AMERICAN NUCLEAR SOCIETY: 2010 Winter Meeting and Nuclear Technology Expo

"Nuclear Progress!"

November 7–11, 2010 • Las Vegas, Nevada • Riviera Hotel & Casino

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**

OFFICIAL PROGRAM

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

2010 ANS Winter Meeting: "Nuclear Progress!" and Embedded Topical Meetings:

19th Topical Meeting on the Technology of Fusion Energy
7th International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human Machine Interface Technologies
Isotopes for Medicine and Industry

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Embedded Topical Meeting:
7th International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human Machine Interface Technologies (NPIC&HMIT 2010)

Altran Solutions
Analysis and Measurement Services Corp.
BEA/INL
Invensys
Lockheed Martin
NRC
U.S. DOE
Westinghouse Electric Company

Embedded Topical Meeting:
Isotopes for Medicine and Industry

ANS Accelerator Applications Division
ANS Biology and Medicine Division
ANS Isotopes and Radiation Division
Canadian Nuclear Society
Isotope Technologies Garching
University of Missouri Research Reactor Center
U.S. Department of Energy

Thank You!

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AMERICAN NUCLEAR SOCIETY: 2010 WINTER MEETING AND NUCLEAR TECHNOLOGY EXPO

"NUCLEAR PROGRESS!"

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**

November 7-11, 2010 • Las Vegas, Nevada • Riviera Hotel & Casino

UPDATED: 11/5/2010

Meeting Highlights

SATURDAY, NOVEMBER 6, 2010

8:00 AM – 5:00 PM	Teachers' Workshop
5:00 PM – 6:30 PM	Professional Divisions Workshop

SUNDAY, NOVEMBER 7, 2010

8:00 AM – 5:00 PM	Professional Development Workshop: "Digital Instrumentation and Control"
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 8, 2010

8:00 AM – 10:00 AM	Spouse/Guest Hospitality
8:30 AM – 11:30 AM	2010 ANS Winter Meeting: Plenary Session: "Nuclear Progress!"
10:00 AM – 2:00 PM	Spouse/Guest Tour: "Shop Til You Drop at the Las Vegas Premium Outlets"
11:30 AM – 1:00 PM	Attendee Luncheon in the Nuclear Technology Exhibit
11:45 AM – 12:45 PM	Green Bag Lunch: "Focus on Communications"
1:00 PM – 4:00 PM	2010 ANS Annual Meeting: Technical Sessions
1:00 PM – 4:00 PM	NPIC&HMIT 2010: Opening Plenary
1:00 PM – 4:30 PM	Isotopes for Medicine and Industry: Opening Plenary
1:30 PM – 2:45 PM	TOFE: Meeting Welcome and ITER Plenary
3:30 PM – 5:30 PM	TOFE: Technical Sessions
4:00 PM – 6:00 PM	2010 ANS Annual Meeting: Technical Session
4:00 PM – 6:00 PM	Student Poster Session
7:00 PM – 10:30 PM	Evening Event: "Reception at the Atomic Testing Museum"

TUESDAY, NOVEMBER 9, 2010

8:00 AM – 10:00 AM	Spouse/Guest Hospitality
8:30 AM – 9:30 AM	TOFE: NIF Plenary
8:30 AM – 11:30 AM	2010 ANS Winter Meeting: Technical Sessions
8:30 AM – 11:30 AM	Isotopes for Medicine and Industry: Technical Sessions
8:30 AM – 11:30 AM	NPIC&HMIT 2010: Technical Sessions
9:00 AM – 1:00 PM	Spouse/Guest Tour: "Springs Preserve"
10:00 AM – 11:30 AM	TOFE: Technical Sessions
11:30 AM – 1:00 PM	ANS Honors and Awards Luncheon
1:00 PM – 4:00 PM	2010 ANS Winter Meeting: Technical Sessions
1:00 PM – 4:00 PM	NPIC&HMIT 2010: Technical Sessions

TUESDAY, NOVEMBER 9, 2010

1:00 PM – 6:10 PM	Isotopes for Medicine and Industry: Technical Sessions
1:30 PM – 3:30 PM	TOFE: Technical Sessions
3:30 PM – 5:30 PM	TOFE: Poster Session—I
7:00 PM – 9:30 PM	NPIC&HMIT 2010: "Reception and Dinner"

WEDNESDAY, NOVEMBER 10, 2010

8:00 AM – 10:00 AM	Spouse/Guest Hospitality
8:30 AM – 9:30 AM	TOFE: Velikhov Plenary
8:30 AM – 11:30 AM	2010 ANS Winter Meeting: Technical Sessions
8:30 AM – 11:30 AM	Isotopes for Medicine and Industry: Technical Sessions
8:30 AM – 11:30 AM	NPIC&HMIT 2010: Technical Sessions
10:00 AM – 11:30 AM	TOFE: Technical Sessions
1:00 PM – 4:00 PM	2010 ANS Winter Meeting: Technical Sessions
1:00 PM – 4:00 PM	NPIC&HMIT 2010: Technical Sessions
1:00 PM – 6:10 PM	Isotopes for Medicine and Industry: Technical Sessions
1:30 PM – 3:30 PM	TOFE: Technical Sessions
3:30 PM – 5:30 PM	TOFE: Poster Session—II
4:30 PM – 6:30 PM	Focus on Communications Workshop
6:30 PM – 10:00 PM	Evening Event: "Barbra & Frank: The Concert That Never Was" *(Location: Le Bistro Theatre in the Riviera Hotel and Casino)*

THURSDAY, NOVEMBER 11, 2010

8:30 AM – 10:00 AM	TOFE: Japan ITER-DEMO Plenary
8:30 AM – 11:30 AM	2010 ANS Winter Meeting: Technical Sessions
8:30 AM – 11:30 AM	Isotopes for Medicine and Industry: Technical Sessions
8:30 AM – 11:30 AM	NPIC&HMIT 2010: Technical Sessions
10:15 AM – 12:15 PM	TOFE: Technology Needs for Fusion Energy–Panel
12:15 PM – 12:30 PM	TOFE: Meeting Closing
1:00 PM – 4:00 PM	2010 ANS Winter Meeting: Technical Sessions
1:00 PM – 4:00 PM	NPIC&HMIT 2010: Technical Sessions
1:00 PM – 6:10 PM	Isotopes for Medicine and Industry: Technical Sessions

FRIDAY, NOVEMBER 12, 2010

8:00 AM – 5:00 PM	DOE Workshop

Meeting Officials

GENERAL CHAIR:
Alvin W. Trivelpiece
Consultant

ASSISTANT GENERAL CHAIR:
Raymond H. Gabaldon III
Sandia National Laboratories

TECHNICAL PROGRAM CHAIR (TPC):
Charles R. Martin (Chip)
Defense Nuclear Facilities Safety Board

ASSISTANT TPC:
Charlotta E. Sanders
UNLV

FINANCE CHAIR:
Robert D. Busch
University of New Mexico

STUDENT CHAIR:
John A. Miller
Sigma Science, Inc @
Sandia National Laboratories

Mark your calendars — plan to attend!

International High-Level Radioactive Waste Management Conference

April 10-14, 2011
Albuquerque, NM
Albuquerque Marriott

The International High-Level Radioactive Waste Management Conference (IHLRWMC) is dedicated to the presentation and exchange of technical and scientific information related to development and operation of systems and repositories for management and disposal of high-level radioactive wastes.

The purpose of this conference is to facilitate transfer of important information across national, programmatic, and disciplinary boundaries to optimize gains in understanding in an evolving arena. It provides an outstanding opportunity to present and exchange scientific and technical information related to all aspects of the back-end issues of nuclear fuel cycle that impact high-level radioactive waste management: storage, reprocessing, transportation, and disposal, with major emphases on integrated management of spent nuclear fuel and various aspects of geological disposal including repository siting, design, licensing, construction, and operation.

Call for Papers available NOW! www.ans.org

Meeting Information

"Nuclear Progress!"

Riviera Hotel and Casino

MEETING INFORMATION

The 2010 ANS Winter Meeting will be held November 7-11, 2010, in Las Vegas, Nevada. There will be three embedded topical meetings held in conjunction with the 2010 ANS Winter Meeting: 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); and Isotopes for Medicine and Industry. There will also be a Professional Development Workshop held in conjunction with the 2010 ANS Winter Meeting: "Digital Intrumentation and Control," as well as the Nuclear Technology Expo.

ACCOMMODATIONS/ HOTEL INFORMATION

The Riviera Hotel and Casino will be the location for the 2010 ANS Winter Meeting, where all activities, technical sessions and governance committee meetings will take place.

ANS NUCLEAR TECHNOLOGY EXPO

The ANS Nuclear Technology Expo will be held in conjunction with the 2010 ANS Winter Meeting in the Grande Ballroom E–H of the hotel. Please turn to page 75 for additional information.

ANS REGISTRATION

ANS Registration will be located in the Grande Ballroom Foyer of the hotel on Saturday, November 6, 2010, through Thursday, November 11, 2010. 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 6, 2010
2:00 p.m. – 5:00 p.m.
SUNDAY, NOVEMBER 7, 2010
11:00 a.m. – 7:00 p.m.
MONDAY, NOVEMBER 8, 2010
7:30 a.m. – 5:00 p.m.
TUESDAY, NOVEMBER 9, 2010
7:30 a.m. – 5:00 p.m.
WEDNESDAY, NOVEMBER 10, 2010
7:30 a.m. – 5:00 p.m.
THURSDAY, NOVEMBER 11, 2010
7:30 a.m. – 2:00 p.m.

** SUNDAY WORKSHOP ATTENDEES ONLY*
Registration for the ANS Professional Development Workshop will take place in the Grande Ballroom Foyer of the hotel on Sunday, November 7, 2010, 7:30 A.M. - 9:00 A.M. Please note that only workshop information will be available; all other registrants see times and location above.

PROFESSIONAL DEVELOPMENT WORKSHOP

"Digital Instrumentation and Control"
SUNDAY, NOVEMBER 7, 2010
8:00 a.m. – 5:00 p.m.
Location: Capri 109 & 110

REGISTRATION PRICE:
$450 for ANS members and
$550 for non-members

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

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 7, 2010, in the Capri 116 Room.

STUDENT ASSISTANT PROGRAM

Attendance at the 2010 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 7, 2010, 4:00 p.m. – 5:00 p.m. in the Royale 4 Room.

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

The student headquarters room will be located in the Capri 105 Room.

MENTORING PROGRAM

A special mentoring program will be held from 5:00 p.m. – 6:00 p.m. on Sunday, November 7, 2010, in the Capri 113 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 Grande Ballroom Foyer of the hotel during registration hours.

A Speakers' Preview Room, the Monaco Tower Room # 14 of the hotel, will be available during the following hours:

SUNDAY, NOVEMBER 7TH
7:30 a.m. – 3:00 p.m.
MONDAY, NOVEMBER 8TH
7:00 a.m. – 4:00 p.m.
TUESDAY, NOVEMBER 9TH
7:00 a.m. – 4:00 p.m.
WEDNESDAY, NOVEMBER 10TH
7:00 a.m. – 4:00 p.m.
THURSDAY, NOVEMBER 11TH
7:00 a.m. – 12:00 p.m.

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

Meeting Information

CONFERENCE OFFICE
Location: Capri 104 Room

ANS SECRETARIAT
Location: Capri 103 Room

ANS MEDIA CENTER
MONDAY, NOVEMBER 8TH
7:45 a.m. – 4:00 p.m.
TUESDAY, NOVEMBER 9TH
8:00 a.m. – 4:00 p.m.
WEDNESDAY, NOVEMBER 10TH
8:00 a.m. – 4:00 p.m.

Location: Capri 106 Room

SPOUSE/GUEST HOSPITALITY
Spouse/guest hospitality breakfast will be served from 8:00–10:00 a.m., Monday, November 8, 2010, through Wednesday, November 10, 2010, in the Royale Sky Box 206 of the hotel. 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.

GREEN BAG LUNCH
"Focus on Communications"
MONDAY, NOVEMBER 8, 2010
11:45 a.m. – 12:45 p.m.
Location: Capri 107 Room

Please join us for an interactive discussion of successful techniques for starting conversations about nuclear topics with friends, neighbors, and community groups.

The program will include suggestions for resources available from ANS and other organizations. Plan on bringing your lunch and trading ideas with other attendees.

STUDENT POSTER SESSION
MONDAY,
NOVEMBER 8, 2010
4:00 p.m. – 6:00 p.m.
Location: Grande A

Posters will be presented in the following categories:

Accelerator Applications
Megan E. Bennett
Ceris Hamilton
Andrew M. Hernandez

Aerospace Nuclear Science and Technology
Sarah W. Morgan

Biology and Medicine
Philip F. Makarewicz
Vanessa A. Sanders
Kyler K. Turner

Environmental Sciences
Sherry A. Faye

Fuel Cycle and Waste Management
Jessica S. Feener
Narek Gharibyan
Christopher L. Klug
Lulu Li
Audrey R. Roman

Fusion Energy
Daniel R. Haylett
Michelle E. Okoniewski
Alex P. Robinson

Human Factors
Farzan Sasangohar

Isotopes & Radiation
Anna S. Nikiforova

Materials Science and Technology
Christopher L. Dembia
Brianna R. Rister

Nuclear Criticality Safety
Kimberly L. Clark
Mackenzie L. Gorham

Radiation Protection and Shielding
Shaoyong Feng
Patricia F. Schuster

Reactor Physics
Sebastian A. Dionisio
Carol G. Rosaire, IV

Thermal Hydraulics
Christopher M. Crooks
Kathryn L. Kirsch
Darius D. Lisowski

Nuclear Engineering Lab Experiments
Sean G. Piela
Alexander W. Stevenson

Co-op or Internship Experience and Results
Casey A. Anderson
Nicholas M. Brickner
Alex P. Robinson
Aditi Verma

Best Practices for Student Sections
Jeremiah D. Gill

Cash prizes will be awarded for the best posters presented.

ATTENTION RUNNERS: ANS FUN RUN
On Tuesday, November 9, 2010, 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 Las Vegas, NV. Bring shoes and a big smile.

SOCIAL MEDIA GROUP GATHERING
Sponsored by INL
TUESDAY, NOVEMBER 9, 2010
6:00 p.m. – 9:00 p.m.
Location: Royale 3 Room

FOCUS ON COMMUNICATIONS WORKSHOP
WEDNESDAY, NOVEMBER 10, 2010
4:30 p.m. – 6:30 p.m.
Location: Royale 4 Room

DOE WORKSHOP
FRIDAY, NOVEMBER 12, 2010
8:00 a.m. – 5:00 p.m.
Location: Capri 101 Room

There is no registration fee for this workshop. Please turn to page 72 for additional information.

UNLV Laboratories and Varian Medical Systems Security and Inspection, Inc. Tour
THURSDAY,
NOVEMBER 11, 2010
12:30 p.m. – 6:00 p.m.

The following tour is available to attendees of the ANS 2010 Winter Meeting. There is no charge for this tour. The first 120 attendees to sign-up will be accepted on this tour.

Transportation will be provided by the UNLV. One bus will leave the Riviera Hotel at 12:30 p.m. and another will leave at 1:30 p.m. You will be expected to sign up for specific times to board the buses. Tours of both UNLV Laboratories and the Varian Medical Systems Security and Inspection, Inc. facilities are included. The first bus will return to the Riviera Hotel at 5:00 p.m. and the second bus is scheduled to return to the Riviera Hotel at 6:00 p.m.

There will be a table in the ANS Registration area for sign-ups on Sunday, November 7, 2010.

Special Events

CONFERENCE LUNCHEONS

Attendee Luncheon in the Nuclear Technology Exhibit

MONDAY,
NOVEMBER 8, 2010
11:30 A.M. – 1:00 P.M.
LOCATION: Grande Ballroom E–H

One ticket is included with the full meeting registration. Additional tickets can be purchased at the ANS Registration Desk for $45.

Honors and Awards Luncheon

TUESDAY,
NOVEMBER 9, 2010
11:30 A.M. – 1:00 P.M.
LOCATION: Top of the Riviera South

Tickets can be purchased at the ANS Registration Desk for $50.

EVENING EVENTS

PLEASE NOTE:

- ***You must be registered for the meeting to attend evening events.***
- ***Times listed are departure times and return times to/from the hotel. Busses will leave promptly from the Convention Center Entrance (located in the ANS Registration Foyer) of the Riviera Hotel & Casino.***

ANS President's Reception

SUNDAY,
NOVEMBER 7, 2010
6:00 P.M. – 7:30 P.M.
LOCATION: Grande Ballroom E–H

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.

NPIC&HMIT 2010 Reception and Dinner

TUESDAY,
NOVEMBER 9, 2010
Reception: 6:30 P.M. – 7:15 P.M.
Dinner: 7:15 P.M. – 9:30 P.M.
LOCATION: Grande Ballroom B

Tickets can be purchased at the ANS Registration Desk for $25.

Reception at the Atomic Testing Museum

MONDAY,
NOVEMBER 8, 2010
7:00 PM – 10:30 PM

Times listed are departure times and return times to/from the hotel. Busses will leave promptly from the Convention Center Entrance (located in the ANS Registration Foyer) of the Riviera Hotel & Casino.

The Atomic Testing Museum holds the distinctive honor of being one of the first museums to take part in the Smithsonian Institution affiliates program, having received the official Affiliate designation in 2000. The museum chronicles the dramatic history of the Nevada Test Site (NTS) and its contribution to local, state, and international history. The 8,000 square-foot museum portrays world history as community history through openness about the Test Site and its programs.

Visitors begin their museum tour with a 100-second video depicting events that led to the establishment of the NTS and its role in the Cold War. Successive galleries detail the Test Site's history and include atmospheric tests, the fallout issues that led to their abandonment, the rise of underground testing, environmental impacts, and the ultimate end of testing worldwide. The final gallery examines the role of the Test Site in the post-Cold War world.

The Nevada Test Site Historical Foundation, the parent organization of the Atomic Testing Museum, was founded in 1998 to preserve the Nevada Test Site legacy and to foster public accessibility to the history of the NTS and the nation's nuclear weapons testing program. The NTS served as the nation's principal on-continent nuclear weapons testing facility from 1951 to 1992, and contributed to a very unique piece of both U.S. and Nevada history.

Tickets can be purchased at the ANS Registration Desk for $50.

"Barbra and Frank: The Concert That Never Was"

WEDNESDAY,
NOVEMBER 10, 2010
TIME: 6:30 PM – 10:00 PM
LOCATION: Le Bistro Theatre
(in the Riviera Hotel and Casino)

A Match Made in Vegas!
Don't expect any flaming torches or high aerial spins.
Just two great artists paying tribute to their characters.
Singing the most memorable music and songs ever written.

It is unlikely that the two powerhouse voices of the century would have ever shared the same stage...until now!

They never worked together, exactly, except when they taped a duet in separate recording sessions, but it's tantalizing to think what it would have been like to have Barbra Streisand and Frank Sinatra teamed up for a concert tour.

Just imagine the possibilities. Would one have outshone the other? Would their on stage banter have been friendly or a bit snippy?

The rapport of these two 20th century icons is immediately prevalent. What's On magazine states,
"As good as the music is,
the banter between the stars is equally memorable."

Tickets can be purchased at the ANS Registration Desk for $50.

"As good as the music is, the banter between the stars is equally memorable."

Special Events

SPOUSE/GUEST TOURS

Shop 'Til You Drop at the Las Vegas Premium Outlets

MONDAY,
NOVEMBER 8, 2010
10:00 AM – 2:00 PM

Times listed are departure times and return times to/from the hotel. Busses will leave promptly from the Convention Center Entrance (located in the ANS Registration Foyer) of the Riviera Hotel & Casino.

This great day of shopping will begin at Las Vegas Premium Outlets where bargains are an everyday occurence – not only on sale days!

This is not your basic outlet shopping, this is world class shopping at an affordable price.

Find impressive savings at A|X Armani Exchange, Ann Taylor, Burberry, Calvin Klein, Coach, Cole Haan, Dolce & Gabbana, Elie Tahari, Kenneth Cole, Lacoste, Polo Ralph Lauren, Salvatore Ferragamo, St. John, Theory, True Religion and more.

Credit cards and comfortable shoes are a must on this tour!

Tickets can be purchased at the ANS Registration Desk for $35 (lunch not included).

Conference on Nuclear Training and Education –

CONTE 2011

American Nuclear Society: Topical Meeting

February 6-9, 2011
Hyatt Regency Jacksonville Riverfront
Jacksonville, Florida, USA

"An International Forum on Nuclear Training, Education and Workforce Issues: Looking at Effectiveness"

Learn about:
Current Nuclear Energy Issues and Challenges
New Education & Training Techniques
Workforce Development Strategies
Knowledge Retention
Innovations in Education and Training Delivery
Emerging Industry Trends in Training

Call for Papers Now Available: www.ans.org

Springs Preserve

TUESDAY,
NOVEMBER 9, 2010
9:00 AM – 1:00 PM

Times listed are departure times and return times to/from the hotel. Busses will leave promptly from the Convention Center Entrance (located in the ANS Registration Foyer) of the Riviera Hotel & Casino.

Take a guided tour at the Springs Preserve.

Archaeology/History Tour
Think the history of Las Vegas began with the construction of the mega resorts on the Las Vegas Strip? In fact, Las Vegas has more than 5,000 years of history, which you can explore at the Springs Preserve.

This tour highlights archaeolgical and historical elements found at the Springs Preserve, and the role of the springs in Las Vegas history. The archaeology/jistory tour will include a visit to the ORIGEN Experience and a short tour of the trails.

Sustainability Tour
Green isn't just a color anymore, it's now a way of life. The Springs Preserve is an example of sustainable living in practice as well as a resource for those interested in green lighting their lifestyle. This tour highlights the sustainable technologies that make the Springs Preserve the largest Platinum LEED rated commercial building in the Southwest. Explore the building materials used to construct the Desert Living Center, the constructed wetland that treats wastewater, the solar panels in the parking lot, and the composting toilets along the trail system.

