices of the Democratic National Committee. Ultimately the scandal forced the resignation of President Richard Nixon in 1974. Now it is home to a luxury hotel and residential apartments.

Tickets can be purchased at the ANS Registration Desk for $55.

Special Events

SPOUSE/GUEST TOURS

THE NEWSEUM TOUR

MONDAY,
NOVEMBER 16, 2009
9:00 AM – 1:00 PM

The 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.

Located on Pennsylvania Avenue between the U.S. Capitol and the White House, and adjacent to the Smithsonian museums on the National Mall, the new Newseum features six levels of displays and experiences, including more than a dozen galleries that explore the history of news and how the media covered the most important events of the past century. The experience includes an extensive News History Gallery built around the Newseum's impressive collection of more than 35,000 historic newspaper front pages; an expanded Interactive Newsroom; a state-of-the-art broadcast studio and control room with a smaller studio overlooking Pennsylvania Avenue; and familiar icons from the original Newseum: Pulitzer Prize-winning photojournalism, a Journalists Memorial dedicated to more than 1,600 journalists who died while reporting the news, and segments of the Berlin Wall.

Today your experience will begin as a Newseum staffer greets you and escorts you to the Orientation Theater. Your journey will begin with a viewing of the award-winning film "What's News?" — a film that explores the boundaries of journalism and the public's need to know. It invites you to consider the role that news plays in your life and how news unites people around the world and across generations. Filled with powerful images of war and peace, love and hate, life and death, "What's News?" offers a glimpse of what visitors can expect to see and learn during their time at the Newseum.

The Newseum Building Complex

Following the orientation film, you will be free to explore the museum at your leisure.

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

BOUTIQUE SHOPPING IN OLD TOWN ALEXANDRIA

TUESDAY,
NOVEMBER 17, 2009
1:00 PM – 5:00 PM

The 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.

Today you will have a private shopping event at Periwinkle Boutique in Old Town Alexandria. The boutique opened in 2005 by Elizabeth Mason and Gretchen Hitchner, both former politicos who shared a love of clothes and a vision of the perfect shopping experience.

The boutique features beautiful suits, the hottest new jeans, gorgeous dresses, great tees, shoes and accessories. The boutique has been featured in a variety of publications including Lucky Magazine.

Periwinkle Boutique—A cozy place where women can find beautiful clothes for any day of the week.

Elizabeth will be available to provide you with tips on the hottest new fashions. You will be sure to walk away with some "fierce" fashion finds.

Tickets can be purchased at the ANS Registration Desk for $40.

TECHNICAL TOUR

ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (AFRRI)
THURSDAY, NOVEMBER 19, 2009
12:00 PM – 5:00 PM

The 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.

AFRRI is located in Bethesda, Maryland. AFRRI is the only medical nuclear/radiological defense Research and Development Institute in the Department of Defense (DOD) and also in the United States. AFRRI has a TRIGA reactor, a Cobalt-60 source, and various other facilities for conducting research. AFRRI conducts research in radiation biology including such areas as:

- **Methods for rapidly assessing radiation exposure to assure medical treatment after an accident**
- **Prussian blue therapy for radiocesium contamination**
- **Emergency response techniques for assessing medical consequences of acute radiation injury**
- **Development of cytogenetic biological dosimetry**

The maximum number of tour participants is limited to 50 people.

PLEASE NOTE:

- **Security: You will be required to present photo identification before the start of the tour (visitors that are not US citizens will have to show proof of being authorized in the United States such as a permanent resident alien card (i.e., a Green Card) or a current US-issued visa; driver's license for US citizens)**
- **No recording devices (cameras [to include cell phone cameras], etc.) are allowed within the secure areas of the facilities.**

Tickets are no longer available.
(Lunch is not included in the price of the tour ticket – however, you can purchase lunch in the AFRRI cafeteria.)

Condensed Schedule

ROOM	MONDAY, NOVEMBER 16, 2009 8:00 AM	1:00 PM – 2:30 PM	2:30 PM – 4:00 PM	TUESDAY, NOVEMBER 17, 2009 8:30 AM – 11:30 AM	1:00 PM – 4:00 PM
Regency Ballroom	Opening Plenary: Nuclear Power: Crafting Energy Solutions	ANS President's Special Session: Global Opportunities for Right-Sized Reactors			
Empire Ballroom			Report from the Committee on New Construction–Panel	Insights, Preparations, and Challenges from New Nuclear Build Constructors–Panel	Knowledge Management–Panel
Diplomat Ballroom			Experiences with International Collaborations in Nuclear Engineering Research and Educational Exchanges–Panel	Three Mile Island 30 Years Later–Panel	Highlights from the NCSD 2009 Topical Meeting
Palladian Ballroom			Fuel Isotopic Benchmarks and Applications to Code Validation	Reactor Analysis Methods	Reactor Physics: General—I
Cabinet Room			International Programs to Enhance Safeguards Education for the Next Generation of Future Safeguards Professionals	Safety in Design of Advanced Commercial Nuclear Reactors—I	Safety in Design of Advanced Commercial Nuclear Reactors—II
Forum Room			Overview of Spent Nuclear Fuel Dry Cask Storage Program–Panel	Computational Resources for Radiation Modeling	Radiation Protection and Shielding: General—I
Hampton Ballroom			Next Generation Nuclear Plant Technology Challenges and Status– Panel	Special Session on Research Contributions of Professor Larry Hochreiter	10CFR50.46 Loss-of-Coolant Accident Criteria Revision–Panel --- *Beginning at 4:00 PM:* THD Best Paper and Technical Achievement Award Ceremony
Calvert Room			Current Issues in Computational Methods–Roundtable		
Capitol Room			Operator Interactions and Control Room Support Systems		
Embassy Room			Advances in Safeguards Technologies	Advanced Fuel Cycle Initiative—Recent Technical Achievements–Panel	U.S. Commitment to Implement and Promote Adherence to the International Atomic Energy Agency Additional Protocol—Domestic and International Efforts
Governor's Boardroom			Fusion Energy: General	Nuclear Analytical Methods for the 21st Century—Solutions of Nuclear Forensics	Nuclear Analytical Methods for the 21st Century—Role of Neutron Sources from Nonreactor Facilities
Ambassador Ballroom			Student Design Competition	Cutting-Edge Techniques in Education, Training, and Distance Learning	Focus on Communications: Meet the Media–Panel --- Focus on Communications: Communications with Policymakers–Panel
Council Room			Contributions of Nuclear Science and Technology to Sustainable Development --- Hydrogen Production, Interface of Nuclear and Chemical Plants, Safety, Materials, and Storage	Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)–Tutorial	Implementing the Linear Non-Threshold Theory of Radiation-Induced Health Effects–Panel
Senate Room			Reactor Fuels and Materials	Materials Science and Technology: General	Cooling Options—Issues for New Reactors–Papers/Panel
Blue Room				Transport Methods: General—I	Mathematical Modeling: General

Condensed Schedule

ROOM	WEDNESDAY, NOVEMBER 18, 2009 8:30 AM – 11:30 AM	 1:00 PM – 4:00 PM	THURSDAY, NOVEMBER 19, 2009 8:30 AM – 11:30 AM	 1:00 PM – 4:00 PM
Empire Ballroom	Reliability and Asset Management Progress at Nuclear Reactors–Panel	Small Power Reactors—Projects and Economics–Panel	Operations and Power: General—I	
Diplomat Ballroom	Finding Common Ground with Multiple Regulatory Agencies–Panel --- Future of Decommissioning Funds–Panel	Data, Analysis, and Operations for Nuclear Criticality Safety—I	Nuclear Criticality Safety Standards–Forum	Data, Analysis, and Operations for Nuclear Criticality Safety—II
Palladian Ballroom	Reactor Physics: General—II	Validation of Advanced Depletion Approaches for High-Temperature Gas-Cooled Reactor Fuel Designs	Reactor Physics Design, Validation, and Operating Experience	
Cabinet Room	Advances in Probabilistic Risk Assessment Methods and Applications—I	Advances in Probabilistic Risk Assessment Methods and Applications—II --- Aerospace Nuclear Science and Technology: General	Modern Analyses, Experiments, and Databases to Improve Reactor Safety—I	Modern Analyses, Experiments, and Databases to Improve Reactor Safety—II
Forum Room	Ethics in Professional Engineering–Panel	Radiation Protection and Shielding: General—II	Nuclear Fuel Cycle Codes and Applications	MCNP/MCNPX with High-Energy and Heavy Ions–Tutorial
Congressional B	Nuclear Applications of Particle Accelerators: General --- Breaking News: Status of U.S. and World Accelerator Programs–Panel	Medical Accelerator Research and Progress	Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—I	Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—II
Hampton Ballroom	Fundamentals of Multiphase Flow	Computational Thermal Hydraulics	Thermal Hydraulics Experiments, Data, and Measurement Techniques	General Thermal Hydraulics
Embassy Room	Indigenous Peoples and Uranium Production: A Holistic Perspective–Panel	Summer Internship Projects from the Next Generation Safeguards Initiative		Advanced Waste Management and Fuel Cycle Topics
Governor's Boardroom	Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—I	Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—II --- Nuclear Analytical Methods for the 21st Century–Panel	Nuclear Analytical Methods for the 21st Century—Upholding Quality Assurance and Metrology --- Isotopes and Radiation: General	Operations and Power: General—II
Blue Room	Transport Methods: General—II	Regulatory and Standards Update on Cyber Security–Panel	Thermal Hydraulics of Advanced Reactors	
Ambassador Ballroom	Workforce Development and Outreach	Best of CONTE 2009–Panel	Changes in Accreditation: How Will Your Nuclear Educational Program Accreditation Be Affected?–Panel	Robotics Research and the University Research Programs in Robotics
Council Room	Emergency Planning and Response for New and Advanced Reactors—I–Panel	Emergency Planning and Response for New and Advanced Reactors—II–Panel	Environmental Sciences: General	
Senate Room		Proactive Management of Light Water Reactor Materials Degradation–Panel	Recent Advances in Robotics–Panel	
Calvert Room			Nuclear Power Plant Condition Monitoring	Human Factors, Instrumentation, and Controls: General

(Asterisks indicate special sessions. Parentheses indicate cosponsorship.)

Special Sessions

*Opening Plenary: Nuclear Power: Crafting Energy Solutions, Mon. a.m. (8:00-11:30 a.m.)

*ANS President's Special Session: Global Opportunities for Right-Sized Reactors, Mon. p.m. (1:00-2:30 p.m.)

Accelerator Applications (AAD)

(Nuclear Analytical Methods for the 21st Century—Role of Neutron Sources, Tues. p.m.)

Nuclear Applications of Particle Accelerators: General, Wed. a.m.

Breaking News: Status of U.S. and World Accelerator Programs–Panel, Wed. a.m.

Medical Accelerator Research and Progress, Wed. p.m.

Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—I, Thurs. a.m.

Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—II, Thurs. p.m.

Aerospace Nuclear Science and Technology (ANSTD)

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

Biology and Medicine (BMD)

(Nuclear Analytical Methods for the 21st Century—Solutions for Nuclear Forensics, Tues. a.m.)

Nuclear Analytical Methods for the 21st Century—Role of Neutron Sources, Tues p.m.

Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—I, Wed. a.m.

Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—II, Wed. p.m.

Nuclear Analytical Methods for the 21st Century, Wed. p.m.

(Medical Accelerator Research and Progress, Wed. p.m.)

Nuclear Analytical Methods for the 21st Century—Upholding Quality Assurance and Metrology, Thurs. a.m.

Decommissioning, Decontamination, and Reutilization (DDRD)

Three Mile Island 30 Years Later–Panel, Tues. a.m.

Finding Common Ground with Multiple Regulatory Agencies–Panel, Wed. a.m.

Future of Decommissioning Funds–Panel, Wed. a.m.

Education, Training, and Workforce Development (ETWDD)

Student Design Competition, Mon. p.m. (3-hour session; runs until 5:30 p.m.)

Cutting Edge Techniques in Education, Training, and Distance Learning, Tues. a.m.

Focus on Communications: Meet the Media–Panel, Tues. p.m.

Focus on Communications: Communications with Policymakers–Panel, Tues. p.m.

Workforce Development and Outreach, Wed. a.m.

Best of CONTE 2009–Panel, Wed. p.m.

Changes in Accreditation: How Will Your Nuclear Educational Program Accreditation Be Affected?–Panel, Thurs. a.m.

Environmental Sciences (ESD)

Contributions of Nuclear Science and Technology to Sustainable Development, Mon. p.m.

Hydrogen Production, Interface of Nuclear and Chemical Plants, Safety, Materials, and Storage, Mon. p.m.

Multi-Agency Radiation Survey and Assessment of Materials and Equipment (MARSAME)–Tutorial, Tues. a.m.

Implementing the Linear Non-Threshold Theory of Radiation-Induced Health Effects–Panel, Tues. p.m.

Emergency Planning and Response for New and Advanced Reactors—I–Panel, Wed. a.m.

Emergency Planning and Response for New and Advanced Reactors—II–Panel, Wed. p.m.

Environmental Sciences: General, Thurs. a.m.

Fuel Cycle and Waste Management (FCWMD)

International Programs to Enhance Safeguards Education for the Next Generation of Future Safeguards Professionals *(in collaboration with the Special Committee on Nuclear Nonproliferation)*, Mon. p.m.

Advances in Safeguards Technologies *(in collaboration with the Special Committee on Nuclear Nonproliferation)*, Mon. p.m.

Advanced Fuel Cycle Initiative—Recent Technical Achievements–Panel, Tues. a.m.

U.S. Commitment to Implement and Promote Adherence to the International Atomic Energy Agency Additional Protocol—Domestic and International Efforts *(in collaboration with the Special Committee on Nuclear Nonproliferation)*, Tues. p.m.

Indigenous Peoples and Uranium Production: A Holistic Perspective *(in collaboration with the Special Committee on Nuclear Nonproliferation)*–Panel, Wed. a.m.

Technical Sessions by Division

Fuel Cycle and Waste Management (FCWMD) (CONTINUED)

Summer Internship Projects from the Next Generation Safeguards Initiative *(in collaboration with the Special Committee on Nuclear Nonproliferation)*, Wed. p.m.

Nuclear Fuel Cycle Codes and Applications, Thurs. a.m.

Advanced Waste Management and Fuel Cycle Topics, Thurs. p.m.

Fusion Energy (FED)

Fusion Energy: General, Mon. p.m.

Human Factors, Instrumentation, and Controls (HFICD)

Operator Interactions and Control Room Support Systems, Mon. p.m.

Regulatory and Standards Update on Cyber Security–Panel, Wed. p.m.

Nuclear Power Plant Condition Monitoring, Thurs. a.m.

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

Isotopes and Radiation (IRD)

Nuclear Analytical Methods for the 21st Century—Solutions for Nuclear Forensics, Tues. a.m.

(Nuclear Analytical Methods for the 21st Century—Role of Neutron Sources, Tues. p.m.)

(Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—I, Wed. a.m.)

(Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—II, Wed. p.m.)

(Nuclear Analytical Methods for the 21st Century, Wed. p.m.)

(Nuclear Analytical Methods for the 21st Century—Upholding Quality Assurance and Metrology, Thurs. a.m.)

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

Materials Science and Technology (MSTD)

Reactor Fuel and Materials, Mon. p.m.

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

Mathematics and Computation (MCD)

Current Issues in Computational Methods–Roundtable, Mon. p.m.

(Reactor Analysis Methods, Tues. a.m.)

Transport Methods: General—I, Tues. a.m.

Mathematical Modeling: General, Tues. p.m. (starts at 2:30 p.m.)

Transport Methods: General—II, Wed. a.m.

Nuclear Criticality Safety (NCSD)

Highlights from the NCSD2009 Topical Meeting, Tues. p.m.

Data, Analysis, and Operations for Nuclear Criticality Safety—I, Wed. p.m.

Nuclear Criticality Safety Standards—Forum, Thurs. a.m.

Data, Analysis, and Operations for Nuclear Criticality Safety—II, Thurs. p.m.

Nuclear Installations Safety (NISD)

Safety in Design of Advanced Commercial Nuclear Reactors—I, Tues. a.m.

Safety in Design of Advanced Commercial Nuclear Reactors—II, Tues. p.m.

Advances in Probabilistic Risk Assessment Methods and Applications—I, Wed. a.m.

Advances in Probabilistic Risk Assessment Methods and Applications—II, Wed. p.m.

Proactive Management of Light Water Reactor Materials Degradation–Panel, Wed. p.m.

Modern Analyses, Experiments, and Databases to Improve Reactor Safety—I, Thurs. a.m.

Modern Analyses, Experiments, and Databases to Improve Reactor Safety—II, Thurs. p.m.

Operations and Power (OPD)

Report from the Committee on New Construction–Panel, Mon. p.m.

Insights, Preparations, and Challenges from New Nuclear Build Constructors–Panel, Tues. a.m.

Knowledge Management–Panel, Tues. p.m.

Cooling Options—Issues for New Reactors–Paper/Panel, Tues. p.m.

Reliability and Asset Management Progress at Nuclear Reactors–Panel, Wed. a.m.

Small Power Reactors—Projects and Economics–Panel, Wed. p.m.

(Regulatory and Standards Update on Cyber Security–Panel, Wed. p.m.)

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

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

Radiation Protection and Shielding (RPSD)

Overview of Spent Nuclear Fuel Dry Cask Storage Program–Panel, Mon. p.m.

Computational Resources for Radiation Modeling, Tues. a.m.

Radiation Protection and Shielding: General—I, Tues. p.m.

Ethics in Professional Engineering–Panel, Wed. a.m.

Technical Sessions by Division

Radiation Protection and Shielding (RPSD) (CONTINUED)

Radiation Protection and Shielding: General—II, Wed. p.m.

MCNP/MCNPX with High Energy and Heavy Ions–Tutorial, Thurs. p.m.

Reactor Physics (RPD)

Experiences with International Collaborations in Nuclear Engineering Research and Educational Exchanges–Panel, Mon. p.m.

Fuel Isotopic Benchmarks and Applications to Code Validation, Mon. p.m.

Reactor Analysis Methods, Tues. a.m.

Reactor Physics: General—I, Tues. p.m.

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

Validation of Advanced Depletion Approaches for High-Temperature Gas-Cooled Reactor Fuel Designs, Wed. p.m.

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

Robotics and Remote Systems (RRSD)

Recent Advances in Robotics–Panel, Thurs. a.m.

Robotics Research and the University Research Program in Robotics, Thurs. p.m.

Thermal Hydraulics (THD)

Next Generation Nuclear Plant Challenges and Status–Panel, Mon. p.m.

Special Session on Research Contributions of Professor Larry Hochreiter, Tues. a.m.

10CFR50.46 Loss-of-Coolant Accident Criteria Revision–Panel, Tues. p.m.

Thermal Hydraulic Division Best Paper and Technical Achievement Award Ceremony, Tues. p.m.

Fundamentals of Multiphase Flow, Wed. a.m.

Computational Thermal Hydraulics, Wed. p.m.

Thermal Hydraulics Experiments, Data, and Measurement Techniques, Thurs. a.m.

Thermal Hydraulics of Advanced Reactors, Thurs. a.m.

General Thermal Hydraulics, Thurs. p.m.

Young Members Group (YMG)

(Data, Analysis, and Operations for Nuclear Criticality Safety—I, Wed. p.m.)

(Data, Analysis, and Operations for Nuclear Criticality Safety—II, Thurs. p.m.)

Technical Sessions by Day: Monday

MONDAY • NOVEMBER 16, 2009

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:00 AM – 11:30 AM	**2009 ANS WINTER MEETING: PLENARY SESSION:** "Nuclear Power: Crafting Energy Solutions"
9:00 AM – 1:00 PM	**SPOUSE/GUEST TOUR:** "The Newseum Tour"
11:30 AM – 1:00 PM	**ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXPO**
12:00 PM – 1:00 PM	**GREEN BAG LUNCH:** "Hands-On Activities: Teacher Workshops, Boy Scout Merit Badges & Girl Scout Patches"
1:00 PM – 2:30 PM	**2009 ANS WINTER MEETING: ANS PRESIDENT'S SPECIAL SESSION:** "Global Opportunities for Right-Sized Reactors"
1:00 PM – 6:00 PM	**2009 RISK MANAGEMENT: OPENING PLENARY**
2:30 PM – 4:00 PM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Report from the Committee on New Construction–Panel • Experiences with International Collaborations in Nuclear Engineering Research and Educational Exchanges–Panel • Fuel Isotopic Benchmarks and Applications to Code Validation • International Programs to Enhance Safeguards Education for the Next Generation of Future Safeguards Professionals • Overview of Spent Nuclear Fuel Dry Cask Storage Program–Panel • Next Generation Nuclear Plant Technology Challenges and Status–Panel • Current Issues in Computational Methods–Roundtable • Operator Interactions and Control Room Support Systems • Advances in Safeguards Technologies • Fusion Energy: General • Student Design Competition • Contributions of Nuclear Science and Technology to Sustainable Development • Hydrogen Production, Interface of Nuclear and Chemical Plants, Safety, Materials, and Storage • Reactor Fuels and Materials
2:30 PM – 4:30 PM	**2009 YOUNG PROFESSIONALS CONGRESS: PLENARY SESSION**
4:30 PM – 6:00 PM	**RECEPTION IN THE NUCLEAR TECHNOLOGY EXPO**
4:30 PM – 6:30 PM	**2009 YOUNG PROFESSIONALS CONGRESS: PROFESSIONAL DEVELOPMENT SESSION:** "Industry Involvement"
4:30 PM – 6:30 PM	**WORKSHOP:** "Alternative Financing Techniques for Emerging and Mid-Sized Nuclear Companies"
7:00 PM – 10:30 PM	**EVENING EVENT:** "Reception at the Smithsonian National Portrait Gallery"

Technical Sessions by Day: Monday

MONDAY, NOVEMBER 16, 2009 • 8:00 A.M.

Opening Plenary: Nuclear Power: Crafting Energy Solutions

Regency Ballroom
8:00 a.m.

OPENING REMARKS AND WELCOME:
Tom Sanders *(President, ANS)*

SPEAKERS:
- Carl Rau *(President, Bechtel Nuclear Power)*
- Steven Chu *(Secretary of Energy, Department of Energy)* – Video Presentation
- Warren F. "Pete" Miller Jr., *(Assistant Secretary for Nuclear Energy, Department of Energy)*
- Jeff Bingaman *(Senator, New Mexico)*
- Pete V. Domenici *(Retired Senator, New Mexico)*
- James E. Clyburn *(Congressman, South Carolina)*
- Gregory B. Jaczko *(Chairman, NRC)*
- Mark H. Ayers *(President, Building and Construction Trades Dept., AFL-CIO)*
- Michael (Mike) J. Wallace *(Vice Chairman and COO, Constellation Energy)*
- Lamar Alexander *(Senator, Tennessee)*
- Jim Webb *(Senator, Virginia)*

PLEASE NOTE:
PDFs of the presentations are not included in the TRANSACTIONS.

MONDAY, NOVEMBER 16, 2009 • 1:00 P.M.

ANS President's Special Session: Global Opportunities for Right-Sized Reactors

Regency Ballroom
1:00 p.m.

This session will feature presentations from representatives from several countries discussing their need for smaller systems.

SPEAKERS:
- Gustavo Alonso *(Head, Department of Nuclear Systems, Instituto National de Investigiones Nucleares, La Marquesa, Ocoyoacac, Edo. De Mexico)*
- Dr. Evgeny Velikhov *(President, Russian Research Center, Moscow, Russia)*
- Lic. Norma L. Boero *(President, National Atomic Energy Commission, Buenos Aires, Republica Argentina)*
- Dr. Shunsuke Kondo *(Chairman, Japan Atomic Energy Commission, Tokyo, Japan)*
- Dr. Ayman Hawari *(Commissioner for Nuclear Reactors at the Jordan Atomic Energy Commission and Professor of Nuclear Engineering at North Carolina State University)*
- Ross Ridenoure *(Senior Vice President and Chief Nuclear Officer, SCE)*

Additional speakers to be announced.

MONDAY, NOVEMBER 16, 2009 • 2:30 P.M.

Report from the Committee on New Construction–Panel,

sponsored by OPD. *Cochairs:* Edward Quinn *(Longenecker and Assoc)*, Kyle Turner *(McCallum Turner)*

Empire Ballroom
2:30 p.m.

This session, sponsored by the Operations and Power Division's Committee for New Construction, will discuss the status of the nuclear renaissance in the United States. Representatives from plant owners, vendors, and government will talk about the status of various projects as well as current issues and challenges.

PANELISTS:
- Tom Miller *(DOE)*
- David Matthews *(NRC)*
- Doug Walters *(NEI)*

Experiences with International Collaborations in Nuclear Engineering Research and Educational Exchanges–Panel, sponsored

by RPD. *Session Organizer:* G. Ivan Maldonado *(Univ of Tennessee)*. *Chair:* G. Ivan Maldonado

Diplomat Ballroom
2:30 p.m.

This panel session will focus on reviewing recent and ongoing international collaborative experiences in educational and research exchanges, including discussions of best practices, lessons learned, successes, failures, etc. Panelists will discuss and illustrate a variety of experiences, ranging from software development exchanges, successful international educational workshops (SCALE, MCNP, etc.), and other educational programs involving nuclear engineering universities, national laboratories, and industrial partnerships.

PANELISTS:
- Steve Bowman *(ORNL)*
- Pavel Tsvetkov *(Texas A&M Univ)*
- Tim Goorley *(LANL)*
- Lee Peddicord *(Texas A&M Univ)*
- Walter Sadowski *(Univ of Maryland)*
- Glenn Sjoden *(Univ of Florida)*
- Irina Vorobieva *(OINPE)*

Fuel Isotopic Benchmarks and Applications to Code Validation,

sponsored by RPD. *Session Organizer:* Ian C. Gauld *(ORNL)*. *Chair:* Ian C. Gauld

Palladian Ballroom
2:30 p.m.

Experiment Isotopic Data Compiled by the OECD/NEA EGADSNF, Ian C. Gauld *(ORNL)*, Yolanda Rugama *(OECD-France)*

2:50 p.m.
Evaluation of PWR Isotopic Composition Data, Georgeta Radulescu, Ian C. Gauld, Germina Ilas *(ORNL)*

3:10 p.m.
SCALE 6 Analysis of Isotopic Assay Benchmarks for PWR Spent Fuel, Germina Ilas, Ian Gauld *(ORNL)*

3:30 p.m.
Validating the VESTA Depletion Interface Using ARIANE Chemical Assay Data, Ludovic Cousin, Wim Haeck *(IRSN)*

3:50 p.m.
Validation of a Monte Carlo Based Depletion Methodology Using HFIR Post-Irradiation Measurements, David Chandler *(Univ of Tennessee)*, R. T. Primm *(ORNL)*, G. Ivan Maldonado *(Univ of Tennessee)*

International Programs to Enhance Safeguards Education for the Next Generation of Future Safeguards Professionals, sponsored by FCWMD; in collaboration with SCNN. *Session Organizer:* Caroline Jorant *(AREVA)*. *Cochairs:* John N. Dewes *(SRNL)*, Debbie Dickman *(PNNL)*

Cabinet Room
2:30 p.m.
The European Safeguards Research and Development Association Addresses Education, G. Janssens-Maenhout, P. Daures, W. Janssens *(JRC–Italy)*, R. Kusumi *(European Nuclear Education Network)*, D. Dickman *(PNNL)*, invited

2:55 p.m.
Nuclear Safeguards Education Portal at Texas A&M University, W. S. Charlton, D. G. Ford, W. D. Reece, W. H. Hsu, K. Ragusa *(Texas A&M)*

3:20 p.m.
Training Technical and Policy Decision Makers in Civilian Nuclear Power, Henry Abarbanel *(Univ of California, San Diego)*

Overview of Spent Nuclear Fuel Dry Cask Storage Program–Panel, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(Holtec International)*. *Chair:* Everett L. Redmond II *(NEI)*

Forum Room
2:30 p.m.
This panel discussion will provide a general overview of the dry cask storage program for spent nuclear fuel as well as a more technical overview of the current storage cask designs, including shielding features.

PANELISTS:
- Introduction of Panel Discussion and Panelists, Everett Redmond II *(NEI)*
- NRC Perspective on Spent Nuclear Fuel Dry Cask Storage, E. William Brach *(NRC)*
- Overview of the Magnastor Cask System, Holger Pfeifer *(NAC)*
- Overview of the NUHOMS Horizontal Cask System, Prakash Narayanan *(Transnuclear)*
- Overview of the HI-STORM 100U Underground Storage System, P. Stefan Anton *(Holtec)*

Next Generation Nuclear Plant Technology Challenges and Status–Panel, sponsored by THD. *Session Organizer:* Chang Oh *(INL)*. *Cochairs:* Chang Oh *(INL)*, Xiaodong Sun *(Ohio State Univ)*

Hampton Ballroom
2:30 p.m.
One of the key features of the Gen-IV program is the high temperature gas-cooled reactor for the Next Generation Nuclear Plant (NGNP) project. The NGNP will demonstrate the use of nuclear power for electricity and hydrogen production without producing greenhouse gas emissions. The NGNP will (a) demonstrate a full-scale prototype NGNP that is commercially licensed by the U.S. Nuclear Regulatory Commission (NRC) and (b) demonstrate safe and economical nuclear-assisted production of hydrogen and electricity. Panelists from a national laboratory, three vendors, the U.S. Department of Energy (DOE), and the U.S. Nuclear Regulatory Commission (NRC) will present their activities related to very high temperature reactors. Panelists will cover topics that are not only thermal-fluids aspects but also government perspectives and regulatory issues. Questions about materials, control, and safety will also be discussed because these issues also affect the NGNP design.

PANELISTS:
- Matt Richards *(General Atomics)*
- Lewis Lommers *(AREVA)*
- Willem Kriel *(PBMR)*
- David Petti *(INL)*
- Trevor Cook *(DOE)*
- William Reckley *(NRC)*

Current Issues in Computational Methods–Roundtable, sponsored by MCD. *Session Organizer:* Farzad Rahnema *(Naz Consulting)*. *Chair:* Farzad Rahnema

Calvert Room
2:30 p.m.
"Current and Future Neutral Particle Transport Theory Needs for Reactor Physics Calculations"
Nuclear power is a major source of electricity in many parts of the world. It is gaining increasing amounts of attention, especially within the realm of politics.

How governments, universities, small businesses, national laboratories, and commercial vendors work together will determine the future of nuclear power. The modeling and simulation of nuclear reactors requires improvements for both current and next generation reactors. This panel of scientists and engineers from commercial reactor vendors will discuss their needs for transport simulations.

Panelists from industry and other organizations to be determined.

Operator Interactions and Control Room Support Systems, sponsored by HFICD. *Chair:* Joseph Naser *(EPRI)*.

Capitol Room
2:30 p.m.
Key Factors for Modeling Operator's Information Searching Behavior in NPPs, Jun-Su Ha, Poong-Hyun Seong *(KAIST-Korea)*

2:50 p.m.
Extended Speech Act Coding Scheme to Observe Operator's Characteristics of a Main Control Room under Abnormal Condition, Seunghwan Kim, Jinkyun Park *(KAERI)*

3:10 p.m.
US-APWR Human System Interface System Verification and Validation, Kenji Mashio *(Mitsubishi Heavy Industries)*, Satoshi Hanada *(Mitsubishi Nuclear Energy Systems)*, Koichi Takahashi *(Mitsubishi Electric Corporation)*

3:30 p.m.
Challenges in the Development of Virtual Controls for Class 1E Safety Applications, Joseph P. Fowler, David A. Kulp, Paul Stankiewicz *(DRS Consolidated Controls)*

3:50 p.m.
A Distributed Test Facility Platform for Digital Instrumentation and Control Systems, Q. Guo, C. Smidts (Ohio State)

Advances in Safeguards Technologies, sponsored by FCWMD; in collaboration with SCNN. *Session Organizer:* Paul Wilson *(Univ of Wisconsin, Madison)*. *Chair:* David L. Chichester *(INL)*

Embassy Room
2:30 p.m.
Next Generation Safeguards Concepts and Approaches at ORNL, Mark D. Laughter, J. Michael Whitaker, Adam M. Shephard *(ORNL)*

2:50 p.m.
Development of a Consistent Model to Define the 186 keV Count Rate from ^{235}U Spectral Measurements, Patrick Brukiewa, Belle R. Upadhyaya *(Univ of Tennessee)*, Steven Revis *(Univ of Wisconsin)*, Jose March-Leuba, Taner Uckan, John E. Gunning *(ORNL)*

3:10 p.m.
Monitoring Simulated UF_6 Flow at Uranium Enrichment Facilities by Measuring Electrical Power Consumption of Pumps, John E. Gunning, Alan Krichinsky, Taner Uckan *(ORNL)*, Steven Revis *(Univ of Wisconsin)*, Sinsze Koo *(Univ of South Florida)*, R. Matthew Wham *(Univ of Tennessee)*

3:30 p.m.
Benchmark of Passive UF_6 Measurements and Extrapolation Methodology for Calibrating Safeguards Instruments, Steven Revis *(Univ of Wisconsin, Madison)*, Patrick Brukiewa, Belle R. Upadhyaya *(Univ of Tennessee)*, Jose March-Leuba, Taner Uckan, John E. Gunning *(ORNL)*

Fusion Energy: General, sponsored by FED. *Chair:* James Blanchard *(Univ of Wisconsin, Madison)*

Governor's Boardroom
2:30 p.m.
Ultrahigh-Density of Rydberg Matter Deuterium Clusters for ICF Targets, George H. Miley *(Univ of Illinois)*, Heinz Hora *(Univ of New South Wales)*, Lief Holmlid *(Univ of Gothenburg)*, Xiaoling Yang *(Univ of Illinois)*, Linchun Wu *(HyperV Technologies Corp)*, Larry Forsley *(JWK International)*

2:50 p.m.
Conceptual Study of Fusion Hybrid Reactor Fission Fuel Factory, Jae U. Seo, Kune Y. Suh *(Seoul Natl Univ-Korea)*

3:10 p.m.
Scaling Laws on Cross-Section for Fast Low-Charged Heavy Ions Collisions, Linchun Wu *(HyperV Technologies Corp)*, George H. Miley *(Univ of Illinois)*

3:30 p.m.
RELAP5 Model of the ITER Vacuum Vessel Cooling System, Juan J. Carbajo, Graydon L. Yoder, Seokho H. Kim *(ORNL)*

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

Ambassador Ballroom

GRADUATE CATEGORY

2:30 p.m.
A Mobile Food Irradiation Facility, Brenden Mervin, John Brittingham, David Debo, Peter Fanno *(Univ of Tennessee)*

The following undergraduate entries have been selected by a panel of judges from industry as finalists in the 2009 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

2:55 p.m.
Reactor Safety and Mechanical Design for the Annular Pebble-Bed AHTR, Rada Hong, Steve Huber, Kenneth Lee, Patrick Purcell, Sahak Margossian, John-David Seelig *(Univ of California, Berkeley)*

3:20 p.m.
H_2-PBMR: Hydrogen Producing Pebble Bed Modular Reactor, Badal Juneja, Jellieth Cardona, Daniel Long, Matthew Marzano *(Univ of Florida)*

3:45 p.m.
Conceptual Design of a Mobile Facility for Food Irradiation Using Electron Linear Accelerator Technology, J. D. Chavers, P. D. Brukiewa, A. M. Chinn, M. T. Cook, D. C. Cooper *(Univ of Tennessee)*

4:10 p.m.
Concluding Remarks by Judges and Announcement of Contest Results.

Contributions of Nuclear Science and Technology to Sustainable Development, sponsored by ESD. *Chair:* Kenneth Schultz *(General Atomics)*

Council Room
2:30 p.m.
Advanced Recycle—Why Now? William H. Hannum *(Retired)*

2:50 p.m.
AREVA NC Return on Experience from D&D—What We Have Learned So Far, Jean-Michel Chabeuf, Guy Decobert, Thierry Varet *(AREVA NC)*

3:10 p.m.
Nuclear Energy System Providing an Environmentally Benign, Sustainable, and Secure Energy Source, David E. Ames II, Pavel V. Tsvetkov *(Texas A&M)*, Gary E. Rochau, Salvador Rodriguez *(SNL)*

3:30 p.m.
A Nuclear-Geothermal Heat Storage System for Daily, Weekly, and Seasonal Peak Electricity Production, C. Forsberg, D. Solis *(MIT)*

Hydrogen Production, Interface of Nuclear and Chemical Plants, Safety, Materials, and Storage, sponsored by ESD. *Session Organizer:* Kenneth Schultz *(General Atomics)*. *Chair:* Kenneth Schultz

Council Room

3:55 p.m.
Parametric Study on Sulfuric-Acid Decomposer and Sulfur-Trioxide Decomposer in Sulfur-Iodine Process, J. H. Kim, S. D. Hong, Y. W. Kim *(KAERI)*

4:15 p.m.
Optimization of the Hybrid Sulfur Cycle for Nuclear Hydrogen Production Using UniSim Design, Yong Hun Jung, Yong Hoon Jeong, Woo Seok Jeong *(KAIST–Korea)*

NOTE: This session will immediately follow the preceding session, which will begin at 2:30 p.m.

Reactor Fuels and Materials, sponsored by MSTD. *Session Organizer:* Kenneth Geelhood *(PNL)*. *Chair:* Totju Totev *(ANL)*

Senate Room
2:30 p.m.
TRIGA Type U-ZrH Cladding Steady State Mechanical Limitations, Michael K. Black, James J. Dahl, Jeff L. Dohner, Michael R. Greutman *(SNL)*

2:50 p.m.
Characterization of Metallic Fuel for the Transmutation of Minor Actinides in Fast Reactor, V. V. Rondinella *(Inst for Transuranium Elements)*, H. Ohta *(CRIEPI–Japan)*, D. Papaioannou *(Inst for Transuranium Elements)*, T. Ogata *(CRIEPI–Japan)*, R. Nasyrow *(Inst for Transuranium Elements)*, T. Koyama *(CRIEPI–Japan)*, J.-P. Glatz *(Inst for Transuranium Elements)*

3:10 p.m.
Progress in Fuel Pellet Fabrication and Thermo-Physical Analysis at PNNL, Andrew M. Casella, Brady D. Hanson, Paul J. MacFarlan *(PNNL)*

3:30 p.m.
Status of U-Zr SFR Fuel Test in Hanaro, Jin-Sik Cheon, Byoung-Oon Lee, Yong-Sik Yang, Cheol-Gyo Seo, Chan-Bock Lee *(KAERI)*

3:50 p.m.
Combustion Synthesis of Nitride Nuclear Fuel Using Surrogate Materials, C. D. Donohoue, J. J. Moore *(Colorado School of Mines)*, J. R. Kennedy *(INL)*

4:10 p.m.
Imaging of the Diffusion of Silver in Graphite, Thomas R. Boyle, Robert V. Tompson, Said Daibes Figueroa, Tushar K. Ghosh, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

4:30 p.m.
The RADFUEL Concept to Accelerate Fuel Qualification, Brady D. Hanson, Andrew M. Casella, Carl E. Beyer *(PNNL)*

Technical Sessions by Day: Tuesday

TUESDAY • NOVEMBER 17, 2009

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:30 AM – 11:30 AM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Insights, Preparations, and Challenges from New Nuclear Build Constructors–Panel • Three Mile Island 30 Years Later–Panel • Reactor Analysis Methods • Safety in Design of Advanced Commercial Nuclear Reactors—I • Computational Resources for Radiation Modeling • Special Session on Research Contributions of Professor Larry Hochreiter • Advanced Fuel Cycle Initiative—Recent Technical Achievements–Panel • Nuclear Analytical Methods for the 21st Century—Solutions for Nuclear Forensics • Transport Methods: General—I • Cutting-Edge Techniques in Education, Training, and Distance Learning • Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)–Tutorial • Materials Science and Technology: General
8:30 AM – 11:30 AM	**2009 RISK MANAGEMENT EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 44)
8:30 AM – 11:30 AM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 47)
11:30 AM – 1:00 PM	**ANS HONORS AND AWARDS LUNCHEON**
1:00 PM – 4:00 PM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Knowledge Management–Panel • Highlights from the NCSD2009 Topical Meeting • Reactor Physics: General—I • Safety in Design of Advanced Commercial Nuclear Reactors—II • Radiation Protection and Shielding: General—I • 10CFR50.46 Loss-of-Coolant Accident Criteria Revision–Panel • U.S. Commitment to Implement and Promote Adherence to the International Atomic Energy Agency Additional Protocol—Domestic and International Efforts • Nuclear Analytical Methods for the 21st Century—Role of Neutron Sources from Nonreactor Facilities • Mathematical Modeling: General • Focus on Communications: Meet the Media–Panel • Focus on Communications: Communications with Policymakers–Panel • Implementing the Linear Non-Threshold Theory of Radiation-Induced Health Effects–Panel • Cooling Options—Issues for New Reactors–Papers/Panel
1:00 PM – 4:00 PM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: TECHNICAL SESSION** (see page 47)
1:00 PM – 5:00 PM	**SPOUSE/GUEST TOUR** "Boutique Shopping in Old Town Alexandria"
1:00 PM – 6:00 PM	**2009 RISK MANAGEMENT EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 44)
4:00 PM – 6:00 PM	**THERMAL HYDRAULIC DIVISION BEST PAPER AND TECHNICAL ACHIEVEMENT AWARD CEREMONY**
4:00 PM – 6:00 PM	**STUDENT POSTER SESSION**
4:30 PM – 6:30 PM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: PROFESSIONAL DEVELOPMENT SESSION:** "Your Personal Career"

TUESDAY, NOVEMBER 17, 2009 • 8:30 A.M.

Insights, Preparations, and Challenges from New Nuclear Build Constructors–Panel, sponsored by OPD. *Chair:* Edward Shyloski *(Shaw)*

Empire Ballroom
8:30 a.m.

A large number of new nuclear plants are planned internationally, in many parts of the world on many continents. Some of the challenges involved are the lack of availability of skilled labor, experienced engineers, and qualified nuclear component vendors. Other issues include the completion of the detailed Generation III + designs. Many new nuclear plants under construction have opened their sites to international governments' regulatory benchmarking visits. Domestic U.S. nuclear waste and fuel processing plants such as WTP, MOX, and LES and international commercial nuclear plants have experienced design/procurement/construction problems. This session will bring together individuals involved in some of these lead projects to share their insights and lessons learned.

PANELISTS:
- Ken Aupperle *(High Bridge Associates)*
- Bruce Hinton *(Westinghouse Welding and Machining)*
- Robert J. Taylor, Jr. *(Kiewit Power)*
- R. Anbalagan *(Larsen & Toubro)*
- John Simmons *(URS)*
- Hiroya Mori *(Toshiba)*
- Xiaoliang Deng *(CNF)*

Three Mile Island 30 Years Later–Panel, sponsored by DDRD. *Session Organizer:* Jim Byrne *(Byrne Assoc)*. *Chair:* Jack Devine *(WorleyParsons)*

Diplomat Ballroom
8:30 a.m.

It has been 30 years since the accident at Three Mile Island, and with the nuclear industry beginning to emerge from the "doldrums" caused by the accident it is appropriate to look back at lessons learned and remind the new generation of engineers and operators that things can go wrong. This session will relate the history of the accident as well as lessons learned and how they are being applied to the next generation of facilities.

PANELISTS:
- Political/Governmental Behind the Scenes Activities During the Accident,
  Sam Walker *(NRC Historian)*
- Technical Aspects of the Accident,
  Tony Barrata *(Chief Technical Judge, NRC Atomic Safety and Licensing Board)*
- What Happened That Morning,
  Ed Frederick *(Control Room Operator during the accident)*
- Training Lessons Learned,
  Joe Kowalski *(Silver Fox Synergies)*

Reactor Analysis Methods, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Cochairs:* Nam Zin Cho *(KAIST–Korea)*, Dimitrios Cokinos *(BNL)*

Palladian Ballroom

8:30 a.m.
SCALE-Based Lattice Physics for CANDU Core Simulations, Shane Hart *(Univ of Tennessee)*, Bryan Broadhead, Ron Ellis *(ORNL)*, G. Ivan Maldonado *(Univ of Tennessee)*

8:55 a.m.
Study of Monte Carlo Depletion under Leakage-Corrected Critical Spectrum, Sunghwan Yun, Nam Zin Cho *(KAIST–Korea)*

9:20 a.m.
Generation of Homogenized Nodal Parameters by Monte Carlo Method with Non-Zero Leakage Spectra in Global-Local Iteration Framework, Nam Zin Cho, Sunghwan Yun, Jaejun Lee *(KAIST–Korea)*

9:45 a.m.
Asymptotic Analysis in Nuclear Reactor Theory, Eugene P. Wigner Reactor Physicist Award Lecture, Edward W. Larsen *(Univ of Michigan)*, invited

10:10 a.m.
A Hybrid Monte Carlo-S_2 Method with No Spatial Truncation Error, Emily R. Wolters, Edward W. Larsen, William R. Martin *(Univ of Michigan)*, invited

10:35 a.m.
Comparison of Partial Current Formulations for Response Matrix Method Based on SP3 Theory, Kenichi Tada, Akio Yamamoto, Yoshihiro Yamane *(Nagoya Univ)*, Shinya Kosaka, Gou Hirano *(TEPCO Systems Corp)*

11:00 a.m.
Pin Power Redistribution due to Control Rod Depletion Within the Westinghouse NEXUS System, Fausto Franceschini, Baocheng Zhang *(Westinghouse)*

Safety in Design of Advanced Commercial Nuclear Reactors—I, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Duke Energy)*. *Chair:* Raymond Gallucci *(NRC)*

Cabinet Room

8:30 a.m.
Severe Accident Prevention and Mitigation Features of the NuScale PWR Design, Rick Johnson, Jason Pottorf *(NuScale Power)*, Mark Leonard *(dycoda)*, Mohammad Modarres *(Univ of Maryland)*, Michael Corradini *(Univ of Wisconsin, Madison)*, Vijay K. Dhir *(Univ of California, Los Angeles)*, Joy Rempe *(INL)*

8:55 a.m.
Evaluation of Dynamic Pressures from Steam Explosions Applied to the NuScale PWR, Michael L. Corradini, James P. Blanchard, Carl J. Martin *(Univ of Wisconsin, Madison)*

9:20 a.m.
Cost and Safety Features of 500 MW_e to 1150 MW_e Traveling-Wave Reactor Plants, Charles Ahlfeld, Pavel Hejzlar, Robert Petroski, Thomas A. Weaver, Ash Odera, Thomas Burke, Jon McWhirter *(TerraPower)*

9:45 a.m.
Application of 3D Core Kinetics Methodology for US-APWR Safety Analysis, Yuta Maruyama *(Mitsubishi Nuclear Energy Systems)*, Junto Ogawa, Hisanaga Takahashi *(Mitsubishi Heavy Industries)*

10:10 a.m.
Technical Guideline for LMFR Fuel Design, N. Nakae, T. Baba, K. Kamimura *(Japan Nuclear Energy Safety Organization)*

10:35 a.m.
Metal Fires and Their Implications for Advanced Reactors, Tara J. Olivier, Thomas K. Blanchat, John C. Hewson, Steven P. Nowlen *(SNL)*

Computational Resources for Radiation Modeling, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(Holtec International)*. *Chair:* Pedro Vaz *(ITN)*

Forum Room

8:30 a.m.
MCNP-BRL: A Linkage between MCNP and CAD Geometry, Kursat B. Bekar, Thomas M. Evans *(ORNL)*

8:55 a.m.
Monte Carlo CAD-Based Radiation Transport Modeling with McCad and MCNP, A. Serikov, U. Fischer, D. Grosse *(FzK–Germany)*

9:20 a.m.
MCNPX Updated Muonic X-Ray Library, Alex B. McKinney, Michael R. James, Gregg W. McKinney *(LANL)*

9:45 a.m.
Use of Detector Response Functions and Deterministic Flux Calculations in Count Rate Predictions, Andrew M. Casella, Christopher J. Gesh, L. Eric Smith *(PNNL)*

10:10 a.m.
Surface and Volume Integrals of Uncollided Adjoint Fluxes and Forward-Adjoint Flux Products in Arbitrary Three-Dimensional Geometries Using MCNP, Jeffrey A. Favorite *(LANL)*

10:35 a.m.
Parallel Communication Speedup Limits for MCNPX, Michael Liesenfelt, Samim Anghaie *(Univ of Florida)*

11:00 a.m.
Duct Streaming Validation Benchmark Calculations with a Global Importance Map, C. J. Solomon *(Kansas State Univ)*, A. Sood *(LANL)*

Special Session on Research Contributions of Professor Larry Hochreiter, sponsored by THD. *Cochairs:* Robert Martin *(AREVA)*, Cesare Frepoli *(Westinghouse)*. All papers invited.

This session is dedicated to the late Professor Larry Hochreiter. During his tenure at the Westinghouse Electric Corporation and Pennsylvania State University, Professor Hochreiter endeavored for the advancement of thermal-hydraulics and reactor safety as applied to the design and analysis of both current generation and new plants. This session includes invited papers presented by his former students and/or colleagues reflecting his research interests.

Hampton Ballroom
8:30 a.m.
Spacer Grid Rewet and Droplet Size in RBHT Reflood Experiments, S. M. Bajorek *(NRC)*, F. B. Cheung *(Penn State)*

8:55 a.m.
Reflood Heat Transfer Data Retrieval-FLECHT Experiments, Sule Ergun *(Hacettepe Univ)*, Douglas J. Miller *(Penn State)*

9:20 a.m.
Westinghouse Best-Estimate LOCA Methodology and WCOBRA/TRAC Computer Code: Two Decades of Continuous Development and Safety Analysis Applications in the Industry, Cesare Frepoli, Katsuhiro Ohkawa, Mitchell E. Nissley, Michael Y. Young *(Westinghouse)*

9:45 a.m.
Break Spectrum Studies for TRACG Realistic BWR LOCA Application, A. Kurshad Muftuoglu, Guanjun Li, Jeffrey D. Rambo, Baris Sarikaya *(GE Hitachi Nuclear)*

10:10 a.m.
A U.S. EPR-Specific PIRT for Containment Safety Analysis, Robert P. Martin *(AREVA NP)*, Phillip Attal *(AREVA NP SAS)*, Bert Dunn *(AREVA NP)*, Alain Giri *(AREVA NP SAS)*, Larry E. Hochreiter *(Penn State)*, John Klingenfus, Chris Molseed *(Areva NP)*, Calvin Ritchey *(AREVA NP SAS)*, Liliane Schor, Hengliang Shen *(AREVA NP)*, Pascal Yguel *(AREVA NP SAS)*

10:35 a.m.
The Role of Scale Model Testing in the Development and Licensing of the AP1000, Richard F. Wright, Lawrence Conway, Terry L. Schulz *(Westinghouse)*

11:00 a.m.
Three-Field Counter-Current Flow Limitation (CCFL) Model, Jeffrey W. Lane *(Penn State)*, D. L. Aumiller Jr. *(Bettis Atomic Power Lab)*, L. E. Hochreiter, F. B. Cheung *(Penn State)*

Advanced Fuel Cycle Initiative—Recent Technical Achievements–Panel, sponsored by FCWMD. *Session Organizer:* Terry Todd *(INL)*. *Chair:* Robert Price *(DOE)*

Embassy Room
8:30 a.m.
This panel discusses key developments in the AFCI Program.