Gardens Tour
Envision eight acres of desert landscaping – it's not what you think.

On this tour you can see cacti and other native plants in a new light. Our garden is a symphony for the senses with a surprisingly lush and colorful array of plants.

Explore ways to design a sustainable landscape for your home, extend your living space into the outdoors and experience a new way of living in harmony with our natural environment. Enjoy a relaxing stroll through our desert oasis, explore new possibilities in our enabling garden, and discover how to make the desert bloom through our interactive exhibits.

Desert Animals Tour
Take a walk on the wild side at the Springs Preserve. While wildlife may not be the first thing that comes to mind when you think of the Mojave desert, if you take a closer look, it's teaming with activity. This tour highlights native species in our wildlife exhibits and in their natural habitats. From the smallest of insects to the gray fox, get up close and personal with the animals that share our desert home. Our 180-acre oasis provides a safe haven for a variety of native mammals, reptiles, and invertebrates including the desert pocket mouse and the desert tortoise. Depending on the time of year, our Cienega is a premier for migratory birds.

Tickets can be purchased at the ANS Registration Desk for $60 (lunch not included).

Condensed Schedule

ROOM	MONDAY, NOVEMBER 8, 2010 8:30 A.M. – 11:30 A.M.	1:00 P.M. – 4:00 P.M.	4:00 P.M. – 6:00 P.M.	TUESDAY, NOVEMBER 9, 2010 8:30 A.M. – 11:30 A.M.	1:00 P.M. – 4:00 P.M.
Grande Ballroom A&B	Opening Plenary: "Nuclear Progress!"				
Grande Ballroom A			Student Poster Session		
Grande Ballroom B		Neutron Transport and Thermal-Hydraulics Methods Development for the CASL Modeling and Simulation Hub–Roundtable		Mathematical Modeling and Computational Methods	Transport Methods: General
Grande Ballroom C		General Thermal Hydraulics—I		Interfacial Area Transport—I	Interfacial Area Transport—II
Grande Ballroom D		Experimental and CFD Analysis of Gen-IV Reactors—I		Computational Thermal Hydraulics—I	Isotopes and Radiation: General
Royale Pavilion 1		Reactor Physics: General—I		Reactor Analysis Methods	Burnable Poison Optimization, Design, and Analysis --- Reactor Physics: General—II
Royale Pavilion 2		The Philosophy of Benchmark Development Within the ANS Joint Benchmark Committee–Panel		Operations and Power: General—I	Methods, Validation, and Analysis for Sustainable Nuclear Energy Systems
Royale Pavilion 3		Progress in DOE's Fuel Cycle Research and Development Program–Panel	Current Efforts Toward Sustainable Nonproliferation Policy–Panel	Training, Human Performance, and Workforce Development	The Innovations in Fuel Cycle Research Awards Program—A Student Competition
Royale Pavilion 4		Nuclear Applications of Particle Accelerators: General		Data, Analysis, and Operations for Nuclear Criticality Safety—I	Data, Analysis, and Operations for Nuclear Criticality Safety—II
Royale Pavilion 5		After Yucca Mountain: What Next?–Paper/Panel		Studies of Iodine Chemistry—I	Studies of Iodine Chemistry—II
Royale Pavilion 6		Ethics in Professional Engineering–Panel --- Current Topics in Radiation Protection and Shielding–Roundtable		Best of Radiation Protection and Shielding 2010	Radiation Protection and Shielding: General
Royale Pavilion 7		Nuclear Materials: Cladding and Structural Materials		Materials Science and Technology: Models and Novel Reactor Concepts	Nuclear Fuels: UO_2 and TRISO
Royale Pavilion 8		Infrastructure Development in Support of the Nuclear Renaissance–Panel		Viability and Challenges Associated with Developing Nuclear Powered Commercial Vessels–Panel	Update on LWR Sustainability Program R&D Overview–Panel
Capri 110		Student Design Competition		Advances in Safeguards Technology	Advanced Separation Technologies Research—I

Condensed Schedule

ROOM	WEDNESDAY, NOVEMBER 10, 2010 8:30 A.M. – 11:30 A.M.	1:00 P.M. – 4:00 P.M.	THURSDAY, NOVEMBER 11, 2010 8:30 A.M. – 11:30 A.M.	1:00 P.M. – 4:00 P.M.
Grande Ballroom A&B				
Grande Ballroom A				
Grande Ballroom B	Uncertainty Quantification, Sensitivity Analysis, and Numerical Benchmarks	Innovations in Radiation Detectors: New Designs, Improvements, and Applications	Biology and Medicine General and Innovation in Software for Radiation Detection	University Research Reactors and Nuclear Science Programs
Grande Ballroom C	Interfacial Area Transport—III	General Thermal Hydraulics—II	Computational Thermal Hydraulics—II	Experimental and CFD Analysis of Gen-IV Reactors—II --- Severe Acccident Management
Grande Ballroom D	Young Professional Thermal Hydraulics Research Competition—I	Young Professional Thermal Hydraulics Research Competition—II	Small Modular Reactors Emergency Planning and Response–Panel	
Royale Pavilion 1	Reactor Physics Design, Validation, and Operating Experience—I	Reactor Physics Design, Validation, and Operating Experience—II	Progress in Reactor Physics Analysis for Thorium-Fueled Reactors	
Royale Pavilion 2	Securing and Archiving Fast Reactor Data	Numerical Error Estimation in Nuclear Engineering Modeling --- The CASL Nuclear Energy Modeling and Simulation Energy Innovation Hub–Panel	Addressing Current Issues in Reactor Safety Analysis and Design	
Royale Pavilion 3	Technology Platforms Used in Distance Learning–Papers/Panel	Focus on Communications: Pro-Nuclear Advocacy–Panel --- Focus on Communications: Credibility in a Digital Age–Panel	Workforce Development Grants: Requirements, Challenges, and Results–Panel	Cutting-Edge Techniques in Education and Training
Royale Pavilion 4	A Special Session on "LLNL Plutonium Facility"	Lessons Learned from Efforts to Assess or Regulate Safety Culture–Paper/Panel	Nuclear Criticality Safety Standards–Forum	
Royale Pavilion 5	Severe Accident Management Studies	Advanced Reactor Safety Design, Analysis, and Regulation	Highlights from the 2nd International Meeting of the Safety and Technology of Nuclear Hydrogen Production, Control, and Management (ST-NH2)–Panel	Improving Reactor Safety Analyses
Royale Pavilion 6	Computational Resources for Radiation Modeling	Decommissioning, Decontamination, and Reutilization: General	Moritz, a 3-D Monte Carlo Geometry Tool–Tutorial	Geant4–Tutorial
Royale Pavilion 7	Nuclear Fuels: Metal Fuel	Nuclear Materials and Novel Measurement Techniques	Experiments in Accelerator Applications	
Royale Pavilion 8	Nuclear Energy Growth in Emerging Markets–Panel	Operations and Power: General—II	Advanced Reactors	
Capri 110	Advanced Separation Technologies Research—II	Sustainability and the Nuclear Fuel Cycle --- Waste Management Policy and Technology	Nonproliferation and the Fuel Cycle	

Technical Sessions by Division

(Asterisks indicate special sessions. Parentheses indicate cosponsorship.)

Special Sessions

*Opening Plenary: "Nuclear Progress!" Monday a.m. (8:30–11:30 a.m.)

Accelerator Applications (AAD)

Nuclear Applications of Particle Accelerators: General, Mon. p.m.

Experiments in Accelerator Applications, Thurs. a.m.

Biology and Medicine (BMD)

(Innovations in Radiation Detectors: New Designs, Improvements, and Application), Wed. p.m.

Biology and Medicine General and Innovation in Software for Radiation Detection, Thurs. a.m.

Decommissioning, Decontamination, and Reutilization (DDRD)

Decommissioning, Decontamination, and Reutilization: General, Wed. p.m.

Education, Training, and Workforce Development (ETWDD)

Student Design Competition, Mon. p.m.

Training, Human Performance, and Workforce Development, Tues. a.m.

The Innovations in Fuel Cycle Research Awards Program: A Student Competition, Tues. p.m.

Technology Platforms Used in Distance Learning–Papers/Panel, Wed. a.m.

Focus on Communications: Pro-Nuclear Advocacy–Panel, Wed. p.m.

Focus on Communications: Credibility in a Digital Age–Panel, Wed. p.m.

Workforce Development Grants: Requirements, Challenges, and Results–Panel, Thurs. a.m.

Cutting-Edge Techniques in Education and Training–Papers/Panel, Thurs. p.m.

Environmental Sciences (ESD)

Small Modular Reactors Emergency Planning and Response–Panel, Thurs. a.m.

Fuel Cycle and Waste Management (FCWMD)

Progress in DOE's Fuel Cycle Research and Development Program, Mon. p.m.

Current Efforts Toward Sustainable Nonproliferation Policy–Panel, Mon. p.m.

Advances in Safeguards Technology [in collaboration with the Special Committee on Nuclear Nonproliferation], Tues. a.m.

Advanced Separation Technologies Research—I, Tues. p.m.

Advanced Separation Technologies Research—II, Wed. a.m.

Sustainability and the Nuclear Fuel Cycle, Wed. p.m.

Waste Management Policy and Technology, Wed. p.m.

Nonproliferation and the Fuel Cycle [in collaboration with the Special Committee on Nuclear Nonproliferation], Thurs. a.m.

Isotopes and Radiation (IRD)

Isotopes and Radiation: General, Tues. p.m.

Innovations in Radiation Detectors: New Designs, Improvements, and Application, Wed. p.m.

(Biology and Medicine General and Innovation in Software for Radiation Detection), Thurs. a.m.

University Research Reactors and Nuclear Science Programs, Thurs. p.m.

Materials Science and Technology (MSTD)

Nuclear Materials: Cladding and Structural Materials, Mon. p.m.

Materials Science and Technology: Models and Novel Reactor Concepts, Tues. a.m.

Nuclear Fuels: UO_2 and TRISO, Tues. p.m.

Nuclear Fuels: Metal Fuel, Wed. a.m.

Nuclear Materials and Novel Measurement Techniques, Wed. p.m.

Mathematics and Computation (MCD)

Neutron Transport and Thermal-Hydraulics Methods Development for the CASL Modeling and Simulation Hub–Roundtable, Mon. p.m.

Mathematical Modeling and Computational Methods, Tues. a.m.

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

Transport Methods: General, Tues. p.m.

Uncertainty Quantification, Sensitivity Analysis, and Numerical Benchmarks, Wed. a.m.

(Numerical Error Estimation in Nuclear Engineering Modeling), Wed. p.m.

The CASL Nuclear Energy Modeling and Simulation Energy Innovation Hub–Panel, Wed. p.m.

(Geant4–Tutorial), Thurs. p.m.

Nuclear Criticality Safety (NCSD)

Data, Analysis, and Operations for Nuclear Criticality Safety—I, Tues. a.m.

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

Technical Sessions by Division

A Special Session on "LLNL Plutonium Facility," Wed. a.m.

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

Nuclear Installation Safety (NISD)

After Yucca Mountain: What Next?–Paper/Panel, Mon. p.m.

Studies of Iodine Chemistry—I, Tues. a.m.

Studies of Iodine Chemistry—II, Tues. p.m.

Severe Accident Management Studies, Wed. a.m.

Lessons Learned from Efforts to Assess or Regulate Safety Culture–Paper/Panel, Wed. p.m.

Advanced Reactor Safety Design, Analysis, and Regulation, Wed. p.m.

Addressing Current Issues in Reactor Safety Analysis and Design, Thurs. a.m.

Highlights from the 2nd International Meeting on the Safety and Technology of Nuclear Hydrogen Production, Control, and Management–Panel, Thurs. a.m.

Improving Reactor Safety Analyses, Thurs. p.m.

Operations and Power (OPD)

Infrastructure Development in Support of the Nuclear Renaissance–Panel, Mon. p.m.

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

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

Viability and Challenges Associated with Developing Nuclear Powered Commercial Vessels–Panel, Tues. a.m.

Update on LWR Sustainability Program R&D Overview–Panel, Tues. p.m.

Securing and Archiving Fast Reactor Data, Wed. a.m.

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

Advanced Reactors, Thurs. a.m.

Radiation Protection and Shielding (RPSD)

Ethics in Professional Engineering–Panel, Mon. p.m.

Current Topics in Radiation Protection Shielding–Roundtable, Mon. p.m.

Best of Radiation Protection and Shielding 2010, Tues. a.m.

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

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

Moritz, a 3-D Monte Carlo Geometry Tool–Tutorial, Thurs. a.m.

Geant4–Tutorial, Thurs. p.m.

Reactor Physics (RPD)

Reactor Physics: General—I, Mon. p.m.

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

The Philosophy of Benchmark Development Within the ANS Joint Benchmark Committee–Panel, Mon. p.m.

Reactor Analysis Methods, Tues. a.m.

Burnable Poison Optimization, Design, and Analysis, Tues. p.m.

Methods Validation and Analysis for Sustainable Nuclear Energy Systems, Tues. p.m.

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

Reactor Physics Design, Validation, and Operating Experience—II, Wed. p.m.

(Securing and Archiving Fast Reactor Data), Wed. a.m.

Numerical Error Estimation in Nuclear Engineering Modeling, Wed. p.m.

(The CASL Nuclear Energy Modeling and Simulation Energy Innovation Hub–Panel), Wed. p.m.

Progress in Reactor Physics Analysis for Thorium-Fueled Reactors, Thurs. a.m.

Thermal Hydraulics (THD)

General Thermal Hydraulics—I, Mon. p.m.

General Thermal Hydraulics—II, Wed. p.m.

Experimental and CFD Analysis of Gen-IV Reactors—I, Mon. p.m.

Experimental and CFD Analysis of Gen-IV Reactors—II, Thurs. p.m.

Interfacial Area Transport—I, Tues. a.m.

Interfacial Area Transport—II, Tues. p.m.

Interfacial Area Transport—III, Wed. a.m.

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

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

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

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

Severe Accident Management, Thurs. p.m.

Young Members Group

(Moritz, a 3-D Monte Carlo Geometry Tool–Tutorial), Thurs. a.m.

Technical Sessions by Day: Monday

MONDAY • NOVEMBER 8, 2010

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:30 AM – 11:30 AM	**2010 ANS WINTER MEETING: OPENING PLENARY** "Nuclear Progress!"
10:00 AM – 2:00 PM	**SPOUSE/GUEST TOUR** "Shop 'Til You Drop at the Las Vegas Premium Outlet"
11:30 AM – 1:00 PM	**ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXHIBIT**
11:45 AM – 12:45 PM	**GREEN BAG LUNCH:** "Focus on Communications"
1:00 PM – 4:00 PM	**2010 ANS WINTER MEETING: TECHNICAL SESSIONS** • Neutron Transport and Thermal-Hydraulics Methods Development for the CASL Modeling and Simulation Hub–Roundtable • General Thermal Hydraulics—I • Experimental and CFD Analysis of Gen-IV Reactors—I • Reactor Physics: General—I • The Philosophy of Benchmark Development Within the ANS Joint Benchmark Committee–Panel • Progress in DOE's Fuel Cycle Research and Development Program–Panel • Nuclear Applications of Particle Accelerators: General • After Yucca Mountain: What Next?–Paper/Panel • Ethics in Professional Engineering–Panel • Current Topics in Radiation Protection and Shielding–Roundtable • Nuclear Materials: Cladding and Structural Materials • Infrastructure Development in Support of the Nuclear Renaissance–Panel • Student Design Competition
1:00 PM – 4:00 PM	**NPIC&HMIT 2010: OPENING PLENARY**
1:00 PM – 4:30 PM	**ISOTOPES FOR MEDICINE AND INDUSTRY: OPENING PLENARY**
1:30 PM – 2:45 PM	**TOFE: MEETING WELCOME AND ITER PLENARY**
3:30 PM – 5:30 PM	**TOFE: TECHNICAL SESSIONS**
4:00 PM – 6:00 PM	**2010 ANS WINTER MEETING: TECHNICAL SESSION** Current Efforts Toward Sustainable Nonproliferation Policy–Panel
4:00 PM – 6:00 PM	**STUDENT POSTER SESSION**
7:00 PM – 10:30 PM	**EVENING EVENT:** "Reception at the Atomic Testing Museum"

MONDAY, NOVEMBER 8, 2010, 8:30 A.M.

Opening Plenary: "Nuclear Progress!"

Chair: Alvin W. Trivelpiece

Grande Ballroom A&B
8:30 a.m.

OPENING REMARKS AND WELCOME:
- Joe Colvin *(President, ANS)*
- Alvin W. Trivelpiece *(General Chair, 2010 ANS Winter Meeting)*
- Oscar B. Goodman *(Mayor, Las Vegas, Nevada)*

SPEAKERS:
- Yoichi Fujii-e *(Retired, Atomic Energy Commission–Japan)*
- Evgeny P. Velikhov *(President, Russian Research Center)*
- Jean-Pol Poncelet *(Senior Vice President, Sustainable Development and Continuous Improvement, AREVA–France)*
- Tim S. Gitzel *(President, Cameco–Canada)*
- Marvin S. Fertel *(President and CEO, NEI–USA)*

MONDAY, NOVEMBER 8, 2010, 1:00 P.M.

Neutron Transport and Thermal-Hydraulics Methods Development for the CASL Modeling and Simulation Hub–Roundtable, sponsored by MCD.

Session Organizer: Anil Prinja *(Univ of New Mexico)*. *Chair:* Anil Prinja

Grande Ballroom B
1:00 p.m.

PANELISTS:
- Paul Turinsky *(NCSU)*
- William Martin *(Univ of Michigan)*
- Robert Lowrie *(LANL)*

General Thermal Hydraulics—I, sponsored by THD.

Cochairs: Yassin Hassan *(TAMU)*, Justin Watson *(Penn State)*

Grande Ballroom C
1:00 p.m.

Quantified PIRT for Thermal Hydraulic Computer Code Validation, Hu Luo, Qiao Wu *(Oregon State Univ)*, Vincent A. Mousseau *(INL)*

1:25 p.m.

Velocity Distributions of Turbulent Flows in a 2 x 2 Rod Bundle, Shigeo Hosokawa, Jun Okajima, Taishi Yamamoto, Akio Tomiyama *(Kobe Univ)*

1:50 p.m.

Circumferential Asymmetry of Disturbance Waves in Vertical Annular Flow, Wesley W. Kokomoor, DuWayne Schubring *(Univ of Florida)*

2:15 p.m.

Visualization of Droplet Breakup with Unquenched Spacer Grid during Reflood Phase of APR1400, Eo Hwak Lee, Hee Cheon No *(KAIST)*, Chul-Hwa Song *(KAERI–Korea)*, Chang Wook Shin *(KAIST)*

2:40 p.m.

Transient Heat Transfer Analysis for Ion-Exchange Waste Removal Process, Si Y. Lee *(SRNL)*

3:05 p.m.

Effects of Graphene on Critical Heat Flux in the Pool Boiling, Sung Dae Park, Seung Won Lee, Sarah Kang, In Cheol Bang, Ji Hyun Kim, Hyeon Suk Shin, Yong Hee Kim *(UNIST)*, Dong Won Lee *(KAERI)*

3:30 p.m.
Experimental Evaluation of Gallium Natural Convection Loop, Sarah Kang, Seung Won Lee, Sung Dae Park, In Cheol Bang, Ji Hyun Kim, Yong Hee Kim *(UNIST)*

Experimental and CFD Analysis of Gen-IV Reactors—I, sponsored by THD. *Cochairs:* Chang Oh *(INL)*, Brian Woods *(Oregon State Univ)*

Grande Ballroom D
1:00 p.m.
Velocity Measurements in the Fuel Gaps of a Pebble Bed Reactor, Noushin Amini, Elvis E. Dominguez-Ontiveros, Yassin A. Hassan *(Texas A&M)*

1:25 p.m.
3-D Geometry Extraction for Pebble Bed Reactor Studies Using MIR and LIF, Elvis E. Dominguez-Ontiveros, Aaron Markwardt, Carlos Estrada-Perez, Yassin A. Hassan *(Texas A&M)*

1:50 p.m.
Experimental Study of Bypass Flow Using PIV, Elvis E. Dominguez-Ontiveros, Yassin Hassan *(Texas A&M)*

2:15 p.m.
An Assessment of Large-Eddy Simulation in Predicting the Turbulence Effect for the High-Temperature Gas-Cooled Reactor Cavity Cooling System, Angelo Frisani, Victor M. Ugaz, Yassin A. Hassan *(Texas A&M)*

2:40 p.m.
CFD Evaluation of Dimensionless Groups Approach for Spouted Beds Scale-up, Xingying Lan *(China Univ of Petroleum)*, Shreekanta Aradhya, Ahmed Fadha, Muthanna Al-Dahhan *(Missouri Univ Sci Technol)*

3:05 p.m.
Gas Dispersion in a Very High Temperature Pebble Bed Reactor, Rahman S. Abdulmohsin, Abbas A. Karwi, Muthanna H. Al-Dahhan *(Missouri Univ Sci Technol)*

Reactor Physics: General—I, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* Won Sik Yang *(ANL)*

Royale Pavilion 1
1:00 p.m.
The European Project NURISP for Nuclear Reactor Simulation, Bruno Chanaron *(CEA)*, Carol Ahnert *(UPM)*, Dominique Bestion *(CEA)*, Martin Zimmermann *(Scherrer Inst)*, Dan Cacuci *(Karlsruhe Inst Technol)*, Nicolas Crouzet *(CEA)*

1:25 p.m.
Application of the AFCI-1.3 Covariance Data to Uncertainty Evaluation of Fast System Integral Parameters, Gerardo Aliberti, Won Sik Yang, Richard D. McKnight *(ANL)*

1:50 p.m.
Classification Calculations for the ORNL HFIR's Beryllium Reflector Number 3, David Chandler *(Univ of Tennessee)*, R. T. Primm III *(ORNL)*, G. Ivan Maldonado *(Univ of Tennessee)*

2:15 p.m.
Moderator Density and Temperature Effects on Collapsed Group Cross Sections Using YGROUP, Matthew Marzano, DuWayne Schubring, Glenn E. Sjoden, Ce Yi *(Univ of Florida)*

2:40 p.m.
An Analysis of the Burnup Effect on the Antineutrino Rate in CANDU Reactors, Topher Matthews, Todd S. Palmer *(Oregon State Univ)*

3:05 p.m.
Analysis of Cross-Section Condensation in a HTTR Fuel Block, Zhan Zhang, Farzad Rahnema, Steven Douglass *(Georgia Tech)*, Abderrafi M. Ougouag *(INL)*

3:30 p.m.
The Resonance Neutron Scattering Angular Moments Using the Deterministic Approach, Shadi Z. Ghrayeb *(Penn State)*, Mohamed Ouisloumen *(Westinghouse)*, Abderrafi M. Ougouag *(INL)*, Kostadin N. Ivanov *(Penn State)*

The Philosophy of Benchmark Development Within the ANS Joint Benchmark Committee–Panel, sponsored by RPD.
Chair: Mark D. DeHart *(INL)*

Royale Pavilion 2
1:00 p.m.
The purpose of the ANS Joint Benchmark Committee (JBC) is to allow a sanctioned group of chosen professionals in the fields of reactor physics, shielding, and computational mathematics to combine their efforts and focus upon experimental, analytic, and computational benchmarks of mutual interest to the divisions. The JBC examines potential candidate benchmarks and evaluates, submits, and publishes the benchmarks in a form useful to the experimental and computational communities. This panel session will discuss the history of the JBC, the philosophy and importance of benchmarks, and ongoing benchmark development.

PANELISTS:
- Mark DeHart *(INL)*
- Blair Briggs *(INL)*
- Barry Ganapol *(Univ of Arizona)*
- Jim Gulliford *(OECD/NEA)*
- Bernadette Kirk *(ORNL)*

Progress in DOE's Fuel Cycle Research and Development Program–Panel, sponsored by FCWMD. *Session Organizer:* Terry Todd *(INL)*.
Chair: Terry Todd

Royale Pavilion 3

1:00 p.m.
The objective of this session is to disseminate information and stimulate discussion regarding recent R&D progress in DOE's Fuel Cycle Research and Development (FCR&D) program. The session will consist of technical presentations provided by researchers in several technical areas of the FCR&D program. Talks will cover a broad range of subjects, including but not limited to separation technologies, waste form development, innovative fuels, systems analysis, used fuel disposition, material protection and control, and modeling/simulation.

PANELISTS:
- Geoff Freeze *(SNL)*
- Sam Bayes *(INL)*
- Sonya Bowyer *(PNNL)*
- Thad Adams *(SRNL)*
- Matt Fig *(INL)*
- Dave Hurley *(INL)*
- Chris Taylor *(LANL)*

Nuclear Applications of Particle Accelerators: General, sponsored by AAD. *Session Organizer:* Denis Beller *(UNLV)*.
Chair: Phillip Ferguson *(ORNL)*

Royale Pavilion 4
1:00 p.m.
A Study of Four Experimental Fuel Subassemblies Using EP-450 Ferritic-Martensitic Pin Claddings and Hexagonal Ducts After Irradiation to 108-163 dpa in the BOR-60 Reactor, A. V. Povstyanko, A. Ye. Fedoseev, O. Yu. Makarov, V. I. Prokhorov *(Research Inst of Atomic Reactors)*, invited

1:45 p.m.
Investigation of the Feasibility of a Small-Scale Transmutation Device, Roger Sit, David McNelis *(Univ of North Carolina)*, Jasmina Vujic *(Univ of California, Berkeley)*

2:15 p.m.
Novel Approach to a Bright Microspot Fast Neutron Source, M. S. Beumer, P. J. Pinhero *(Univ of Missouri, Columbia)*

After Yucca Mountain: What Next?–Paper/Panel, sponsored by NISD. *Session Organizer:* Anthony J. Baratta *(NRC)*.
Cochairs: Robert J. Budnitz *(LBNL)*, Anthony J. Baratta

Royale Pavilion 5
1:00 p.m.
PAPER
Site Characterization and Natural Analog Studies Guide Geologic Disposal, William M. Murphy *(California State Univ–Chico)*

1:25 p.m.
PANEL DISCUSSION
With President Obama's 2010 budget, the funding for the high-level waste geological repository at Yucca Mountain is no longer sufficient to move the repository effort forward.

Both the president and Secretary of Energy Steven Chu have announced their intent to cancel the Yucca Mountain Project in favor of a reexamination of the disposal plans for spent fuel.

How will this proceed and what is likely to be the path forward in determining the ultimate method for the handling, long-term storage, and disposal of spent fuel?

This session is intended to explore the thinking on these topics. It will call together, in a panel, the principals involved in both the shutdown of the Yucca Mountain Project and those charged with recommending a path forward to discuss these topics.

PANELISTS:
- Robert J. Budnitz *(LBNL)*
- Aby Mohseni *(NRC)*
- Bill Murphy *(NWTRB)*
- John Gervers *(Latir Energy Consultants)*
- Stanley A. "Andrew" Orrell *(SNL)*
- Sekazi Kauze Mtingwa *(MIT)*
- John Kotek *(Blue Ribbon Commission of America's Nuclear Future)*

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

Royale Pavilion 6
1:00 p.m.
This session addresses contemporary issues in ethical behavior for engineers.

PANELISTS:
- Ethics Made Simple for the Practicing Engineer, Paul G. Edelmann *(LANL)*
- Ethics in Licensing, Harold E. Williamson *(GTE)*
- Disciplinary Actions Against Nuclear PEs, Jay Z. James *(Consultant)*
- How to Avoid Feeling Trapped into Doing Something You Feel Is Questionable, Raymond Klann *(ANL)*
- How to Improve Your Ethical Behavior, Nolan Hertel *(Georgia Tech)*
- Applications of and Approaches to Ethics in All Aspects of Life, Vic Uotinen *(Past Chair of ANS Ethics Committee)*

Current Topics in Radiation Protection and Shielding–Roundtable, sponsored by RPSD. *Session Organizer:* Charlotta Sanders *(UNLV)*.
Chair: Michele Sutton Ferenci *(Penn State)*

Royale Pavilion 6
2:30 p.m.
Everyone is invited to give a short presentation on any radiation protection and shielding topic of interest. Ten-minute time slots will be allotted on a first-come/first-serve basis. This session is meant to be fast, informal, and fun.

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

Nuclear Materials: Cladding and Structural Materials, sponsored by MSTD. *Session Organizer:* Kenneth Geelhood *(PNNL).*
Chair: Heather MacLean Chichester *(INL)*

Royale Pavilion 7
1:00 p.m.
Oxidation of Hastelloy X at 800°C, Kyle L. Walton, Sean Branney, Tushar K. Ghosh, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

1:25 p.m.
Potential Zircaloy Recycle Method via Hydride Formation, Adam J. Parkison, Sean M. McDeavitt *(Texas A&M)*

1:50 p.m.
Unloading Effect on Crack Growth Rate in Zirconium Alloys, Young Suk Kim *(KAERI)*

2:15 p.m.
High-Temperature Deformation Mechanism of Nanostructured Ferritic Alloy 14YWT, Jeoung Han Kim *(KIMS)*, Thak Sang Byun, D. T. Hoelzer *(ORNL)*

2:40 p.m.
Effect of Graphite Powder Coating on Emissivity of Nuclear Structural Materials, Raymond K. Maynard, Tushar K. Ghosh, Robert V. Tompson, Dabir S. Viswanath, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

3:05 p.m.
Corrosion Behavior of Structural Materials in Liquid Gallium Environments, Sang Hun Shin, Jong Jin Kim, Jeong Seok Park, Yonghee Kim, In Cheol Bang, Ji Hyun Kim *(UNIST)*

Infrastructure Development in Support of the Nuclear Renaissance–Panel, sponsored by OPD. *Session Organizer:* Ken Ferguson *(Hukari Tech Services). Chair:* Ken Ferguson

Royale Pavilion 8
1:00 p.m.
Substantial effort is currently under way directly related to the design and licensing progression of the next generation of nuclear power reactors. For related project success, a variety of other advancements need to be made and are currently in progress. Session participants will provide the current status of such initiatives.

PANELISTS:
- David Blee *(U.S. Nuclear Infrastructure Council)*
- Gregory Smith *(Urenco USA)*
- Chris Levesque *(AREVA)*
- Bob Eble *(Shaw AREVA MOX Services)*
- Jimmy Morgan *(Westinghouse)*

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

Capri 110
1:00 p.m.
The following entries have been selected by a panel of judges from industry as finalists in the 2010 Student Design Competition. Oral presentations will be made by students in front of a second panel of judges who will determine first and second place in each category.

UNDERGRADUATE CATEGORY
1:00 p.m.
LWR for District Heating, Justin Carey, Jesse Holmes, Chris Long, Amber Smart, Josh West *(NCSU)*

1:30 p.m.
Design of an Irradiated Sample Transport and Shielded Depository, Michael Audette, Charlie Hanley, Daniel McCleary, Kevin Plourde, James Leuzarder *(Univ of Rhode Island)*

GRADUATE CATEGORY
2:00 p.m.
Irradiation of Food Using Spent Nuclear Fuel, B. Betzler, H. Hadgu, C. Lawrence, M. Orians, A. Pavlou, A. Poitrasson-Rivière *(Univ of Michigan, Ann Arbor)*

2:30 p.m.
Conceptual Design of a Neutron Absorber System for Spent Fuel Pools, M. T. Cook, O. Lastres, S. Hogle *(Univ of Tennessee)*

MONDAY, NOVEMBER 8, 2010, 4:00 P.M.

Current Efforts Toward Sustainable Nonproliferation Policy–Panel, sponsored by FCWMD. *Session Organizer:* Ben Cross *(DOE).*
Cochairs: Melvin Buckner *(Retired, USC),* Shaheen A. Dewji *(GA Tech)*

Royale Pavilion 3
4:00 p.m.
This panel session will provide an overview and summary of the nonproliferation articles published in the November 2010 issue of *Nuclear News*.

PANELISTS:
- Proliferation Pathways and Barriers, William E. Burchill *(Texas A&M)*
- Status of Nonproliferation Agreements, Paul Nelson *(Texas A&M)*
- Reducing Proliferation Risks via Nuclear Energy Assistance to Developing Countries, David Boyle *(Texas A&M)*
- Nonproliferation Initiatives and Plutonium Disposition in Russia and the United States, Steven P. Nesbit *(Duke Energy)*
- Safeguarding and Protecting the Nuclear Fuel Cycle, Trond Bjornard *(INL)*
- How Proliferation Resistant Is Resistant Enough? Michaela E. Eddy *(Univ of Michigan)*

Technical Sessions by Day: Tuesday

TUESDAY • NOVEMBER 9, 2010	
7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 9:30 AM	TOFE: NIF PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS • Mathematical Modeling and Computational Methods • Interfacial Area Transport—I • Computational Thermal Hydraulics—I • Reactor Analysis Methods • Operations and Power: General—I • Training, Human Performance, and Workforce Development • Data, Analysis, and Operations for Nuclear Criticality Safety—I • Studies of Iodine Chemistry—I • Best of Radiation Protection and Shielding 2010 • Materials Science and Technology: Models and Novel Reactor Concepts • Viability and Challenges Associated with Developing Nuclear Powered Commercial Vessels–Panel • Advances in Safeguards Technology
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS
9:00 AM – 1:00 PM	SPOUSE/GUEST TOUR "Springs Preserve"
10:00 AM – 11:30 AM	TOFE: TECHNICAL SESSIONS
11:30 AM – 1:00 PM	ANS HONORS AND AWARDS LUNCHEON
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS • Transport Methods: General • Interfacial Area Transport—II • Isotopes and Radiation: General • Burnable Poison Optimization, Design, and Analysis • Reactor Physics: General—II • Methods, Validation, and Analysis for Sustainable Nuclear Energy Systems • The Innovations in Fuel Cycle Research Awards Program—A Student Competition • Data, Analysis, and Operations for Nuclear Criticality Safety—II • Studies of Iodine Chemistry—II • Radiation Protection and Shielding: General • Nuclear Fuels: UO_2 and TRISO • Update on LWR Sustainability Program R&D Overview–Panel • Advanced Separation Technologies Research—I
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
1:30 PM – 3:30 PM	TOFE: TECHNICAL SESSIONS
3:30 PM – 5:30 PM	TOFE: POSTER SESSION—I
7:00 PM – 9:30 PM	NPIC&HMIT 2010: "Reception and Dinner"

TUESDAY, NOVEMBER 9, 2010, 8:30 A.M.

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

Grande Ballroom B

8:30 a.m.
On the Stability of the Ahrens-Larsen or SMC Equations for Thermal Radiative Transfer, Allan B. Wollaber *(LANL)*, Edward W. Larsen *(Univ of Michigan)*

8:55 a.m.
Massively Parallel Solutions to the K-Eigenvalue Problem, Gregory G. Davidson, Thomas M. Evans *(ORNL)*, Rachel N. Slaybaugh *(Univ of Wisconsin, Madison)*, Christopher G. Baker *(ORNL)*

9:20 a.m.
Theory of the Feynman- and Rossi-Alpha Methods in Two Energy Groups, Lénárd Pál *(KFKI)*, Imre Pázsit *(Chalmers Univ of Tech)*

9:45 a.m.
Pebble Flow Simulation Based on a Multi-Physics Model, Yanheng Li, Wei Ji *(RPI)*

10:10 a.m.
An Improved Model for Computing Plume Shine Dose, T. Edward Fenstermacher *(ABS Consulting Inc)*

10:35 a.m.
Molecular Dynamics Simulation of Thermodynamic Properties of Uranium Dioxide, Bin Wu, Xiangyu Wang, Li (Emily) Liu *(RPI)*

Interfacial Area Transport—I, sponsored by THD. *Session Organizers:* Seungjin Kim *(Penn State)*, Steve Bajorek *(NRC)*. *Cochairs:* Seungjin Kim, Mamoru Ishii *(Purdue Univ)*. All invited

Grande Ballroom C

8:30 a.m.
Overview of Interfacial Area Transport Equation Development, Takashi Hibiki, Mamoru Ishii, Yang Liu, Caleb Brooks *(Purdue Univ)*

8:55 a.m.
Interfacial Area Modeling in Multifield Approaches, Sanjoy Banerjee *(CCNY)*, Marco Bonnizzi *(TEA Sistemi Spa)*, Paolo Andrieussi *(Univ of Pisa)*

9:20 a.m.
Modeling Poly-Dispersed Flows with the Inhomogeneous MUSIG Model, D. Lucas, E. Krepper *(FzR)*

9:45 a.m.
Modeling Bubble Size Distribution in Boiling Two-Phase Flows, Simon Lo *(CD-adapco)*

10:10 a.m.
Challenges in Modeling Gas-Liquid Flows: Bubbly Flow Regime and Beyond, Guan Heng Yeoh *(ANSTO)*

10:35 a.m.
A Mechanistic Approach to the Modeling of Bubble/Bubble Interactions in Gas/Liquid Flows, Michael Z. Podowski *(RPI)*

Technical Sessions by Day: Tuesday

Computational Thermal Hydraulics—I, sponsored by THD.
Cochairs: Hisashi Ninokata *(Tokyo Inst Technol)*, David Aumiller *(Bettis Lab)*

Grande Ballroom D

8:30 a.m.
Safety Analysis of Hot Leg Break LOCA in Dual Unit Operator, Kyoung M. Kang, Kune Y. Suh *(Seoul Natl Univ)*

8:55 a.m.
Analysis of BR2 Test F: Loss of Flow with Primary System Depressurization, Constantine P. Tzanos, Benoit Dionne *(ANL)*

9:20 a.m.
Parallel Simulation of 2-D/3-D Flows Using Lattice Boltzmann Models, Prashant K. Jain, Emilian Popov, Graydon L. Yoder *(ORNL)*, Rizwan-uddin *(Univ of Illinois)*

9:45 a.m.
Accuracy of Large-Eddy Simulation for Single-Phase Pressurized Thermal Shock, M. S. Loginov, E. M. J. Komen *(NRG)*

10:10 a.m.
Loss of Feedwater Flow Analysis with RETRAN Application for Lungmen ABWR, Wen-Hsiung Wu, Jong-Rong Wang *(INER)*, Chunkuan Shih, Shi-Rong Xu *(Natl Tsing Hua Univ)*

10:35 a.m.
Simulating the Thermal-Hydraulic Characteristics for the Molten Salt in a Round Tube Using CFD, Kun-Yueh Lin, Yuh-Ming Ferng, Bau-Shei Pei, Chunkuan Shih, Ting-Shuo Jhang *(Natl Tsing Hua Univ)*

11:00 a.m.
Numerical Analysis of Thermally Stratified Flow in Horizontal Pipe with Upward Bend, Marco Pellegrini, Hisashi Ninokata *(Tokyo Inst Technol)*

Reactor Analysis Methods, sponsored by RPD; cosponsored by MCD.
Session Organizer: Fausto Franceschini *(Westinghouse)*.
Cochairs: Cristian Rabiti *(INL)*, Akio Yamamoto *(Nagoya Univ)*

Royale Pavilion 1

8:30 a.m.
Effect of Uncertainty of Planned Cycle Length in Multicycle Fuel Optimization, Kazuma Ohori, Tomohiro Endo, Akio Yamamoto *(Nagoya Univ)*

8:55 a.m.
Incorporation of Two-Term Rational Approximation in Tone Method for Resonance Calculation, Akio Yamamoto, Tomohiro Endo *(Nagoya Univ)*, Go Chiba *(JAEA)*

9:20 a.m.
Analytic Function Expansion Nodal (AFEN) Method Extended to Multigroup Simplified P3 (SP3) Equations via Partial Current Moment Transformation, Bumhee Cho, Jong Hyuck Won, Nam Zin Cho *(KAIST)*

9:45 a.m.
Alternative Factorization Methods for Reactor Kinetics, Sandra Dulla, Fabio Alcaro, Piero Ravetto *(Politecnico di Torino)*

10:10 a.m.
Investigation of Theoretical Approach to Establish Energy Group Structure for BWR Pin-by-Pin Core Analysis, Tatsuya Fujita, Kazumasa Otsuka, Kenichi Tada, Tomohiro Endo, Akio Yamamoto *(Nagoya Univ)*, Shinya Kosaka, Go Hirano *(TEPCO Systems Corp)*

10:35 a.m.
Sensitivities in Modeling with Plate Fuel Moderated by Graphite, Alexandra Kusnezov, Glenn Sjoden, Ce Yi *(Univ of Florida)*

11:00 a.m.
Automatic Step Size Control in Three-Dimensional Kinetics Calculation Using Backward Difference Formula, Cheon Bo Shim, Han Gyu Joo, Un Chul Lee *(Seoul Natl Univ)*

Operations and Power: General—I, sponsored by OPD.
Chair: Donald R. Eggett *(AES Engineering)*

Royale Pavilion 2

8:30 a.m.
Cladding Performance Under Power Oscillations in BWRs, Rui Hu, Mujid S. Kazimi *(MIT)*

8:55 a.m.
Percentage of the 1 gpm RCS Leak Aerosolized in Containment, Joseph S. Baron *(Shaw Stone & Webster)*, Michael Unfried *(Beaver Valley Power Station)*

9:20 a.m.
Particulate Activity Accumulated on a Moving Filter and RCS Leak Detection, Wu-Hung Peng *(Shaw Stone & Webster)*

9:45 a.m.
Refinement of Component Classification Process Through Function-Based Approaches, Jung-Wun Kim, Sang-Dae Lee, Dong-Un Yeom *(KHNP)*

10:10 a.m.
Invensys DCS Platforms for Use in Nuclear Power Plants, Jelena Yeo, Steve Masciovecchio *(Invensys)*

10:35 a.m.
Principles of 4S Safety Design, Hisato Matsumiya, Kyoko Ishii *(Toshiba)*, Yasushi Tsuboi *(Toshiba)*, Tony Grenci *(Westinghouse)*

Technical Sessions by Day: Tuesday

Training, Human Performance, and Workforce Development, sponsored by ETWDD. *Session Organizer:* John Wheeler *(Entergy)*. *Chair:* John Wheeler

Royale Pavilion 3
8:30 a.m.
Impact of Federal Grants Supporting Nuclear Technical Education Infrastructure Capacity, William H. Miller, Gayla M. Neumeyer *(MURR)*, Victoria A. Schwinke *(Linn State Technical Coll)*

8:55 a.m.
K–12 Education: Priming the Pump for Our Workforce Pipeline, Michael DeWitte *(SNL)*

9:20 a.m.
A Complementary Paradigm in the Era of Nuclear Engineering Education Renaissance, Bahram Nassersharif *(Univ of Rhode Island)*

9:45 a.m.
"Case Studies in Nuclear Codes and Standards"—A New Graduate Course at the University of Pittsburgh, Larry Foulke *(Univ of Pittsburgh)*, Ken Balkey, Gary Elder *(Westinghouse STD)*

10:10 a.m.
A Study to Evaluate the Communication Quality of Operators Under Off-Normal Condition, Seunghwan Kim, Jinkyun Park *(KAERI)*, Sangyong Han *(Chung-Ang Univ)*

Data, Analysis, and Operations for Nuclear Criticality Safety—I, sponsored by NCSD. *Session Organizer:* Larry L. Wetzel *(Babcock & Wilcox)*. *Chair:* Michael Shea *(Shaw AREVA MOX Svcs)*

Royale Pavilion 4
8:30 a.m.
Benchmark Evaluation of Uranium Cylinders Separated by Vermiculite and Cylinders Reflected by Concrete, Mackenzie L. Gorham *(INL)*