PANELISTS:
- Radiation Chemistry in Solvent Extraction Systems, Bruce Mincher *(INL)*
- Alloy Waste Form Composition Development and Characterization, Mark Williamson *(SRNL)*
- Cost Benefit Analysis of Minimizing System Losses, Brent Dixon *(INL)*
- Nuclear Waste Management and Repository Requirements, Mark Nutt *(ANL)*
- Microcalorimeter Nuclear Spectrometers: Introduction, Science Challenges, and Recent Results, Michael Rabin *(LANL)*
- Nuclear Theory Development for Broad Range Covariant Support of the Future Fuel Cycle, Patrick Talou *(LANL)*
- Multi-Scale, Multi-Physics Modeling of Nuclear Fuels, Chris Stanek *(LANL)*

Nuclear Analytical Methods for the 21st Century—Solutions for Nuclear Forensics, sponsored by IRD; cosponsored by BMD. *Session Organizer:* Jack Brenizer *(Penn State)*. *Chair:* Jack Brenizer

Governor's Boardroom
8:30 a.m.
Application of the Monte Carlo–Library Least-Squares (MCLLS) Approach to Nuclear Threat Monitoring, Cody R. Peeples, Robin P. Gardner, Daniel P. Speaker *(NCSU)*

8:55 a.m.
Neutron Radiography of Water Freezing in the Gas Diffusion Layer of a Hydrogen Fuel Cell, Andrew Gilbert, Carlos Hidrovo, Steven Biegalski, Mark Deinert *(Univ of Texas, Austin)*

9:20 a.m.
Surface Analysis of Electrodeposited Actinide Sources for Alpha Spectroscopy, Amanda Leigh Klingensmith, William R. Kinman, Alex Plionis, Stephen P. Lamont *(LANL)*

9:45 a.m.
On-Line Process Monitoring of Commercial Spent Nuclear Fuel Reprocessing Streams, Amanda M. Johnsen, Chuck Z. Soderquist, James M. Peterson, Sam A. Bryan, Tatiana G. Levitskaia *(PNNL)*

10:10 a.m.
MOUDI Sampling of Airborne Uranium Particles at the LANL Uranium Foundry, Alexander A. Plionis, Dominic S. Peterson, Lav Tandon, Stephen P. Lamont *(LANL)*

10:35 a.m.
Initial Design Considerations of Neutron Intercepting Silicon Chip *(NISC)*, C. Çelik, K. Ünlü *(Penn State)*

Transport Methods: General—I, sponsored by MCD. *Session Organizer:* Todd Urbatsch *(LANL)*. *Chair:* Patrick Brantley *(LLNL)*

Blue Room

8:30 a.m.
A High Order Finite Difference Algorithm for the One-Group Diffusion Equation, Barry D. Ganapol *(Univ of Arizona)*, David W. Nigg *(INL)*

8:55 a.m.
2-D Anisotropic Diffusion in Optically Thin Channels, Edward W. Larsen, Travis J. Trahan *(Univ of Michigan)*

9:20 a.m.
Evaluation of Transport Effects and Spatial Domain Decomposition into Transport and Diffusive Subdomains in 1D Geometry, Dmitriy Y. Anistratov *(NCSU)*

9:45 a.m.
Nonlinear P_1 Closure for Rapid Transients in Radiation Transport, Kyeong Sam Oh, James Paul Holloway *(Univ of Michigan)*

10:10 a.m.
Time-Dependent Neutral Particle Transport in Spherical Geometry, Paolo Picca *(Politecnico di Torino-Italy)*, Barry D. Ganapol, Roberto Furfaro *(Univ of Arizona)*

10:35 a.m.
Goal-Oriented *h*-type Adaptive Mesh Refinement for the SN Neutron Transport Equation Solved with DGFEM, Yaqi Wang, Jean C. Ragusa *(Texas A&M)*

11:00 a.m.
Application of Discontinuity Factor for the Integro-Differential Transport Equation, Akio Yamamoto *(Nagoya Univ)*

Cutting-Edge Techniques in Education, Training, and Distance Learning, sponsored by ETWDD. *Session Organizer:* Peter F. Caracappa *(RPI)*. *Chair:* Peter F. Caracappa

Ambassador Ballroom
8:30 a.m.
Education Innovation in the Virginia Tech Nuclear Engineering Curriculum, Mark Pierson *(Virginia Tech)*

8:55 a.m.
Advanced Nuclear Welding Technician Training Program, Larry R. Zirker, Marvin J. Harker *(INL)*

9:20 a.m.
An Introductory One Hour Survey Course in Concepts in Nuclear and Radiation Engineering, S. Landsberger *(Univ of Texas, Austin)*

9:45 a.m.
Concept Mapping for Meaningful Learning, Knowledge Retention, and Transfer, Michael M. Mann, Jane LeClair *(R.E. Ginna Nuclear)*

10:10 a.m.
Texas Atomic Film Festival, Steven Biegalski, Juan Garcia *(Univ of Texas, Austin)*

Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)–Tutorial, sponsored by ESD. *Session Organizer:* Amanda Anderson *(DOE)*. *Chair:* Amanda Anderson

Council Room
8:30 a.m.
This session will focus on the objective of the Multi-Agency Radiation Survey and Assessment of Materials and Equipment (MARSAME) manual, which is to provide information on approaches for planning, implementing, assessing, and documenting surveys to determine proper disposition of materials and equipment, while simultaneously encouraging an effective use of resources.

MARSAME is a multi-agency consensus document developed collaboratively by the Department of Defense (DOD), the Department of Energy (DOE), the Environmental Protection Agency (EPA), and the Nuclear Regulatory Commission (NRC). MARSAME is a supplement to the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).

The potential for residual radioactivity can come from the use of source, by-product, and special nuclear materials as well as from naturally occurring radioactive material (NORM), naturally occurring and accelerator-produced radioactive materials (NARM) and technologically enhanced naturally occurring radioactive material (TENORM). Owners of materials and equipment (M&E) potentially affected by radioactivity need to determine acceptable disposition options for M&E currently under their control. Disposition includes the future use, fate, or final location for the M&E, and options range from release (clearance, recycle, reuse, disposition as waste, or transfer of control) to interdiction (taking control or increasing control of the associated radioactivity).

The manual is available for download at http://hss.energy.gov/nuclearsafety/env/radprotection/.

SPEAKERS:
- Amanda Anderson *(DOE)*
- Kathryn Snead *(EPA)*
- Richard Meehan *(NNSA)*

Materials Science and Technology: General, sponsored by MSTD. *Session Organizer:* Kenneth Geelhood *(PNL)*. *Chair:* Travis Knight *(Univ of South Carolina)*

Senate Room
8:30 a.m.
Kinetics of Formation of Cuboctahedral Defect Clusters in UO_2, Dilpuneet Aidhy, Simon R. Phillpot *(Univ of Florida)*, Paul C. Millet, Tapan Desai, Dieter Wolf *(INL)*, James S. Tulenko *(Univ of Florida)*

8:55 a.m.
On the Microstructural and Mechanical Characterization of Diffusion Bonded Alloy 617 Plate Specimens for High-Temperature Compact Heat Exchangers, Sai K. Mylavarapu, Raymond R. Unocic, Xiaodong Sun, Richard N. Christensen *(Ohio State)*

9:20 a.m.
On the Diffusion Bonding of Alloy 617 for High-Temperature Compact Heat Exchangers, Sai K. Mylavarapu, Xiaodong Sun, Richard N. Christensen *(Ohio State)*, James Vaughn *(Refrac Systems)*

9:45 a.m.
Study of High Temperature Emissivity of Structural Materials of Interest to Very High Temperature Reactor System, Raymond K. Maynard, Tushar K. Ghosh, Robert V. Tompson, Dabir S. Viswanath, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

10:10 a.m.
Characterization of Literature Adsorption Data for Cesium on Graphite, Sean Branney, Tushar K. Ghosh, Sudarshan K. Loyalka, Dabir S. Viswanath *(Univ of Missouri, Columbia)*

10:35 a.m.
Advance Graphite Capsule Successfully Fabricated Using Computer-Controlled Welding System, Marvin J. Harker, Scott Barrie, Larry R. Zirker *(INL)*

TUESDAY, NOVEMBER 17, 2009 • 1:00 P.M.

Knowledge Management–Panel, sponsored by OPD. *Chair:* Patricia Eng *(NRC)*

Empire Ballroom
1:00 p.m.
Knowledge management is capturing critical information and making the right information available to the right people at the right time. Capturing the hard-earned lessons learned and best practices gleaned from over 40 years of practical nuclear experience and making them readily available to less experienced staff is an industry-wide challenge. In this session, panelists from the U.S. Nuclear Regulatory Commission, utilities, national laboratories, and the International Atomic Energy Agency present their organizations' knowledge management initiatives and share lessons learned and best practices associated with these initiatives.

PANELISTS:
- Martin J. Virgilio *(NRC)*
- Maria Korsnick *(Constellation Energy)*
- Patricia L. Eng *(NRC)*
- Andrea Koch *(NRC)*
- Peter Michael Herttrich *(Germany Ministry for the Environment, Nature Conservation, and Nuclear Safety)*

Highlights from the NCSD 2009 Topical Meeting, sponsored by NCSD. *Session Organizer:* Michaele Brady Raap *(PNL)*. *Chair:* Michaele Brady Raap

This session includes presentation highlights from the NCSD 2009 Topical Meeting, September 13–17, 2009.

The full papers are available on the NCSD 2009 CD and can be purchased through the American Nuclear Society. The selected papers will address the following technical subject areas: Realism in Benchmark Selection and Modeling Assumptions; Realistic Safety Margins; Robustness in the Development of Criticality Controls; Realism in the Application of the Double Contingency Principle; and Criticality Safety Needs to Support the Global Renaissance of Nuclear Power, including training, education, and workforce needs.

Diplomat Ballroom
1:00 p.m.
A Re-introduction to Anomalies of Criticality, E. D. Clayton *(retired)*, B. M. Durst *(Bechtel)*, A. W. Prichard *(PNNL)*, R. Puigh *(FGG, Editor)*

1:25 p.m.
Rocky Flats CAAS System Recalibrated, Retested, and Analyzed to Install in the Criticality Experiments Facility at the Nevada Test Site, Soon Kim, David Heinrichs, Debdas Biswas, Song Huang, George Dulik, John Scorby *(LLNL)*, Robert Wilson *(DOE)*, Moe Boussoufi, Ben Liu *(UC-Davis)*

1:50 p.m.
Development and Implementation of a Nuclear Criticality Safety Program at AECL, Christine Racicot, Lloyd Dunn, Jeremy Whitlock *(AECL)*

2:15 p.m.
Chemistry Aspects of the Hanford Tank Waste Treatment and Immobilization Plant (WTP) Criticality Safety Evaluation, David Losey *(MAC)*, Robert Miles, Marshall Perks *(Bechtel)*

2:40 p.m.
A Review of Best Practices for Monte Carlo Criticality Calculations, Forrest Brown *(LANL)*

3:05 p.m.
Validation of KENO V.a Code for High Flux Isotope Reactor (HFIR), Richard Taylor *(Consultant)*

3:30 p.m.
Criticality Experiments in Kyoto University Criticality Assembly for Development of >5wt% Enrichment Erbia Bearing Super High Burnup Fuel, Tomohiro Endo, Masatoshi Yamasaki, Takeshi Kuroishi *(Nuclear Fuel Industries)*, Hironobu Unesaki, Tadafumi Sano *(Kyoto Univ)*, Akio Yamamoto *(Nagoya Univ)*

Reactor Physics: General—I, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* Thomas M. Sutton *(Knolls Atomic Power Lab)*

Palladian Ballroom
1:00 p.m.
A Five-Year Core for a Small Modular Light Water Reactor, Alexey Soldatov, Todd S. Palmer *(Oregon State Univ)*, invited, Mark Mills Award Winner

1:25 p.m.
MARS/FREK Spatial Kinetics Coupled Fast Reactor System Code: Initial Development and Assessment, Moo Hoon Bae, Jae Hyun Cho, Han Gyu Joo *(Seoul Natl Univ–Korea)*

1:50 p.m.
An Improved Inverse Analysis Model for Core Calculation of Fuel Loading Pattern Optimization in LWRs, Hoai Nam Tran, Akio Yamamoto, Yoshihiro Yamane *(Nagoya Univ)*

2:15 p.m.
An Improved Benchmark Model for BIG TEN, Russell D. Mosteller *(LANL)*

2:40 p.m.
Measurements of Reactivity Worth of Rare-Earth Elements at Kyoto University Critical Assembly, Hidemasa Okochi, Akio Yamamoto, Yoshihiro Yamane *(Nagoya Univ)*, Takanori Kitada *(Osaka Univ)*, Hironobu Unesaki *(Kyoto Univ–Japan)*

3:05 p.m.
Direct Use of Depleted Uranium As Fuel in a Traveling-Wave Reactor, Robert Petroski *(TerraPower)*

3:30 p.m.
Subcriticality Estimation of Large FBR by the Detectable Multiplication Factor kdet, Kei Sugawara, Yoshihiro Yamane, Akio Yamamoto *(Nagoya Univ)*, Shigeaki Okajima *(Japan Atomic Energy Agency)*

Safety in Design of Advanced Commercial Nuclear Reactors—II, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Duke Energy)*. *Chair:* David Diamond *(BNL)*

Cabinet Room
1:00 p.m.
Developing Regulatory Processes in Countries with New Reactor Programs, Richard Barrett, Sergey Katsenelenbogen *(AdSTM)*, John Ramsey *(NRC)*

1:25 p.m.
Risk Informed Design Choices Using the Technology Neutral Framework, Matthew Denman, Neil Todreas, Michael Driscoll *(MIT)*

1:50 p.m.
Identifying and Characterizing Candidate Areas for Siting New Nuclear Capacity in the United States, G. T. Mays, W. C. Jochem, S. R. Greene, R. J. Belles, M. S. Cetiner, S. W. Hadley *(ORNL)*

2:15 p.m.
Study of Noncondensable Gases Effect on VVER Steam Generator Operation, A. V. Morozov, O. V. Remizov, D. S. Kalyakin *(IPPE–Russia)*

2:40 p.m.
Sensitivity Analysis Using the Method of Taguchi Orthogonal Arrays, Kyle Metzroth, Tunc Aldemir *(Ohio State)*, Kevin Hogan, Karen Vierow *(Texas A&M)*

3:05 p.m.
Analysis of a Particulate Debris Bed Coolability with Single Phase Flow, Jewhan Lee *(KAIST–Korea)*, Chungho Cho *(KAERI)*, Soon-Heung Chang *(KAIST–Korea)*

3:30 p.m.
Friction Coefficient Measurement Test on 13MN Tendon for US-APWR PCCV, Tomoyuki Kitani *(Mitsubishi Heavy Industries)*, Akira Shimizu *(Obayashi Corporation)*, Hikaru Ogasawara *(Mitsubishi Nuclear Energy Systems)*

Radiation Protection and Shielding: General—I, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(Holtec International)*. *Chair:* Sherif Nafee *(Alexandria Univ)*

Forum Room
1:00 p.m.
An Analytical Approach for the Calibration of HPGe Cylindrical Detector Using an Inverted Well Beaker, S. S. Nafee, M. S. Badawi, A. M. Abdel-Moneim, S. A. Mahmoud, M. I. Abass *(Alexandria Univ)*

1:25 p.m.
Evolutionary Artificial Neural Networks in Neutron Dosimetry, J. M. Ortiz-Rodriguez, M. R. Martinez-Blanco *(Universidad Autonoma de Zacatecas)*, E. Gallego *(Universidad Politecnica de Madrid)*, H. R. Vega-Carrillo *(Universidad Autonoma de Zacatecas)*

1:50 p.m.
An Analytical Approach to Calibrate the 4π NaI(Tl) Gamma-Ray Detector Array for the in vivo Neutron Activation Analysis, S. S. Nafee *(Alexandria Univ)*

2:15 p.m.
Comprehensive Validation of Space Radiation Models, Ryan B. Norman *(Univ of Tennessee)*, Steve R. Blattnig *(NASA, Langley)*, Lawrence W. Townsend *(Univ of Tennessee)*

2:40 p.m.
Experimental Evaluation of Resonance Neutron Spectrum in Boron-Doped Low Activation Concrete, Tatsuhiko Ogawa, Takeshi Iimoto, Toshiso Kosako *(Univ of Tokyo–Japan)*

3:05 p.m.
Neutron Spectra in Two 10 MV Linacs, Héctor René Vega-Carrillo, Victor Martin Hernandez-Davila *(Universidad Autonoma de Zacatecas)*, Teodoro Rivera Montalvo *(CICATA-IPN Unidad Legaria)*

3:30 p.m.
Shielding and Dose Calculations for a Radiation Survey of a Hot Cell Structure, Garry Schramm, R. T. Perry, Art Crawford *(LANL)*

Technical Sessions by Day: Tuesday

10CFR50.46 Loss-of-Coolant Accident Criteria Revision–Panel, sponsored by THD. *Session Organizers:* Kurshad Muftuoglu *(GE Hitachi Nuclear)*, Ken Yueh *(EPRI)*. *Cochairs:* Kurshad Muftuoglu, Ken Yueh

Hampton Ballroom
1:00 p.m.
Earlier this year, the U.S. NRC issued an Advanced Notice for Proposed Rulemaking regarding 10CFR50.46 Loss-of-Coolant Accident analysis acceptance criteria changes. The revision to the rule represents a major change since it was enacted in 1971. Among the issues are new limits on cladding oxidation due to high burnup effects, new testing requirements for breakaway oxidation, requirements about the treatment of crud in LOCA analysis, and significant error or change threshold for reporting purposes. This session will cover the technical basis for the revision, its implications, and industry and regulatory positions.

PANELISTS:
- Paul Clifford *(NRC)*
- Bert Dunn *(AREVA)*
- Yang-Pi Lin *(Global Nuclear Fuel)*
- Mitch Nissley *(Westinghouse)*
- Gregg Swindlehurst *(Duke Energy)*

Thermal Hydraulic Division Best Paper and Technical Achievement Award Ceremony

Hampton Ballroom
4:00 p.m.

Presentation of awards and lecture by Professor Mujid Kazimi, 2009 TAA winner.

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

U.S. Commitment to Implement and Promote Adherence to the International Atomic Energy Agency Additional Protocol—Domestic and International Efforts, sponsored by FCWMD; in collaboration with SCNN. *Session Organizer:* Linda Hansen *(ANL)*. *Chair:* Linda Hansen. All invited.

Embassy Room
1:00 p.m.
Role of the Bureau of Industry and Security (BIS) in Implementing the Additional Protocol to the U.S.–IAEA Safeguards Agreement, Hung Ly *(U.S. Dept of Commerce)*

1:25 p.m.
The Department of Energy Perspective on Implementation of the U.S.–IAEA Additional Protocol, Jill Zubarev *(DOE)*

1:50 p.m.
U.S.–IAEA Additional Protocol Implementation—The First Year, Steve Adams *(Dept of State)*

2:15 p.m.
The U.S. Nuclear Regulatory Commission's Implementation of the U.S./IAEA Additional Protocol, Thomas A. Grice *(NRC)*

2:40 p.m.
International Efforts to Implement and Promote Adherence to the IAEA Additional Protocol, Matthew C. Van Sinkle *(DOE)*

Nuclear Analytical Methods for the 21st Century—Role of Neutron Sources from Nonreactor Facilities, sponsored by BMD; cosponsored by IRD, AAD. *Session Organizer:* S. Landsberger *(Univ of Texas, Austin)*. *Chair:* Steven Biegalski *(Univ of Texas, Austin)*. All invited.

Governor's Boardroom
1:00 p.m.
Future Roles for Portable Electronic Neutron Generators, D. L. Chichester *(INL)*

1:25 p.m.
Cylindrical IEC Neutron Source for Broad Area NAA, G. H. Miley, H. Leon, G. Amadio *(Univ of Illinois)*

1:50 p.m.
Measuring (n,f) Cross-Sections of Short-Lived States, J. I. Katz *(Washington Univ in St. Louis)*

2:15 p.m.
Use of Neutron Generator for High Sensitivity Activation Analysis, María E. Morell González, Michael R. Hartman *(Univ of Michigan)*

2:40 p.m.
Current Demand for Fast Neutron Activation Anlaysis Services, W. D. James, M. R. Raulerson *(Texas A&M)*

3:05 p.m.
In Vivo Elemental Analysis Using Neutron Generators, Joseph Kehayias, Eric Gruber *(USDA-HNRC at Tufts Univ)*

Mathematical Modeling: General, sponsored by MCD. *Session Organizer:* Todd Urbatsch *(LANL)*. *Chair:* Juliette Cahen *(CEA–France)*

Blue Room
2:30 p.m.
Verification of Cellular Neural Network (CNN) Applied to T_N Equation in Slab Geometry, K. Hadad *(Univ of Arizona)*, A. Pirouzmand *(Shiraz Univ)*, B. D. Ganapol *(Univ of Arizona)*

2:55 p.m.
A Comparison of the Differential Evolution and Levenberg-Marquardt Methods for Solving Inverse Transport Problems with Several Unknowns in Cylindrical Geometries, Keith C. Bledsoe, Jeffrey A. Favorite *(LANL)*

3:20 p.m.
MCNP-PoliMi Calculations of Cf-252 Measurements for Subcritical HEU Annular Castings, J. J. Henkel, J. T. Mihalczo *(ORNL)*

3:45 p.m.
Reactor Loose Part Damage Assessments on Steam Generator Tube Sheets, W. Cyrus Proctor, J. Michael Doster *(NCSU)*

4:10 p.m.
Modeling of Transient Reactor Behavior within a Geologic Repository, Trevor Wilcox, William Culbreth *(UNLV)*

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

Ambassador Ballroom
1:00 p.m.
With the potential of an American nuclear energy renaissance rising 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 editors and reporters 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)*
- Angela Pointer *(Dow Jones Newswires)*
- George Lobsenz *(Energy Daily)*
- Jim Van Nostrand *(McClatchy Newspapers)*

Focus on Communications: Communications with Policymakers–Panel, sponsored by ETWDD. *Session Organizer:* Dave Pointer *(ANL)*. *Chair:* Laura Hermann *(Potomac Communications Group)*

Ambassador Ballroom
2:35 p.m.
With the American Nuclear Society's current emphasis on grassroots communications, providing members with the 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:
- David Gilbert *(Constellation Energy Group)*
- Craig Piercy *(Washington Rep, ANS)*
- Annie Caputo *(U.S. Senate Energy and Water Committee)*
- Tim Valentine *(Baker Center)*

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

Implementing the Linear Non-Threshold Theory of Radiation-Induced Health Effects–Panel, sponsored by ESD. *Session Organizer:* Ruth Weiner *(SNL)*. *Chair:* Ruth Weiner

Council Room
1:00 p.m.
This panel will discuss aspects of implementing the LNT, the epidemiological evidence for and against the LNT, how it is used by federal agencies, and communicating to the public.

PANELISTS:
- Kenneth Mossman *(Arizona State Univ)*
- Lee Abramson *(Retired)*
- Patrice Bubar *(NRC)*
- James Clarke *(Vanderbilt Univ)*

Cooling Options—Issues for New Reactors–Papers/Panel, sponsored by OPD. *Cochairs:* Edward Quinn *(Longenecker and Assoc)*, Kyle Turner *(McCallum Turner)*

Senate Room
PAPERS
1:00 p.m.
Global Water Resources and Cooling System Challenges and Solutions, Atam Rao, Ibrahim Khamis *(IAEA–Austria)*

1:25 p.m.
Cooling Water Issues and Opportunities at U.S. Nuclear Power Plants, Thomas Miller, Martha Shields, Richard Reister *(DOE)*, Gary Vine *(Longenecker and Associates)*

PANEL DISCUSSION
1:50 p.m.
PANELISTS:
- Tom Konerth *(UniStar)*
- David Matthews *(NRC)*
- Tom Mulford *(EPRI)*
- Doug Walters *(NEI)*

Technical Sessions by Day: Wednesday

WEDNESDAY • NOVEMBER 18, 2009

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:30 AM – 11:30 AM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Reliability and Asset Management Progress at Nuclear Reactors–Panel • Finding Common Ground with Multiple Regulatory Agencies–Panel • Future of Decommissioning Funds–Panel • Reactor Physics: General—II • Advances in Probabilistic Risk Assessment Methods and Applications—I • Ethics in Professional Energineering–Panel • Nuclear Applications of Particle Accelerators: General • Breaking News: Status of U.S. and World Accelerator Programs–Panel • Fundamentals of Multiphase Flow • Indigenous Peoples and Uranium Production: A Holistic Perspective–Panel • Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—I • Transport Methods: General—II • Workforce Development and Outreach • Emergency Planning and Response for New and Advanced Reactors—I–Panel
8:30 AM – 11:30 AM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 47)
9:00 AM – 11:30 AM	**2009 RISK MANAGEMENT EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 44)
1:00 PM – 4:00 PM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Small Power Reactors—Projects and Economics–Panel • Data, Analysis, and Operations for Nuclear Criticality Safety—I • Validation of Advanced Depletion Approaches for High-Temperature Gas-Cooled Reactor Fuel Designs • Advances in Probabilistic Risk Assessment Methods and Applications-II • Aerospace Nuclear Science and Technology: General • Radiation Protection and Shielding: General—II • Medical Accelerator Research and Progress • Computational Thermal Hydraulics • Summer Internship Projects from the Next Generation Safeguards Initiative • Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—II • Nuclear Analytical Methods for the 21st Century–Panel • Regulatory and Standards Update on Cyber Security–Panel • Best of CONTE 2009–Panel • Emergency Planning and Response for New and Advanced Reactors—II–Panel • Proactive Management of Light Water Reactor Materials Degradation–Panel
1:00 PM – 4:00 PM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 47)
1:00 PM – 6:00 PM	**2009 RISK MANAGEMENT EMBEDDED TOPICAL MEETING: TECHNICAL SESSIONS** (see page 44)
4:30 PM – 6:30 PM	**ANS PUBLIC COMMUNICATIONS WORKSHOP/ 2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: PROFESSIONAL DEVELOPMENT SESSION:** "Focus on Members of Congress"
6:15 PM – 10:30 PM	**EVENING EVENT** "Odyssey Dinner Cruise"

WEDNESDAY, NOVEMBER 18, 2009 • 8:30 A.M.

Reliability and Asset Management Progress at Nuclear Reactors–Panel, sponsored by OPD. *Chair:* Kenneth Ferguson *(K. L. Ferguson LLC)*

Empire Ballroom
8:30 a.m.

Effective and efficient performance of commercial nuclear power reactors is a cornerstone of value and benefit. Continued attention and vigilance maintains and enhances these levels of performance. This session includes utilities, vendors, and consultants providing information on programs being planned and implemented to productively manage nuclear plant assets and their reliable performance. Topics are expected to include technology solutions and technical initiatives involving the operating fleet as well as new reactors being considered for power generation. The audience will gain an appreciation of capabilities and attentions oriented to plant asset management with a focus on equipment reliability.

PANELISTS:
- Kenneth Ferguson *(K.L. Ferguson LLC)*
- Bryan Griner *(Southern Co)*
- Larry Corr *(Westinghouse)*
- John Achenbach *(Black & Veatch)*
- Charles McCarthy *(Northrop Grumman)*
- John Charest *(Altran Solutions)*

Finding Common Ground with Multiple Regulatory Agencies–Panel, sponsored by DDRD. *Session Organizer:* Nadia Glucksberg *(MACTEC)*. *Chair:* Jay Peters *(MACTEC)*

Diplomat Ballroom
8:30 a.m.

Each regulatory agency has specific criteria to reach site closure under decontamination and decommissioning (D&D). This session will compare the different requirements of federal and state agencies and explore how they overlap and/or contradict each other and how to find common ground. This session will also discuss potential shifts in how the new administration may impact these regulations. Panelists will include NRC, EPA, and state regulators as well as industry representatives.

PANELISTS:
- Richard Chang *(NRC)*
- Stuart Walker *(EPA)*
- James Thompson *(Dewey LaBeouf)*
- Thomas Magette *(Energy Solutions)*

Future of Decommissioning Funds–Panel, sponsored by DDRD. *Session Organizer:* Nadia Glucksberg *(MACTEC)*. *Cochairs:* Dennis Ferrigno *(CAF and Assoc)*, Tom Magette *(EnergySolutions)*

Diplomat Ballroom
10:00 a.m.

With the current stock market decline from October 2008, decommissioning funds for nuclear utilities have suffered in a decline of equity.

For some nuclear facility decontamination and decommissioning (D&D) funds, this may present an issue in that the D&D funds are underfunded and may have issues in correcting the funding levels. In some cases, the situation is similar to housing and commercial real estate markets that are in a negative equity state.

This session includes panelists from the utility and financial communities as well as from specific regulators addressing the path forward.

PANELISTS:
- Congressional View of the D&D for Private and Public Sector, Corey McDaniel *(Independent Consultant)*
- Private Sector D&D Fund Issues, Tom Magette *(EnergySolutions)*
- DOE D&D Program Status Update, Jack Surash *(DOE)*
- Paducah D&D Status, Dennis Ferrigno *(DOE)*
- Regulator, to be determined
- Financial Brokerage, to be determined

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

Reactor Physics: General—II, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* David Nigg *(INL)*

Palladian Ballroom

8:30 a.m.
Uncertainty Propagation in the Estimation Reactor Core Flux/Power Distributions, Ryanne Kennedy, Tunc Aldemir *(Ohio State)*

8:55 a.m.
Unionizing Cross-Sectional Energy Grids for SCALE Applications, James Banfield *(Univ of Tennessee)*, Sedat Goluoglu, Dorothea Wiarda *(ORNL)*, G. Ivan Maldonado *(Univ of Tennessee)*

9:20 a.m.
Detectability of Pin Diversion in PWR Spent Fuel Assemblies, J. S. Burdo *(Univ of Cincinnati)*, G. Maldonado *(Univ of Tennessee)*, J. M. Christenson *(Univ of Cincinnati)*, Y. S. Ham *(LLNL)*

9:45 a.m.
Study on TRU Deep-Burn with a Silicon Carbide Inert Matrix Fuel in an MHR, Chang Keun Jo, Yonghee Kim *(KAERI)*, F. Venneri *(Logos Technologies)*, Jae Man Noh *(KAERI)*

10:10 a.m.
Application of the AFCI Covariance Data to Uncertainty Evaluation of Fast System Integral Parameters, Gerardo Aliberti, Richard D. McKnight, Won Sik Yang *(ANL)*

10:35 a.m.
Americium-241 Irradiation Analysis in Experimental Fast Reactor Joyo, Hiroshi Sagara, Tetsuro Yamamoto, Tomo-oki Shiba *(Tokyo Inst Technol–Japan)*, Shigetaka Maeda, Shin-ichi Koyama *(Japan Atomic Energy Agency)*, Masaki Saito *(Tokyo Inst Technol–Japan)*

11:00 a.m.
An Assessment of the Impact of AmCm Target Rods on the Core Physics of a PWR, Mike Thomas, Andrew Worrall *(UK Natl Nuclear Lab)*, Chris Phillips *(Energy Solutions)*, Alan Wells *(Consultant)*

Advances in Probabilistic Risk Assessment Methods and Applications—I, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Duke Energy)*. *Chair:* Stephen P. Schultz

Cabinet Room

8:30 a.m.
Functional Event Trees for Use with the Technology Neutral Framework, Brian Johnson *(MIT)*

8:55 a.m.
Risk Analysis of Anticipated Transient Without Scram Unfavorable Exposure Time, R. W. Fosdick, R. C. Anderson *(Dominion)*

9:20 a.m.
Application of Korean Piping Failure Data to Korean Flooding PSA, Sun Yeong Choi, Joon-Eon Yang *(KAERI)*

9:45 a.m.
Probabilistic Basis and Assessment Methodology for Effectiveness of Protecting Nuclear Materials, Felicia A. Durán, Gregory D. Wyss *(SNL)*

10:10 a.m.
Development of a Probabilistic Safety Assessment Model by Combining the Fault Tree Model for the Risk and Trip Assessment of a Nuclear Power Plant, Mee Jeong Hwang, Sang-Hoon Han, Joon-Eon Yang *(KAERI)*

10:35 a.m.
Analysis of Repairable Systems Using Reliability Graph with General Gates, Gyoung Tae Goh, Seung Ki Shin, Poong Hyun Seong *(KAIST–Korea)*

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

Forum Room

8:30 a.m.
This panel will try to tackle many of the difficulties associated with engineering ethics, providing attendees with a thoughtful overview of good engineering direction for ethical considerations in the workplace.

PANELISTS:
- Are There Gray Areas in Ethics and How to Address This Concept, Howard Shaffer *(2001 Congressional Fellow–Consultant)*
- Good Engineering Judgment: What Is It, How and When Should It Be Used, Robert D. Busch *(Univ of New Mexico)*

- How Do Personal Morality and Professional Ethics Overlap for Safety Related Engineering Work?
  Charles T. Rombough *(CTR Tech Svc)*
- How to Handle Management/Employer Pressure to Attain an Incorrect Result,
  Charlotta E. Sanders *(Holtec)*
- When and How Is Due Diligence Expected in Professional Engineering,
  Glenn E. Sjoden *(Univ of Florida)*
- Knowing What Is Right, Doing What Is Right, Managing Competing Choices That Both Appear Right,
  Vic Uotinen *(CNF)*

Nuclear Applications of Particle Accelerators: General, sponsored by AAD. *Session Organizer:* Denis Beller *(UNLV)*. *Chair:* Thomas Ward *(TechSource)*

Congressional B
8:30 a.m.
Status of Innovative Transmutation Systems, Alexander Stanculescu *(IAEA–Austria)*, invited

8:55 a.m.
Neutronic Benchmarking of Transmutation by Adiabatic Resonance Crossing Experiment, Ismailov Kairat *(Tokyo Inst Technol–Japan)*, Nishihara Kenji, Sasa Toshinobu *(Japan Atomic Energy Agency)*, Saito Masaki *(Tokyo Inst Technol–Japan)*

Breaking News: Status of U.S. and World Accelerator Programs–Panel, sponsored by AAD. *Chair:* Thomas Ward *(TechSource)*

Congressional B
9:25 a.m.
Invited panelists will present the latest information on the status of a variety of established, new, and developing accelerators from around the world. Speakers may represent universities (e.g., the Gaertner Lab at Rensselaer Polytechnic Institute and the Idaho Accelerator Center at Idaho State University), U.S. laboratories (e.g., the Spallation Neutron Source at Oak Ridge National Laboratory), or international laboratories (e.g., the National Science Center at the Kharkiv Institute of Physics and Technology, Ukraine). Panelists will describe the status of facilities and recent and/or current experimental programs at existing facilities. In addition, new developments in accelerator facilities, programs, and projects will be presented.

PANELISTS:
- IAEA and International Status,
  Alexander Stanculescu *(IAEA)*
- Accelerator Developments in Industry and National Labs,
  Thomas Ward *(TechSource)*
- Medical Accelerator Status,
  Carol Johnstone *(Fermilab)*
- MEGAPIE Experiment,
  Werner Wagner *(Paul Scherrer Inst)*
- Spallation Neutron Source with the World's Only High-Power Mercury Target,
  Phillip Ferguson *(ORNL)*
- EUROTRANS FP6: Toward a European Transmutation Demonstration, MYRRHA, and XT-ADS,
  Gert Van den Eynde *(SCK/CEN–Belgium)*

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

Fundamentals of Multiphase Flow, sponsored by THD. *Cochairs:* Hisashi Ninokata *(Tokyo Inst Technol–Japan)*, Michael Podowski *(RPI)*

Hampton Ballroom
8:30 a.m.
Measuring Two-Phase Annular Flow Liquid Film Thickness with PLIF, DuWayne Schubring *(Univ of Florida)*, Andrea C. Ashwood, Timothy A. Shedd *(Univ of Wisconsin, Madison)*, Evan T. Hurlburt *(Bettis Laboratory)*

8:55 a.m.
Numerical Study on Liquid Droplet Impingement Erosion in BWRs, Rui Li, Elia Merzari, Hisashi Ninokata *(Tokyo Inst Technol–Japan)*

9:20 a.m.
Radioactive Single- and Multiple-Particle Tracking Methods for PBR Flow Studies, Zhijian Wang, Kyoung O. Lee, Robin P. Gardner *(NCSU)*

9:45 a.m.
Relaxation Time Concept for Flow Regime Transition in Two-Phase Flow Simulations, V. A. Phung, P. Kudinov *(KTH–Sweden)*

10:10 a.m.
Lattice Boltzmann Simulation of Liquid Drop Coalescence Driven by Surface Tension, Prashant K. Jain *(Univ of Illinois)*, Adrian Tentner *(ANL)*, Rizwan-uddin *(Univ of Illinois)*

10:35 a.m.
Heat Transfer Coefficient Development for a Thin-Plate Jet Impingement Study, S. Cadell, J. Luitjens, Q. Wu *(Oregon State Univ)*

11:00 a.m.
Proper Orthogonal Decomposition Analysis of Jet Flows Injecting into a Rod Bundle, Noushin Amini, Yassin A. Hassan *(Texas A&M)*

~~**Indigenous Peoples and Uranium Production: A Holistic Perspective–Panel,** sponsored by FCWMD; in collaboration with SCNN. *Session Organizers:* Rod Grebb *(HER Creative Solutions)*, Michelle Rehmann *(International Forum on Sustainable Options for Uranium Production)*, Mervyn Tano *(International Inst for Indigenous Resource Management)*. *Chair:* Michelle Rehmann~~

~~**Embassy Room**~~ **THIS SESSION HAS BEEN CANCELLED.**

~~8:30 a.m.~~

~~This session will begin with presentations by delegates of indigenous peoples, the uranium industry, NGOs, and government agencies. Presentations will focus on each group's experience and perspectives concerning the new generation of uranium production with a view toward prevention of new legacy sites and closure of past sites. Following the presentations, a roundtable discussion consistent with the multiparty endeavors of the International Forum on Sustainable Options for Uranium Production (IFSOUP) will highlight the views of governments, indigenous peoples, NGOs, and regulators on the front end of the nuclear fuel cycle, with discussion of uranium production as part of a holistic nuclear fuel cycle that includes social justice, nonproliferation, and waste reduction.~~

THIS SESSION HAS BEEN CANCELLED.

~~PANELISTS:~~

- ~~The Navajo Uranium Mines Reclamation Program, Madeline Roanhorse *(Navajo Nation AML/UMTRA Department)*~~
- ~~A Trip to France: Corporate Social Responsibility, Education, and Capacity Building in Indian Country, Mervyn L. Tano *(International Institute for Indigenous Resource Management)*~~
- ~~Benefits Sharing+ in Northern Saskatchewan, Loch Willy *(AREVA Resources Canada/Canadian First Nations Representative)*~~
- ~~The Social Justice Implications of Uranium Mining on Native Lands, June Lorenzo *(In House Counsel, Pueblo of Laguna)*~~
- ~~U.S. NRC Outreach Programs, Eliot Brenner, Keith McConnell *(NRC)*~~
- ~~IAEA Programmes for Sustainable Uranium Recovery, Hortz Monken Fernandez *(IAEA)*~~
- ~~U.S. DOE Legacy Sites on Indian Lands, Raymond M. Plieness *(DOE)*~~
- ~~Sustainability and Uranium Recovery Moratorium in Virginia, Patrick Wales *(Virginia Uranium)*~~
- ~~IFSOUP Outcomes and Updates, Michelle Rehmann *(WMSymposia)*, Rod Grebb *(IFSOUP)*~~

Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—I, sponsored by BMD; cosponsored by IRD. *Session Organizer:* William D. James *(Texas A&M)*. *Chair:* William D. James. All invited.

Governor's Boardroom

8:30 a.m.
Neutron Activation Analysis and Reference Materials – from Development to Sophistication, R. Zeisler *(NIST)*

9:10 a.m.
Frontiers in Chemical Analysis with Nuclear Activation-Decay, E. A. Schweikert *(Texas A&M)*

9:30 a.m.
Quantification of Gold Nanoparticles in Mouse Tissues Using Neutron Activation Analysis, Russell P. Watson, Rachel S. Popelka-Filcoff *(NIST)*, Gabriela Kramer-Marek *(Natl Cancer Inst, Natl Institutes of Health)*, Elizabeth A. Mackey, Rabia O. Spatz *(NIST)*, Jacek Capala *(Natl Cancer Inst, Natl Institutes of Health)*

9:50 a.m.
Animations for Neutron Activation Analysis, Sheldon Landsberger, Andrea Rudd, Jewel Aguirre *(Univ of Texas, Austin)*

10:10 a.m.
INAA for Assessing Anthropogenic Impact in Tropical Forest, A. L. L. Araújo, E. A. N. Fernandes, M. A. Bacchi, E. J. França, G. A. Sarriés *(Nuclear Energy Center for Agriculture–Brazil)*

10:30 a.m.
Estimation of the Blank and Its Effect on Uncertainty and the Detection Limit in Pre-Concentration Neutron, S. E. Glover, H. B. Spitz *(Univ of Cincinnati)*

10:50 a.m.
Platinum Group Elements at a Traffic Tunnel in Lisbon: Performance of Neutron Activation Analysis, M. C. Freitas *(ITN–Portugal)*

Transport Methods: General—II, sponsored by MCD. *Session Organizer:* Todd Urbatsch *(LANL)*. *Chair:* Wei Ji *(RPI)*

Blue Room

8:30 a.m.
Estimating Reactivity Changes from Material Substitutions with Continuous Energy Monte Carlo, Brian Kiedrowski *(Univ of Wisconsin, Madison)*, Forrest Brown *(LANL)*

8:55 a.m.
Kernel Density Estimation Method for Monte Carlo Tallies with Unbounded Variance, Kaushik Banerjee, William R. Martin *(Univ of Michigan)*

9:20 a.m.
A Comparison of Monte Carlo Particle Transport Algorithms for an Interior Source Binary Stochastic Medium Benchmark Suite, Patrick S. Brantley *(LLNL)*

9:45 a.m.
Asymptotic Analysis of Spatial Discretizations in Implicit Monte Carlo: Extension to a Courant Time-Step Limit, Jeffery D. Densmore *(LANL)*

10:10 a.m.
Second Order Approximations for Spatial Discretization in Arnoldi's Method for Monte Carlo Criticality Calculations, Jeremy Lloyd Conlin, James Paul Holloway *(Univ of Michigan)*

10:35 a.m.
Application of a Non-Intrusive Convergence Acceleration to Criticality Calculations, H. Park, D. A. Knoll *(INL)*, B. D. Ganapol *(Univ of Arizona)*

11:00 a.m.
Calculation of Sub-Critical Multiplication Using a Simplified Fission Matrix Method, William Walters, Alireza Haghighat, Michael Wenner *(Univ of Florida)*, Shivakumar Sitaraman, Young Ham *(LLNL)*

Workforce Development and Outreach, sponsored by ETWDD. *Session Organizer:* John Wheeler *(Entergy)*. *Chair:* Elizabeth McAndrew-Benavides *(NEI)*

Ambassador Ballroom
8:30 a.m.
Texas' Efforts to Increase Nuclear Technology Workforce, Kenneth Krieger, Linda Morris *(Texas State Technical College)*

8:55 a.m.
Changing a Culture Using Deployed Mentors As Change Agents, Stephen A. Arner, Nels C. Jensen *(Epsilon Systems Solutions)*

9:20 a.m.
Reactor Simulator Competition: An Innovative Approach to Attract Future Professionals for NPP Program, C. Tippayakul, D. Saengchantr *(Thailand Inst of Nuclear Technol)*, V. Watcharasuragul *(Office of Atoms for Peace)*

9:45 a.m.
Education Programs at the Advanced Test Reactor National Scientific User Facility, J. B. Benson, M. K. Meyer, M. C. Thelen, T. R. Allen *(INL)*

10:10 a.m.
Use of DOE Visitor Centers for Public/Student Nuclear Education, J. Malvyn McKibben, J. Walter Joseph *(SRS Heritage Foundation)*, Clinton R. Wolfe *(CNTA)*

10:35 a.m.
2009 Nuclear Engineering Student Delegation, Jacob DeWitte *(MIT)*, David Gennardo *(Univ of Illinois)*

Emergency Planning and Response for New and Advanced Reactors—I–Panel, sponsored by ESD. *Session Organizer:* Kent Welter *(NuScale Power)*. *Chair:* Terry Heames *(Alion)*

Council Room
8:30 a.m.
With the resurgence of license applications for both new and advanced reactors, the industry is taking a fresh look at requirements for emergency planning zones (EPZs). Current regulations suggest a 10-mile plume exposure pathway EPZ, with a potential exception for medium to small reactors below 250 MWt. Most operating LWRs and standard design certifications reference a 10-mile exposure pathway EPZ for emergency planning and response. It is expected that new reactors placed on existing sites would maintain the established 10-mile EPZ concept, but it is conceivable that advances in reactor technology and computer modeling could cause a reexamination of the technical bases for EPZ boundary definition for new sites. This panel will explore the advances in LWR and non-LWR reactor technology development and computer modeling with respect to new siting in the U.S.

PANELISTS:
- Terry Heames *(Alion)*
- Daniel Ingersoll *(ORNL)*
- Kent Welter *(NuScale Power)*
- Steve Mirsky *(SAIC)*
- Mario Carelli *(Westinghouse)*

WEDNESDAY, NOVEMBER 18, 2009 • 1:00 P.M.

Small Power Reactors—Projects and Economics–Panel, sponsored by OPD. *Chair:* Christopher Lapp *(Lapp Consulting Services)*

Empire Ballroom
1:00 p.m.
Over the past several years there has been much discussion of small reactors for a variety of applications. In addition to numerous applications that have been previously researched, the topic of licensing these reactors in the United States or elsewhere is still a primary concern. Recently, some new small reactor technologies have emerged as heat sources for chemical and petroleum industries, desalination, and for distributed power sources.

Additionally, the Nuclear Regulatory Commission (NRC) now has a division in the Office of New Reactors dedicated to advanced concepts like small power reactors. This panel will discuss some of the small reactors technologies that are now in pre-application with the NRC for design certification/approval and the economics as it relates to small modular reactors.

PANELISTS:
- Paul Lorenzini *(NuScale Power)*
- Christopher Mawry *(Babcock & Wilcox Modular Nuclear Energy)*
- Mark Campagna *(Hyperion Power Generation)*
- Tony Grenci *(Toshiba)*
- Michael Mayfield *(NRC)*

Data, Analysis, and Operations for Nuclear Criticality Safety—I, sponsored by NCSD; cosponsored by YMG. *Session Organizer:* Nichole Ellis *(Ellis Nuclear Eng)*. *Chair:* Adolf S. Garcia

Diplomat Ballroom
1:00 p.m.
SCALE TSUNAMI Analysis of Critical Experiments for Validation of ^{233}U Systems, Don Mueller, Bradley T. Rearden *(ORNL)*

1:25 p.m.
On the Accuracy of the Differential Operator Monte Carlo Perturbation Method for Eigenvalue Problems, Jeffrey A. Favorite *(LANL)*

1:50 p.m.
Gad Rod Worth Evaluation for Criticality Safety Analysis of the RAJ-II BWR Bundle Shipping Package, Tanya Sloma *(GNF)*, Peter Vescovi *(Westinghouse)*, John Zino *(GNF)*

2:15 p.m.
Statistical Noise for Nuclear Criticality Safety Specialists, Dennis Mennerdahl *(E Mennerdahl Systems)*

2:40 p.m.
Authorization Basis Requirements and Safety Classification for Criticality Accident Alarm Systems, Mark A. Joseph *(B&W Y-12 Technical Services)*

3:05 p.m.
Criticality Benchmark Analysis of Water-Reflected Uranium Oxyfluoride Slabs, Margaret A. Marshall, John D. Bess *(INL)*

Validation of Advanced Depletion Approaches for High-Temperature Gas-Cooled Reactor Fuel Designs, sponsored by RPD. *Session Organizer:* Mark DeHart *(ORNL)*. *Chair:* Mark DeHart

Palladian Ballroom
1:00 p.m.
A Proposed Code-to-Code Benchmark for the Depletion of HTGR Fuel, Mark D. DeHart *(ORNL)*, Anthony P. Ulses *(NRC)*

1:25 p.m.
HTGR Fuel Element Depletion Benchmark: Stage One Results, Emil Fridman *(Forschungszentrum Dresden-Rossendorf)*, Eugene Shwageraus *(Ben-Gurion Univ of the Negev)*

1:50 p.m.
A Comparison of Deterministic and Monte Carlo Depletion Methods for HTGR Fuel Elements, Mark D. DeHart, Sedat Goluoglu *(ORNL)*, Jaakko Leppänen *(VTT Technical Research Centre of Finland)*

2:15 p.m.
HTGR Reactor Physics and Burnup Calculations Using the Serpent Monte Carlo Code, Jaakko Leppänen *(VTT Technical Research Centre of Finland)*, Mark D. DeHart *(ORNL)*

2:40 p.m.
Coupling of MCNP and ORIGEN2 for Pebble Bed Reactors Depletion Analysis, Massimiliano Fratoni, Ehud Greenspan, Per F. Peterson *(Univ of California, Berkeley)*

3:05 p.m.
Validation of HELIOS for Prismatic High Temperature Gas Reactors, William F. Skerjanc, Cristian Rabiti *(INL)*, Deokjung Lee, Charles A. Wemple, Horian-Nicholas Gheorghiu *(Studsvik Scandpower)*

3:30 p.m.
Evaluations of HTGR Fuel Depletion Benchmarks with Monte Carlo and Deterministic Methods, Y. Kim, C. K. Jo, H. C. Lee, J. M. Noh *(KAERI)*

Advances in Probabilistic Risk Assessment Methods and Applications—II, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Duke Energy)*. *Chair:* Anthony Baratta *(NRC)*

Cabinet Room
1:00 p.m.
A Simple Method for Assessing Risk from Multiple Reactors on a Site, Steven A. Arndt *(NRC)*

1:25 p.m.
Development of a Severe Accident Uncertainty Analysis System, SAUNA, S. H. Park, S. Y. Park, K. R. Kim, K. I. Ahn *(KAERI)*

1:50 p.m.
Evaluation of Fire Models for Nuclear Plant Fire Safety and Risk Analysis, Monideep K. Dey *(Deytec)*

Aerospace Nuclear Science and Technology: General, sponsored by ANSTD. *Chair:* Shannon Bragg-Sitton *(Texas A&M)*

Cabinet Room
2:20 p.m.
Fission Surface Power Technology Development Testing at NASA's Early Flight Fission Test Facility, Michael G. Houts, J. Boise Pearson, Thomas J. Godfroy *(NASA Marshall Space Flight Center)*, Lee S. Mason, Donald T. Palac *(NASA Glenn Research Center)*, James E. Werner *(INL)*

2:45 p.m.
Radiation Testing of a Stirling-Alternator Convertor, Omar R. Mireles *(Univ of Florida)*, Cheryl Bowman *(NASA Glenn Research Center)*, Ross Radel *(SNL)*

3:10 p.m.
A Study of the Effect of Magnetic Cusp Symmetry on Plasma Losses in Small Thrusters with Implications for Future REP Ion Thrusters, Mahima Gupta, Aimee A. Hubble, John E. Foster *(Univ of Michigan)*

3:35 p.m.
Coordinating Space Nuclear Research Advancement and Education, John D. Bess *(INL)*, Jonathon A. Webb, Brian J. Gross, Aaron E. Craft *(Center for Space Nuclear Research)*

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

Radiation Protection and Shielding: General—II, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(Holtec International)*. *Chair:* Arzu Alpan *(Westinghouse)*

Forum Room
1:00 p.m.
A Computationally Efficient Method to Simulate Smuggled Nuclear Material Scenarios, G. G. Thoreson, E. A. Schneider *(Univ of Texas, Austin)*

1:25 p.m.
Investigation of Accident Evaluation Systems for Nuclear Emergency Planning, Yi-Hsiang Cheng, Chunkuan Shih, Sow-Chyuang Jiang, Tong-Li Weng *(Natl Tsing Hua Univ–Taiwan)*

1:50 p.m.
Ultrafast Doped ZnO Scintillator for Neutron Detection, E. Burgett, N. Hertel, J. Nause *(Georgia Tech)*

2:15 p.m.
A Study on the Scaling Factor Calculation with Robust Regression, Jin Woo Park, Jong Kuk Lee, Yoon Hee Lee, Kun Jai Lee *(KAIST–Korea)*

2:40 p.m.
Assessment of Organ Doses for a Glovebox Worker Using Realistic Postures with PIMAL and VOXMAT, Hatice Akkurt, Kursat B. Bekar, Keith F. Eckerman *(ORNL)*

3:05 p.m.
Analysis of Radiation Dose Imparted by Secondary X-Rays to Round Components of Nuclear Battery via Compact Convergent Method, E. V. Steinfelds, J. S. Tulenko *(Univ of Florida)*

3:30 p.m.
Adsorption of Water Vapor by Containment Aerosols: CsCl and Containment Concrete Dust, Zhiping Li, Kyle L. Walton, Tushar K. Ghosh, Sudarshan K. Loyalka, Robert V. Tompson *(Univ of Missouri, Columbia)*

Medical Accelerator Research and Progress, sponsored by AAD; cosponsored by BMD. *Session Organizer:* Rebecca Howell *(Univ of Texas M.D. Anderson Cancer Center)*. *Chair:* Rebecca Howell. All invited.