8:55 a.m.
New ALARP Residues Recovery System—Design Concept to Operation, Lauren McDonald *(National Nuclear Lab)*

9:20 a.m.
Adding Realism to Spent Nuclear Fuel Dissolving Analysis, Brittany Williamson *(SRNS)*

9:45 a.m.
Adjoint-Based Eigenvalue Sensitivity to Geometry Perturbations, and a Warning, Jeffrey A. Favorite *(LANL)*

10:10 a.m.
Effect of Fission Spectrum Data Uncertainty on Criticality Benchmark Calculations by McCARD, Ho Jin Park, Hyung Jin Shim, Chang Hyo Kim *(Seoul Natl Univ)*, Choong Sup Gil *(KAERI)*

Studies of Iodine Chemistry—I, sponsored by NISD. *Session Organizer:* Dana A. Powers *(SNL)*. *Cochairs:* J. M. Ball *(AECL, Chalk River)*, G. Poss *(Becker Technol)*

Royale Pavilion 5
8:30 a.m.
Current Fuel-Iodine Research Related to Normal Operating Conditions at Chalk River Laboratories, Rosaura Ham-Su *(AECL)*

8:55 a.m.
The Effect of Chemical Reactions on Primary Circuit Surfaces on Iodine, Jarmo Kalilainen, Teemu Kärkelä, Riitta Zilliacus, Ari Auvinen *(VTT Technical Research Centre)*

9:20 a.m.
Adsorption Experiments in the OECD Behavior of Iodine Project, C. J. Moore, G. A. Glowa, D. Boulianne *(AECL)*

9:45 a.m.
Large-Scale Experiments on Iodine Distribution and Behavior in the Containment, Sanjeev Gupta *(Becker Technol GmbH)*, Gunter Weber *(GRS mbH)*, Friedhelm Funke *(AREVA NP GmbH)*, Gerhard Poss *(Becker Technol GmbH)*

10:10 a.m.
Iodine Behavior in the Primary Circuit and on Painted Surfaces of a Containment Reactor: Description of the Modeling Strategy, L. Bosland, L. Cantrel, B. Clément *(IRSN)*

10:35 a.m.
Regulatory Use of Phebus-FP Experimental Findings in U.S. Reactors, Jay Y. Lee *(NRC)*

Best of Radiation Protection and Shielding 2010, sponsored by RPSD. *Session Organizer:* Robert Hayes *(WIPP)*. *Chair:* Shaheen Dewji *(Georgia Tech)*

Royale Pavilion 6
8:30 a.m.
Electromagnetic Dissociation Cross Sections Using Weisskopf-Ewing Theory, Anne Marie Adamczyk *(Univ of Tennessee)*, John W. Norbury *(NASA, Langley)*

8:55 a.m.
Shielding by Design, Robert B. Hayes *(WIPP)*

9:20 a.m.
Image Analysis of a Dual Energy Mega-Voltage Cargo Imager Utilizing MCNPX, R. J. O'Brien, D. R. Lowe *(UNLV)*, B. T. Meehan *(NSTec)*, P. W. Patton, T. A. Wilcox *(UNLV)*

9:45 a.m.
Mercuric Iodide Crystal Growth and Frisch Collar Detector Fabrication, E. Ariesanti *(Kansas State Univ)*, A. Kargar *(RMDI)*, D. S. McGregor *(Kansas State Univ)*

10:10 a.m.
UMGjava: A Software Package for Unfolding and Further Analysis of Data from Particle Spectrometers, E. A. Burgett *(Georgia Tech)*, M. Reginatto, B. Wiegel *(PTB)*, R. M. Howell *(M.D. Anderson Cancer Center)*, H. Schuhmacher *(Phys-Tech Bundesanstalt)*, N. E. Hertel *(Georgia Tech)*

10:35 a.m.
UF_6 Cylinder Dose Assessment at URENCO USA, Charlotta E. Sanders, Shiaw-Der Su *(LES)*

11:00 a.m.
A Comparison Between Spectroscopic Performance of HgI_2 and CdZnTe Frisch Collar Detectors, A. Kargar, E. Ariesanti, D. S. McGregor *(Kansas State Univ)*

Materials Science and Technology: Models and Novel Reactor Concepts, sponsored by MSTD. *Session Organizer:* Kenneth Geelhood *(PNNL). Chair:* Jeremy Busby *(ORNL)*

Royale Pavilion 7
8:30 a.m.
Initial Validation of the AMP Nuclear Fuel Performance Code, Srikanth Allu *(ORNL)*, James Banfield *(Univ of Tennessee)*, Pallab Barai, Jay J. Billings, Kevin T. Clarno, William K. Cochran *(ORNL)*, Gary A. Dilts *(LANL)*, Samet Kadioglu *(INL)*, Jung Ho Lee *(ORNL)*, G. Ivan Maldonado *(Univ of Tennessee)*, Richard Martineau *(INL)*, Bogdan Mihaila *(LANL)*, Larry Ott, Sreekanth Pannala, Bobby Philip, Rahul Sampath, Srdjan Simunovic, John A. Turner *(ORNL)*, Cetin Unal *(LANL)*, Gokhan Yesilyurt *(ORNL)*

8:55 a.m.
Development of a Computer Code for Modeling High Temperature Oxidation Kinetics of Zirconium Alloy Cladding, Wenfeng Liu, John Alvis, Robert Montgomery *(Anatech Corp)*

9:20 a.m.
Monte Carlo Uncertainty Estimation for Oscillating-Vessel Viscosity Measurement, Kyle Horne, Heng Ban *(Utah State Univ)*, Randall Fielding, Rory Kennedy, Jon Carmack *(INL)*

9:45 a.m.
Criticality Concept of Uranium-Based Colloidal Assembly, Hitesh Bindra *(CCNY)*, Barclay G. Jones *(Univ of Illinois)*

10:10 a.m.
Nuclear Advanced Manufacturing Technology, Andrew H. Sherry, John W. Roberts *(Univ of Manchester)*, Keith Ridgway, Steven A. Court *(Nuclear AMRC)*

10:35 a.m.
Candidate Iodides for LLFP Transmutation in FR Core, Yoshiaki Tachi *(JAEA–Japan)*, Toshio Wakabayashi *(Tohoku Univ)*

Viability and Challenges Associated with Developing Nuclear Powered Commercial Vessels–Panel, sponsored by OPD. *Session Organizer:* R. Jon Stouky *(Consultant)*. *Chair:* R. Jon Stouky

Royale Pavilion 8
8:30 a.m.
This session is cosponsored (with full responsibility by ANS) by the Society of Naval Architects and Marine Engineers (SNAME) M-48 (Nuclear Propulsion) Technical Group

This session will be an update session on the current and emerging/necessary activities and issues associated with the establishment of one or more government or private operators of nuclear power plants in the range of interest for propulsion of a variety of special services requiring high horsepower for speed, ice breaking service, rapid-transit containership, or other services considerations. Since the U.S. entry as an operator (N.S. Savannah, which operated for 10 years), shipboard nuclear service of acommercial nature has stagnated in the U.S. but has continued as a practice in the Arctic in Russia. Increasingly stringent external factors, including fuel and O and M cost, a need for more speed and larger ship size, concerns for harbor (and perhaps icepack) pollution due to burning diesel fuel, and the attendant price of special fuels have worked together to surface the concept of a fleet of nuclear-powered commercial ships for more thorough analysis. This session will attempt to define and consolidate the issues associated with current-day development of commercial nuclear power at sea primarily from a U.S. perspective.

PANELISTS:
- R. Jon Stouky *(Consultant)*
- Stanley D. Wheatley *(California State Univ)*
- Jose Femenia *(U.S. Merchant Marine Academy)*
- George A. Sawyer *(Sawyer-Weems, LLC)*
- Erhard W. Koehler *(USDOT Maritime Administration)*
- David Johnson *(American Bureau of Shipping)*

Advances in Safeguards Technology, sponsored by FCWMD; in collaboration with SCNN. *Session Organizer:* John Gunning *(ORNL)*. *Chair:* John Gunning

Capri 110
8:30 a.m.
Unattended and Remote Monitoring Safeguards Systems, Kimberly V. Gilligan, Jessica L. White *(ORNL)*

8:55 a.m.
UF_6 Flow Measurements in GCEPs Through Passive Monitoring of Process Equipment, José March-Leuba, Taner Uckan *(ORNL)*, Patrick Brukiewa, Belle R. Upadhyahya *(Univ of Tennessee)*

9:20 a.m.
Comparison of Passive Measurements on Well-Described Mixed-Oxide Fuel Pins for Nuclear Safeguards Applications, Jennifer L. Dolan, Marek Flaska, Sara A. Pozzi *(Univ of Michigan)*, David L. Chichester *(INL)*

9:45 a.m.
Development of Spectroscopic pH Monitoring for Spent Fuel Reprocessing Plants, Amanda Casella, Sam Bryan, Tatiana Levitskaia, James Peterson, Omed Muzaffery *(PNNL)*

10:10 a.m.
Development of Methodology for Plutonium Categorization (III)—Effect of Radiation, Yoshiki Kimura, Masaki Saito, Hiroshi Sagara *(Tokyo Inst Technol)*

Technical Sessions by Day: Tuesday

TUESDAY, NOVEMBER 9, 2010, 1:00 P.M.

Transport Methods: General, sponsored by MCD. *Session Organizer:* Patrick Brantley *(LLNL)*. *Chair:* John Wagner *(ORNL)*

Grande Ballroom B

1:00 p.m.
Accelerating the K_{eff} Calculation in the NEWT Lattice Physics Code, B. Ganapol *(Nuclear Consultants)*, M. DeHart, H. Park *(INL)*

1:25 p.m.
Investigation of Chord Length Sampling Method in Finite 1-D Binary Stochastic Media, Chao Liang, Wei Ji *(RPI)*

1:50 p.m.
Forward-Weighted CADIS Method for Variance Reduction of Monte Carlo Reactor Analyses, John C. Wagner, Scott W. Mosher *(ORNL)*

2:15 p.m.
Acceleration of Adjoint Monte Carlo Calculations Using Forward Flux Spectra, Ronald E. Pevey *(Univ of Tennessee)*

2:40 p.m.
An S_n Approach to Predicting Monte Carlo Cost with Weight-Dependent Variance Reduction, C. J. Solomon *(Kansas State Univ/LANL)*, A. Sood, T. E. Booth *(LANL)*, J. K. Shultis *(Kansas State Univ)*

3:05 p.m.
Step Characteristic Method for R-Z Geometry in Special Coordinates, Dmitriy Y. Anistratov *(NCSU)*

3:30 p.m.
Subcell Balance Methods with Linear Discontinuous Expansion for S_N Transport Calculation on Tetrahedral Meshes, Ser Gi Hong, Young Ouk Lee *(KAERI)*

Interfacial Area Transport—II, sponsored by THD. *Session Organizers:* Seungjin Kim *(Penn State)*, Steve Bajorek *(NRC)*. *Cochairs:* Steve Bajorek, Dominique Bestion *(CEA)*, All invited

Grande Ballroom C

1:00 p.m.
Overview of Interfacial Area Transport Data Development, Takashi Hibiki, Mamoru Ishii, Caleb Brooks *(Purdue Univ)*

1:25 p.m.
KAERI Research Activities for Interfacial Area Transport in Two-Phase Flow, C.-H. Song, D. J. Euh, B. J. Yun, I.-C. Chu, B. U. Bae, S. K. Chang, W. P. Baek *(KAERI)*

1:50 p.m.
Effect of 90-Degree Vertical Elbow on Interfacial Structures in Two-Phase
Flow, Seungjin Kim, Justin D. Talley, Mohan Yadav *(Penn State)*

2:15 p.m.
CFD-Grade Databases on Two-Phase Upward Vertical Pipe Flows, D. Lucas, M. Beyer, L. Szalinski *(FzR)*

2:40 p.m.
Axial Development of Gas-Liquid Flow Parameters in a Narrow Rectangular Channel, Xiuzhong Shen *(Kyoto Univ)*, Takashi Hibiki *(Purdue Univ)*, Kaichiro Mishima *(INSS)*

3:05 p.m.
Experimental Study on Interfacial Area Transport of Bubbly Flow in Mini Pipes, Tatsuya Hazuku, Tomoji Takamasa *(Tokyo Univ Marine Sci Technol)*, Takashi Hibiki *(Purdue Univ)*

NOTE: This session will be followed by the THD Technical Achievement Award Ceremony and Recipient's Lecture from 4:00 to 5:30 p.m.

4:00 p.m.
PRESENTATION OF AWARDS

4:30 p.m.
Lecture by Per F. Peterson, THD 2010 TAA Recipient, "Thermal Hydraulics for the Next Generation of Nuclear Reactors"

Isotopes and Radiation: General, sponsored by IRD. *Session Organizer*: Kenan Ünlü *(Penn State)*. *Chair:* Sam Glover *(CDC)*

Grande Ballroom D

1:00 p.m.
Study of Solids Dynamics in PBR Using Radioactive Particle Tracking Technique, Vaibhav B. Khane, Rahman Abdul Mohsin, Muthanna H. Al-Dahhan *(Missouri Univ Sci Technol)*

1:25 p.m.
Use of Wavelet Denoising in Identifying Radioactive Isotopes Using a Gamma-Ray Spectrum, Mohini W. Rawool-Sullivan, Lakshman Prasad, John Bounds, Steven Brumby, John Sullivan *(LANL)*

1:50 p.m.
Improving the Capability of Radioxenon Measurements by Reducing the Memory Effect in Beta-Gamma Detector Systems, Alexander Fay, Steven Biegalski, Lisa Bläckberg, Anders Ringbom *(Univ of Texas, Austin)*

2:15 p.m.
Future Production of ^{238}Pu for NASA Space Missions, Robert M. Wham *(ORNL)*, Alice K. Caponiti *(DOE)*, Stephen G. Johnson *(INL)*

2:40 p.m.
Design of a P-N Junction Radioisotope Nuclear Battery, George H. Miley, Nie Luo, Ben Ulmen *(Univ of Illinois)*

3:05 p.m.
Investigation of Neutron Detector Response to Varying Temperature and Water Content for Geothermal Applications, Hatice Akkurt *(ORNL)*

Technical Sessions by Day: Tuesday

Burnable Poison Optimization, Design, and Analysis, sponsored by RPD. *Session Organizers:* Moussa Mahgerefteh *(Exelon)*, Akio Yamamoto *(Nagoya Univ)*. *Chair:* Moussa Mahgerefteh

Royale Pavilion 1
1:00 p.m.
Westinghouse PWR Burnable Absorber Evolution and Usage, Jeffrey R. Secker, Jeffery A. Brown *(Westinghouse)*

1:20 p.m.
The Study on Erbia Credit Super-High-Burnup Fuel with Isotopically Modified Erbia, Masatoshi Yamasaki *(Nuclear Fuel Industries Ltd)*, Hironobu Unesaki *(Kyoto Univ)*, Akio Yamamoto *(Nagoya Univ)*

1:40 p.m.
Development of Burnable Poison of Gd-Zr Hydride for Fast Reactor, Tsugio Yokoyama *(Toshiba Nuclear Engineering Services Corp)*, Kenji Konashi, Tomohiko Iwasaki *(Tohoku Univ)*, Yasushi Tsuboi *(Toshiba)*

2:00 p.m.
Long-Life FBR with Inner Blanket by Doping MA, Erina Hamase, Masaki Saito, Hiroshi Sagara *(Tokyo Inst Technol)*

Reactor Physics: General—II, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Chair:* Moussa Mahgerefteh *(Exelon)*

Royale Pavilion 1
2:25 p.m.
Isomeric Branching Ratio Treatment for Neutron-Induced Reactions, Wim Haeck, Bertrand Cochet, Luis Aguiar *(IRSN)*

2:45 p.m.
Methodology for Simulating the Irradiation of the Control Elements in HFIR, Germina Ilas, R. T. Primm III *(ORNL)*

3:05 p.m.
Effective Delayed Neutron Fraction and Delayed Neutron Reaction Rate Calculations with MCNPX, Zhaopeng Zhong, Yousry Gohar, Alberto Talamo *(ANL)*

3:25 p.m.
Core Loading Pattern Design for Power Uprate of BWR in Taiwan, John C. W. Chang, S. W. Tseng, Y-W H. Liu *(Natl Tsing Hua Univ)*, S. J. Yaur *(INER)*, B. S. Hwang *(Taiwan Power Co)*

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

Methods, Validation, and Analysis for Sustainable Nuclear Energy Systems, sponsored by RPD. *Session Organizers:* Pavel V. Tsvetkov *(Texas A&M)*, Laurence F. Miller *(Univ of Tennessee)*. *Cochairs:* Pavel Tsvetkov, Laurence F. Miller

Royale Pavilion 2
1:00 p.m.
High-Fidelity Integrated System Modeling for Sustainability Analysis of Nuclear Energy Systems, David E. Ames II, Pavel V. Tsvetkov *(Texas A&M)*, Gary E. Rochau, Salvador Rodriguez *(SNL)*

1:25 p.m.
Quantitative Optimization of Target Assembly Material Compositions for Isotope Management, Mark Massie, Benoit Forget *(MIT)*

1:50 p.m.
Generalized Isotopic Tracking Capabilities Within the 3-D BWR Nodal Simulator NESTLE, J. D. Galloway, G. I. Maldonado *(Univ of Tennessee)*, I. Gauld, M. A. Jessee, K. T. Clarno *(ORNL)*

2:15 p.m.
Semi-Direct Recycling of LWR Spent Fuel in Ultra-Long-Life Core Fast Reactor (UCFR), Yonghee Kim *(UNIST)*

2:40 p.m.
Multigroup, Multiregion Collision Probability Model for Fuel Cycle Simulations, G. D. Recktenwald, M. R. Deinert *(Univ of Texas, Austin)*

3:05 p.m.
Design Study on Nuclear Reactor for Large-Diameter NTD Using PWR Fuel, Byambajav Munkhbat, Toru Obara *(Tokyo Inst Technol)*

The Innovations in Fuel Cycle Research Awards Program—A Student Competition, sponsored by ETWDD. *Session Organizer:* Michael Robinson *(Bechtel Marine Propulsion)*. *Cochairs:* Robert Price *(DOE)*, Bradley Williams *(DOE)*. All invited

Royale Pavilion 3
1:00 p.m.
Radiation-Induced Segregation and Phase Stability in Ferritic-Martensitic Alloys, Janelle P. Wharry *(Univ of Michigan)*

1:20 p.m.
INFUPOD: An Economic Study Tool for the Study of the International Nuclear Fuel Cycle, Samuel Brinton *(Kansas State Univ)*

1:40 p.m.
Definition and Applications of the Neutron Excess Concept, Robert Petroski, Benoit Forget, Charles Forsberg *(MIT)*

2:00 p.m.
Assessment of Thorium-Based Fuels in Sodium-Cooled Fast Reactor, Shadi Z. Ghrayeb, Kostadin N. Ivanov, Samuel H. Levine *(Penn State)*, Eric P. Loewen *(GE Hitachi Nuclear)*

2:20 p.m.
Method for Online Process Monitoring for Use in Solvent Extraction and Actinide Separations, Jamie Warburton, Nick Smith, Ken Czerwinski *(UNLV)*

2:40 p.m.
Coordination of N-Donor Ligands to a Uranyl(V) β-Diketiminate Complex, Michael F. Schettini, Guang Wu, Trevor W. Hayton *(Univ of California, Santa Barbara)*

3:00 p.m.
Enhancing Fuel Cycle Proliferation Resistance Assessment Through Isotopic Characterization Coupling, Steve E. Skutnik, Man-Sung Yim *(NCSU)*

3:20 p.m.
Np Incorporation into Studtite, L. C. Shuller, R. C. Ewing, U. Becker *(Univ of Michigan)*

Data, Analysis, and Operations for Nuclear Criticality Safety—II, sponsored by NCSD. *Session Organizer:* Larry L. Wetzel *(Babcock & Wilcox)*. *Chair:* John Bess *(INL)*

Royale Pavilion 4
1:00 p.m.
Criticality Experiment Capabilities Located at the Nevada Test Site, William L. Myers, John A. Bounds, Steven D. Clement, Derek R. Dinwiddie, Joetta M. Goda, David K. Hayes, Rene G. Sanchez *(LANL)*

1:20 p.m.
NQA-1 Vendor Support of Criticality Safety at the MOX Fuel Fabrication Facility, Michael J. Shea *(Shaw AREVA MOX Services)*

1:40 p.m.
Dispelling the Myth of Super-Moderators, Shean P. Monahan, Mark V. Mitchell, Charles D. Harmon II *(LANL)*

2:00 p.m.
Integral Cross Sections and Other Useful Information Extracted from Spent Fuel Data, Hans Toffer *(Consultant)*, Warren Wittekind, Raymond Puigh, David Erikson *(Fluor Government Group)*, Michael Westfall *(Consultant)*

2:20 p.m.
Verification of k-Eigenvalue Sensitivity Coefficient Calculations Using Adjoint-Weighted Perturbation Theory in MCNP, Brian C. Kiedrowski, Jeffrey A. Favorite, Forrest B. Brown *(LANL)*

2:40 p.m.
Enhancements in SCALE 6.1, Bradley T. Rearden *(ORNL)*

3:00 p.m.
Criticality Safety Engineer Training at Savannah River Nuclear Solutions LLC, John A. Schlesser, David G. Erickson, Joye Brotherton *(SRNS)*

Studies of Iodine Chemistry—II, sponsored by NISD. *Session Organizer:* Dana A. Powers *(SNL)*. *Cochairs:* Bernard Clément *(IRSN-BP)*, Glenn Glowa *(AECL, Chalk River)*

Royale Pavilion 5
1:00 p.m.
Radiolytic Iodine Volatilization with Organic Impurities and Low Oxygen Concentrations, Kiyofumi Moriyama, Hideo Nakamura *(JAEA)*, Koichi Nakamura *(JNES)*