Congressional B
1:00 p.m.
Development of Synchrotron System for Particle Therapy with Spot Scanning, K. Hiramoto, K. Saito, M. Umezawa, F. Noda *(Hitachi, Energy & Environmental Systems Lab)*

1:25 p.m.
The Still River Systems Compact Proton Therapy System, Stanley Rosenthal, Kenneth Gall *(Still River Systems)*

1:50 p.m.
International Advances in Medical Accelerators, C. Johnstone *(Fermilab)*, F. Meot *(LPSC)*

2:15 p.m.
Overview of Radiation Research to Improve Cancer Survival, Wayne Newhauser, Phillip Taddei, Dragan Mirkovic *(Univ of Texas M.D. Anderson Cancer Center)*, Jonas Fontenot *(Mary Bird Perkins Cancer Center)*, Annelise Geibeler *(Univ of Texas Graduate School of Biomedical Sciences at Houston)*, Mark Harvey *(Univ of Texas M.D. Anderson Cancer Center)*, Rui Zhang, Rebecca Howell, Laura Broaded, Sara Scarboro *(Univ of Texas Graduate School of Biomedical Sciences at Houston)*, Scharmalee Randeniya *(Univ of Texas M.D. Anderson Cancer Center)*, Pablo Yepes *(Rice Univ)*, Carol Etzel *(Univ of Texas M.D. Anderson Cancer Center)*, Nick Koch *(Medical College of South Carolina)*, Mark Munsell *(Univ of Texas M.D. Anderson Cancer Center)*, Robert Stuart *(Purdue Univ)*, John Hendricks *(LANL)*, Uwe Titt, Stephen F. Kry, Andrew Lee, Anita Mahajan, Shiao Woo, Sunil Krishnam, Radhe Mohan, Marilyn Stovall *(University of Texas M.D. Anderson Cancer Center)*

2:40 p.m.
Thorium Energy Amplifiers and Proton Therapy, Stephen Peggs *(BNL)*

Computational Thermal Hydraulics, sponsored by THD. *Chair:* Constantine Tzanos *(ANL)*

Hampton Ballroom
1:00 p.m.
On the Effect of Turbulence Modeling and Near-Wall Treatment in Simulating Heat Exchange in the Reactor Cavity Cooling System Using STAR-CCM+ CFD Code, Angelo Frisani, Victor Ugaz, Yassin A. Hassan *(Texas A&M)*

1:20 p.m.
RANS Simulation of Turbulent Flow in a PWR Rod Bundle, Constantine P. Tzanos *(ANL)*, Maxim Popov *(Sarov Engineering Center)*

1:40 p.m.
TRACE Models and Verifications for LUNGMEN ABWR, Jong-Rong Wang, Hao-Tzu Lin *(Inst of Nuclear Energy Research, Atomic Energy Council, R.O.C.)*, Wei-Chen Wang, Chunkuan Shih *(Inst of Nuclear Engineering and Science, Natl Tsing Hua Univ–Taiwan)*

2:00 p.m.
Representing the 400 MW PBMR Using GCR Models in MELCOR 2.1, J. Corson, K. Vierow *(Texas A&M)*

2:20 p.m.
RELAP5-HD©—A High-Definition Application of the RELAP5-3D Code in Real-Time, Michal Jelinek, Steve Freel, Zen Wang *(GSE Systems)*

2:40 p.m.
TRACE, RELAP5 Mod 3.3, and RELAP5-3D Code Comparison of OSU-MASLWR-001 Test, Jason Pottorf *(NuScale Power)*, Fulvio Mascari *(Universita degli Studi di Palermo)*, Brian Woods *(Oregon State Univ)*

3:00 p.m.
Implementation of One-Group Interfacial Area Transport Equation into TRACE, Justin D. Talley, Seungjin Kim *(Penn State)*, John Mahaffy, Stephen M. Bajorek, Kirk Tien *(NRC)*

3:20 p.m.
Extensions of the Monte Carlo Method for Heat Conduction Problems with Non-Constant Temperature and Convection Boundary Conditions, Bum Hee Cho, Nam Zin Cho *(KAIST)*

Summer Internship Projects from the Next Generation Safeguards Initiative, sponsored by FCWMD; in collaboration with SCNN. *Session Organizer:* Paul Nelson *(Texas A&M)*. Chair: Paul Nelson

Embassy Room
1:00 p.m.
Latency As a Basis for Safeguards, David J. Sweeney, William S. Charlton *(Texas A&M)*, invited

1:25 p.m.
Utilizing the Integration Approach to Nonproliferation: Developing Next Generation Specialists, Shannon Stacy *(Missouri Univ of Science and Tech)*, invited

1:50 p.m.
Next Generation Safeguards Human Capital Development—Highlights from 2009, Carrie Mathews *(PNNL)*, Bernadette L. Kirk *(ORNL)*, Jonathan Essner *(LLNL)*, James Doyle *(LANL)*, Michael D. Rosenthal *(BNL)*, invited

2:15 p.m.
Nonproliferation Infrastructure—Promoting Safety, Security, and Safeguards through International Engagement, Jarrod Olson, Sarah Frazar, Carol Kessler *(PNNL)*

2:40 p.m.
Data Recovery and Compilation from the Idaho Chemical Processing Plant, Aaron Harrison, Richard Metcalf, Robert Bean *(INL)*, invited

3:05 p.m.
Review of Tamper Evident Technologies, Nathan Schanfein, Eric Cutler, Keith Tolk *(SNL)*

3:30 p.m.
Comparison of Using Self-Interrogation Neutron Resonance Densitometry (SINRD) versus the Fork Detector (FDET) to Measure Partial Defects in Spent Fuel Assemblies, Adrienne M. LaFleur, William S. Charlton, Howard O. Menlove, Martyn T. Swinhoe, Steve Tobin *(LANL)*

Nuclear Analytical Methods for the 21st Century—Innovations in Activation Analysis: A Session in Honor of Dr. Rolf Zeisler—II, sponsored by BMD; cosponsored by IRD. *Session Organizer:* W. D. James *(Texas A&M)*. *Chair:* M. Freitas *(ITN–Portugal)*. All invited.

Governor's Boardroom
1:00 p.m.
The Need for Roadside Exposure Studies Below Particulate Mass PM10, N. M. Spyrou, C. M. Butler *(Univ of Surrey)*, I. P. Matthews *(Cardiff Univ)*

1:20 p.m.
Routine Gamma-Ray Peak Integration: How Good Can It Be? Richard M. Lindstrom *(NIST)*

1:40 p.m.
PGNAA for Toxic Element Determination in Nuclear Waste Drums, J. Kettler, E. Mauerhofer, M. Rossbach, D. Bosbach *(Research Centre Jülich)*

2:00 p.m.
Neutronic Considerations in Designing the European Spallation Source (ESS), M. P. W. Chin, F. Plewinski, C. Kharoua, M. Lindroos *(European Spallation Source Scandinavia)*

2:20 p.m.
New Approaches with Prompt Gamma-Ray Neutron Activation Analysis in Japan, Mitsuru Ebihara *(Tokyo Metropolitan Univ–Japan)*, Masumi Oshima, Hideaki Matsue, Yosuke Toh *(Japan Atomic Energy Agency)*

Nuclear Analytical Methods for the 21st Century–Panel, sponsored by BMD; cosponsored by IRD. *Session Organizer:* Rolf Zeisler *(NIST)*. *Chair:* Rolf Zeisler

Governor's Boardroom
2:45 p.m.
Nuclear analytical methods have made substantial contributions to science and technology and continue to provide essential information in many applications. However, declining access to nuclear and radiochemistry installations are perceived by some to signal a trend toward only very specialized use, or even a phase-out, of the use of radiochemical and nuclear-related methods. Panelists will review the current status and possible future trends for the development and use of nuclear analytical methods. They will discuss barriers to the more widespread use of the methods, as well as indicate possible areas where innovative research is still to be done. The panel session has been organized to present a rationale for continuing efforts as a stimulant for sustaining or reestablishing the methods in laboratories worldwide. Experts from diverse backgrounds and viewpoints range from those who are deeply involved in the "classical techniques" to those who have branched out and added on. The audience will hear from those who have spent a career in the field as well as those who are pursuing it as their career today. The opinions and visions will serve to open a debate on the subject with the audience and beyond.

PANELISTS:
- Emile A. Schweikert *(Texas A&M)*
- R. Gregory Downing *(NIST)*
- John M. Ondov *(Univ of Maryland)*
- Georg Steinhauser *(Atominstitut)*

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

Regulatory and Standards Update on Cyber Security–Panel, sponsored by HFICD; cosponsored by OPD. *Cochairs:* Edward Quinn *(Longenecker and Assoc)*, Ian Jung *(NRC)*

Blue Room
1:00 p.m.
This session will focus on the key issues surrounding the current regulatory upgrades and international standards work related to cyber security that are intended to address the increasing threat to the current fleet and new reactors around the world. Panelists from NRC, IAEA, IEC, NEI, EPRI, and utility will cover all of the current subject areas, addressing integration within the current instrumentation and control, security design, and regulatory requirements related to 10 CFR 73.54 in the U.S. and equivalent international standards.

PANELISTS:
- Gary Johnson *(IAEA)*
- Ian Jung *(NRC)*
- Jack Roe *(NEI)*
- Rob Austin *(EPRI)*
- Nathan Faith *(American Electric Power)*
- Ted Quinn *(IEC)*

Best of CONTE 2009–Panel, sponsored by ETWDD. *Session Organizer:* Kent Hamlin *(INPO)*. *Chair:* Brian Hajek *(Ohio State Univ)*

Ambassador Ballroom
1:00 p.m.

PANELISTS:

- Overview of CONTE 2009: What is CONTE?
  Brian Hajek *(Ohio State Univ)*
- Skills Renewal in the Nuclear Industry,
  Michel Bonnet *(EdF)*
- Innovations in Distance Learning at the University of South Carolina Nuclear Engineering Program,
  Travis W. Knight *(Univ of South Carolina)*
- Assessment of Radiation Awareness Training Methods: CBT with VR versus CBT-Only,
  Vaughn E. Whisker *(Penn State)*
- Summer Experience Perceptions: North Carolina State's Nuclear Engineering Students,
  Lisa Marshall *(North Carolina State Univ)*

Emergency Planning and Response for New and Advanced Reactors—II–Panel, sponsored by ESD. *Session Organizer:* Kent Welter *(NuScale Power)*. *Chair:* Philip Moor *(Tetra Tech)*

Council Room
1:00 p.m.

This session is a continuation of the earlier session "Emergency Planning and Response for New and Advanced Reactors—I." While the first session focused on advanced light water reactor designs, this session focuses on gas and liquid metal reactors.

PANELISTS:

- Philip Moor *(Tetra Tech)*
- Representative from General Atomic to be determined
- Deborah Blackwell *(Hyperion)*
- T. Grenci *(Westinghouse/Toshiba)*
- Eric Loewen *(GE Hitachi Nuclear)*

Proactive Management of Light Water Reactor Materials Degradation–Panel, sponsored by NISD. *Session Organizer:* Amy B. Hull *(NRC)*. *Cochairs:* Amy B. Hull, C. E. (Gene) Carpenter *(NRC)*

Senate Room
1:00 p.m.

As a follow-up to the panel session "Ensuring the Long-Term Safe and Sustainable Nuclear Energy Option" at the American Nuclear Society's 2009 Annual Meeting, this panel will focus more specifically on materials issues. In recent years, degradation of materials in certain nuclear reactor components caused the potential for compromise of reactor pressure boundaries, which could have adversely impacted plant safety. Such occurrences could result in high costs to the industry from extended repair and replacement outages and from unplanned extensive inspections at other potentially affected plants.

The majority of the U.S. reactor fleet is applying for license renewal to extend the operating life from the current 40 years to 60 years, and there is now active interest in extending the operating life to beyond 60 years. Many licensees are also applying for increases in power rating. Both of these changes could increase the likelihood of materials degradation and underline the interest in proactive management of degradation. Materials degradation processes from known and emerging mechanisms and those previously experienced will continue to affect susceptible plant components and may increase in occurrence as the operating fleet of reactors continues to age. With aging nuclear power plants, degradation that was not an issue during the initial years of operation may become an important process during later operation.

This session will explore advances both nationally and internationally toward the goal of proactive management of materials degradation and will address aspects of (1) reactor materials and their degradation mechanisms; (2) mitigation, repair, and replacement; and (3) nondestructive examination and continuous monitoring.

PANELISTS:

- Tetsuo Shoji *(Tohoku Univ)*
- Il Soon Hwang *(Seoul Natl Univ)*
- Leonard Bond *(PNNL)*
- C. E. (Gene) Carpenter *(NRC)*
- A. B. Hull *(NRC)*
- EPRI MDM representative to be determined

THURSDAY, NOVEMBER 19, 2009 • 8:30 A.M.

Operations and Power: General—I, sponsored by OPD.
Chair: Art Wharton *(Westinghouse)*

Empire Ballroom
8:30 a.m.

Research Reactor Reliability Improvement and Aging Management, H. M. Hashemian *(AMS Corporation)*

9:00 a.m.

Considering the Thermal Resistance of Crud in LOCA Analysis, Rui Hu, Mujid S. Kazimi *(MIT)*, Mark E. Leyse *(Columbia Univ)*

9:30 a.m.

An IRIS Reactor to Grid Model, Alan S. Rominger, J. Michael Doster *(NCSU)*

10:00 a.m.

Using Risk-Based Methods to Improve Sodium Fast Reactor Economics, Andrew Kadak *(MIT)*

10:30 a.m.

Introducing PACO: Pressure Applied CO_2 Operation, Heung G. Yang, Kune Y. Suh *(PHILOSOPHIA)*

11:00 a.m.

Centurion Rectors—Achieving Commercial Power Reactors with 100+ Year Operating Lifetimes, Sherrell R. Greene *(ORNL)*

THURSDAY • NOVEMBER 19, 2009

7:30 AM – 2:00 PM	**MEETING REGISTRATION**
8:30 AM – 11:30 AM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Operations and Power: General—I • Nuclear Criticality Safety Standards–Forum • Reactor Physics Design, Validation, and Operating Experience • Modern Analyses, Experiments, and Databases to Improve Reactor Safety–I • Nuclear Fuel Cycle Codes and Applications • Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—I • Thermal Hydraulics Experiments, Data, and Measurement Techniques • Nuclear Power Plant Condition Monitoring • Nuclear Analytical Methods for the 21st Century—Upholding Quality Assurance and Metrology • Isotopes and Radiation: General • Thermal Hydraulics of Advanced Reactors • Changes in Accreditation: How Will Your Nuclear Educational Program Accreditation Be Affected?–Panel • Environmental Sciences: General • Recent Advances in Robotics–Panel
8:30 AM – 11:30 AM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: TUTORIAL** (see page 47)
8:30 AM – 1:00 PM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING:** "Capitol Hill Visit"
9:00 AM – 11:30 AM	**2009 RISK MANAGEMENT EMBEDDED TOPICAL MEETING: TECHNICAL SESSION** (see page 44)
12:00 PM – 5:00 PM	**TECHNICAL TOUR:** "Armed Forces Radiobiology Research Institute (AFRRI)"
1:00 PM – 2:15 PM	**2009 RISK MANAGEMENT EMBEDDED TOPICAL MEETING: TECHNICAL SESSION** (see page 44)
1:00 PM – 4:00 PM	**2009 ANS WINTER MEETING: TECHNICAL SESSIONS** • Data, Analysis, and Operations for Nuclear Criticality Safety—II • Modern Analyses, Experiments, and Databases to Improve Reactor Safety—II • MCNP/MCNPX with High Energy and Heavy Ions–Tutorial • Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—II • General Thermal Hydraulics • Human Factors, Instrumentation, and Controls: General • Advanced Waste Management and Fuel Cycle Topics • Operations and Power: General—II • Robotics Research and the University Research Programs in Robotics
1:00 PM – 4:00 PM	**2009 YOUNG PROFESSIONALS CONGRESS EMBEDDED TOPICAL MEETING: TUTORIAL** (see page 47)

Nuclear Criticality Safety Standards–Forum, sponsored by NCSD. *Session Organizer:* Thomas P. McLaughlin *(Consultant)*. *Chair:* Thomas P. McLaughlin

Diplomat Ballroom
8:30 a.m.

Reactor Physics Design, Validation, and Operating Experience, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* Moussa Mahgerefteh *(Exelon Nuclear Fuels)*

Palladian Ballroom

8:30 a.m.
Simulating HTGR Reactivity and Temperature Transients with the Multi Group Diffusion Code MGT, K. Nünighoff, S. Kasselmann, C. Druska, H. J. Allelein *(Forschungszentrum Jülich GmbH)*

8:50 a.m.
Secure Retrieval of FFTF Testing, Design, and Operating Information, Scott Butner, David W. Wootan, Ronald P. Omberg *(PNNL)*, Bruce J. Makenas *(Fluor Hanford)*, Deborah L. Nielsen *(Fluor Federal Services)*

9:10 a.m.
Validation of the Advanced Test Reactor (ATR) Full Core MCNP Model Used to Calculate the Axial Fission Profile, J. W. Nielsen, M. A. Lillo, A. W. LaPorta *(INL)*

9:30 a.m.
Improving ORIGEN2.2 Libraries Based on JENDL-3.2 by MCNP Method—A PWR Case Study, G. S. Chang *(INL)*

9:50 a.m.
Criticality Evaluation of the JOYO MK-I Benchmark Cores, Douglas A. Fynan *(Univ of Michigan)*

10:10 a.m.
Criticality Benchmark Analysis of the HTTR Annular Startup Core Configurations, John D. Bess *(INL)*

10:30 a.m.
Safety Aspect Evaluation on a Low Boron Core Design Concept for PWR, Aung Tharn Daing, Myung-Hyun Kim *(Kyung Hee Univ Global)*

Modern Analyses, Experiments, and Databases to Improve Reactor Safety—I, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Duke Energy)*. *Chair:* Charles R. Martin *(Defense Nuclear Facilities Safety Board)*

Cabinet Room
8:30 a.m.
Influence of Water Subcooling on Fracture of Melt Debris Particle, Pavel Kudinov, Valentyna Kudinova *(KTH–Sweden)*

8:55 a.m.
Transient Phenomena of Ex-Vessel Debris Bed Formation in an LWR Severe Accident, S. E. Yakush *(Inst for Problems in Mechanics, Russian Academy of Sciences)*, P. Kudinov *(KTH–Sweden)*

9:20 a.m.
Experimental Study of Critical Heat Flux on Downward-Facing Hemisphere, Kyoung M. Kang, Jin S. Hwang, Sang W. Noh, Kune Y. Suh *(Seoul Natl Univ–Korea)*

9:45 a.m.
An Approach for Simulation of Mixing in a Stratified Pool with the GOTHIC code, Hua Li, Pavel Kudinov *(KTH–Sweden)*

10:10 a.m.
European Approach for a Perennial Storage of Experimental Data Resulting from SARNET, Phébus FP, and ISTP, Roland Zeyen *(EC/JRC Inst for Energy Petten at Cadarache)*

10:35 a.m.
Archiving Reactor Safety Data, Frank J. Rahn *(EPRI)*, Ian B. Wall *(Consultant)*, J. J. Haugh *(Consultant)*

Nuclear Fuel Cycle Codes and Applications, sponsored by FCWMD. *Session Organizer:* J'Tia Taylor *(Univ of Illinois)*. *Chair:* J'Tia Taylor

Forum Room
8:30 a.m.
GENIUSv2 Discrete Facilities/Materials Modelling of International Fuel Cycle Robustness, Kathryn D. Huff, Kyle Matthew Oliver, Paul P. H. Wilson, Tae Wook Ahn, Kerry Dunn, Royal Elmore *(Univ of Wisconsin, Madison)*

8:55 a.m.
GENIUSv2 Recipe Approximation Methodology for Mixed-Oxide Fuel, Royal A. Elmore, Kyle M. Oliver, Paul P. H. Wilson, Tae Wook Ahn, Kerry Dunn, Kathryn Huff *(Univ of Wisconsin, Madison)*

9:20 a.m.
OASIS: A Simplified User Interface for Advanced Fuel Cycle Analysis in SCALE, Steven E. Skutnik *(NCSU)*, Ian C. Gauld *(ORNL)*

9:45 a.m.
Two-Tier Fuel Cycles Involving Deep Burn VHTR and Sodium Fast Burner Reactors, Samuel Bays, Hongbin Zhang, Michael Pope *(INL)*

10:10 a.m.
Reference Basic Cases and Anticipated Performance of DB-VHTRs in a Single-Path OTTO Mode, Pavel V. Tsvetkov, Tom G. Lewis III *(Texas A&M)*, Abderrafi M. Ougouag *(INL)*, Francesco Venneri *(Logos Technologies)*

10:35 a.m.
A Probabilistic Projection of Future Uranium Costs, I. A. Matthews, M. J. Driscoll *(MIT)*

11:00 a.m.
Economic Benefit of High Level Waste Repository Capacity Expansion, Jun Li *(Univ of North Carolina at Chapel Hill)*, Man-Sung Yim *(NCSU)*, David N. McNelis *(Univ of North Carolina at Chapel Hill)*

Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—I, sponsored by AAD. *Session Organizer:* Denis Beller *(UNLV)*. *Chair:* Mohamed Y. Gohar *(ANL)*. All invited.

Congressional B
8:30 a.m.
Current Status of Accelerator-Driven System with High-Energy Protons in Kyoto University Critical Assembly, Cheol Ho Pyeon, Jae Yong Lim, Tsuyoshi Misawa, Seiji Shiroya *(Kyoto Univ–Japan)*

8:55 a.m.
The XT-ADS Core Design, Gert Van den Eynde *(SCK/CEN–Belgium)*

9:20 a.m.
Neutron Imaging at Spallation Neutron Sources, Eberhard H. Lehmann, Anders Kaestner, Lidija Josic *(Paul Scherrer Institut)*

9:45 a.m.
Operation Synthesis of MEGAPIE, the First Liquid Metal Target Driven by a Megawatt Class Proton Beam, Werner Wagner *(Paul Scherrer Institut)*

10:10 a.m.
The GUINEVERE Project for Accelerator-Driven System Physics, Peter Baeten, Anatoly Kochetkov, Guido Vittiglio, Dirk Vandeplassche *(SCK/CEN–Belgium)*

10:35 a.m.
Environmental Security of the Coastal Sea Floor, V. Valkovic *(A.C.T.d.o.o.)*, J. Obhodas, D. Sudac *(Inst Ruder Boskovic)*

Thermal Hydraulics Experiments, Data, and Measurement Techniques, sponsored by THD. *Cochairs:* DuWayne Schubring *(Univ of Florida)*, Seungjin Kim *(Penn State)*

Hampton Ballroom
8:30 a.m.
Experimental Study on the CHF Enhancement in Flow Boiling System with TSP and Boric Acid Solutions Under Atmospheric Pressure, Juno Lee, Yong Hoon Jeong, Soon Heung Chang *(KAIST–Korea)*

8:55 a.m.
Measurements of Thermal Transpiration in a He-Air Mixture, Jason Wilson, Earl L. Tipton, Robert V. Tompson, Tushar K. Ghosh, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

9:20 a.m.
High-Speed Infrared Thermography Study of Bubble Growth in Water Pool Boiling, C. Gerardi, J. Buongiorno, L. W. Hu, T. McKrell *(MIT)*

9:45 a.m.
Effect of Geometric Parameters on Buoyancy Driven Exchange Flow, Justin D. Talley, Rachael Sakurai, Frank Nedwidek, Suchismita Sarangi, Kristin Clyde, Seungjin Kim *(Penn State)*, Andrew Ireland, Stephen M. Bajorek *(NRC)*

10:10 a.m.
Geometric Effects of a 90-Degree Vertical Elbow in Two-Phase Flow, Mohan Yadav, James P. Spring, Vivek Raja Raj Mohan, Justin D. Talley, Seungjin Kim *(Penn State)*

10:35 a.m.
Comparison of Two-Phase Flow Parameters across 45- and 90-Degree Elbows in the Horizontal Bubbly Flow, Mohan Yadav, Justin D. Talley, Seungjin Kim *(Penn State)*

11:00 a.m.
A Study on Natural Circulation System in REX-10 Test Facility, Hyeong-Min Joo, Byeong-ill Jang, Gyoo-Dong Jeun, Moo-Hwan Kim, Goon-Cherl Park *(Hanyang Univ Seoul)*

Nuclear Power Plant Condition Monitoring, sponsored by HFICD.
Chair: Belle R. Upadhyaya *(Univ of Tennessee)*

Calvert Room
8:30 a.m.
Design and Implementation of Advanced NSSS Integrity Monitoring System for APR1400, Soo-Young Choi, Jong-Phil Kim, Hyung-Hyun Byun, Soo-Am Kim *(Doosan Heavy Industries & Construction)*

8:55 a.m.
An Adaptive Model for Condition Monitoring Applications, Matt Humberstone, James Henkel, J. Wesley Hines, Belle R. Upadhyaya *(Univ of Tennessee)*

9:20 a.m.
Reliable LQG Controller Design with Sensor Failure for Nuclear Power Plant with IRIS Demonstration, Yin Guo, Robert M. Edwards *(Penn State)*

9:45 a.m.
Filter Computation for Nuclear Power Plant Failure Detection, B. Halimi, Kune Y. Suh *(Seoul Natl Univ–Korea)*

10:10 a.m.
On-Line Fault Detection in an Experimental Flow Loop and Digital Control Applications, Sergio R. P. Perillo, Belle R. Upadhyaya, J. Wesley Hines *(Univ of Tennessee)*

10:35 a.m.
Redundant Sensor Calibration and Estimation for Monitoring and Control of Nuclear Power Plants, Xin Jin, Asok Ray, Robert M. Edwards *(Penn State)*

Nuclear Analytical Methods for the 21st Century—Upholding Quality Assurance and Metrology, sponsored by BMD; cosponsored by IRD. *Session Organizer:* Robert R. Greenberg *(NIST)*. *Chair:* Robert R. Greenberg. All invited.

Governor's Boardroom
8:30 a.m.
Neutron Activation Analysis and Passive Gamma-Ray Counting for the Determination of Uranium Concentrations in Geological and Environmental Samples, S. Landsberger, R. Kapsimalis *(Univ of Texas, Austin)*, P. Doumerc, A. Malato *(Ecole Nationale Superieure d'Ingenieurs de Caen)*

8:55 a.m.
Measurement of 3γ/2γ; Positron Annihilation Ratios in Selection of Scintillation and Semiconductor Detectors, M. A. Alkhorayef, N. M. Spyrou *(Univ of Surrey)*

9:20 a.m.
Determination of Trace Boron in Bulk High-Purity Silicon, Rick L. Paul *(NIST)*, Tim Hossain, Liying Wu *(Cerium Laboratories)*, R. Gregory Downing *(NIST)*

9:45 a.m.
Quality Assurance in Homogeneity Assessment of Soil Standard Reference Materials, E. A. Mackey, R. L. Paul, R. O. Spatz, B. E. Tomlin, R. Zeisler *(NIST)*

Isotopes and Radiation: General, sponsored by IRD.
Chair: Stephen LaMont *(LANL)*

Governor's Boardroom
10:15 a.m.
Statistical Analysis of Pile-Up for UF Backscatter X-Ray Imaging System, K. Beharry, E. Dugan, D. Ekdahl *(Univ of Florida)*

10:40 a.m.
Development of a Neutron Beam Chopper at the University of Texas at Austin, Alex Brand, Steven Biegalski, Larry Welch *(Univ of Texas, Austin)*

11:05 a.m.
Examining Fission Products of Special Nuclear Materials, C. Egnatuk, S. R. Biegalski, S. Landsberger *(Univ of Texas, Austin)*

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

Thermal Hydraulics of Advanced Reactors, sponsored by THD.
Chair: David Aumiller *(BAPL)*

Blue Room
8:30 a.m.
A Compressible Kinematic Model for Particle Flow in Pebble Bed Reactors, Kyoung O. Lee, Zhijian Wang, Jacob Eapen, Pierre A. Gremand, Robin P. Gardner, Yousry Y. Azmy *(NCSU)*

8:55 a.m.
Scaling Methodology for a Passive Moderator Cooling System, S. K. Yang *(AECL)*

9:20 a.m.
Scaling Analysis for NuScale Reactor Helical Coil Steam Generator, Qiao Wu *(Oregon State Univ)*, Brent Webb, Kent Welter *(NuScale Power)*

9:45 a.m.
FLUENT Modeling for Heat Transfer in Upper Plenum of VHTR, R. Brian Jackson, Emily Smith, Brian G. Woods *(Oregon State Univ)*

10:10 a.m.
Hydraulic Characteristics of the Reactor Coolant Pump for the APR1400, Ja Y. Gu *(PHILOSOPHIA)*, Kune Y. Suh *(Seoul Natl Univ-Korea)*

10:35 a.m.
Multi-Block Experiment for the Bypass Flow in VHTR Core, Chang-Yong Jin, Su-Jong Yoon, Yun-Je Cho, Goon-Cherl Park *(Seoul Natl Univ-Korea)*

Changes in Accreditation: How Will Your Nuclear Educational Program Accreditation Be Affected?–Panel, sponsored by ETWDD.
Session Organizer: Michael A. Robinson *(Bechtel Marine Propulsion Corp)*.
Chair: Michael A. Robinson

Ambassador Ballroom
8:30 a.m.
The accreditation of nuclear educational programs could be affected by any one of several recent changes in rules and procedures for accrediting educational programs. ABET, Inc., is the organization that accredits engineering, engineering technology, computer science, and applied science programs in the United States. Changing processes for accrediting nuclear programs are being driven by continuing changes in ABET accreditation criteria, new requirements and training of program evaluators and team chairs, and the decision by ABET to accredit international programs. Other accreditation systems also review programs outside of the United States. Recent experiences of programs and evaluators, as well as the status of ongoing changes in accreditation, will be discussed during this session.