1:25 p.m.
Radiolytic Production of Organic Iodides from I_2 Adsorbed on Containment Paint, J. M. Ball, G. A. Glowa, D. Boulianne *(AECL)*

1:50 p.m.
Gas Phase Iodine Radiolysis, G. A. Glowa, J. M. Ball *(AECL)*

2:15 p.m.
Fission Products Interaction with Passive Autocatalytic Recombiners Under Severe Accident Conditions, Sanjeev Gupta *(Becker Technol GmbH)*, Friedhelm Funke *(AREVA NP GmbH)*, Gerhard Poss *(Becker Technol GmbH)*

2:40 p.m.
Improvement of Iodine Pool Model in MELCOR 1.8.5 Code, Atsushi Watanabe, Koichi Nakamura *(JNES)*, Masashi Himi *(JSC)*

3:05 p.m.
Insights into Iodine Chemistry Effects on Source Term Predictions, Luis E. Herranz, M. García, B. Otero *(CIEMAT)*

3:30 p.m.
STEM: An IRSN Project on Source Term Evaluation and Mitigation, B. Clément, B. Simondi-Teisseire *(IRSN)*

Radiation Protection and Shielding: General, sponsored by RPSD. *Session Organizer:* Nolan Hertel *(Georgia Tech)*. *Chair:* Bernadette Kirk *(ORNL)*

Royale Pavilion 6
1:00 p.m.
Radiation Dose Estimation Using Realistic Postures with PIMAL, Hatice Akkurt, Dorothea Wiarda, Keith Eckerman *(ORNL)*

1:25 p.m.
Modeling a Source Range Channel Response During a PWR Core Onload Sequence, Alan Ford *(Dominion)*

1:50 p.m.
VARKSIN 4's Improved Photon Model for Hot Particle Dose to Skin, Camille Lodwick, David Hamby *(Oregon State Univ)*, Mohammad Saba, Sami Sherbini *(NRC)*

2:15 p.m.
Comparison of Lattice and Homogenized Models in MCNP for Neutron Detection, Trevor McLaughlin, Todd Mock, Glenn Sjoden *(Univ of Florida)*

Nuclear Fuels: UO_2 and TRISO, sponsored by MSTD.
Session Organizer: Ken Geelhood *(PNNL)*.
Chair: Ken Geelhood

Royale Pavilion 7
1:00 p.m.
Introducing a High Thermal Conductivity UO_2-BeO Nuclear Fuel Concept, Sean M. McDeavitt, Michael Naramore, Robert Miller, Jean C. Ragusa *(Texas A&M)*, Shripad T. Revankar, Alvin A. Solomon *(Purdue Univ)*, James Malone *(IBC Advanced Alloys Corp)*

1:25 p.m.
Sensitivity of Thermal Diffusivity Measurements of $(U,Gd)O_{2\pm x}$ to x, Andrew M. Casella, Brady D. Hanson, Carl E. Beyer, Randall D. Scheele *(PNNL)*

1:50 p.m.
Sputtering System Capability for Growth of Uranium Oxides and $U_xNd_{1-x}O_2$ Thin Films, Melissa M. Strehle, Brent J. Heuser, Hyunsu Ju, Mohamed ElBakhshwan, Xiaochun Han *(Univ of Illinois)*

2:15 p.m.
Thermal Conductivity of Surrogate TRISO Fuel Compacts, Colby Jensen, Changhu Xing, Heng Ban *(Utah State Univ)*, Jeffery Phillips, Charles Barnes *(INL)*

2:40 p.m.
Microstructure of Irradiated ZrC TRISO Coatings, G. Vasudevamurthy *(Univ of Tennessee/ORNL)*, Y. Katoh *(ORNL)*, J. Aihara, K. Sawa *(JAEA–Japan)*, L. L. Snead *(ORNL)*

3:05 p.m.
Mechanical Strength of Unirradiated SiC-TRISO Coatings, G. Vasudevamurthy *(Univ of Tennessee/ORNL)*, T. S. Byun, J. H. Kim, B. C. Jolly, J. D. Hunn *(Univ of Tennessee)*

3:30 p.m.
Thermal Load Simulation and Verification Experiment of TRISO Fuel Irradiation in HANARO, Moon Sung Cho *(KAERI)*, Seung Jae Lee *(KNFC)*, Young Shin Lee *(Choongnam National Univ)*

Update on LWR Sustainability Program R&D Overview–Panel, sponsored by OPD. *Cochairs:* Edward L. Quinn *(Technology Resources)*, Ronaldo Szilard *(INL)*

Royale Pavilion 8
1:00 p.m.
This session will provide the latest update on the overview and status of the LWR Sustainability Program, directed by DOE and approved by Congress to support the continued high reliability and excellent performance of the current fleet of 104 nuclear power plants in the U.S. Major R&D areas include collaborative research focus areas of Nuclear Materials Aging and Degradation, Advanced Instrumentation, Information and Control Systems Technologies, Advanced LWR Nuclear Fuel Design, Risk-Informed Safety Margin Characterization, and Economics and Efficiency Improvement. Panelists from national labs and industry will address the overall program and major focus areas including progress to date, ongoing activities and major challenges to operation of our reactor fleet beyond 60 years at very high performance levels.

PANELISTS:
- Kent Zammit *(EPRI)*
- Michael Fallin *(Constellation Energy)*
- Bruce Hallbert *(INL)*
- George Griffith *(INL)*
- Stephen Hess *(EPRI)*

Advanced Separation Technologies Research—I, sponsored by FCWMD. *Session Organizer:* Terry Todd *(INL)*.
Chair: Terry Todd

Capri 110
1:00 p.m.
Physiochemical Properties of Tributyl Phosphate/Diluent/Nitric Acid System, Amber D. Wright, Patricia Paviet-Hartmann *(UNLV)*

1:25 p.m.
Scavenging of Nitrous Acid by Acetohydroxamic Acid in Nitric Acid Solutions, Martin Precek, Alena Paulenova *(Oregon State Univ)*

1:50 p.m.
TALSPEAK Organic Phase Speciation Under High Loading Conditions, Troy Robinson *(PNNL, UNLV)*, Amanda Casella, Tatiana Levitskaia *(PNNL)*

2:15 p.m.
Recent Progress for the Recycling of Minor Actinides in Improved Future Nuclear Fuel Cycle, Dominique Warin, Christophe Poinssot, Pascal Baron, Brigitte Lorrain, Christine Rostaing *(CEA)*

Technical Sessions by Day: Wednesday

WEDNESDAY • NOVEMBER 10, 2010

7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 9:30 AM	TOFE: VELIKHOV PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS • Uncertainty Quantification, Sensitivity Analysis, and Numerical Benchmarks • Interfacial Area Transport—III • Young Professional Thermal Hydraulics Research Competition—I • Reactor Physics Design, Validation, and Operating Experience—I • Securing and Archiving Fast Reactor Data • Technology Platforms Used in Distance Learning—Papers/Panel • A Special Session on "LLNL Plutonium Facility" • Severe Accident Management Studies • Computational Resources for Radiation Modeling • Nuclear Fuels: Metal Fuel • Nuclear Energy Growth in Emerging Markets–Panel • Advanced Separation Technologies Research—II
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS
10:00 AM – 11:30 AM	TOFE: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS • Innovations in Radiation Detectors: New Designs, Improvements, and Applications • General Thermal Hydraulics—II • Young Professional Thermal Hydraulics Research Competition—II • Reactor Physics Design, Validation, and Operating Experience—II • Numerical Error Estimation in Nuclear Engineering Modeling • The CASL Nuclear Energy Modeling and Simulation Energy Innovation Hub–Panel • Focus on Communications: Pro-Nuclear Advocacy–Panel • Focus on Communications: Credibility in a Digital Age–Panel • Lessons Learned from Efforts to Assess or Regulate Safety Culture–Paper/Panel • Advanced Reactor Safety Design, Analysis, and Regulation • Decommissioning, Decontamination, and Reutilization: General • Nuclear Materials and Novel Measurement Techniques • Operations and Power: General—II • Sustainability and the Nuclear Fuel Cycle • Waste Management Policy and Technology
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
1:30 PM – 3:30 PM	TOFE: TECHNICAL SESSIONS
3:30 PM – 5:30 PM	TOFE: POSTER SESSION—II
4:30 PM – 6:30 PM	FOCUS ON COMMUNICATIONS WORKSHOP
6:30 PM – 10:00 PM	EVENING EVENT: "Barbra & Frank: The Concert That Never Was"

WEDNESDAY, NOVEMBER 10, 2010, 8:30 A.M.

Uncertainty Quantification, Sensitivity Analysis, and Numerical Benchmarks, sponsored by MCD. *Session Organizer:* Todd Urbatsch *(LANL)*. *Chair:* Greg Davidson *(ORNL)*

Grande Ballroom B

8:30 a.m.
A Two-Dimensional MMS Benchmark Suite for Cartesian SN Transport Methods with Escalating Order of Nonsmoothness of the Exact Solution, Sebastian Schunert, Yousry Azmy *(NCSU)*

8:50 a.m.
Convergence Acceleration for Multipanel Fine Group Finite Difference Numerical Benchmarks, E. Battistini *(Univ of Bologna)*, B. D. Ganapol *(Nuclear Consultants)*, R. Furfaro *(Univ of Arizona)*, D. Mostacci *(Univ of Bologna)*

9:10 a.m.
Paneling Strategy for Ultra-Fine Group Slowing Down Numerical Benchmarks, E. Battistini *(Univ of Bologna)*, B. D. Ganapol, R. Furfaro *(Univ of Arizona)*, D. Mostacci *(Univ of Bologna)*

9:30 a.m.
Coarse Mesh Transport (COMET) Calculation of a Stylized 2-D BWR Benchmark Problem, Dingkang Zhang, Farzad Rahnema *(Georgia Tech)*

9:50 a.m.
Probabilistic Clustering for Scenario Analysis, D. Mandelli, K. Metzroth, A. Yilmaz, R. Denning,T. Aldemir *(Ohio State)*

10:10 a.m.
Hybrid Uncertainty and Sensitivity Algorithms for High Dimensional Nonlinear Models, Part I: Introduction to the Theory, Hany S. Abdel-Khalik *(NCSU)*, Ralph A. Nelson *(LANL)*, Brian M. Adams *(SNL)*

10:30 a.m.
Sensitivity Analysis for Continuous Input Data Monte Carlo Models, Chris Kennedy, Hany Abdel-Khalik *(NCSU)*, Cristian Rabiti, Giuseppe Palmiotti, Massimo Salvatores *(INL)*

10:50 a.m.
Uncertainty Quantification of Coupled Problems in Reactor Analysis, Vijay S. Mahadevan, Jean C. Ragusa *(Texas A&M)*

Interfacial Area Transport—III, sponsored by THD. *Session Organizers:* Seungjin Kim *(Penn State)*, Steve Bajorek *(NRC)*. *Cochairs:* Xiaodong Sun *(Ohio State Univ)*, Selim Kuran *(Global Nuclear Fuel)*. All invited

Grande Ballroom C

8:30 a.m.
Perspective of Transport of Interfacial Area in System Codes, Dominique Bestion *(CEA)*

Technical Sessions by Day: Wednesday

8:55 a.m.
Bubbly Flow Predictions in TRACE Using One-Group Interfacial Area Transport Equation, Seungjin Kim, Justin D. Talley *(Penn State)*, John Mahaffy, Stephen M. Bajorek, Kirk Tien *(NRC)*

9:20 a.m.
Predictions of Cap-Bubbly Flows with the Two-Group Interfacial Area Transport Equation, Xia Wang, Xiaodong Sun *(Ohio State)*

9:45 a.m.
Development of EAGLE Code with Modeling Interfacial Area Transport Equation, Byoung-Uhn Bae, Dong-Jin Euh, Byong-Jo Yun *(KAERI)*, Van Thai Nguyen, Chul-Hwa Song *(KAERI, UNIST)*

10:10 a.m.
Evaluation of One-Group Interfacial Area Transport Equation for the Air/Water Flow Condition with CFD Code, B. J. Yun *(KAERI)*, A. Splawski, S. Lo *(CD-adapco)*, C.-H. Song *(KAERI)*

10:35 a.m.
Application of S_Y Model with CFD Code to Predict Subcooled Boiling Flow, B. J. Yun *(KAERI)*, A. Splawski, S. Lo *(CDadapco)*, C.-H. Song *(KAERI)*

Young Professional Thermal Hydraulics Research Competition—I, sponsored by THD. *Session Organizers:* Brian Collins *(PNNL)*, Karen Vierow *(TAMU)*. *Cochairs:* Brian Collins, Steve Arndt *(NRC)*

Grande Ballroom D
8:30 a.m.
Large Eddy Simulations of Jet Interaction Within Staggered Rod Bundles, Nathaniel O. Salpeter, Yassin Hassan *(Texas A&M)*

8:55 a.m.
1-D Continuous Wavelet Decomposition of Jet Interactions Within Rod Bundles, Nathaniel Salpeter, Yassin Hassan *(Texas A&M)*

9:20 a.m.
Numerical Analysis for the Core Power Shape in the High Temperature Test Facility, Seth Cadell, Brian Woods *(Oregon State Univ)*

9:45 a.m.
A New Model for Droplet Mechanics in Dispersed Flow Film Boiling, M. J. Meholic *(Penn State)*, D. L. Aumiller, Jr. *(BAPL)*, F. B. Cheung *(Penn State)*

10:10 a.m.
Intermediate-Resolution Method for Thermal-Hydraulic Modeling of a Wire-Wrapped Pin Bundle, Rui Hu, Thomas H. Fanning *(ANL)*

10:35 a.m.
Scaling a PCC in the Upper Plenum of the MHTGR, Brian King, R. Brian Jackson, Brian Woods *(Oregon State Univ)*

11:00 a.m.
Boron Tracking Model Implementation in COBRA-TF: Analytical and Sensitivity Analysis, O. E. Ozdemir, M. Avramova *(Penn State)*, K. Sato *(MHI)*

Reactor Physics Design, Validation, and Operating Experience—I, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Cochairs:* Jeffrey A. Borkowski *(Studsvik Scandpower)*, David Chandler *(ORNL)*

Royale Pavilion 1
8:30 a.m.
Neutronic Evaluation of High Thermal Conductivity UO_2-BeO Fuel, Jean C. Ragusa, Sean M. McDeavitt, M. Naramore *(Texas A&M)*

8:55 a.m.
Neutronic Behavior and Impact on Fuel Cycle Cost of Silicon Carbide Clad, Fausto Franceschini, Edward J. Lahoda *(Westinghouse)*

9:20 a.m.
Calculating Transcurium Production Yields at the High Flux Isotope Reactor, Susan Hogle, G. Ivan Maldonado *(Univ of Tennessee)*, Ian Gauld, Julie Ezold *(ORNL)*

9:45 a.m.
Burnup and Spatially Dependent Uranium Isotopic Calculations for the High Flux Isotope Reactor, David Chandler *(Univ of Tennessee)*, R. T. Primm III *(ORNL)*, G. Ivan Maldonado *(Univ of Tennessee)*

10:10 a.m.
Development and Benchmark Validation of a New MC Neutron Transport Code RMC for Reactor Analysis, Zeguang Li, Kan Wang, Ding She, Yuxuan Liu, Qi Xu *(Tsinghua Univ)*

10:35 a.m.
BOL Core Simulations Based on the VNEM Neutron Transport Equation Solver, Makoto Tsuiki, Steven Mullet, William Beere *(Inst for Energy Technol)*

11:00 a.m.
Kinetic Analysis of Coupled Pulse Reactor for NPL Experiment, Toru Obara, Hiroki Takezawa *(Tokyo Inst Technol)*

Securing and Archiving Fast Reactor Data, sponsored by OPD; cosponsored by RPD. *Cochairs:* Bruce J. Makenas *(Mission Support Alliance)*, David Wooten *(PNNL)*

Royale Pavilion 2
8:30 a.m.
Confirmation of FBR Monju Systems and Components Integrity Toward Restart after Long-Term Shutdown, Masaya Uchihashi, Yoshihisa Kaneko, Satoru Nakai *(JAEA)*

8:55 a.m.
Thirty Years' Experience at the Experimental Fast Reactor Joyo: High Quality Core Management and Irradiation Field Characterization Technique, Shigetaka Maeda, Chikara Ito, Takafumi Aoyama, Yukimoto Maeda, Keiji Chatani *(JAEA)*

9:20 a.m.
Department of Energy Office of Nuclear Energy Knowledge Management Program, Kimberlyn C. Mousseau *(INL)*

9:55 a.m.
Maximizing the Value of the UK's Fast Reactor Knowledge Base, R. Currie, C. V. Gregory, R. A. Stuart *(National Nuclear Lab)*

10:10 a.m.
Startup Testing of the Fast Flux Test Facility, David W. Wootan, Scott Butner, Ronald P. Omberg *(PNNL)*, Bruce J. Makenas *(Mission Support Alliance)*, Deborah L. Nielsen *(Indian Eyes LLC)*, David L. Polzin *(CH2M Hill)*

10:35 a.m.
TREAT Experiments Relational Database, A. E. Wright, T. H. Bauer, P. H. Froehle, T. Sofu *(ANL)*

11:00 a.m.
The IAEA Initiative on Fast Reactor Data Retrieval and Knowledge Preservation, Alexander Stanculescu, Andrey Pryakhin *(IAEA)*

Technology Platforms Used in Distance Learning–Papers/Panel, sponsored by ETWDD. *Session Organizer:* Peter Caracappa *(RPI)*. *Chair:* John Gutteridge *(NRC)*

Royale Pavilion 3
8:30 a.m.
Update on Distance Education Programs in Nuclear Engineering at University of Tennessee, H. L. Dodds *(Univ of Tennessee)*

8:55 a.m.
Using Video Conferencing to Capture Expertise and Enhance Content in a Nuclear Fuel Cycles Course, Brian K. Hajek *(Ohio State)*, Robb Borland *(First Energy Nuclear Operating Co)*

9:20 a.m.
Technologies Used to Deliver a Distance-Only Masters Program, James P. Blanchard *(Univ of Wisconsin, Madison)*

9:45 a.m.
PANEL DISCUSSION
PANELISTS:
- H. L. Dodds *(Univ of Tennessee)*
- Brian K. Hajek *(Ohio State)*
- James P. Blanchard *(Univ of Wisconsin, Madison)*
- Linda Krute *(NCSU)*

A Special Session on "LLNL Plutonium Facility," sponsored by NCSD. *Session Organizer:* Debdas Biswas *(LLNL)*. *Chair:* Debdas Biswas

Royale Pavilion 4
8:30 a.m.
Criticality Safety Process Improvement at LLNL, John S. Pearson, Kevin Mahoney *(LLNL)*

8:50 a.m.
LLNL Standard Criticality Controls—History, Features, and Advantages, John S. Pearson, Debdas Biswas, John Scorby *(LLNL)*

9:10 a.m.
History of Criticality Safety Advisory Committee at Lawrence Livermore National Laboratory, Charles Barnett, David Heinrichs, Song Huang, Brian Koponen *(LLNL)*

9:30 a.m.
The Idea of "Dispersible" in Criticality Safety, Brian L. Koponen *(LLNL, retired)*, Andrew Wysong, Alan Krass *(LLNL)*

9:50 a.m.
LLNL Plutonium Facility Criticality Alarm System, Soon Kim, Edward Orham *(LLNL)*

10:10 a.m.
Hands-on Nuclear Criticality Safety Training at Lawrence Livermore National Laboratory, Catherine Percher, Song Huang, Dave Heinrichs, Rebecca Hudson *(LLNL)*

10:30 a.m.
Lawrence Livermore National Laboratory Security Category I/II SNM De-Inventory Status, David Riley, Karen Dodson, Debdas Biswas *(LLNL)*

10:50 a.m.
Criticality Safety Controls and Disposal of TRU Drums Generated by the LLNL Pu Facility, Shang-Chih Philip Chou, John S. Pearson, John A. Wolf *(LLNL)*

Severe Accident Management Studies, sponsored by NISD. *Session Organizer:* Dana A. Powers *(SNL)*. *Cochairs:* Terttaliisa Lind *(Paul Scherrer Inst)*, L. E. Herranz *(CIEMAT)*

Royale Pavilion 5
8:30 a.m.
Application of the Filter Model Approach to Particle Trapping in the Break Stage of a Steam Generator: The ARI3SG Model, C. López del Prá, L. E. Herranz *(CIEMAT)*

8:55 a.m.
The Effect of Flooding on Aerosol Retention in the Steam Generator Bundle, Terttaliisa M. Lind, Salih Güntay *(Paul Scherrer Institut)*

9:20 a.m.
Creation and Verification of an Empirical Metallic Fuel/Clad Eutectic Predictive Relationship, M. Denman, N. Todreas, M. Driscoll *(MIT)*

9:45 a.m.
Enhanced Ex-Vessel Melt Coolability for Stabilization of a Severe Accident in Gen-II and Gen-III LWR Power Plants, Bal Raj Sehgal *(KTH)*

10:10 a.m.
Experimental Investigation of the Melt Eruption Entrainment Phenomenon, K. R. Robb, M. L. Corradini *(Univ of Wisconsin, Madison)*

10:35 a.m.
Severe Accident Management Guidance—A Need or a Luxury? George Vayssier *(NSC Netherlands)*, Manwoong Kim, Sukho Lee *(IAEA)*

Technical Sessions by Day: Wednesday

Computational Resources for Radiation Modeling, sponsored by RPSD. *Session Organizer:* John Hendricks *(LANL)*.
Chair: Shaheen Dewji *(GA Tech)*

Royale Pavilion 6
8:30 a.m.
MCNPX Delayed-Gamma Feature Enhancements, Joe W. Durkee, Jr., Michael R. James, Gregg W. McKinney, Laurie S. Waters *(LANL)*

8:55 a.m.
Use of CGM in MCNPX for Correlated Gamma Production, Erin M. Dughie, Gregg W. McKinney, Toshihiko Kawano *(LANL)*

9:20 a.m.
A Strategy for Creating Probabilistic Radiation Maps in Areas Based on Sparse Data, Robin D. McDougall, Ed Waller, Scott B. Nokleby *(Univ of Ontario Inst of Tech)*

9:45 a.m.
NUCFRG3: Update of the Nuclear Fragmentation Database, Anne M. Adamczyk *(Univ of Tennessee)*, Ryan B. Norman *(NASA, Langley)*, Sirikul I. Sriprisan, Lawrence W. Townsend *(Univ of Tennessee)*, John W. Norbury, Steve R. Blattnig *(NASA, Langley)*

10:10 a.m.
Evaluation of UO_2 and MOX Fuel Assemblies for Antineutrino Simulations Using CASMO, Alexey Soldatoa, Elanchezhian Somasundaram, Todd S. Palmer *(Oregon State Univ)*

10:35 a.m.
Detailed Simulation of Antineutrino Signature for Light Water Reactors, Elanchezhian Somasundaram, Todd S. Palmer *(Oregon State Univ)*

Nuclear Fuels: Metal Fuel, sponsored by MSTD.
Session Organizer: Ken Geelhood *(PNNL)*.
Chair: Ken Geelhood

Royale Pavilion 7
8:30 a.m.
FCMI and Cladding Creep Modeling for Ultra High Burnup Metallic Fuel Designs, Yeon Soo Kim *(ANL)*, Y. S. Choo, H. J. Ryu *(KAERI)*, A. M. Yacout, G. L. Hofman *(ANL)*

8:55 a.m.
Thermal Properties of Uranium Molybdenum Alloys at Various Stages of Phase Decomposition, John Creasy, Sean McDeavitt *(Texas A&M)*

9:20 a.m.
Microstructure Changes During Annealing of Unirradiated U-Pu-Zr Metal Fuels, Dawn E. Janney, J. Rory Kennedy *(INL)*

9:45 a.m.
Powder Metallurgy of Alpha Phase Uranium Alloys for TRU-Burning Fast Reactors, Jeffrey S. Hausaman, David J. Garnetti, Sean M. McDeavitt *(Texas A&M)*

10:10 a.m.
Sintering α-Phase Uranium and Its Alloys, Grant W. Helmreich, David J. Garnetti, Sean M. McDeavitt *(Texas A&M)*

Nuclear Energy Growth in Emerging Markets–Panel, sponsored by OPD. *Cochairs:* Edward L. Quinn *(Technology Resources)*, Atam Rao *(IAEA)*

Royale Pavilion 8
8:30 a.m.
This session will provide an overview of progress and planning for utilization of nuclear energy in emerging markets and mature markets that are adding capacity after many years of operating nuclear plants. Speakers include representatives from the IAEA, energy companies, regulators, and industry consortia that are supporting the growth of nuclear energy around the world. IAEA has been approached by 61 countries asking for help in developing nuclear energy in their own country. These countries are at all levels of experience in nuclear technologies from nuclear medicine, research, and test reactor experience. This session will focus on a broad spectrum of these countries, looking at countries with both high and low levels of experience in nuclear science and technology.

PANELISTS:
- Hamad Alkaabi *(UAE)*
- Atam Rao *(IAEA)*
- Jack Ramsey *(NRC)*
- Stefano Monti *(ENEA)*
- Irina Tazhibayeva *(Atomic Energy Inst, Natl Nuclear Center)*
- Kenan Ünlü *(Penn State)*

Advanced Separation Technologies Research—II, sponsored by FCWMD. *Session Organizer:* Terry Todd *(INL)*. *Chair:* Terry Todd

Capri 110
8:30 a.m.
Diffusion Model for Electrolytic Reduction of UO_2 and U_3O_8 in a Molten LiCl-Li_2O Salt, Supathorn Phongikaroon, Robert Hoover *(Univ of Idaho)*, Steven Herrmann, Michael Simpson *(INL)*

8:55 a.m.
Regulatory Technology Development for Pyroprocessing Facility in Korea, Seung-Young Jeong *(KINS)*

9:20 a.m.
Regulatory Analysis for Nuclear Criticality Safety of Korean Pyroprocess Facility, Juyoul Kim, Sukhoon Kim *(FNC Technol)*, Seungyoung Jeong *(KINS)*

9:45 a.m.
Krypton and Iodine Adsorption on Diamond Powder, Surabhi Grover, Kyle Walton, Tushar K. Ghosh, Mark A. Prelas, Dabir S. Viswanath, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

10:10 a.m.
A Tc Alloy as a Waste Form Precursor from Aqueous Reprocessing, Jeffrey A. Fortner, William L. Ebert, A. Jeremy Kropf, James C. Cunnane *(ANL)*, Steven M. Frank *(INL)*

10:35 a.m.
Overview of Research on Glass and Ceramic Wasteforms for Fuel Cycle Research and Development, Charles L. Crawford, Amanda L. Billings, James C. Marra, Kevin M. Fox, Kyle S. Brinkman *(SRNL)*

Technical Sessions by Day: Wednesday

WEDNESDAY, NOVEMBER 10, 2010, 1:00 P.M.

Innovations in Radiation Detectors: New Designs, Improvements, and Applications, sponsored by IRD; cosponsored by BMD.
Session Organizer: Kenan Ünlü *(Penn State)*. *Chair:* Kenan Ünlü

Grande Ballroom B

1:00 p.m.
Dose Linearity of a Fiber Optic Dosimeter Employing LYSO and GaP Photodiode, Jae Woo Park, Jae Kyung Kim, Tae Hyung Kim *(Jeju National Univ)*

1:20 p.m.
Nanostructured LaF_3:Ce Quantum Dot Nuclear Radiation Detector, Paul Guss, Ron Guise, Michael Reed, Sanjoy Mukhopadhyay, Ding Yuan *(NSTec)*

1:40 p.m.
Theoretical Performance of a p-type B_5C:Hx Thin Film on n-Si Heterojunction Diode, James Bevins, John McClory, James Petrosky *(AFIT)*, Anthony Caruso *(Univ of Missouri, Kansas City)*

2:00 p.m.
Directional Response of Microstructure Solid State Thermal Neutron Detectors, Justin Dingley, Yaron Danon, Nicholas LiCausi, Jian-Qiang Lu, Ishwara B. Bhat *(RPI)*

2:20 p.m.
Analysis of Micro-Pocket Fission Detectors for Utilization with the UFTR, Quentin F. Chérel, Mark Harrison, James E. Baciak *(Univ of Florida)*

2:40 p.m.
Experimental Results in the Comparison of Search Algorithms Used with Room Temperature Detectors, Paul Guss, Ding Yuan *(Remote Sensing Lab)*, Matthew Cutler, Denis Beller *(UNLV)*

3:00 p.m.
Replacement TEPC for the International Space Station: Innovations and Results, Delia Perez-Nunez, Leslie A. Braby *(Texas A&M)*, Edward Semones *(NASA)*

3:20 p.m.
Preliminary Experimental Results on Measurement of Erbia Content in Uranium Fuel Using PGAA, Teruhisa Takamatsu, Naoki Sugimura *(Nuclear Engineering Ltd)*, Tadafumi Sano *(Kyoto Univ)*

General Thermal Hydraulics—II, sponsored by THD.
Cochairs: DuWayne Shubring *(Univ of Florida)*, Justin K. Watson *(Penn State)*

Grande Ballroom C

1:00 p.m.
Crud Deposition Under Boiling: Several Hypotheses, Hitesh Bindra *(CCNY)*, Barclay G. Jones *(Univ of Illinois)*

1:20 p.m.
Whole-Field Temperature and Velocity Measurements by Means of PIV/LIF Technique, Carlos Estrada-Perez, Elvis E. Dominguez-Ontiveros, Ryan Rupton, Yassin A. Hassan *(Texas A&M)*

1:40 p.m.
Hydrodynamic Analysis of Different Spacing Strategies for a Tight-Lattice SFR Bundle, E. Merzari, J. G. Smith, W. D. Pointer *(ANL)*

2:00 p.m.
TRACE5-patch01 Assessment of POSTECH Local Film Condensation Experiment, Yong Jin Cho, In Goo Kim, Seung Hoon Ahn *(KINS)*

2:20 p.m.
RETRAN Analysis of 1 RIP and 3 RIP Trip Transients for Lungmen ABWR, Shih-Jung Hsu *(Natl Tsing Hua Univ)*, Shao-Shih Ma *(INER)*, Chiung-Wen Tsai *(Natl Tsing Hua Univ)*, Jong-Rong Wang *(INER)*, ChunKuan Shih *(Natl Tsing Hua Univ)*

2:40 p.m.
TRACE Analysis of Loss of Flow Events in Maanshan Nuclear Power Plant, Jung-Hua Yang, Chunkuan Shih *(Natl Tsing Hua Univ)*, Jong-Rong Wang, Hao-Tzu Lin *(INER)*

3:00 p.m.
Coupling COBRA-TF with RELAP5-3D Using Parallel Virtual Machine (PVM) Environment, Amparo Soler, Ivor Clifford, Boyan Neykov, Maria Avramova *(Penn State)*, Kazuyuki Katsuragi *(MHI)*

3:20 p.m.
Development of Software for Evaluations of K_{eff} in Spent Fuel Dry Storage Systems, Wei-Keng Lin *(NTHU)*, Jong-Rong Wang, Yung-Shin Tseng *(INER)*

Young Professional Thermal Hydraulics Research Competition—II, sponsored by THD.
Session Organizers: Brian Collins *(PNNL)*, Karen Vierow *(TAMU)*.
Chair: Donald Todd *(NuScale Power)*

Grande Ballroom D

1:00 p.m.
Flow Assessment of the Hydro-Mechanical Fuel Test Facility at Oregon State University, W. R. Marcum, B. G. Woods *(Oregon State Univ)*

1:25 p.m.
Graphite Dispersion Effects Experimental Analysis for a Reactor Cavity Cooling System, L. Capone, R. Vaghetto, Yassin Hassan *(Texas A&M)*

1:50 p.m.
Effects of Pressure on Density Difference Stratified Flow, Jill Smith, Brian Woods *(Oregon State Univ)*

2:15 p.m.
Supercritical CO_2 Compression Loop Operation at Off-Nominal Conditions, R. Radel, T. Conboy, S. Wright *(SNL)*

2:40 p.m.
Scaled Experiments on Air Ingress in the High Temperature Gas Reactor, James Spring, Jenna J. Baird, Seungjin Kim *(Penn State)*, Andrew Ireland, Stephen M. Bajorek *(NRC)*

3:05 p.m.
The Deflection of Plate-Type Fuel During Facility Ramp-up Conditions, G. D. Roth, W. R. Marcum, B. G. Woods *(Oregon State Univ)*

3:30 p.m.
Initial Analysis of Pebble Contact in Pebble Bed Reactors, M. Rostamian *(Univ of Idaho)*, Sh. Arifeen, G. Potirniche, A. Tokuhiro *(Univ of Idaho)*

Reactor Physics Design, Validation, and Operating Experience—II, sponsored by RPD. *Session Organizer:* Fausto Franceschini *(Westinghouse)*. *Cochairs:* Jeffrey A. Borkowski *(Studsvik Scandpower)*, David Chandler *ORNL)*

Royale Pavilion 1
1:00 p.m.
ANS 19.6.1—Reload Startup Physics Tests for Pressurized Water Reactors, Charles T. Rombough *(CTR Tech Svc)*

1:25 p.m.
A Revised Standard for the Moderator-Temperature Coefficient of Reactivity, Russell D. Mosteller *(LANL)*, Robert R. St. Clair *(Duke Energy)*, Robert A. Hall *(Dominion)*

1:50 p.m.
Proposed Revision of the Decay Heat Standard ANSI/ANS-5.1-2005, I. C. Gauld *(ORNL)*, M. C. Brady Raap *(PNNL)*, F. Schmittroth, W. B. Wilson *(LANL)*

2:15 p.m.
Monju Reactor Physics Experiments in the Restart Core, A. Kitano, Y. Ohkawachi *(JAEA)*, Y. Kishimoto *(NESI)*, T. Hazama *(JAEA)*

2:40 p.m.
Study on Increasing of Core Average Burnup Using Deuteride Moderators in a Blanket Region of FBR, Toshio Wakabayashi *(Tohoku Univ)*, Tsugio Yokoyama *(Toshiba Nuclear Engineering Services Corp)*

3:05 p.m.
Pb-208 Coolant for Small Long-Life CANDLE Reactors, H. Sekimoto, T. Okawa, S. Nakayama *(Tokyo Inst Technol)*

3:30 p.m.
Burnup Characteristics of Peu-à-Peu Fuel Loading Scheme in Small PBR, Dwi Irwanto, Toru Obara, Yukitaka Kato, Ichiro Yamanaka *(Tokyo Inst Technol)*

Numerical Error Estimation in Nuclear Engineering Modeling, sponsored by RPD; cosponsored by MCD.
Session Organizer: Hany Abdel-Khalik *(NCSU)*. *Chair:* Hany Abdel-Khalik. *Cochair:* Jean Ragusa *(Texas A&M)*

Royale Pavilion 2
1:00 p.m.
Method of Manufactured Solutions for a 2-D Neutronics/Heat Conduction Test Case with Adaptive Multimesh hp-FEM, Damien Lebrun-Grandié, Jean C. Ragusa, Bruno Turcksin *(Texas A&M)*, invited

1:20 p.m.
Survey of Residual-Based Methods for Estimating Discretization Error, Christopher J. Roy *(Virginia Tech)*, invited

1:40 p.m.
Analysis and Verification of Numerical Methods Outside the Asymptotic Range, William J. Rider *(SNL)*

2:00 p.m.
A Posteriori Error Control for Multiphysics Systems, Varis Carey, Donald Estep *(Colorado State Univ)*, invited

2:20 p.m.
Review of Error Estimation and Adaptive Methods for Verification of Numerical Simulations, Serge Prudhomme *(Univ of Texas, Austin)*, J. Tinsley Oden *(Univ of Texas, Austin)*, invited

The CASL Nuclear Energy Modeling and Simulation Energy Innovation Hub–Panel, sponsored by MCD; cosponsored by RPD.
Session Organizer: Jess Gehin *(ORNL)*. *Chair:* Doug Kothe *(ORNL)*

Royale Pavilion 2
2:45 p.m.
The Consortium for Advanced Simulation of Light Water Reactors (CASL) was established as the first Department of Energy Innovation Hub with the purpose to develop and apply advanced modeling and simulation to enhance the operation of the existing and new light water reactors. CASL will produce an advanced modeling and simulation environment (a "virtual reactor") for predictive simulation of light water reactors in support of power uprates, life extension, and reduced operation costs. This panel will provide a technical overview of the modeling and simulation activities of CASL and consists of the key technical leads for each focus area.

PANELISTS:
- Douglas Kothe *(ORNL)*
- Chris Stanek *(LANL)*
- William Martin *(Univ of Michigan)*
- John Turner *(ORNL)*
- Jim Stewart *(SNL)*
- Jess Gehin *(ORNL)*

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

Focus on Communications: Pro-Nuclear Advocacy–Panel, sponsored by ETWDD. *Session Organizer:* Teri Ehresman *(INL)*. *Chair:* Teri Ehresman

Royale Pavilion 3
1:00 p.m.

The electric power industry is beginning to consider the construction and operation of a new generation of nuclear power plants to ensure continuity of power supplies and to provide for the nation's growing energy needs, and the debate over the safety and viability of nuclear energy is rapidly returning to a position of high visibility to the public. In most cases the arguments being leveled against new nuclear generation capacity have not significantly changed since the peak of U.S. construction several decades ago. However, the supporters of nuclear power are taking a more active role, expanding the focus of their efforts beyond the scientific education of future generations to include communication with all affected individuals. This session will highlight current activities of pronuclear activists throughout the nation and the industry.

PANELISTS:
- Gary Duarte *(U.S. Nuclear Energy Foundation)*
- Lane Allgood *(Partnership for Science and Technology in Idaho Falls)*
- Denis Beller *(UNLV)*
- Candace Davison *(Chair, ANS Public Information Committee)*

Focus on Communications: Credibility in a Digital Age–Panel, sponsored by ETWDD. *Session Organizer:* Dan Yurman *(Consultant)*. *Chair:* Dan Yurman

Royale Pavilion 3
2:30 p.m.

The rise of social media, including blogs, Facebook, Twitter, and other services, is making a strong impact on the nuclear energy industry. An industry that is slow to change communications practices used for decades is being challenged by a new generation that is comfortable with these technologies. Control of the outbound message broadcast to the media and the public is being replaced by the integrity of the message in a social dialogue involving multiple venues.

What makes sense for nuclear professionals who have to get smart in using social media? This panel will help you understand social media's impact on the nuclear energy industry, especially the conversation about it taking place outside the enterprise; the session will be devoted to ways in which ANS members can use social media to communicate credibly and compellingly about nuclear energy in their communities and with policy makers.

This panel discussion brings together diverse professionals to explore the ideas, messages, and products that shape nuclear energy policy, for better and for worse.

The panel was organized as part of an online discussion that has been active since January 2010 on an ANS-supported, Internet-based mailing list.

PANELISTS:
- Jarret Adams *(AREVA)*
- Tom Fields *(INL)*
- Laura Hermann *(Potomac Communications Group)*
- Dan Yurman *(Consultant)*
- Tamar Cerafici *(Attorney-at-Law)*

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

Lessons Learned from Efforts to Assess or Regulate Safety Culture–Paper/Panel, sponsored by NISD. *Session Organizer:* Charles (Chip) R. Martin *(DNFSB)*. *Chair:* Amy B. Hull *(NRC)*

Royale Pavilion 4
1:00 p.m.

Lessons Learned from Efforts to Assess Safety Culture at the Pantex Plant, Janice N. Tolk, Richard S. Hartley *(B&W Pantex)*

1:25 p.m.

PANEL DISCUSSION

Since its origins in the 1980s, the concept of safety culture and the understanding of how organizational leadership, structures, policies, and practices influence the behaviors and beliefs of workers continue to mature.

Significant progress has been made in high-risk commercial operations, such as nuclear power stations and aviation that are regulated by government agencies. In these cases, both the commercial entities and the regulatory agencies have clearly understood goals; the commercial entities are attempting to provide a product or service for profit, and the agencies are attempting to ensure the safety of workers, the public, and the environment from the potential risks involved with the product or service.

The situation is different in the case of self-regulated government agencies, as some of them continue to struggle with improving the safety culture of their organizations. Examples of self-regulated agencies include the U.S. Department of Energy, the U.S. Department of Defense, and the National Aeronautics and Space Administration.

This session will explore lessons learned from efforts to assess or regulate safety culture in both of these sectors.