PANELISTS:
- James Tulenko *(Univ of Florida)*
- Gilbert Brown *(Univ of Massachusetts)*
- Youssef A. Shatilla *(King Abdulaziz Univ)*
- Michael A. Robinson *(BAPL)*

Environmental Sciences: General, sponsored by ESD.
Chair: Rebecca Steinman *(Advent Engineering Svcs)*

Council Room
8:30 a.m.
Consistent Messages, Transparent Communication, and Protected Data; Using GIS to Support CSMs for All Stages of Nuclear Plants, Brian Peters, Nadia Glucksberg, Will Grimes *(MACTEC)*

8:55 a.m.
Nuclide Migration Research in China: Current State and the Challenge, Z. S. Zhang *(Univ of California, Berkeley)*, W. B. Zhou, Z. X. Sun *(East China Inst of Technol)*

9:20 a.m.
The Design of Sampling Location at Release Points of Ducts and Stacks for Advanced Power Reactor (APR 1000) in Korea, You-Seok Baek, Seon-Ju Kim, Dae-Sik Choi *(KOPEC)*

9:45 a.m.
New Nuclear Reactor Construction: Demand, Economics, and the Environment, Kathleen M. Saul *(The Evergreen State College)*

10:10 a.m.
Long-Term Durability of Concrete Waste Forms Using Single-Pass Flow-Through Test, Chase Bovaird, Laken Top, Elsa Cordova, Dawn Wellman *(PNNL)*

Recent Advances in Robotics–Panel, sponsored by RRSD.
Session Organizer: Carl Crane *(Univ of Florida)*. *Chair:* Mike Rinker *(Batelle, Richland)*

Senate Room
8:30 a.m.
PANELISTS:
- Update on Remote Handling Systems, Al Sturm *(Par)*
- Robotics Activities at the Pacific Northwest Laboratory, Mike Rinker *(PNL)*
- Update on Y-12 Robotics Activities, Reid Kress *(Y-12)*
- Force Control of Robotic Systems, Carl Crane *(Univ of Florida)*
- Latest Information on the 2011 RRSD Topical Meeting, Barry Burks *(UNCC)*

THURSDAY, NOVEMBER 19, 2009 • 1:00 P.M.

Data, Analysis, and Operations for Nuclear Criticality Safety—II, sponsored by NCSD; cosponsored by YMG. *Session Organizer:* Nichole Ellis *(Ellis Nuclear Eng)*. *Chair:* Sedat Goluoglu *(ORNL)*

Diplomat Ballroom
1:00 p.m.
Criticality Safety Control Strategy at the MOX Fuel Fabrication Facility, James J. Bazley, Michael J. Shea, Robert G. Foster *(Shaw AREVA MOX Services)*

1:25 p.m.
MCNP5 Criticality Benchmark Validation for Uranium and Plutonium Metal Systems Using ENDF/B-VII.0, Christopher Geiser, Qi Ao *(GE Hitachi Nuclear)*

1:50 p.m.
Neutronic Isolating Media for Degraded Spent Fuel Storage in Casks, Benjamin Baranko *(Nuclear Safety Associates)*

Modern Analyses, Experiments, and Databases to Improve Reactor Safety—II, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Duke Energy)*. *Chair:* Kevin O'Kula *(Washington SMS)*

Cabinet Room
1:00 p.m.
A New Look at Acoustic Emission for Aging Management, Stephen E. Cumblidge, Steven R. Doctor, Leonard J. Bond *(PNNL)*

1:25 p.m.
Experimental Assessment of NDE Methods for Long-Term Monitoring of Materials Degradation in Nuclear Power Plant Components, Jeffrey W. Griffin, Pradeep Ramuhali, Mukul Dixit, Leonard J. Bond *(PNNL)*

1:50 p.m.
Status of Sump Performance Issue for the US-APWR, Koji Shinomiya, Masanori Onozuka *(Mitsubishi Nuclear Energy Systems)*, Kaname Shibato, Hiroshi Arikawa *(Mitsubishi Heavy Industries)*

2:15 p.m.
Taking Into Account the Temperature Effect for EDF PWR New Strainers Sizing, G. Champion, P. Blomart *(EdF)*

2:40 p.m.
Impact of Previous Cycle's Core Exposure on Transient Response of BWR Systems, Lauren E. Nalepa, Samim Anghaie *(Univ of Florida)*, Randy Jacobs *(GE Hitachi Nuclear)*

3:05 p.m.
Seal Integrity Monitoring System (SIMON) for Reactor Coolant Pump, Chang Kyu Chung, Song Kyu Lee, Eun Kee Kim *(KOPEC)*

MCNP/MCNPX with High Energy and Heavy Ions–Tutorial, sponsored by RPSD. *Session Organizer:* John Hendricks *(LANL)*. *Chair:* Michael James *(LANL)*

Forum Room
1:00 p.m.
Upgrades to the physics capabilities in MCNP/MCNPX have increased the types of particles available for transport as well as the energy ranges over which particles can be transported. With the release of MCNPX version 2.6.0, it is now possible to use heavy ions (defined as all ions larger in mass than alpha particles) as source and secondary particles. It is also possible to have energies up to 1 TeV/nucleon for most particles. This allows simulations for a wide variety of cases including cosmic ray environments and heavy ion accelerator targets. The tutorial is a three-hour, hands-on session using either a few provided laptop computers or the participant's computer if the code is obtained in advance from RSICC or OECD/NEA. Simple problems are described that enable the user to become confident in setting up and executing problems using both heavy ions and high-energy physics. Previous experience with MCNP/X is suggested.

Highlights of AccApp09 (IAEA International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators)—II, sponsored by AAD. *Session Organizer:* Denis Beller *(UNLV)*. *Chair:* Eric Pitcher *(LANL)*. All invited.

Congressional B
1:00 p.m.
YALINA-Booster Subcritical Assembly Conversion, Y. Gohar, G. Aliberti *(ANL)*, I. Bolshinsky *(INL)*, H. Kiyavitskaya *(Joint Institute for Power and Nuclear Research)*, A. Talamo *(ANL)*

1:25 p.m.
Intra-Nuclear Cascade Model, Y. Yariv *(Soreq Nuclear Research Center)*

1:50 p.m.
The Status of Studies on Structural Materials Under High Energy Proton and Neutron Mixed Spectrum, Yong Dai *(Paul Scherrer Institut)*

2:15 p.m.
MEGAPIE on the Way to PIE, M. Wohlmuther, Y. Dai, D. Gavillet, K. Geissmann, D. Kuster, R. Meier, J. Neuhausen, D. Schumann, A. Strinning, P. Suter, S. Teichmann, R. Thermer, K. Thomsen, W. Wagner, J. Züllig, Ch. Zumbach *(Paul Scherrer Institut)*, B. Binkert, F. Bugmann, R. Emch, R. Erne, D. Gubler, Ch. Hösli, R. Keller, R. Leuzinger, D. Moosmann, Ch. Schörck, A. Wegmüller *(ZWILAG)*

2:40 p.m.
Analysis of Molybdenum-99 Production Capability in the Materials Test Station, Eric J. Pitcher *(LANL)*

3:05 p.m.
Proton LINAC for the Frankfurt Neutron Source FRANZ, O. Meusel *(Goethe University)*

General Thermal Hydraulics, sponsored by THD.
Chair: Steve Bajorek *(NRC)*

Hampton Ballroom
1:00 p.m.
The Investigations on Thermal Behaviors of a High Capacity Dry-Storage System under Loading and Transport Operations, Jong-Rong Wang, Yung-Shin Tseng *(INER–Taiwan)*, Ting-Shuo Jhang, Chunkuan Shih *(Natl Tsing Hua Univ–Taiwan)*

1:25 p.m.
A Two-Fluid, Three-Field Hydraulic Solver for the Safety Analysis Code SPACE, Chan Eok Park, Myung Taek Oh, Eun Ju Lee, Jong Cheol Park, Sang Yong Lee, Eun Kee Kim *(Korea Power Engineering Company)*

1:50 p.m.
Conceptual Design of Safety Injection Tanks Using the Saturated Water, Hae Min Park, Yong Hoon Jeong *(KAIST–Korea)*

2:15 p.m.
Demonstration of Gas Circulation Loop Operation in the DTHT Regime, J.-I. Lee, H. C. No, Y.-H. Jeong *(KAIST–Korea)*

2:40 p.m.
Large Eddy Simulation of Confined Parallel Jets, Riccardo Mereu, Emanuela Colombo, Fabio Inzoli *(Politecnico di Milano)*, Elia Merzari, Hisashi Ninokata *(Tokyo Inst Technol–Japan)*

3:05 p.m.
Numerical Flow Sensitivity Study of Instrumentation in the Hydro-Mechanical Fuel Test Facility Test Section Using FLUENT, Wade R. Marcum, Brian G. Woods *(Oregon State Univ)*

3:30 p.m.
Thermal Impact Analysis of TSC Misalignment Inside TFR for a Spent Fuel Dry Storage System, Ting-Shuo Jhang *(Natl Tsing Hua Univ)*, Yung-Shin Tseng, Jong-Rong Wang *(Inst of Nuclear Energy Research, ROC)*, Yi-Hsiang Cheng, Chunkuan Shih *(Natl Tsing Hua Univ)*

Human Factors, Instrumentation, and Controls: General, sponsored by HFICD. *Chair:* David Holcomb *(ORNL)*

Calvert Room
1:00 p.m.
EMC Testing of Korean Next Generation Reactors Nuclear Instrumentation Systems, Arnie Shirley *(Thermo Fisher Scientific)*

1:25 p.m.
Digital Control System Configuration and Loop Assignment for SKN3&4 NPP in Korea, Moon Jae Choi, Jae-Hyun Im, Ki-Soo Park *(KOPEC)*

1:50 p.m.
An Integrated Scheme for Anomaly Identification and Automatic Control of Nuclear Power Plants, Xin Jin, Robert M. Edwards, Asok Ray *(Penn State)*

2:15 p.m.
Analysis of Robustness of Model Predictive Controller for the IRIS Helical Coil Steam Generator, Xiaojia Xu, Belle R. Upadhyaya *(Univ of Tennessee)*

2:40 p.m.
Effect of Control Systems on Space Reactor Transients, Juan J. Carbajo, Louis Qualls *(ORNL)*

3:05 p.m.
Linearization of Valve Flow Characteristics for Steam Turbine Control, Koo S. Kim, Kune Y. Suh *(PHILOSOPHIA)*

Advanced Waste Management and Fuel Cycle Topics, sponsored by FCWMD. *Session Organizer:* Paul Wilson *(Univ of Wisconsin, Madison)*. *Chair:* Paul Wilson

Embassy Room
1:00 p.m.
Improved Utilization of U.S. Nuclear Energy Resources Without Reprocessing, R. W. Schleicher, H. Choi, A. Baxter, T. C. Bertch *(General Atomics)*

1:25 p.m.
Effect of Exchange Current Density in the Mark-IV Electrorefiner, Robert O. Hoover, Supathorn Phongikaroon *(Univ of Idaho)*, Michael F. Simpson, Tae-Sic Yoo, Shelly X. Li *(INL)*

1:50 p.m.
Plutonium-238 Heat Spiked Fuel Cycles, John V. Massey *(California Maritime Academy)*

2:15 p.m.
Fuel Matrix Chemistry Effects on UO_2 Dissolution, Amanda Casella, Brady Hanson *(PNNL)*, William Miller *(Univ of Missouri, Columbia)*

2:40 p.m.
Disposition of Plutonium and Uranium Wastes in Rock Fractures, Trevor Wilcox, William Culbreth *(UNLV)*

Operations and Power: General—II, sponsored by OPD. *Chair:* Frederick Reeve, Jr. *(Westinghouse)*

Governor's Boardroom
1:00 p.m.
Practical Application of the Large-Scale Moisture Separator Reheater for US-APWR, Koki Yamaguchi *(Mitsubishi Nuclear Energy Systems)*, Issaku Fujita, Teruaki Sakata *(Mitsubishi Heavy Industries)*

1:25 p.m.
CFD Analysis of Small Flow Injection from APWR Advanced Accumulator, Osuke Imai, Hiroshi Hamamoto *(Mitsubishi Nuclear Energy Systems)*, Hiroshi Sano *(Mitsubishi Heavy Industries)*

1:50 p.m.
Management of Gas Accumulation in PWR Plants (US-APWR), Kennedy Boakye *(Mitsubishi Nuclear Energy Systems)*, Takashi Nakahara *(Mitsubishi Heavy Industries)*, Takahiro Imamura *(Mitsubishi Nuclear Energy Systems)*

2:15 p.m.
Export Possibilities for Small Modular Reactors, Mark S. Campagna *(Hyperion Power Generation)*, Charles W. Hess *(Tetra Tech)*, Charles P. Pietsch *(Chamberlain Group)*

Robotics Research and the University Research Programs in Robotics, sponsored by RRSD. *Session Organizer:* Carl Crane *(Univ of Florida)*. *Chair:* Carl Crane

Ambassador Ballroom
1:00 p.m.
Telepresence System for Nuclear Industrial Processes, Corrie I. Nichol *(INL)*

1:20 p.m.
Development of Remote Manipulator with Motion-Decoupled Joints, Jong Kwang Lee, Byung Suk Park, Hyo Jik Lee, Kiho Kim, Ho Dong Kim *(KAERI)*

1:40 p.m.
Object-Based Place Recognition and Scene Change Detection for Perimeter Patrol, Chang Cheng, Andreas Koschan, Mongi A. Abidi *(Univ of Tennessee)*

2:00 p.m.
Improved Grasping Strategies for Flexible Manufacturing and Mobile Manipulation, Mitch Pryor, Aaron Hulse, Amit Kulkarni, Brian O'Neil, Chetan Kapoor *(Univ of Texas, Austin)*

2:20 p.m.
Multi-Camera Handoff Management for Asset Monitoring in Nuclear Facilities, C.-H. Chen, A. Koschan, M. Abidi *(Univ of Tennessee)*

2:40 p.m.
Control Strategies for Manipulators Performing Contact Tasks in a Confined Environment, Mitch Pryor, Kyle Schroeder, Sheldon Landsberger *(Univ of Texas, Austin)*

3:00 p.m.
A Workcell for Dexterous Robotic Maneuvering of Large Fragile Objects, G. Starr, J. Wood, R. Lumia *(Univ of New Mexico)*

3:20 p.m.
Evaluation of Performance of Components of Nuclear Battery and Radiation Tolerance of Components of Photon Assisted Radioisotopic Energy Sources, E. V. Steinfelds, J. S. Tulenko *(Univ of Florida)*

Risk Management: Technical Sessions by Day

MEETING OFFICIALS

GENERAL CHAIR:
Dr. Ronald A. Knief
XE Corporation

TECHNICAL PROGRAM CHAIR:
Dr. Mark A. Prelas
University of Missouri-Columbia

SPONSOR:
ANS Nuclear Installation Safety Division (NISD)

COSPONSORS:
B. John Garrick Foundation

Sandia National Laboratories—Nuclear Energy Safety Technology

Electric Power Research Institute (EPRI)

Institute for Nuclear Materials Management (INMM)

MONDAY, NOVEMBER 16, 2009 • 1:00 P.M.

Risk Management Opening Plenary.
Session Organizer: Ronald A. Knief *(XE Corp)*.
Chairs: Ronald A. Knief, Mark A. Prelas *(Univ of Missouri, Columbia)*, William E. Burchill *(Texas A&M, Emeritus)*. All speakers invited.

Congressional A and B
1:00 p.m.
SPEAKERS:
- Risk Management—The Good, Bad, and Ugly, Anthony R. Pietrangelo *(Senior Vice President and Chief Nuclear Officer, Nuclear Energy Institute)*
- Nanotechnology: Risk Management Challenges and Opportunities, Mark D. Hoover *(National Institute for Occupational Safety and Health)*
- The Resilience to Crises Initiative (R2CI)—The Role of Multinational, Multidisciplinary Networks, Anne C. Bader *(Principal, Bader Resources)*
- Risk Management and Security—Is It Time for a Recalibration? Dale Klein *(Commissioner, U.S. Nuclear Regulatory Commission)*
- Cyber Security—Proactive Security and Ensuring the Mission, Rob Hale *(Computer Security Architect, Lockheed Martin)*
- Risk Management Techniques Employed in Civilian Aviation, William R. Voss *(President and CEO, Flight Safety Foundation)*
- Now That I Have a Risk Assessment, What Do I Do with It? David H. Johnson *(ABS Consulting)*

TUESDAY, NOVEMBER 17, 2009 • 8:30 A.M.

Organization Culture Issues of Risk Management.
Chairs: Bill Hannaman *(Jewal Consulting)*, Jeff Brewer *(SNL)*

Congressional A
8:30 a.m.
Black Swans and Risk Management, Alton P. Donnell Jr. *(SNL)*

8:55 a.m.
Risk Metrics for New Light-Water Reactor Risk-Informed Applications, Donald A. Dube *(NRC)*

9:20 a.m.
Risk Assessment: Unintended Consequences, Richard E. Malenfant *(LANL, retired)*

9:45 a.m.
Managing Risk: Improving Nuclear Plant Performance Through Improved Human Performance, Richard P. Coe *(Excelsior College)*, invited

10:10 a.m.
Modeling Organizational Influences for New-Generation Probabilistic Risk Analysis of Technical Systems, Zahra Mohaghegh, Ali Mosleh *(Univ of Maryland)*

10:35 a.m.
Risk Reduction through Use of External Technical Reviews, Technology Readiness Assessments, and Technical Risk Ratings, Kurt Gerdes, Steven P. Schneider *(DOE)*, Michael Cercy *(Savannah River Nuclear Solutions)*

11:00 a.m.
Effective Radiation Risk Communication: A Perspective on the Confusion That Can Occur Between Civilian and Military Response Personnel, Thomas Brian Rezentes Jr., Mark A. Prelas, Jack Crawford *(Univ of Missouri, Columbia)*

Quantitative Methods for Managing Risk.
Chairs: Ken Canavan *(EPRI)*, Earl Lynn Tipton *(Univ of Missouri, Columbia)*

Congressional B
8:30 a.m.
Probabilistic Reliability Prediction of PWSCC with Risk-Informed In-Service Inspection, Tae Hyun Lee, Il Soon Hwang *(Seoul Natl Univ–Korea)*

8:55 a.m.
Changes in 10 CFR 50.46a Rulemaking Language, Stanley H. Levinson *(AREVA NP)*, Robert E. Jaquith *(Westinghouse)*

9:20 a.m.
Managing Risk in a Research and Development Environment, Wayne J. Martin, Steven C. Slate, Bret E. Simpkins *(PNNL)*, invited

9:45 a.m.
Adjusted CCF Alpha Factor Approach, Michael Lloyd *(Risk Informed Solutions Consulting Services)*, Loys Bedell *(Entergy Services)*

10:10 a.m.
Model Uncertainty: Conceptual and Practical Issues in the Context of Risk-Informed Decision Making, Jeffery Wood, Nathan Siu, Gareth Parry, Donald Dube *(NRC)*, Ali Mosleh, Mohammad Modarres *(Univ of Maryland)*

10:35 a.m.
How Do You Define a Human Reliability Analysis Expert? Erasmia Lois, Susan E. Cooper *(NRC)*, invited

11:00 a.m.
Defense-in-Depth for Risk Management of Criticality Safety: Lessons Learned from a Public Transit Accident, Burton Rothleder *(DOE)*

TUESDAY, NOVEMBER 17, 2009 • 1:00 P.M.

Risk Management Related to Proliferation Resistance and Physical Protection–Panel. *Session Organizer:* Bob Bari *(BNL)*. *Chairs:* Bob Bari, Stephen Ortiz *(SNL)*

Congressional A
1:00 p.m.
This panel session will present views on how proliferation resistance and physical protection (PR&PP) is evaluated and assessed for nuclear energy systems and how it can be (or is) managed to improve PR&PP. The session will include discussions of both national and multi-national programs. Both intrinsic and extrinsic characterization of PR&PP will be highlighted in the panel discussions.

PANELISTS:
- Per Peterson *(Univ of California, Berkeley)*
- Dominique Greneche *(AREVA)*
- Jeremy Whitlock *(AECL)*
- Mitsutoshi Suzuki *(JAEA)*
- Dunbar Lockwood *(NNSA)*
- William Burchill *(TAMU)*

Risk Management for Fire Related Issues.
Session Organizer: Doug Coe *(NRC)*. *Chair:* Doug Coe

Congressional B
1:00 p.m.
A Probabilistic Framework for Model Uncertainty in Fire Simulation Codes, Victor Ontiveros *(Univ of Maryland)*, Adrien Cartillier, Charlotte le Gac *(Ecole Nationale Supérieure d'Ingénieurs de Bourges)*, Mohammad Modarres *(Univ of Maryland)*

1:25 p.m.
Circuit Response to Cable Fire Exposures, Steven P. Nowlen, Jason W. Brown, Francis J. Wyant, Jewell T. Feng *(SNL)*

1:50 p.m.
Analysis of Control Room Fire with Spurious Safety Injection Signal, A. Hakobyan, A. Moldenhauer *(Dominion Resources)*

2:15 p.m.
EPRI/NRC-RES Fire Human Reliability Analysis Guidelines, Susan E. Cooper, Kendra Hill *(NRC)*, Jeff Julius, Jan Grobbelaar, Kaydee Kohlhepp *(Curtiss Wright)*, John A. Forester, Stacey Hendrickson *(SNL)*, B. Hannaman, Erin Collins, Bijan Najafi *(SAIC)*

2:40 p.m.
Credit for Very Early Warning Fire Detection in Fire Probabilistic Risk Assessment, Raymond H. V. Gallucci, Naeem Iqbal, Daniel Frumkin, Brian Metzger, Harold Barrett *(NRC)*

TUESDAY, NOVEMBER 17, 2009 • 4:00 P.M.

Software Support and Computer Tools for Risk Management.
Chairs: Mohammed Modarres *(Univ of Maryland)*, Bernadette Kirk *(ORNL)*

Congressional A
4:00 p.m.
Using Oracle's Primavera Risk Analysis Throughout the Nuclear Build Life Cycle, Wayne Reed *(Fluor)*, Gregory Varacalli, Bryan Wright *(SAA Solutions)*

4:30 p.m.
Techniques for Rapid Visual Communication of Uncertainty in Risk Assessments, Jeffrey D. Brewer *(SNL)*

5:00 p.m.
Modeling Solid Propellant Shielding Phenomena for Launch Accident Analysis, T. E. Radel, G. M. Lucas *(SNL)*

WEDNESDAY, NOVEMBER 18, 2009 • 9:00 A.M.

Nuclear Terrorism—Risk Management Special Session—I.
Session Organizer: John Mercier *(Noblis)*. *Chairs:* John Mercier, Mark A. Prelas *(Univ of Missouri)*

Congressional A
9:00 a.m.
Nuclear Terrorism Preparedness—Risk Management Factors and Priorities, Tammy P. Taylor, Julie A. Bentz *(OSTP)*

9:30 a.m.
Developing a Global Nuclear Detection Architecture, Brent Bredehoft, Charles Cox, Cara Stankewick *(U.S. Government)*, invited

10:00 a.m.
Risk Management for Nuclear Infrastructure Protection, Joseph Rivers *(NRC)*, Daniel A. Schultz *(Noblis)*, invited

10:30 a.m.
Near-Field Deposition Patterns for Explosive Radiological Dispersal Events, Frederick T. Harper, Marvin Larsen, Kathleen Holt-Larese, Heather Pennington, Marlin Kipp *(SNL)*

11:00 a.m.
Radiation Dose Risk Management in Military Operations, John Mercier *(Noblis)*

WEDNESDAY, NOVEMBER 18, 2009 • 1:00 P.M.

Nuclear Terrorism—Risk Management Special Session—II.
Session Organizer: John Mercier *(Noblis)*. *Chair:* John Mercier

Congressional A
1:00 p.m.
Mitigation of Nuclear Fallout Risks Through Sheltering and Evacuation, Larry Brandt *(SNL)*

1:30 p.m.
Nuclear Terrorism, Risk Management, and Decision Making for Leaders, John W. Poston Sr. *(Texas A&M)*

2:00 p.m.
Risk Management for NuDet Response Planners, John MacKinney *(U.S. Government)*, Brooke Buddemeier *(LLNL)*, invited

2:30 p.m.
Nuclear Forensic Activities, Risks, and Requirements for a Pipeline of Nuclear Experts, William Daitch, Samantha E. Kentis, William D. Ulicny *(Department of Homeland Security)*, invited

3:00 p.m.
An Alternative Approach to Operational Risk Management for Radiation Emergencies, Eric G. Daxon *(Battelle San Antonio)*, invited

WEDNESDAY, NOVEMBER 18, 2009 • 4:00 P.M.

Risk Management for Safeguards and Homeland Defense.
Chair: James Petrosky *(AFIT)*

Congressional A
4:00 p.m.
Safeguards Considerations of Thorium Utilization in Nuclear Reactor Fuel Cycles, Carolyn D. Heising *(Iowa State Univ)*

4:30 p.m.
How Experts Communicate About Risk Across Different Disciplines, Dorothy L. Collins *(Texas A&M)*

THURSDAY, NOVEMBER 19, 2009 • 9:00 A.M.

Facility Risk Management Applications—I.
Chairs: Carolyn Heising *(Iowa State Univ)*, Mohammed Modarres *(Univ of Maryland)*

Congressional A
9:00 a.m.
Informing Reactor Aging Management by Extended Risk Methodology, Stephen D. Unwin, Peter P. Lowry, Michael Y. Toyooka *(PNNL)*, invited

9:25 a.m.
Risk Analysis and Management Based on Hazard Analysis, Louis Restrepo *(OMICRON Safety and Risk Tech)*

9:50 a.m.
Risk Management Challenges of Multi-Payload Launch Missions Executed by the DoD Space Test Program, Rodney Miller, John Mehrman, Mike Marlow *(U.S. Air Force)*, invited

10:15 a.m.
Managing Risks Associated with Long-Term Nuclear Plant Operation, John P. Gaertner, Stephen M. Hess *(EPRI)*

10:40 a.m.
Risk Communication and Real Data: The Aging U.S. Power Plant Infrastructure in Terms of Mean, Median, and Mode, James M. Hylko *(C.W. Services)*

THURSDAY, NOVEMBER 19, 2009 • 1:00 P.M.