PANELISTS:
- Gregory OD Smith *(Urenco USA)*
- Thomas C. Houghton *(NEI)*
- Kenneth G. Koves *(INPO)*
- Andrew C. Campbell *(NRC)*
- Richard S. Hartley *(B&W Pantex)*
- Charles (Chip) R. Martin *(DNFSB)*

Advanced Reactor Safety Design, Analysis, and Regulation, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Consultant)*. *Chair:* Anthony J. Baratta *(NRC)*

Royale Pavilion 5

Technical Sessions by Day: Wednesday

1:00 p.m.
Impact of Outlet Plenum Thermal Stratification During a Protected Loss of Flow Transient, T. H. Fanning, J. W. Thomas *(ANL)*

1:25 p.m.
Best-Estimated Evaluation for LBLOCA of APR1400 Using MARS Code, Byung Gil Huh, Young Seok Bang, Chae-Yong Yang *(KINS)*

1:50 p.m.
Monte Carlo Method for Regulatory Verification of Nuclear Designs, Ku Young Chung, Chang Wook Huh *(KINS)*, Hyung Jin Shim *(Seoul Natl Univ)*

2:15 p.m.
Transient Thermal-Hydraulic Simulation of the Small Modular Advanced High-Temperature Reactor (SmAHTR), Juan J. Carbajo, Graydon L. Yoder, Sherrell R. Greene *(ORNL)*

2:40 p.m.
The Study of Optical Fibers Signal Loss by Thermal Effect for Advanced NPPs, Huai-En Hsieh, Yuh-Ming Ferng, Wen-Sheng Hsu, Bau-Shi Pei *(Natl Tsing Hua Univ)*

3:05 p.m.
A Study on Estimation of Flood Area Based Flooding Frequency for SMART, Sun Yeong Choi, Youngho Jin *(KAERI)*

3:30 p.m.
Risk Metrics for SMRs: Need for a Land Contamination Safety Goal, Vinod Mubayi, John R. Lehner *(BNL)*

Decommissioning, Decontamination, and Reutilization: General, sponsored by DDRD. *Session Organizer:* Nadia Glucksberg *(Haley & Aldrich)*. *Chair:* Larry Zull *(DNFSB)*

Royale Pavilion 6

1:00 p.m.
Tritium Analysis in Decommissioned Metals for Waste Characterization, Dae Ji Kim *(KINS)*, Phillip E. Warwick *(Univ of Southampton)*, Seung Young Jeong *(KINS)*

1:25 p.m.
Examination of Surface Contamination Control from the Viewpoint of Clearance, Haruyuki Ogino, Takatoshi Hattori *(CRIEPI)*

1:50 p.m.
Preliminary Estimation of Radioactive Waste Volume from Decommissioning of Korean Nuclear Power Plant, Hak-Soo Kim, Tae-Won Hwang, Young-Bu Choi *(KHNP)*

2:15 p.m.
Taking Advantage of the Innovation Trends in the Nuclear Power Industry, Dariush Adli *(Adli Law Group PC)*

Nuclear Materials and Novel Measurement Techniques, sponsored by MSTD. *Session Organizer:* Kenneth Geelhood *(PNNL)*. *Chair:* Heather MacLean Chichester *(INL)*

Royale Pavilion 7

1:00 p.m.
Laser MicroRaman Study of Corrosion in Materials for Nuclear Applications, Brian D. Hosterman, John W. Farley, Allen L. Johnson *(UNLV)*

1:25 p.m.
Design and Analysis of a High-Temperature Low-Activation Furnace, David Hawn, Chris Petrie, Thomas E. Blue, Ryan Winningham *(Ohio State)*

1:50 p.m.
Materials for a Small Salt-Cooled, Modular, Advanced High Temperature Reactor (SmAHTR), D. F. Wilson, W. R. Corwin *(ORNL)*

2:15 p.m.
Radiation-Induced Alteration of Network Structure in Sodium Borosilicate Glass, Leslie Dewan, Linn W. Hobbs *(MIT)*, Jean-Marc Delaye *(CEA)*

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

Royale Pavilion 8

1:00 p.m.
Findings of Common Weaknesses Through Standardization of Maintenance Rule, Hee Seung Chang, Jin Woo Hyun, Gung Su Cho *(KHNP)*

1:25 p.m.
Development of an Off-Site Risk Monitoring Program in KHNP, Ji-Yong Oh, Seok-Won Hwang, Moon-Goo Chi *(KHNP)*

1:50 p.m.
Nuclear Energy as a Means to Address Environmental Concerns, Gustavo Alonso, Ramon Ramirez, Javier Palacios *(ININ)*, Edmundo del Valle *(IPN)*

2:15 p.m.
Gigawatt-Year Electricity Storage Requirements for Nuclear and Renewable Power Production, Isaiah O. Oloyede, Charles W. Forsberg, Michael J. Driscoll *(MIT)*

2:40 p.m.
Determination of Limiting Meteorological Conditions for Ultimate Heat Sink Design, Dong Zheng, Julie M. Jarvis, Allen T. Vieira *(Bechtel)*

3:05 p.m.
Dynamic Stochastic Scheduling Applied to Managing and Controlling Nuclear Infrastructure, Linda Ann Riley *(Roger Williams Univ)*

3:30 p.m.
Instrumentation Requirements for Fluoride Salt Cooled High Temperature Reactors, Sacit M. Cetiner, David E. Holcomb, Roger A. Kisner *(ORNL)*

Sustainability and the Nuclear Fuel Cycle, sponsored by FCWMD. *Session Organizer:* Sama Bilbao y Leon *(IAEA)*. *Chair:* Pamela Longmire *(NRC)*

Capri 110

Technical Sessions by Day: Wednesday/Thursday

1:00 p.m.
A Look at Unconventional Uranium Fuel Sources, Roger Kapsimalis, Sheldon Landsberger *(Univ of Texas, Austin)*

1:25 p.m.
Sensitivity Study on the TRU Inventory with Fast Reactor Conversion Ratio, Chang Joon Jeong *(KAERI)*, A. M. Yacout *(ANL)*, Won Il Ko *(KAERI)*

1:50 p.m.
SimFuelCycle—A Simulation and Uncertainty Analysis Tool for Evaluation of Nuclear Fuel Cycles, Jeff Preston, Laurence F. Miller *(Univ of Tennessee)*

Waste Management Policy and Technology, sponsored by FCWMD.
Session Organizer: Paul Wilson *(Univ of Wisconsin)*. *Chair:* Paul Wilson

Capri 110
2:20 p.m.
Study of Korea Conceptual SNF Transport Cask with Burnup Credit, Dohyung Kim, Jaeho Park, Jewon Lee, Kangwook Lee, Sungae Moon, Kyusup Choi *(KONES)*, Taeman Kim, Chunhyung Cho, Junghyun Yoon *(KRMC)*

2:45 p.m.
Yucca Mountain as an Opportunity to Reevaluate Spent Fuel Management Policy, Steve E. Skutnik, Man-Sung Yim *(NCSU)*

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

THURSDAY • NOVEMBER 11, 2010

7:30 AM – 2:00 PM	MEETING REGISTRATION
8:30 AM – 10:00 AM	TOFE: JAPAN ITER-DEMO PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS • Biology and Medicine General Innovation in Software for Radiation Detection • Computational Thermal Hydraulics—II • Small Modular Reactors Emergency Planning and Response–Panel • Progress in Reactor Physics Analysis for Thorium-Fueled Reactors • Addressing Current Issues in Reactor Safety Analysis and Design • Workforce Development Grants: Requirements, Challenges, and Results–Panel • Nuclear Criticality Safety Standards–Forum • Highlights from the 2nd International Meeting of the Safety and Technology of Nuclear Hydrogen Production, Control, and Management (ST-NH2)–Panel • Moritz, a 3-D Monte Carlo Geometry Tool–Tutorial • Experiments in Accelerator Applications • Advanced Reactors • Nonproliferation and the Fuel Cycle
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS
10:15 AM – 12:15 PM	TOFE: TECHNOLOGY NEEDS FOR FUSION ENERGY–PANEL
12:15 PM – 12:30 PM	TOFE: MEETING CLOSING
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS • University Research Reactors and Nuclear Science Programs • Experimental and CFD Analysis of Gen-IV Reactors—II • Severe Accident Management • Cutting-Edge Techniques in Education and Training–Papers/Panel • Improving Reactor Safety Analyses • Geant4–Tutorial
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS

THURSDAY, NOVEMBER 11, 2010, 8:30 A.M.

Biology and Medicine General and Innovation in Software for Radiation Detection, sponsored by BMD; cosponsored by IRD.
Chair: John Ondov *(Univ of Maryland)*

Grande Ballroom B
8:30 a.m.
Uncertainty Associated with the Determination of Induced Strand Breaks in Plasmid DNA Due to Mixed "thermal n + γ" Radiation Field, Maritza R. Gual *(InSTEC)*, Massimo Zucchetti *(MIT)*, Rafael A. Miller-Clemente *(Univ de Oriente–Cuba)*, Vivian Sistachs *(Univ de La Habana–Cuba)*

8:55 a.m.
Neutron Beam Optimization and Alternative Source Analysis for BNCT, Michael Hirt, David Howard, Daniel Jakel, Chelsea Krummrey, Kyle McMillan, Andrew Till *(Univ of Michigan)*

9:20 a.m.
Energy Deposition by Doughnut Beams Bombarding a (p,xn) Target, M. P. W. Chin *(CERN)*, N. M. Spyrou *(Univ of Surrey)*, invited

9:45 a.m.
Accurate and Precise Measurement of Selenium by Instrumental Neutron Activation Analysis, Injung Kim *(KISS)*, Russell P. Watson, Richard M. Lindstrom *(NIST)*

10:10 a.m.
A Multivariate Approach to Gamma-Ray Spectra Analysis, J. M. Ondov, G. M. Beachley *(Univ of Maryland)*, B. E. Tomlin *(NIST)*, invited

10:35 a.m.
Trace Elements in Eleven Fruits Widely Consumed in the U.S. as Determined by Neutron Activation Analysis, A. Michenaud-Rague *(ENSICAEN)*, S. Robinson, S. Landsberger, T. Pun *(Univ of Texas, Austin)*

Computational Thermal Hydraulics—II, sponsored by THD.
Chair: Elia Merzari *(ANL)*

Grande Ballroom C
8:30 a.m.
Artificial Interface Lattice Boltzmann Model for Simulation of Two-Phase Dynamics, Prashant K. Jain *(ORNL)*, Rizwan-uddin *(Univ of Illinois)*, invited, Mark Mills Award Winner

8:50 a.m.
Error Sources Considered in the "UMAE Driven" CIAU Methodology, F. D'Auria, A. Petruzzi *(Univ of Pisa)*

9:10 a.m.
Modification of COBRA-TF for Improved Vessel-Wide Transient Analysis, Robert K. Salko, Maria N. Avramova *(Penn State)*, Akira Ohnuki *(MHI)*

9:30 a.m.
Natural Convective Heat Transfer Prediction Using Artificial Neural Networks, Ryan Z. Davis, Mark Albiston, Milos Manic, Akira T. Tokuhiro *(Univ of Idaho)*

9:50 a.m.
TRACE Modeling and Its Verification Using an IIST SBLOCA Experiment, Jong-Rong Wang *(INER)*, Liang-Che Dai *(Natl Tsing Hua Univ)*, Hao-Tzu Lin *(INER)*, Wei-Chen Wang, Chunkuan Shih *(Natl Tsing Hua Univ)*

10:10 a.m.
TRACE Analysis of 1 RIP and 3 RIPs Trip Transients for Lungmen ABWR, Wei-Chen Wang *(Natl Tsing Hua Univ)*, Jong-Rong Wang, Liang-Che Dai, Hao-Tzu Lin *(INER)*, Chunkuan Shih *(Natl Tsing Hua Univ)*

10:30 a.m.
TRACE Modeling of Kuosheng BWR/6 Startup Tests, Jong-Rong Wang, Hao-Tzu Lin, Ansheng Lin *(INER)*, Shao-Hsuan Chen, Chunkuan Shih *(Natl Tsing Hua Univ)*

10:50 a.m.
Integrated Methodology for Uncertainty Analysis of Thermal-Hydraulic System Codes, Mohammad Pourgol-Mohammad *(FM Global Inc)*

Small Modular Reactors Emergency Planning and Response–Panel, sponsored by ESD. *Chair:* Dave Leaver *(WorleyParsons)*

Grande Ballroom D
8:30 a.m.
This panel will discuss technical, regulatory, policy, and political issues associated with modernizing or simplifying emergency plan requirements for new plants on Greenfield sites. The focus will be on the technical bases to support a modernized emergency plan and to consider the effects of multimodule plants.

PANELISTS:
- Dave Leaver *(WorleyParsons)*
- Patricia Milligan *(NRC)*
- Walt Lee *(TVA)*
- Jim Kinsey (or alternate) *(NGNP)*
- Kent Welter *(NuScale Power)*
- Mike Slobodien *(Entergy)*
- Andrea Maioli *(Westinghouse)*

Progress in Reactor Physics Analysis for Thorium-Fueled Reactors, sponsored by RPD. *Session Organizers:* Blair Bromley *(AECL)*, Ronald J. Ellis *(ORNL)*. *Cochairs:* Blair Bromley, Ronald J. Ellis

Royale Pavilion 1
8:30 a.m.
Th/U-233 Multirecycle in Pressurized Water Reactors: Feasibility Study of Multiple Homogeneous and Heterogeneous Assembly Designs, D. Yun, T. A.Taiwo, T. K. Kim, A. Mohamed *(ANL)*

8:55 a.m.
Performance of Thorium-Based Fuel for TRU Transmutation in Sodium-Cooled Fast Reactors, Nicholas W. Touran, Adam J. Hoffman, John C. Lee *(Univ of Michigan)*

9:20 a.m.
A Feasibility Study of Thorium Utilization in Energy Multiplier Module (EM^2), Hangbok Choi, Robert W. Schleicher *(General Atomics)*

9:45 a.m.
Recycling Radioactive Waste with Thorium and Inert Matrix Fuels, A. Osborne, M. R. Deinert *(Univ of Texas, Austin)*

10:10 a.m.
Fuel Cycle Length Assessment for a Small Thorium Based Reactor with Various Fuel Driver Options, Michael Worrall, Zeev Shayer *(CSM)*

10:35 a.m.
MCNP5 Analysis of Historical Critical Substitution Experiments in ZED-2 with Mixed Th/^{235}U Test Fuel, Erik Hagberg, Boris Shukhman, Blair P. Bromley *(AECL Chalk River)*

11:00 a.m.
Uncertainty and Similarity Analysis Between Simplified Models of CANDU-6 and TCR Reactors Using TSUNAMI, J. C. Chow, T. Zhu *(AECL Chalk River)*

11:25 a.m.
Thorium Nuclear Data: Effect of Impurities in Chinese-Mined Thorium and Impact of Different Cross-Section Libraries, Ganglin Yu, Bin Zhong, Khurrum Saleem Chaudri, Kan Wang *(Tsinghua Univ)*

Addressing Current Issues in Reactor Safety Analysis and Design, sponsored by NISD. *Session Organizer:* Stephen P. Schultz *(Consultant)*. *Chair:* Robert D. Andre

Royale Pavilion 2
8:30 a.m.
Source Range Detector Response During Boron Dilution Accident at Shutdown, William Bojduj *(PG&E, Diablo Canyon)*

8:55 a.m.
Interest of Heavy Reflector Concept Toward Irradiation Aging, Jean-Luc Chambrin, Menelaos Vaindirlis *(AREVA NP)*

9:20 a.m.
RPV Internals Secondary Support Design Optimization, Menelaos Vaindirlis, Jean Luc Chambrin *(AREVA NP)*

Workforce Development Grants: Requirements, Challenges, and Results–Panel, sponsored by ETWDD.
Session Organizer: Richard Holman *(INL)*. *Chair:* Richard Holman *(INL)*

Royale Pavilion 3

8:30 a.m.
This session will focus on the grant opportunities that have been made available over the last several years through the Department of Labor, the Department of Education, the National Science Foundation, and others. The discussion will include what those offering the grants have to say about the applications received as well as grantees discussing what has been accomplished with the funds received to date. The presentations will discuss the challenges encountered in both the writing and reviewing of the grant solicitations as well as the challenges faced in responding to these solicitations. A panel discussion will follow.

PANELISTS:
- Richard Holman *(INL)*
- Lawrence Beaty *(Idaho State Univ)*
- John Gutteridge *(NRC)*
- Marsha J. Lambregts *(INL)*

Nuclear Criticality Safety Standards–Forum, sponsored by NCSD.
Session Organizer: Davis Reed *(ORNL)*. *Chair:* Brian Kidd *(Babcock & Wilcox)*

Royale Pavilion 4
8:30 a.m.

Highlights from the 2nd International Meeting of the Safety and Technology of Nuclear Hydrogen Production, Control, and Management (ST-NH2)–Panel, sponsored by NISD.
Session Organizer: Kevin O'Kula *(WSMS)*. *Chair:* Kevin O'Kula

Royale Pavilion 5
8:30 a.m.
This panel will discuss highlights of the June 2010 embedded ANS conference on nuclear hydrogen production, control, and management from the prospective of the technical program leadership. The major paper and panel presentations will be summarized in terms of new information, important trends, noteworthy insights, and near-term challenges in the following topics: Nuclear Hydrogen Production and Process Technology (High-Temperature Electrolysis, Thermochemical and Hybrid Cycles), Systems Analysis and Modeling, New Reactor Requirements for Combustible Gas Control, Managing Hazards in DOE Facilities, Progress in Passive Catalytic Recombiners, and Deterministic/Probabilistic Safety Studies. By recapping the second ST-NH2 meeting in San Diego, the panel session will brief those who could not attend on the more prominent meeting themes and developments.

PANELISTS:
- Kevin O'Kula *(WSMS)*
- Dana Powers *(SNL)*
- Kenneth Schultz *(General Atomics)*
- J. Stephen Herring *(INL)*

Moritz, a 3-D Monte Carlo Geometry Tool–Tutorial, sponsored by RPSD. *Session Organizer:* Eric Burgett *(ISU)*. *Chair:* Ken Van Riper *(White Rock Science)*

Royale Pavilion 6
8:30 a.m.
Moritz is a geometry editing and visualization program for combinatorial geometry used by Monte Carlo codes, including MCNP/MCNPX, ACCEPT, and TRIPOLI. Mesh tallies and particle tracks can be displayed together with the geometry. The tutorial is intended to give new and prospective users an overview of available capabilities and features and will introduce current users to new capabilities. It will provide tips and techniques for making more effective use of the code for both new and current users. Dialogue with the participants is encouraged and will play a major part in determining which topics are covered in detail. Demo copies of Moritz will be available.

Experiments in Accelerator Applications, sponsored by AAD.
Session Organizer: Michael Kireeff Covo *(LBNL)*.
Chair: Michael Kireeff Covo

Royale Pavilion 7
8:30 a.m.
Neutralized Ion-Beam Drift Compression for Short-Pulse Target Heating Experiments, Peter A. Seidl, A. Anders, G. Bazouin, F. M. Bieniosek *(LBNL)*, E. P. Gilson *(PPPL)*, D. P. Grote *(LLNL)*, J. Y. Jung, I. Kaganovich, M. Leitner, S. M. Lidia, P. Ni, P. K. Roy, W. L. Waldron *(LBNL)*, invited

8:55 a.m.
Target Simulations for Warm Dense Matter and Heavy Ion Fusion Science on NDCX II, J. J. Barnard *(LLNL)*, F. M. Bieniosek *(LBNL)*, A. Friedman *(LLNL)*, M. Hay, E. Henestroza, B. G. Logan, R. M. More, P. A. Ni *(LBNL)*, L. J. Perkins *(LLNL)*, S. F. Ng *(LBNL)*, S. A. Veitzer *(Tech-X Corp)*, S. S. Yu *(LBNL)*, invited

9:20 a.m.
The GUINEVERE Project at the VENUS-F Facility, L. Mercatali *(KIT)*, P. Baeten, A. Kochetkov, W. Uyttenhove *(SCK/CEN)*, invited

9:45 a.m.
Experiments on Injection of Spallation Neutrons by 100-MeV Protons into the Kyoto University Critical Assembly, Cheol Ho Pyeon, Jae-Yong Lim, Tsuyoshi Misawa *(Kyoto Univ)*, invited

10:10 a.m.
Shielding Analyses and Procedures for the SNS, I. Popova, P. Ferguson, F. X. Gallmeier, E. Iverson, Wei Lu *(ORNL/SNS)*

10:35 a.m.
Axial Dependency of the Bell and Glasstone Correction Factor for Subcriticality Measurements, Alberto Talamo, Yousry Gohar, Gerardo Aliberti, Yan Cao, Zhaopeng Zhong *(ANL)*

Technical Sessions by Day: Thursday

Advanced Reactors, sponsored by OPD. *Chair:* Sergio Perillio *(Univ of Tennessee)*

Royale Pavilion 8
8:30 a.m.
Development of Preliminary Regulatory Framework for Safety Analysis of Sodium Fast Reactors in Korea, Soon Joon Hong, Su Hyun Hwang, Yeon Joon Choo, Byung Chul Lee *(FNC Technol)*, Young Gill Yune, Chang Wook Huh, Kyun Tae Kim *(KINS)*

8:50 a.m.
Current Status and Prospect of Regulatory Safety Assessment Methodology for VHTR in Korea, Su Hyun Hwang, Soon Joon Hong, Seong Su Jeon, Byung Chul Lee *(FNC Technol)*, Chang Wook Huh, Byung Gil Huh, Kyun Tae Kim *(KINS)*

9:10 a.m.
Design Study on a Metallic Fuel Core Option for a GEN-IV LFR DEMO, Sara Bortot *(ANL)*, Patrizio Console Camprini, Giacomo Grasso *(Univ of Bologna)*, Carlo Artioli *(ENEA)*

9:30 a.m.
SmAHTR—A Small Modular High-Temperature Fluoride Salt Reactor System, Sherrell R. Greene *(ORNL)*

9:50 a.m.
Power Conversion Systems for ORNL SmAHTR Fluoride Salt Reactor Conceptual Design, Anselmo T. Cisneros *(Univ of California, Berkeley)*, Louis Qualls *(ORNL)*

10:10 a.m.
Preliminary Nuclear Design Studies for a Small Modular Advanced High Temperature Reactor (SmAHTR), Dan Ilas, Jess Gehin, Sherrell Greene *(ORNL)*

10:30 a.m.
Self-Actuated Shutdown System Performance in Sodium Fast Reactors, Jacob D. DeWitte, Neil E. Todreas, Michael J. Driscoll *(MIT)*

10:50 a.m.
Thermomechanical Analysis of Fuel Blocks in a VHTR Core, Ji-Ho Kang, Nam-Il Tak, Min-Hwan Kim *(KAERI)*

Nonproliferation and the Fuel Cycle, sponsored by FCWMD; in collaboration with SCNN. *Session Organizer:* Robert Bari *(BNL)*. *Chair:* Robert Bari

Capri 110
8:30 a.m.
Role of Nuclear Nonproliferation in the Success of Civilian Nuclear Power Development, Man-Sung Yim *(NCSU)*

8:55 a.m.
Evaluation of Fuel Cycle Proliferation Resistance Dynamics Using Coupled Isotopic Analysis, Steve E. Skutnik, Man-Sung Yim *(NCSU)*

THURSDAY, NOVEMBER 11, 2010, 1:00 P.M.