Facility Risk Management Applications—II.
Chair: Hatice Cullingford *(Risk Management Advocate)*

Congressional A
1:00 p.m.
Approach for Determining the Technical Adequacy of PRA Results for Risk-Informed Activities, Mary Drouin, Gareth Parry *(NRC)*

1:25 p.m.
Reciprocity of Safety Insights Between Risk Analysis and Codes and Standards of Vehicular Hydrogen Storage, Y. F. Khalil, D. A. Mosher *(United Technologies Research Center)*, invited

1:50 p.m.
Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making, Mary Drouin, Gareth Parry *(NRC)*, John Lehner *(BNL)*, Jeffrey LaChance, Timothy Wheeler *(SNL)*

MEETING OFFICIALS

GENERAL CO-CHAIR:
W. David Pointer
Argonne National Laboratory

GENERAL CO-CHAIR:
Amy Buu
Westinghouse Electric Company

PROGRAM CO-CHAIR:
George Tsakanikas
Bechtel Power Corporation

PROGRAM CO-CHAIR:
Jennifer Tobin
Nuclear Regulatory Commission

MONDAY, NOVEMBER 16, 2009 • 2:30 P.M.

YPC 2009 Opening Plenary, sponsored by ANS YMG and NA-YGN

Blue Room
2:30 p.m.

SPEAKERS:
- Dave Pointer, YPC2009 General Co-Chair *(ANL)*
- Amy Buu, YPC2009 General Co-Chair *(Westinghouse)*
- Jacques Besnainou *(President and CEO, AREVA NC)*, invited
- Matt Bennett *(VP of Public Affairs, Third Way)*, invited

MONDAY, NOVEMBER 16, 2009 • 4:30 P.M.

Industry Involvement–Panel, sponsored by NA-YGN and ANS YMG. *Chair:* Jennifer Bowie *(GE Hitachi Nuclear)*

Blue Room
4:30 p.m.

This session will provide young professionals with the information needed to get involved in the industry beyond their day-to-day work responsibilities. Panelists will give an overview of some nuclear-related technical societies and groups, outline steps on how to get involved in these organizations, and highlight the benefits of participation. Panelists represent leadership from several industry groups as well as some of the industry's most vocal supporters for young professional involvement in these groups. Presentations will be followed by an open question-and-answer period.

PANELISTS:
- Mike Kurzeja *(President, NA-YGN)*
- Marvin Fertel *(NEI)*
- Nils Diaz *(Managing Director, NDZ Group)*
- Tom Sanders *(President, American Nuclear Society; and SNL)*

TUESDAY, NOVEMBER 17, 2009 • 8:30 A.M.

Pro-Nuclear Advocacy, sponsored by ETD. *Chair:* Dave Pointer *(ANL)*

Calvert Room
8:30 a.m.

Cocktail Napkin Facts: How to Sell Nuclear, One Drink at a Time, Darby S. Kimball *(Bechtel National)*, Peter F. Caracappa *(RPI)*, George Tsakanikas *(Bechtel Power)*

8:50 a.m.

Scouting Programs for Educational Outreach, R. N. Slaybaugh *(Univ of Wisconsin, Madison)*

9:10 a.m.

An Engineering Experience Approach to Nuclear Energy Communications, W. David Pointer *(ANL)*

Next Generation Nuclear Power Plants for Next Generation Professionals: Technology Transfer and Advancements–Panel, sponsored by RPD. *Chairs:* Alan Waltar, Pavel Tsvetkov *(Texas A&M)*

Calvert Room
9:35 a.m.

The next generation of nuclear professionals will need to address the design and construction challenges of the next generation nuclear power plant. Fast reactors and very high temperature reactors are the most prominent examples of technology transfer challenges as well as technology advancements. It is expected that a fast reactor will be an important component in closing the fuel cycle. Significant experience with fast reactors has been accumulated, but it may be lost if not transferred to a new generation of nuclear professionals. This panel will start with an overview of the technology, followed by discussion on how to effectively preserve the vast amount of existing knowledge and transfer it to the next generations as well as discussion on technology advancements and perspectives for deployment.

PANELISTS:
- Sterling Bailey *(General Electric, retired)*
- Barry D. Ganapol *(Univ of Arizona)*
- Dmitry Klinov *(Obninsk Inst for Nuclear Power Engineering)*
- Anatoly Shmelev *(Moscow Engineering Physics Inst)*
- Russell Stachowski *(GE Hitachi Nuclear Energy)*
- Irina Vorobieva *(Obninsk Inst for Nuclear Power Engineering)*
- Alan E. Waltar *(PNNL)*
- Kevan D. Weaver *(TerraPower)*

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

Innovations in Medical Physics, sponsored by BMD.
Chair: L. Raymond Cao *(NIST)*

Capitol Room
8:30 a.m.
Neutron Production and Shielding Calculations for a Proton Therapy Vault, Yuanshui Zheng *(Washington Univ in St. Louis)*, Wayne Newhauser *(Univ of Texas M. D. Anderson Cancer Center)*, Eric Klein *(Washington Univ in St. Louis)*, invited

8:50 a.m.
Proton Radiotherapy for Breast Cancer, Xiaochun Wang, Wendy A. Woodward, Xiaodong Zhang, Phillip J. Taddei *(Univ of Texas M. D. Anderson Cancer Center)*, invited

9:10 a.m.
Uncertainties in Predicting Relative Secondary Cancer Incidence Following Radiotherapy, Jonas D. Fontenot *(Mary Bird Perkins Cancer Center)*, Wayne D. Newhauser *(Univ of Texas M. D. Anderson Cancer Center)*, invited

9:30 a.m.
Overview of Recent Measurements of Photoneutrons from Modern Radiation Therapy Linacs, Rebecca Howell, Stephen F. Kry *(Univ of Texas M. D. Anderson Cancer Center)*, Eric Burgett *(Georgia Tech)*, invited

9:50 a.m.
Microdosimetric Measurements for Proton Therapy Applications, A. Pérez-Andújar, Paul M. Deluca Jr. *(Univ of Wisconsin, Madison)*, Allan Thornton, Markus Fitzek, Draik Hecksel *(Midwest Proton Radiotherapy Inst)*, Jonathan Farr *(WPE–Germany)*, invited

10:10 a.m.
Risk of Carcinogenesis from Stray Radiation for Children Receiving Proton Craniospinal Irradiation, Phillip J. Taddei, Anita Mahajan, Dragan Mirkovic, Rui Zhang, Annelise Giebeler, David Kornguth, Mark Harvey, Laura Broaded, Shiao Woo, Wayne D. Newhauser *(Univ of Texas M. D. Anderson Cancer Center)*, invited

10:30 a.m.
Dose Assessment to Heart and Lungs in HDR Breast Brachytherapy, K. Hadad, B. D. Ganapol, R. J. Hamilton, C. J. Watchman, Yang Xu *(Univ of Arizona)*

TUESDAY, NOVEMBER 17, 2009 • 1:00 P.M.

Innovations in Modeling and Simulation, sponsored by MCD.
Chair: Ryan McClarren *(Texas A&M)*

Calvert Room
1:00 p.m.
Extension of a Transport Synthetic Acceleration Scheme to the Cell-Wise Block-Jacobi and Gauss-Seidel Algorithms, Massimiliano Rosa, James S. Warsa *(LANL)*

1:20 p.m.
Uncertainty Quantification in Radiation Transport Using the Stochastic Collocation Method, Erin D. Fichtl *(LANL)*, Anil K. Prinja *(Univ of New Mexico)*, James S. Warsa *(LANL)*

1:40 p.m.
Positive P_n Closures Based on Local Optimization, Ryan G. McClarren *(Texas A&M)*, Cory D. Hauck *(LANL)*

TUESDAY, NOVEMBER 17, 2009 • 4:30 P.M.

Your Personal Career–Panel, sponsored by NA-YGN and ANS YMG.
Chair: Craig Albers *(Fluor Corp)*

Capitol Room
4:30 p.m.
This panel session is designed to provide young professionals with skills to support their ongoing career choices. Panelists include representatives from technical and other functional areas that support career development. The speakers will each cover one of the following topics: writing performance objectives, establishing your personal sales pitch, and understanding the variety of different career paths in the industry. These enlightening presentations and the subsequent discussion will give young professionals the skills needed to go after that next big career move.

PANELISTS:
- Nicole Reilly *(PSEG)*
- Carl Fricker *(PSEG)*
- Amy Sexton *(Exelon)*

WEDNESDAY, NOVEMBER 18, 2009 • 8:30 A.M.

Next Generation of Nuclear Criticality Safety Professionals, sponsored by NCSD. *Chairs:* Lon Paulson *(GE Hitachi Nuclear)*, Mikey Brady Raap *(PNNL)*

Calvert Room
8:30 a.m.
What the NCS World Offers to Young Professionals, Larry L. Wetzel *(B&W NOG-L)*

8:50 a.m.
Providing Nuclear Criticality Safety Analysis Education Through Benchmark Experiment Evaluation, John D. Bess, J. Blair Briggs, David Nigg *(INL)*

9:10 a.m.
Nuclear Criticality Safety Curriculum for Engineering Students, Jesse McBurney-Rebol, Fred Gunnerson *(Univ of Idaho)*

9:30 a.m.
Training Next Generation NCS Engineers at the Y-12 NSC, C. F. Haught, J. J. Lichtenwalter, R. C. Robinson *(B&W Y-12 Technical Services)*

9:50 a.m.
MCNP Variance Reduction Techniques: What to Use When, and How, James Laird *(Univ of Michigan)*, Darby S. Kimball *(Bechtel National)*

Knowledge Management, sponsored by OPD.
Chair: Tyler Schweitzer *(GE Hitachi Nuclear)*

Capitol Room
8:30 a.m.
NRC's Knowledge Management Program, Patricia L. Eng *(NRC)*, invited

8:50 a.m.
Knowledge Transfer in a Nuclear Industry Calibration Lab, Michael Kurzeja *(Exelon)*

9:10 a.m.
Nuclear Knowledge Management for Young Professionals: Connecting the Dots, Brent Williams *(Bruce Power)*

9:30 a.m.
Legacy Program—Innovation in Recruiting, Hiring, and Knowledge Transfer, Michael Radoccia, Teresa Berry *(Palo Verde Nuclear Generating Station)*

9:50 a.m.
Challenges and Opportunities in Knowledge Management—A Case Study: Developing Expertise in LOCA and Containment Analyses, Curt Robert, Fran Bolger, Kurshad Muftuoglu *(GE Hitachi Nuclear Energy)*

Diverse Paths to Success: Navigating the Early Years of Your Career–Panel, sponsored by PWANS. *Chair:* Michaela Eddy *(Univ of Michigan)*

Capitol Room
10:15 a.m.
This panel session is designed to provide young professionals with the insight and tips of ANS members who have been successful in the nuclear field. Panelists will include representatives from industry, international organizations, academia, and government. The speakers will provide overviews of their careers, including unique challenges negotiated such as age disparity, diversity, and work-life balance issues. Panelists will provide recommendations on critical skills that young professionals should develop to achieve their career and personal goals. Presentations will be followed by an open question-and-answer period.

PANELISTS:
- Shana Helton *(NRC)*
- Jack Tuohy *(ANS)*
- Shannon Bragg-Sitton *(Texas A&M)*
- Virginia Cleary *(SNL)*

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

WEDNESDAY, NOVEMBER 18, 2009 • 1:00 P.M.

Innovation in Thermal Hydraulics, sponsored by THD.
Chair: Donald Todd *(AREVA)*

Calvert Room
1:00 p.m.
Experimental Substantiation of VVER Reactor Passive Core Flooding System, Andrey Morozov *(IPPE–Russia)*

1:20 p.m.
DNS Simulation of Buoyancy-Driven Flows for Nuclear Applications, Elia Merzari *(Tokyo Inst Technol–Japan)*

Evolutions in Nuclear Plant Safety, *Chairs:* Robert Andre *(Bechtel Power)* and John Kelly *(SNL)*

Calvert Room
1:45 p.m.
Development of Risk Assessment (PRA) Methodology, From Its Inception to Today, Robert J. Budnitz *(Berkeley Lab)*

2:05 p.m.
The Reactor Accident Source Term, D. A. Powers *(SNL)*

2:25 p.m.
Reactor Physics Applications in Nuclear Reactor Safety, David Diamond, Michael Todosow *(BNL)*

2:45 p.m.
Used Nuclear Fuel Recycling Regulatory Framework Assessment, Felicia A. Durán, John E. Kelly, Ken Sorenson, Richard Yoshimura, Paul McConnell, John R. Cochran, Sharon A. Walker, Consuelo J. Silva *(SNL)*, Faris M. Badwan, John Ireland, John Dallman *(LANL)*, Stephen McConnell, Rick Geddes, Craig McMullin, Anthony Cappucci, David Jones *(Washington Savannah River Company)*

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

Fuel Cycle Elements in the Renaissance: Pulling It All Together–Panel, sponsored by FCWMD.
Chairs: Mary Lou Dunzik-Gougar *(Idaho State Univ)*, Steve Turner *(SAIC)*

Capitol Room
1:00 p.m.
Young generation panel members will discuss their roles and responsibilities in the key elements of the fuel cycle including mining, milling, and conversion; enrichment; fuel fabrication; back end/reprocessing; waste storage/transport and disposal; and fuel management. The overall theme will focus on the opportunities and challenges in fulfilling the nuclear renaissance. Roles in academia, national research laboratories, utilities, and private industry will be featured.

PANELISTS:
- Philip A. Benavides *(Constellation Energy Nuclear Group)*
- J'Tia Taylor *(Univ of Illinois)*
- Marisa A. Vilardo *(United States Enrichment Corp)*
- Jonathan Hinze *(Ux Consulting Company)*

Challenges Facing the Young Generation in Nuclear–Panel, sponsored by ANS YMG. *Chairs:* Nichole Ellis *(Ellis Nuclear Eng)*, Brad Gerrard *(Project Assistance Corp)*

Capitol Room
2:30 p.m.
In order to retain student members as professional members after graduation, attract new young professional members, and encourage active participation in its activities, the American Nuclear Society and its constituent groups 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. This session will seek to build upon the outcome of the previous session by developing a more detailed list of services and actions to be proposed to the American Nuclear Society to better meet the needs of young nuclear science and technology professionals and their employers.

PANELISTS:
- Amy Buu *(Westinghouse)*
- Nichole Ellis *(Ellis Nuclear Eng)*
- Shana Helton *(NRC)*
- W. David Pointer *(ANL)*

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

Aerospace Nuclear Science and Technology: General, sponsored by ANSTD. *Chair:* Shannon Bragg-Sitton

Cabinet Room
2:20 p.m.
NOTE: This is a general ANS Winter Meeting session that incorporates YPC papers on the same topic. Please see page 33 for complete session information, including paper summary titles and presentation times.

WEDNESDAY, NOVEMBER 18, 2009 • 4:30 P.M.

Public Communications/Professional Development—Focus on Members of Congress, sponsored by ANS YMG, NA-YGN, and the ANS Public Information Committee. *Facilitators:* Mimi Limbach *(Potomac Communications)*, Christine Csizmadia *(NEI)*

Capitol Room
4:30 p.m.
ANS Public Communications and Young Professionals Congress Hill Day Activity
Get ready to join your colleagues and visit Capitol Hill on November 19, 2009.

To prepare you to speak with your Hill members, this Public Communications Workshop/Professional Development Session will serve to sharpen communications skills (including best practices communications) and serve as the pre-job briefing for the Capitol Hill Visit Activity.

The two-hour program begins with Craig Piercy, ANS Washington Representative, and Mimi Limbach, Potomac Communications Group, presenting the basic principles of successfully communicating with members of Congress and staff members. They will provide a specific framework, messages, and language that will result in fruitful meetings with policy makers.

Next, Christine Csizmadia, Nuclear Energy Institute, will present the pre-job briefing for Hill day. Included will be meeting schedules, team assignments, talking points, and a discussion of what to expect during your meetings on the Hill. Hill meetings will be scheduled anytime from 9:00 a.m. to 1:00 p.m. on Thursday, November 18.

THURSDAY, NOVEMBER 19, 2009 • 8:30 A.M.

Introductory Monte Carlo–Tutorial, sponsored by RPSD. *Chair:* John S. Hendricks *(LANL)*

Capitol Room
8:30 a.m.
The Monte Carlo tutorial is a hands-on session where attendees learn and practice setting up and running simple Monte Carlo calculations. It is designed for those who have never run a Monte Carlo calculation before. The seminar will also be of interest to those familiar with Monte Carlo who would like to try running MCNP/X and see some of the latest capabilities. Topics include geometry, sources, tallies, and physics. People who have never run a Monte Carlo problem before will become able to do simple problems.

THURSDAY, NOVEMBER 19, 2009 • 1:00 P.M.

MAVRIC Tutorial: New Shielding Methods in SCALE 6, sponsored by RPSD. *Chair:* Douglas E. Peplow *(ORNL)*

Capitol Room
1:00 p.m.
This three-hour demonstration/tutorial will highlight the automated variance reduction capabilities of the MAVRIC sequence using several simple example shielding problems. To optimize a given tally, MAVRIC first computes an importance map and biased source distribution based on the results of approximate discrete ordinates calculations using the new Denovo SN code. The importance map and biased source are then used by the Monte Carlo functional module Monaco to compute that tally much more efficiently than an analog calculation. Examples will include calculating dose near a spent fuel cask, calculating a dose contour map from an array of storage casks, and calculating the doses at the detectors of a criticality accident alarm system. This last example uses a fission distribution computed by KENO-VI as the source term for MAVRIC. Registered SCALE 6 users are welcome to bring their own laptops and follow along.

Professional Development Workshop #1

"Next Generation Safeguards Specialist"

Sunday, November 15, 2009
9:00 a.m. – 5:00 p.m.
Location: Forum Room

Objectives of this workshop:

After this workshop, the participants will be able to:

- List the primary components of nuclear non-proliferation
- Identify the major activities and tasks of nuclear material safeguards and security
- Define activities and tasks common among the primary components

The workshop is designed to identify safeguards and security components in a nuclear facility. Students will be able to determine the protection that an integrated system of physical security, material control and accountability safeguards in an operations environment deploys.

The workshop will consist of a 3D Simulation of a model nuclear facility with two facilitators: one who is a physical security subject matter expert and one who is a nuclear material control and accounting subject matter expert. The facilitators will provide the students with an understanding of how physical security and nuclear material control and accountability are integrated at a nuclear facility as well as identifying specific safeguards and security activities.

Participants will be put into a situation where they must think about a number of aspects related to safeguarding nuclear materials. Participants will be supported by facilitators who will encourage 'guided discovery' leading to the participant's ability to identify aspects and tasks of nuclear safeguards: nuclear material control and accountability; protection; and operations.

Finally, the participants will be divided into two groups. The purpose of each group is to list and discuss the activities or tasks for safeguards and security and then apply those to a facility diagram. This session will run for approximately 2 hours. The groups will then reconvene and each group will present the results of their session assisted by their facilitator. The groups will explain the activities/tasks they chose and why they chose them. 5 – 10 minutes will be allowed for questions/comments. After all findings have been presented, the results will be reviewed and any items overlooked will be added. Finally, all items will be arranged to show those that apply to one or more major areas. More time will be provided at this point to encourage questions and comments from participants.

Workshop Instructors:

Mary Dawn Eipeldauer, Dyrk B. Greenhalgh, and Geneva C. Johnson *(ORNL — UT–Batelle)*

Agenda:

I.	9:00	Facilitators introduce themselves and provide their background
II.	9:15	Participants introduce themselves 1. What is your academic background 2. What are your plans after they graduate 3. What are your expectations for this workshop 4. What do you already know about nuclear nonproliferation
III.	9:45	Provide course objectives and overview
IV.	10:00	Break
V.	10:15	Demonstration (physical protection and safeguards and security)
VI.	12:00	Lunch
VII.	1:00	Break participants into groups 1. Group 1 is Nuclear Material Control and Accounting with the help of facilitators list and discuss tasks/activities for specific areas and design presentation and explain why tasks/activities were chosen 2. Group 2 is Physical Security with the help of facilitators list and discuss tasks/activities for specific areas and design presentation and explain why tasks/activities were chosen
VIII.	3:00	Group 1 presentation on Nuclear Material Control and Accountability
IX.	3:30	Group 2 presentation on Physical Security
X.	4:00	Break
XI.	4:15	Final results and questions and answers
XII.	5:00	Workshop wrap up

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

Professional Development Workshop #2

"New Reactor Licensing — Lessons Learned"

Sunday, November 15, 2009
9:00 a.m. – 5:00 p.m.
Location: Calvert Room

Objectives of this workshop:

After this workshop, the participants will:

- Have a better understanding the process for licensing new reactors under 10 CFR Part 52, both from the applicant's side of preparing the application and responding to NRC requests, and from the regulator's side of reviewing the application.
- Understand how review schedules are set and what can make them change
- Become familiar with some of the challenges faced by both sides and how they were addressed
- Be in a better position to apply the lessons learned towards future and current applications

This workshop will look at three types of licenses for new reactor construction- Early Site Permits and Limited Work Authorizations, Combined Licenses, and Design Certifications. Each of these are relatively new processes which are being tested for the first time, and lessons learned are being used by both the applicants and the regulator to revise and improve the processes. For each type of application addressed, the workshop will present a team consisting of the applicant, the NRC safety review project manager, and the NRC environmental review project manager for a specific project. They will each discuss the challenges and successes that they had in the course of the application preparation and review, and provide valuable lessons learned that should be applied to any future or current applications to ensure a timely and effective licensing review.

The projects chosen for discussion include some of the first nuclear power plants expected to begin construction and commercial operation, including the project that was recently issued the first Limited Work Authorization.

Workshop Organizer:

Donna Williams, U.S. NRC

NRC Staff Presenters:

Jessie Muir; Christian Araguas; Salman Haq; Mark Notich; George Wunder; Jeffrey Ciocco; and C. Keith Paulson

Agenda:

9:00 AM	Introduction Overview of Licensing Process/ Schedules/ NRC Goals/ etc.
9:45 AM	Combined License applications Presentation by applicant representative Presentation by NRC Safety Project Manager Presentation by NRC Environmental Project Manager
10:45 AM	Break
11:00 AM	Discussion, Questions and Answers on Combined License Applications
11:45 AM	Lunch
1:00 PM	Early Site Permits/ Limited Work Authorizations Presentation by applicant representative Presentation by NRC Safety Project Manager Presentation by NRC Environmental Project Manager
2:00 PM	Early Site Permits/ Limited Work Authorizations – Discussion, Questions and Answers
2:30 PM	Break
2:45 PM	Design Certifications Presentation by applicant representative Presentation by NRC Project Manager
3:45 PM	Discussion, questions and answers on Design Certifications

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

"Alternative Financing Techniques for Emerging and Mid-Sized Nuclear Companies"

Monday, November 16, 2009
4:30 p.m. – 6:30 p.m.
Location: Hampton Ballroom

INTRODUCTION

The American Nuclear Society ("ANS") with the assistance of Pillsbury Winthrop Shaw Pittman and Roth Capital Partners is organizing a workshop on cutting-edge capital financing techniques for nuclear industry-focused companies. The workshop is geared toward Chief Executive Officers, Chief Financial Officers and other senior staff of emerging and mid-sized companies which are seeking expansion capital to respond to the unprecedented growth anticipated in the nuclear industry over the next decade.

This comprehensive workshop will be offered at the ANS Winter Meeting in November 2009 in Washington, DC. The workshop will be devoted to an in-depth look at alternative financing techniques that are being exercised in this difficult financial environment.

PREPARING FOR- THE NUCLEAR RENAISSANCE

A nuclear renaissance, driven by environmental concerns, increased energy demand, climate change, and increased public acceptance of nuclear power, is poised to revolutionize the nuclear industry and create new opportunities for nuclear-power focused companies of all sizes. Growth in the nuclear industry is a global phenomenon as a myriad of countries have committed to build new reactors and expand existing capacity. Over 40 new reactors are now being constructed around the world with an additional 90 expected to become operational during the next ten years and 200 more planned for the following decade. The nuclear renaissance is triggering extraordinary demand for products and services. This exceptional growth presents challenges and opportunities for companies, both large and small, that operate in the industry.

In an industry as capital intensive as the nuclear power industry, companies with ample capital resources will be well-positioned to respond to expected demand for their products and services. Under-capitalized companies will fail. Emerging and mid-sized companies (i.e., companies with revenues ranging from $10 million to $200 million) need access to creative alternatives to satisfy their capital resource demands. Large IPOs with bulge bracket banks may not be a viable, readily available option, and venture capital and private equity financing may not provide a sufficient amount of capital.

Several alternative financing techniques can be utilized by these companies to effectively raise capital. For instance, Alternative Public Offerings, or APOs, offer an efficient and immediate source of between $5 and $50 million in capital to emerging and mid-sized companies. The workshop will inform conference attendees about alternative financing techniques, give concrete examples of other companies and industries that have capitalized on alternative financing techniques and explain their applicability to the nuclear industry.

TARGET COMPANIES AND TARGET AUDIENCE

The target audience and participants for the workshop are persons within the management team of a company in the nuclear power industry that are responsible for raising capital, including the Chairman, CEO, CFO, board members and members of the finance department.
The characteristics or companies that would benefit most from this workshop are:

- Privately held
- Provides products or services to the nuclear power industry
- Seeks $5 million to $50 million in growth capital to expand operations
- Desires to benefit from the advantages of being a publicly-traded company while at the sane time being fiscally able to bear the economic and other burdens of being a public company
- Has annual revenues between $10 million and $200 million or more
- Is profitable or has a near near-term path to profitability

The presentation may also benefit fund managers interested in investing in companies in the nuclear power sector.

There is no registration fee for this workshop with meeting registration.
Please note that if you plan on attending the workshop only, the registration fee is $200.00.

DOE Workshop on
Potential Nuclear Criticality Safety Evaluation Improvements for Operational Efficiencies

Friday, November 20, 2009

8:00 AM – 6:00 PM

Location: Diplomat Ballroom

Agenda:

TIME	TOPIC	PRESENTER
8:00 AM – 8:10 AM	Welcome	Bob Wilson *(DOE/EM)*
8:10 AM – 9:00 AM	Regulations/Guides Workgroup	Fitz Trumble
9:00 AM – 10:00 AM	Progress on DOE Std 1027	Kevin Carroll *(LLNL)*, et al
10:00 AM – 10:30 AM	Break	
10:30 AM – 11:00 AM	Revision of DOE NCSET Training Module	Sandi Larson *(Y-12)*
11:00 AM – 11:30 AM	Issues related to DOE NCS Documents Repository	James Felty *(DOE/NCSP)*
11:30 AM – 12:30 PM	Status of Technical Needs Resolution	Mike Westfall *(ORNL)*
12:30 PM – 1:45 PM	Lunch	
1:45 PM – 2:00 PM	Report from the DOE End Users	Todd Taylor *(INL)*
2:00 PM – 2:30 PM	Results and Status of CSSG Taskings	Jim Morman *(ANL)*
3:00 PM – 3:15 PM	Status of CSCT	Bob Wilson *(DOE/EM)*
3:15 PM – 3:45 PM	Break	
3:45 PM – 4:15 PM	Status of NDAG	Dick McKnight *(ANL)*
4:15 PM – 5:00 PM	Status of the Nevada CEF	Steve Clement *(LANL)*
5:00 PM – 5:15 PM	Status of IER	Nichole Ellis *(NCSP)*
5:15 PM – 5:30 PM	Future potential topics	Bob Wilson *(DOE/EM)*

Committee Meetings

NATIONAL COMMITTEES

Accreditation Policies and Procedures
SUNDAY, 5:00 P.M. – 7:00 P.M.
Location: Parlor #306

Board of Directors
Professional Division Reports
WEDNESDAY, 4:00 P.M. – 5:30 P.M.
Location: Regency Ballroom

Board of Directors
THURSDAY, 8:00 A.M. – 5:00 P.M.
Location: Regency Ballroom

Bylaws and Rules
SUNDAY, 1:30 P.M. – 4:00 P.M.
Location: Parlor #309

Finance
TUESDAY, 4:00 P.M. – 7:00 P.M.
Location: Parlor #306

Honors and Awards
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Diplomat Ballroom

International
SUNDAY, 11:30 A.M. – 2:30 P.M.
Location: Palladian 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: Parlor #302

National Program Committee (NPC)
Program
WEDNESDAY, 4:00 P.M. – 7:00 P.M.
Location: Empire Ballroom

Screening and International
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Empire Ballroom

NEED
SUNDAY, 7:30 P.M. – 9:00 P.M.
Location: Chairman's Boardroom

Planning
SUNDAY, 2:00 P.M. – 6:00 P.M.
Location: Hampton Ballroom

President's Meetings
with Committee Chairs
SUNDAY, 9:00 A.M. – 10:30 A.M.
Location: Diplomat Ballroom

with Division Chairs
SUNDAY, 10:30 A.M. – 11:30 A.M.
Location: Diplomat Ballroom

Professional Development Workshop
TUESDAY, 7:30 A.M. – 8:30 A.M.
Location: Parlor #302

Professional Divisions
Committee Meeting
TUESDAY, 4:00 P.M. – 6:30 P.M.
Location: Regency Ballroom

Training Workshop
SATURDAY, 5:00 P.M. – 8:00 P.M.
Location: Hampton Ballroom

Professional Engineering Exam
Committee Meeting
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #309

Item Review Workshop
SATURDAY, 5:00 P.M. – 10:00 P.M.
Location: Forum Room

Professional Women in ANS
MONDAY, 11:30 A.M. – 1:00 P.M.
Location: Parlor #302

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: Chairman's Boardroom

Publications Steering
Book Publishing
SUNDAY, 11:00 A.M. – 12:00 P.M.
Location: Congressional A

Meetings, Proceedings and Transactions
MONDAY, 7:30 A.M. – 8:30 A.M.
Location: Parlor #302

NS&E Advisory Committee
SUNDAY, 9:00 A.M. – 10:00 A.M.
Location: Congressional A

NT Editorial Advisory
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Congressional A

Publications Steering
Nuclear News Editorial Advisory
SUNDAY, 4:00 P.M. – 5:30 P.M.
Location: Parlor #308

Publications Steering
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #303

Technical Journals
SUNDAY, 1:00 P.M. – 3:00 P.M.
Location: Congressional A

Scholarship Policy and Coordination
Monday, 1:00 P.M. – 2:00 P.M.
Location: Parlor #302

Student Sections
Executive
MONDAY, 6:00 P.M. – 7:00 P.M.
Location: Governor's Boardroom

Reports
MONDAY, 7:00 P.M. – 8:00 P.M.
Location: Governor's Boardroom

SPECIAL COMMITTEES

Integration Oversight
SUNDAY, 12:00 P.M. – 2:00 P.M.
Location: Empire Ballroom

Nuclear Nonproliferation
SUNDAY, 2:00 P.M. – 4:00 P.M.
Location: Parlor #308

OTHER COMMITTEES

17th PBNC Organizing Committee
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #302

CNF
MONDAY, 7:30 P.M. – 10:00 P.M.
Location: Parlor #306

Eagle Alliance Board of Directors
SUNDAY, 1:00 P.M. – 3:30 P.M.
Location: Parlor #307

ICAPP 2010 Planning Meeting
MONDAY, 4:30 P.M. – 6:00 P.M.
Location: Parlor #308

Mathematics and Computation/ Reactor Physics/ Radiation Protection & Shielding Joint Benchmark Meeting
SUNDAY, 11:00 A.M. – 1:00 P.M.
Location: Parlor #305

Committee Meetings

NEDHO
MONDAY, 4:30 P.M. – 6:00 P.M.
Location: Capitol Room

PAKS Workshop
SATURDAY, 8:00 A.M. – 5:00 P.M.
Location: Council Room

Past Presidents' Meeting
TUESDAY, 7:00 AM – 9:00 AM
Location: Chairman's Boardroom

PNC Meeting & Luncheon
SUNDAY, 8:30 P.M. – 5:00 P.M
Location: Blue Room

UWC 2009 Planning Committee
SUNDAY, 12:00 P.M. – 1:00 P.M.
Location: Parlor #307

DIVISION COMMITTEES

Accelerator Applications
Executive
MONDAY, 11:30 A.M. – 1:00 P.M.
Location: Parlor #303

Aerospace Nuclear Science and Technologies
SUNDAY, 12:00 P.M. – 2:00 P.M.
Location: Parlor #308

Biology and Medicine
Committee of the Whole
SUNDAY, 4:00 P.M. – 5:30 P.M.
Location: Parlor #305

Computational Medical Physics Working Group
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Parlor #306

Joint Program Committee – I&R and B&M
SUNDAY, 1:30 P.M. – 2:30 P.M.
Location: Chairman's Boardroom

Decommissioning, Decontamination and Reutilization
Committee Meeting
SUNDAY, 1:00 P.M. – 5:00 P.M.
Location: Cabinet Room

Education, Training, and Workforce Development
Alpha Nu Sigma
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Governor's Boardroom

Education, Training, and Workforce Development
Executive/Membership/Honors and Awards
SUNDAY, 1:30 P.M. – 4:00 P.M.
Location: Parlor #303

Nuclear Workforce Working Group
SUNDAY, 12:00 P.M. – 1:30 P.M.
Location: Parlor #309

Program
SUNDAY, 10:30 A.M. – 12:00 P.M.
Location: Parlor #303

University/Industry/Government Relations
SUNDAY, 9:30 A.M. – 10:30 A.M.
Location: Parlor #303

Environmental Sciences
ESD Special Committee on Climate Change
SUNDAY, 1:00 P.M. – 3:00 P.M.
Location: Parlor #304

Executive
SUNDAY, 10:00 A.M. – 12:00 P.M.
Location: Parlor #304

Nuclear Production of Hydrogen Working Group
SUNDAY, 12:00 P.M. – 1:00 P.M.
Location: Parlor #304

Program
SUNDAY, 8:30 A.M. – 10:00 A.M.
Location: Parlor #304

Fuel Cycle and Waste Management
Executive
SUNDAY, 1:00 P.M. – 2:30 P.M.
Location: Capitol Room

Program
SUNDAY, 12:00 P.M. – 1:00 P.M.
Location: Capitol Room

Technical Operating and Standards Committee
SUNDAY, 2:30 P.M. – 3:30 P.M.
Location: Capitol Room

Fusion Energy
Executive
SUNDAY, 3:00 P.M. – 5:00 P.M.
Location: Parlor #304

Human Factors, Instrumentation, and Controls
Executive/Program
SUNDAY, 12:00 P.M. – 12:30 P.M.
Location: Congressional B

Human Factors, Instrumentation, and Controls
NPIC & HMIT Planning
TUESDAY, 4:30 P.M. – 6:30 P.M.
Location: Parlor #305

Isotopes and Radiation
Executive
SUNDAY, 2:30 P.M. – 4:00 P.M.
Location: Chairman's Boardroom

Joint Program Committee – I&R and B&M
SUNDAY, 1:30 P.M. – 2:30 P.M.
Location: Chairman's Boardroom

Materials Science and Technology
Executive
MONDAY, 7:00 P.M. – 9:00 P.M.
Location: Parlor #305

Mathematics and Computation
Computational Medical Physics Working Group
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Parlor #305

Executive
SUNDAY, 2:00 P.M. – 4:00 P.M.
Location: Parlor #305

Program
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Parlor #305

Nuclear Criticality Safety
Education Meeting
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Senate Room

Executive
SUNDAY, 3:00 P.M. – 4:30 P.M.
Location: Senate Room

Program
SUNDAY, 2:00 P.M. – 3:00 P.M.
Location: Senate Room

Nuclear Installation Safety
Executive
SUNDAY, 7:30 P.M. – 9:00 P.M.
Location: Parlor #303

Program
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #303

Committee Meetings

Operations and Power

Executive
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Council Room

Nuclear Construction Working Group
SUNDAY, 12:30 P.M. – 2:30 P.M.
Location: Council Room

Program
SUNDAY, 2:30 P.M. – 4:00 P.M.
Location: Council Room

Radiation Protection and Shielding

Executive
MONDAY, 5:00 P.M. – 6:30 P.M.
Location: Parlor #304

Program
MONDAY, 4:00 P.M. – 5:00 P.M.
Location: Parlor #304

Reactor Physics

Executive
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #302

Goals and Planning
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Parlor #302

Honors and Awards
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Parlor #302

Program
SUNDAY, 2:00 P.M. – 4:00 P.M.
Location: Parlor #302

Robotics and Remote Systems

Executive
SUNDAY, 12:00 P.M. – 4:00 P.M.
Location: Parlor #306

Thermal Hydraulics

Executive
SUNDAY, 5:00 P.M. – 7:00 P.M.
Location: Congressional A

Program
SUNDAY, 3:00 P.M. – 5:00 P.M.
Location: Congressional A

Young Member Group

Executive Committee
SUNDAY, 7:00 A.M. – 9:00 A.M.
Location: Parlor #303

STANDARDS COMMITTEES

ANS Standards Board

TUESDAY, 9:00 A.M. – 5:00 P.M.
Location: Parlor #303

ANS-8.1

SUNDAY, 8:30 A.M. – 12:00 P.M.
Location: Capitol Room

TUESDAY, 7:00 A.M. – 8:30 A.M.
Location: Parlor #304

ANS-8.12

MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #306

ANS-8.20

SUNDAY, 9:00 A.M. – 12:00 P.M.
Location: Parlor #307

ANS-8.21

THURSDAY, 7:00 A.M. – 8:30 A.M.
Location: Parlor #303

ANS-8.22

WEDNESDAY, 4:00 P.M. – 6:00 P.M.
Location: Parlor #302

ANS-8.xx

MONDAY, 7:00 A.M. – 8:30 A.M.
Location: Parlor #303

ANS-10.7

SATURDAY, 8:30 A.M. – 4:30 P.M.
Location:
Defense Nuclear Facilities Safety Board
625 Indiana Ave., #700,
Washington, DC

ANS-19

MONDAY, 8:30 A.M. – 10:30 A.M.
Location: Parlor #304

ANS-19.1

MONDAY, 11:30 A.M. – 12:30 P.M.
Location: Parlor #304

ANS-19.3

MONDAY, 10:30 A.M. – 11:30 A.M.
Location: Parlor #304

ANS-54.1

SUNDAY, 6:00 P.M. – 9:00 P.M.
Location: Parlor #308

ANS-58.2

WEDNESDAY, 8:00 A.M. – 12:00 P.M.
Location: Parlor #304

ANS-58.8

TUESDAY, 8:00 A.M. – 4:00 P.M.
Location: Parlor #308

ANS-58.14

TUESDAY, 8:00 A.M. – 4:00 P.M.
Location: Parlor #307

ANS-58.16

TUESDAY, 9:00 A.M. – 3:00 P.M.
Location: Parlor #304

ANS-58.22

THURSDAY, 8:00 A.M. – 5:00 P.M.
Location:
Nuclear Energy Institute
1776 I Street NW, #400
Washington, DC

ANS-58.24

TUESDAY, 8:00 A.M. – 4:00 P.M.
Location: Parlor #305

WEDNESDAY, 8:00 A.M. – 4:00 P.M.
Location: Parlor #305

N16

MONDAY, 1:00 P.M. – 5:00 P.M.
Location: Parlor #305

N17

WEDNESDAY, 10:00 A.M. – 12:00 P.M.
Location: Parlor #302

NFSC

MONDAY, 9:00 A.M. – 5:30 P.M.
Location:
Edison Electric Institute
701 Pennsylvania Avenue NW
Washington, DC

RISC

WEDNESDAY, 8:00 A.M. – 5:00 P.M.
Location:
Nuclear Energy Institute
1776 I Street NW, #400
Washington, DC

ANS Nuclear Technology Expo

SUNDAY, NOVEMBER 15
6:00 PM – 7:30 PM (ANS President's Reception)

MONDAY, NOVEMBER 16
11:30 AM – 6:00 PM (ANS Luncheon • Prizes • Expo Fest)

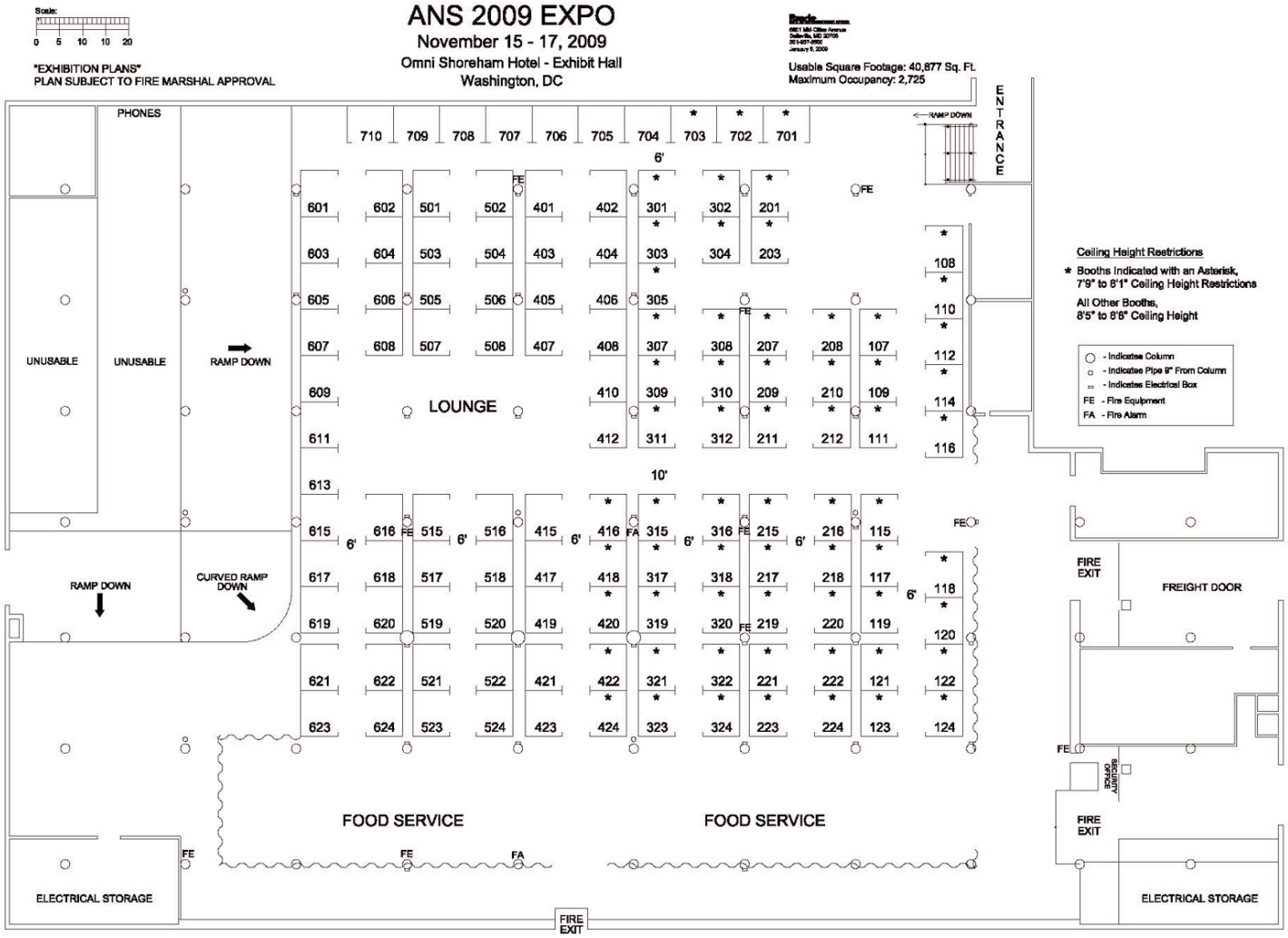
TUESDAY, NOVEMBER 17
10:00 AM – 2:00 PM (Dessert Reception • Prizes)

The ANS Nuclear Technology Expo will be held November 15-17 in the Lower Level Exhibit Hall of the Omni Shoreham Hotel.

The Expo will open Sunday from 6:00 pm – 7:30 pm for the ANS President's Reception. Many other special events will take place in the Hall on Monday and Tuesday. Most events require tickets.

Representatives from leading organizations will be available to answer your questions about their innovative products and services. A list of exhibitors follows.

Floor Plan
Lower Level Exhibit Hall – Omni Shoreham Hotel



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)

Westinghouse Electric Company
(ANS Expo Fest)

The Shaw Group
(ANS Expo Fest)

United States Navy Nuclear Propulsion
(ANS Expo Fest)

Exhibit space is still available. For more information, contact Sharon Bohlander on 1-800-250-3678 x227 or visit www.earlbeckwith.com.

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.

2010 ANS Annual Meeting • San Diego, California

2010 ANS Winter Meeting • Las Vegas, Nevada

Make plans now to attend!

2010 NATIONAL MEETINGS

DATE	TITLE	LOCATION
Jun 13-17, 2010	2010 ANS ANNUAL MEETING *"Nuclear Science and Technology: The Right Fit. The Right Time"* and EMBEDDED TOPICAL MEETINGS • Second International Meeting of the Safety and Technology of Nuclear Hydrogen Production, Control and Management (21ST-NH_2) • Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors • ICAPP 2010	**San Diego, California** *Town & Country Hotel*
Nov 7-11, 2010	2010 ANS WINTER MEETING AND NUCLEAR TECHNOLOGY EXPO and EMBEDDED TOPICAL MEETINGS • 19th Topical Meeting on the Technology of Fusion Energy (TOFE) • 7th International Topical Meeting on Nuclear Plant Instrumentation, Control and Human Machine Interface Technologies (NPIC&HMIT 2010) • Isotopes for Medicine and Industry	**Las Vegas, Nevada** *Riviera Hotel*

2010 TOPICAL AND OTHER IMPORTANT MEETINGS

DATE	TITLE	LOCATION
Apr 19-24, 2010	1st Joint Topical of RPSD and IRD/BMD 16th Biennial Topical of the RPSD	**Las Vegas, Nevada** *Palace Station and Casino*
May 9-14, 2010	PHYSOR 2010 Advances in Reactor Physics to Power the Nuclear Renaissance	**Pittsburgh, Philadelphia** *Sheraton Station Square Hotel*
Aug 8-11, 2010	Utility Working Conference and Vendor Technology Expo *"People Achieving Excellence"*	**Amelia Island, Florida** *Amelia Island Plantation*
Aug 29-Sep 2, 2010	DD&R 2010	**Idaho Falls, Idaho** *Shilo Inn Convention Center*
Sep 19-23, 2010	Plutonium Futures *"The Science" – 2010*	**Keystone, Colorado** *Keystone Resort & Conference Center*
Sep 26-29, 2010	2010 LWR Fuel Performance Meeting/Top Fuel	**Orlando, Florida** *Hyatt Regency Grand Cypress*

ANS Organization Members

Aare-Tessin Ltd. for Electricity (Atel)
AECL
Alaron Corporation
Altran Solutions Corp.
Ameren-UE
American Electric Power Service Corp.
American Nuclear Insurers
ANATECH Corporation
AREVA NC
AREVA NP
Arizona Public Service Co.
AT&F Nuclear, Inc.

Babcock & Wilcox Company
Barnhart Nuclear Services
Battelle Memorial Institute
Bechtel Power Corp.
Bigge Crane and Rigging Co.
BKW FMB Energie Ltd.
Black & Veatch
R. Brooks Associates, Inc.
Burns & Roe Enterprises, Inc.

Central Research Laboratories
Ceradyne
Constellation Energy
CP&L and Florida Power-Progress Energy Companies

Dade Moeller & Associates
Deep Ocean Engineering
Detroit Edison Company
Dominion Generation
DuBose National Energy Service
Duke Energy Corporation

Energy Future Holdings Corp. (Luminant)
EnergySolutions
Entergy Operations Inc.
Enterprise Informatics
EPRI
EXCEL Services Corporation
Exelon Nuclear Co.

Federation of Electric Power Companies of Japan
FENOC
Florida Power & Light

General Atomics
GE-Hitachi Nuclear Energy
GeoEngineers

Hans Walischmiller GMBH
Hayward Tyler, Inc.
Huron Consulting Group

Indiana Michigan Power Co./ D.C. Cook Nuclear Power Plant
Institute of Nuclear Safety Systems, Inc.

Kernkraftwerk Leibstadt AG
Kinectrics Inc.
Kinemetrics Inc.
Korea Atomic Industrial Forum, Inc.
Krsko Nuclear Power Plant

Lawrence Livermore National Laboratory
Los Alamos National Laboratory
L-3 Communications MAPPS Inc.

Major Tool & Machine, Inc.
Marshield - Div. of Mars Metal Company
McCallum-Turner, Inc.
Mega-Tech Services, LLC

Navarro Research & Engineering
Nebraska Public Power District
NEI
Nexus Technical Services Corporation
Nordostschweizerische Kraftwerke AG
Northrop Grumman Shipbuilding
Nuclear Fuel Services, Inc.
Nuclear Management Co., LLC
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.)

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
Tennessee Valley Authority
Tetra Tech
Thermo Fisher Scientific
Toshiba America Nuclear Energy Corporation
TradeTech, LLC

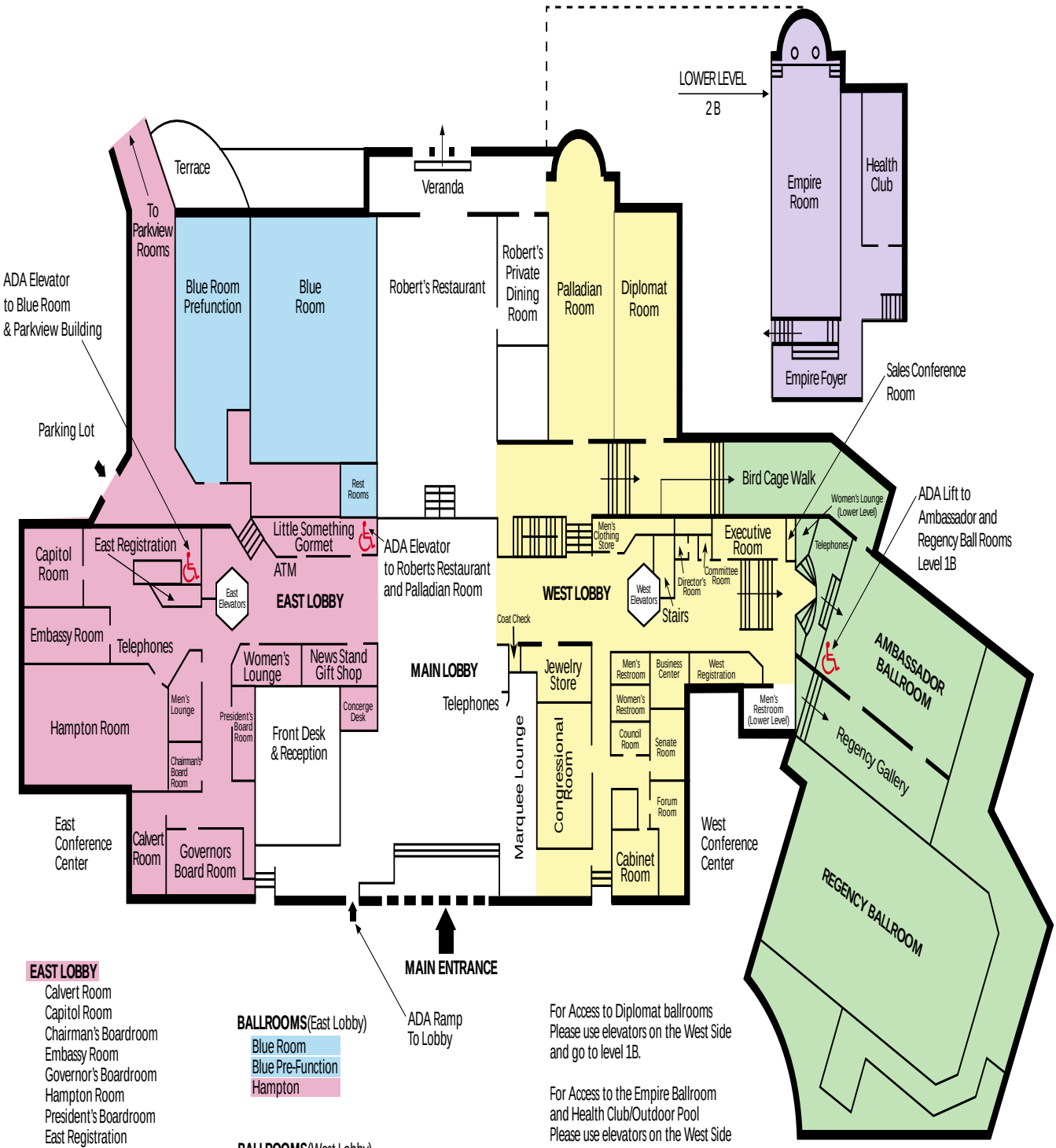
University of Missouri – Columbia Research Reactor (MURR)
UR-Energy USA Inc.
URS Washington Division
USEC Inc.

Westinghouse Electric Corp.
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
- Calvert Room
- Capitol Room
- Chairman's Boardroom
- Embassy Room
- Governor's Boardroom
- Hampton Room
- President's Boardroom
- East Registration

WEST LOBBY
- Cabinet 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 ballrooms
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