University Research Reactors and Nuclear Science Programs, sponsored by IRD. *Session Organizer:* Kenan Ünlü *(Penn State)*. *Chair:* Kenan Ünlü

Grande Ballroom B
1:00 p.m.
The Production of Tailored Radioxenon Signatures, R. M. Ward, S. R. F. Biegalski *(Univ of Texas, Austin)*

1:25 p.m.
Developing Neutron Tomography Capabilities at the PULSTAR Reactor, A. H. Alsabbagh, Z. Xiao, A. I. Hawari *(NCSU)*

1:50 p.m.
Development of an External Neutron Beam Facility at the Ohio State University, D. Turkoglu, J. Strah, P. Kandlakunta, L. Cao *(Ohio State)*

2:15 p.m.
Experimental Illustration of Coded Source Neutron Imaging at the PULSTAR Reactor, Z. Xiao, A. I. Hawari *(NCSU)*

2:40 p.m.
Interdisciplinary Research at the Radiation Science and Engineering Center at the Pennsylvania State University, Kenan Ünlü *(Penn State)*

Experimental and CFD Analysis of Gen-IV Reactors—II, sponsored by THD. *Chair:* Kune Y. Suh *(Seoul Natl Univ)*

Grande Ballroom C
1:00 p.m.
CFD Predictions of Gap Bypass in Prismatic VHTR Cores, W. David Pointer *(ANL)*

1:25 p.m.
Reynolds Stress Transport Model for Fluid Flow in Pebble Bed Reactor Core, Akshay Gandhir, Yassin A. Hassan *(Texas A&M)*

1:50 p.m.
HTGR Modeling with ANSYS and SINDA/FLUINT, James E. Banfield, G. Ivan Maldonado *(Univ of Tennessee)*, Richard J. Kapernick *(LANL)*

Severe Accident Management, sponsored by THD. *Chair:* Kurshad Muftuoglu *(GE Hitachi Nuclear)*

Grande Ballroom C
2:20 p.m.
Sensitivity Analysis of TMI-2 Benchmark Problem According to Oxidation Models Using MAAP4 Code, Jae S. Yoo, Kune Y. Suh *(Seoul Natl Univ)*

2:45 p.m.
Effect of Shear Key on Critical Heat Flux for Downward-Facing Hemisphere, Kyoung M. Kang, Kune Y. Suh *(Seoul Natl Univ)*

3:10 p.m.
External Reactor Vessel Cooling Strategy for APR1400 and Issues of Phenomenological Uncertainties, S. J. Oh, Hyeong Kim *(KHNP)*

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

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

Royale Pavilion 3
1:00 p.m.
A Collaborative Educational Effort Between the University of Texas at Austin and Three Historically Black Colleges and Universities Funded by the Office of Naval Research and the Nuclear Regulatory Commission, S. Landsberger, O. Ezekoye, E. A. Schneider, S. R. Biegalski, C. Egnatuk, K. Dayman *(Univ of Texas, Austin)*, R. Stiffin, D. Tamalis *(Florida Memorial Univ)*, J. Jones *(Huston-Tillotson Univ)*, C. Handy *(Texas Southern Univ)*

1:25 p.m.
Nuclear Materials Security: The Force-on-Force Tabletop Exercise as a Classroom Tool, Howard L. Hall *(Univ of Tennessee)*

1:50 p.m.
Driven Subcritical Assembly Using a Cylindrical Inertial Electrostatic Confinement (IEC) Neutron Source, George H. Miley *(Univ of Illinois)*

2:15 p.m.
Internet Accessible Hot Cell with Gamma Spectroscopy at the Missouri S&T Nuclear Reactor, E. J. Grant, G. E. Mueller, C. Castaño, A. S. Kumar, S. Usman *(Missouri Univ Sci Technol)*

2:40 p.m.
Making the Most of Hands-On Learning—An Integrated Course at Rensselaer, Peter F. Caracappa, Timothy Trumbull, Thomas Haley, Marie-Pierre Huguet, Wei Ji, Yaron Danon *(RPI)*, Bryndol Sones, Donald Gillich *(U.S. Military Acad)*

3:05 p.m.
Prior Learning Assessment/Portfolio Development—Earning a College Degree for What You Know, Marcus Tillery, Richard P. Coe *(Thomas Edison State Coll)*

Improving Reactor Safety Analyses, sponsored by NISD.
Session Organizer: Stephen P. Schultz *(Consultant)*.
Chair: Herbert W. Massie, Jr. *(DNFSB)*

Royale Pavilion 5
1:00 p.m.
Capturing the Institutional Memory of the ACRS, Hossein Nourbakhsh *(NRC)*

1:25 p.m.
Software Reliability Assessment of Reactor Protection System, Gee-Yong Park, Heung Sup Eom, Dong Hoon Kim, Hyun Good Kang *(KAERI)*

1:50 p.m.
Environmental Impact Assessment of Nuclear Facility and Prevention of Accidents, Ivan Vassilev Ivanov *(Tech Univ of Sofia)*

2:15 p.m.
Acceptable Seismic Risks at Nuclear Facilities per DOE, ANSI/ANS/ASCE Standards, James J. Dahl, Shivi Singh, Marvin G. Zimmerman *(SNL)*

2:40 p.m.
Lessons Learned in ICFMP Project for Verification and Validation of Computer Models for Nuclear Plant Fire Safety Analysis, Monideep K. Dey *(Deytec Inc)*

Geant4–Tutorial, sponsored by RPSD.
Session Organizer: Eric Burgett *(ISU)*. Chair: Maria Grazia Pia *(CERN)*

Royale Pavilion 6
1:00 p.m.
This introduction to the Geant4 Simulation Toolkit provides an overview of its main features and how to use it. Geant4 is a Monte Carlo toolkit for the simulation of the interactions of particles with matter; it is developed and maintained by a worldwide collaboration of physicists and computer scientists. Thanks to the object-oriented technology it adopts, it is open to extension and evolution.

Geant4 provides functionality for all the typical domains of detector simulation, such as geometry modeling, detector response, run and event management, tracking, visualization, and user interface.
An abundant set of physics processes handles the diverse interactions of particles with matter across a wide energy range; for many physics processes a choice among different models is available. Geant4 source code and libraries are freely available, accompanied by an extensive set of user documentation.

19th Topical Meeting on the Technology of Fusion Energy (TOFE)

ROOM	NOVEMBER 8, 2010 MONDAY 1:30 P.M. – 2:45 P.M.	NOVEMBER 8, 2010 MONDAY 3:30 P.M. – 5:30 P.M.	NOVEMBER 9, 2010 TUESDAY 8:30 A.M. – 9:30 A.M.	NOVEMBER 9, 2010 TUESDAY 10:00 A.M. – 11:30 A.M.	NOVEMBER 9, 2010 TUESDAY 1:30 P.M. – 3:30 P.M.	NOVEMBER 9, 2010 TUESDAY 3:30 P.M. – 5:30 P.M.	NOVEMBER 10, 2010 WEDNESDAY 8:30 A.M. – 9:30 A.M.	NOVEMBER 10, 2010 WEDNESDAY 10:00 A.M. – 11:30 A.M.	NOVEMBER 10, 2010 WEDNESDAY 1:30 P.M. – 3:30 P.M.	NOVEMBER 10, 2010 WEDNESDAY 3:30 P.M. – 5:30 P.M.	NOVEMBER 11, 2010 THURSDAY 8:30 A.M. – 10:00 A.M.	NOVEMBER 11, 2010 THURSDAY 10:15 A.M. – 12:15 P.M.	NOVEMBER 11, 2010 THURSDAY 12:15 P.M. – 12:30 P.M.
Capri 102	Meeting Opening and ITER Plenary												
Grande Ballroom A			NIF Plenary			Poster Session—I	Velikhov Plenary			Poster Session—II	Japan ITER-DEMO Plenary	Technology Needs for Fusion Energy–Panel	Meeting Closing
Royale Skybox 209		ITER Special Session		IFE Special Session—LIFE and NIFE	Divertor and High Heat Flux Components			Materials and Plasma-Material Interactions	In-Vessel Components—II (FW, BL, Shield, and VV)				
Royale Skybox 210		Power Plant, Demo, and FNS Studies		Materials Development	Nuclear Systems: Analysis and Experiments			In-Vessel Components—I (FW, BL, Shield, and VV)	Computational Tools, Modeling, and Validation				
Royale Skybox 211		Alternate and Nonelectric Concepts		Safety and Environment	Magnets			IFE Designs and Technology	Fusion Technologies: Fabrication, Maintenance, Fueling, and Diagnostics				

GENERAL CHAIR:
Farrokh Najmabadi
University of California, San Diego

TECHNICAL PROGRAM CHAIR:
Shahram S. Sharafat
University of California, Los Angeles

MONDAY • NOVEMBER 8, 2010

7:30 AM – 5:00 PM	**MEETING REGISTRATION**
8:00 AM – 10:00 AM	**SPOUSE/GUEST HOSPITALITY**
8:30 AM – 11:30 AM	**2010 ANS WINTER MEETING: OPENING PLENARY** "Nuclear Progress!"
10:00 AM – 2:00 PM	**SPOUSE/GUEST TOUR** "Shop 'Til You Drop at the Las Vegas Premium Outlet"
11:30 AM – 1:00 PM	**ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXHIBIT**
11:45 AM – 12:45 PM	**GREEN BAG LUNCH:** "Focus on Communications"
1:00 PM – 4:00 PM	**2010 ANS WINTER MEETING: TECHNICAL SESSIONS**
1:00 PM – 4:00 PM	**NPIC&HMIT 2010: OPENING PLENARY**
1:00 PM – 4:30 PM	**ISOTOPES FOR MEDICINE AND INDUSTRY: OPENING PLENARY**
1:30 PM – 2:45 PM	**TOFE: MEETING WELCOME AND ITER PLENARY**
3:30 PM – 5:30 PM	**TOFE: TECHNICAL SESSIONS** • ITER Special Session • Power Plant, Demo, and FNS Studies • Alternate and Nonelectric Concepts
4:00 PM – 6:00 PM	**2010 ANS WINTER MEETING: TECHNICAL SESSION**
4:00 PM – 6:00 PM	**STUDENT POSTER SESSION**
7:00 PM – 10:30 PM	**EVENING EVENT:** "Reception at the Atomic Testing Museum"

MONDAY, NOVEMBER 8, 2010, 1:30 P.M.

Meeting Opening and ITER Plenary

Session Chair: Farrokh Najmabadi *(UCSD)*

Capri 102
1:30 p.m.
MEETING OPENING, Farrokh Najmabadi

1:45–2:25 p.m.
ITER PLENARY
SPEAKER:
Progress in ITER Construction, Gary Johnson *(ITER)*

MONDAY, NOVEMBER 8, 2010, 3:30 P.M.

ITER Special Session

Session Chair: Clement Wong *(General Atomics)*

Royale Skybox 209
3:30 p.m.
Nuclear Shielding for the Toroidal Field Coils on ITER, M. J. Loughlin, E. Polunovskiy, M. Merola, S. Mori, R. Raffray, G. Sannazzaro *(ITER)*, M. Sawan *(Univ of Wisconsin, Madison)*, invited

3:50 p.m.
ITER's Tokamak Cooling Water System and the Use of ASME Codes to Comply with French Regulations for Nuclear Pressure Equipment, Jeanette (Jan) Berry, Juan Ferrada, Geroge Flanagan *(ORNL)*, Warren Curd, Giovanni Dell'Orco, Vladimir Barabash (ITER), invited

4:10 p.m.
Design of the ITER In-Vessel Coils, C. Neumeyer, L. Bryant, J. Chrzanowski, R. Feder, M. Gomez, C. Hause, P. Heitzenroder, A. Lipski, C. Mansfield, A. Salehzadeh, R. Simmons, P. Titus *(PPPL)*, E. Daly, G. Johnson, A. Martin, M. Nakahira *(ITER)*, R. Pillsbury *(Sherbrooke Consulting)*, J. Feng *(MIT)*, T. Bohm, M. Sawan *(Univ of Wisconsin, Madison)*, M. Schaffer *(General Atomics)*

4:25 p.m.
Nuclear Analysis of ITER ELM Coils, Tim D. Bohm, Mohamed E. Sawan *(Univ of Wisconsin, Madison)*

4:40 p.m.
Modeling and Simulation of the ITER First Wall/Blanket Primary Heat Transfer System, Emilian L. Popov *(ORNL)*, Alice Ying *(UCLA)*

4:55 p.m.
A New Plasma Wall Interaction Model for Safety Code AINA 2.0 for ITER Safety Studies, Jose-Carlos Rivas, Javier Dies *(UPC-Barcelona Tech)*

5:10 p.m.
Thermomechanical Performance of the EU TBMs Under a Typical ITER Transient, F. Cismondi *(KIT)*, G. Aiello *(CEA)*, S. Kecskes *(Budapest Univ Technol)*, G. Rampal *(CEA)*

Power Plant, Demo, and FNS Studies

Session Chair: Laila El-Guebaly *(Univ of Wisconsin, Madison)*

Royale Skybox 210
3:30 p.m.
Strategic Plan for the Fusion DEMO Program of Korea, Hyuck Jong Kim, Hyung Chan Kim *(NFRI)*, invited

3:50 p.m.
Fusion Nuclear Science Facility (FNSF) Before Upgrade to Component Test Facility (CTF), Y-K. M. Peng *(ORNL)*, FNSF-LQ Study Team *(FNSF-LQ)*, invited

4:10 p.m.
Fusion Nuclear Science Facility—Advanced Tokamak Option, C. P. C. Wong, V. S. Chan, A. M. Garofalo, J. A. Leuer *(General Atomics)*, M. E. Sawan *(Univ of Wisconsin, Madison)*, J. P. Smith, R.D. Stambaugh *(General Atomics)*

4:25 p.m.
Development of an Extreme Environment Materials Research Facility at Princeton, Adam Cohen, Charlie Gentile *(PPPL)*, Chris Tully *(Princeton Univ)*

4:40 p.m.
Development of an Integrated System Design Code for Nuclear Fusion Reactors, Y. Ogawa, Y. Miyoshi, M. Nakamura *(Univ of Tokyo)*, K. Okano, R. Hiwatari *(CRIEPI)*, K. Shinya *(Toshiba)*

4:55 p.m.
Development of a Visualization Tool for the ARIES Systems Code, Lane C. Carlson, Farrokh Najmabadi, Mark S. Tillack *(Univ of California, San Diego)*

5:10 p.m.
Development of a Simpler Stellarator Power Plant Design, T. Brown, M. Zarnstorff *(PPPL)*, L. Bromberg *(MIT)*, N. Pomphrey, L-P. Ku *(PPPL)*

Alternate and Nonelectric Concepts

Session Chair: Massimo Zucchetti *(DENER Politecnico)*

Royale Skybox 211
3:30 p.m.
Compact, Inexpensive Fusion Devices Using the Inertial Electrostatic Confinement Approach, G. L. Kulcinski, J. F. Santarius, R. L. Bonomo, E. C. Alderson, G. E. Becerra, D. C. Donovan, B. J. Egle, L. M. Garrison, M. Michalak, C. M. Shuff, S. J. Zenobia *(Univ of Wisconsin, Madison)*, invited

3:50 p.m.
Biomass-Fusion Power Plant System for Engineering Development, S. Konishi, K. Ibano, K. Noborio, Y. Yamamoto *(Kyoto Univ)*, invited

4:10 p.m.
An Energy Deposition Estimation for Deuteron Beam-Driven Fast Ignition of a Precompressed Inertial Confinement Fusion (ICF) Target, Xiaoling Yang, George H. Miley *(Univ of Illinois)*, Kirk A. Flippo *(LANL)*, Heinrich Hora *(Univ of New South Wales)*

4:30 p.m.
Driven Fission Research Reactor Using a Cylindrical Inertial Electrostatic Confinement (IEC) Neutron Source, George H. Miley *(Univ of Illinois)*

4:45 p.m.
Stellarator Configuration Improvement Using High Temperature Superconducting Monoliths, L. Bromberg *(MIT)*, T. Brown, M. Zarnstorff *(PPPL)*, A. Boozer *(Columbia Univ)*, P. Heitzenroeder *(PPPL)*, J. V. Minervini *(MIT)*, G. H. Neilson *(PPPL)*

5:00 p.m.
Results from the Six Ion Gun Fusion Experiment, Brian J. Egle, Matthew K. Michalak, John F. Santarius, Gerald L. Kulcinski *(Univ of Wisconsin, Madison)*

5:15 p.m.
Knock-on Tail Formation by Fusion-Produced Protons and Modification of Neutron Emission Spectrum in 3He-Containing Deuterium Plasmas, H. Matsuura *(Kyushu Univ)*, O. Mitarai *(Tokai Univ)*, M. Nakamura *(Univ of Tokyo)*, Y. Nakao *(Kyushu Univ)*

TOFE: Technical Sessions by Day: Tuesday

TUESDAY • NOVEMBER 9, 2010	
7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 9:30 AM	TOFE: NIF PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS
9:00 AM – 1:00 PM	SPOUSE/GUEST TOUR "Springs Preserve"
10:00 AM – 11:30 AM	TOFE: TECHNICAL SESSIONS • IFE Special Session—LIFE • Materials Development • Safety and Environment
11:30 AM – 1:00 PM	ANS HONORS AND AWARDS LUNCHEON
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
1:30 PM – 3:30 PM	TOFE: TECHNICAL SESSIONS • Divertor and High Heat Flux Components • Nuclear Systems: Analysis and Experiments • Magnets
3:30 PM – 5:30 PM	TOFE: POSTER SESSION—I
7:00 PM – 9:30 PM	NPIC&HMIT 2010: "Reception and Dinner"

TUESDAY, NOVEMBER 9, 2010, 8:30–9:30 A.M.

NIF Plenary

Session Chair: Farrokh Najmabadi *(UCSD)*

Grande Ballroom A
8:30 a.m.
NIF and Promise of Inertial Fusion Energy, Ed Moses *(LLNL)*

TUESDAY, NOVEMBER 9, 2010, 10:00 A.M.

IFE Special Session—LIFE and NIFE

Session Chair: Mark Tillack *(UCSD)*

Royale Skybox 209
10:00 a.m.
Laser Inertial Fusion Energy (LIFE)—Overview and Path to Delivery, Mike Dunne, E. I. Moses, T. Diaz de la Rubia, R. P. Abbott, S. Aceves, P. Amendt, T. Anklam, D. Badders, A. Bayramian *(LLNL)*, E. M. Beckett *(LLNL/Purdue Univ)*, C. Boley, A. Bullington, J. Caird, D. Chen, A. W. Cook, T. Damkroger, B. Debs, J. DeMuth, R. Deri, L. Divol, B. El-Dasher, A. Erlandson, J. C. Farmer, D. Flowers, M. Fratoni, R. Gilbert-O'Neil *(LLNL)*, T. Heltemes *(Univ of Wisconsin)*, M. Henesian, D. Ho, J. Kane, K. J. Kramer *(LLNL)*, R. Kramer *(Univ of Illinois)*, A. Lafuente *(LLNL/ETSI Industriales)*, J. F. Latkowski, R. F. Lehman, J. Lindl, G. A. Loosmore, K. Manes, W. Meier, R. Miles, W. Molander, K. R. Morris *(LLNL)*, G. A. Moses *(Univ of Wisconsin)*, B. Olson *(LLNL/Stanford Univ)*, C. Pantano *(Univ of Illinois)*, P. F. Peterson *(Univ of California, Berkeley)*, J. J. Powers *(LLNL/Univ of California)*, S. Powers, S. Reyes, M. Rhodes, K. Roe, R. Sawicki, K. Schaffers, H. Scott *(LLNL)*, J. E. Seifried *(LLNL/Univ of California, Berkeley)*, H. F. Shaw, A. Simon, M. Spaeth, S. Sutton, M. Tabak, J. M. Taylor, S. Telford, S. Wilks *(LLNL)*, invited

10:20 a.m.
Advanced Laser Technology for HiPER, John Collier, Klaus Ertel, Jean-Christophe Chanteloup, Joachim Heim, Chris Edwards, Anne-Marie Clarke, Graeme Hirst, Bruno Le Garec *(STFC)*, invited

10:40 a.m.
LIFE Pure-Fusion Target Designs: Status and Future Prospects, Peter Amendt, Mike Dunne, Darwin Ho, John Lindl *(LLNL)*

10:55 a.m.
Chamber-Blanket Design for the Laser Inertial Fusion-Based Energy (LIFE) Engine, Jeffery F. Latkowski, Ryan P. Abbott, Sal Aceves, Tom Anklam, Dan Badders, Andrew W. Cook, James DeMuth, Laurent Divol, Bassem El-Dasher, Joseph C. Farmer, Dan Flowers, Robin Gilbert-O'Neil *(LLNL)*, Thad Heltemes *(Univ of Wisconsin)*, Jave Kane, Kevin J. Kramer *(LLNL)*, Richard Kramer *(Univ of Illinois)*, Antonio Lafuente *(LLNL/ETSI Industriales)*, Gwendolen A. Loosmore, Kevin R. Morris *(LLNL)*, Gregory A. Moses *(Univ of Wisconsin)*, Britton Olson *(LLNL)*, Carlos Pantano *(Univ of Illinois)*, Susana Reyes, Mark Rhodes, Kevin Roe, Rick Sawicki, Howard Scott, Mary Spaeth, Max Tabak, Scott Wilks *(LLNL)*

11:10 a.m.
Challenges Surrounding the Injection and Arrival of Targets at LIFE Target Chamber Center, Robin Miles, Mary Spaeth, Ken Manes, Peter Amendt, Max Tabak *(LLNL)*, Ron Pezoldt, Neil Alexander *(General Atomics)*, Tiziana Bond, Sergei Kucheyev, Jeff Latkowski, Gwen Loosmore, Fady Najir, Kevin Baker, Jerome Solberg, Steve Hunter, Suhas Bhandarkar *(LLNL)*

11:25 a.m.
Fusion-Fission Blanket Options for the Laser Inertial Fusion-Based Energy (LIFE) Engine, Kevin J. Kramer, Jeffery F. Latkowski *(LLNL)*, Elizabeth M. Beckett *(LLNL/Purdue Univ)*, Massimiliano Fratoni *(LLNL)*, Antonio Lafuente *(LLNL/ETSI Industriales)*, Jeffrey J. Powers *(LLNL/Univ of California, Berkeley)*, Susana Reyes *(LLNL)*, Jeffrey E. Seifried *(LLNL/Univ of California, Berkeley)*, Janine M. Taylor *(Univ of California, Berkeley)*

11:40 a.m.
LIFE: The Case for Early Commercialization of Fusion Energy, Thomas Anklam, Aaron Simon, Wayne Meier, Sarah Powers *(LLNL)*

Materials Development

Session Chair: Yuichi Ogawa *(Univ of Tokyo)*

Royale Skybox 210
10:00 a.m.
Status of the U.S. Fusion Materials Science Research Program, Rick Kurtz *(PNNL)*, invited

10:20 a.m.
Midterm Summary of Japan-U.S. Fusion Cooperation Program TITAN, T. Muroga *(NIFS)*, D. K. Sze *(Univ of California, San Diego)*, K. Okuno *(Shizuoka Univ)*, T. Terai *(Univ of Tokyo)*, A. Kimura *(Kyoto Univ)*, R. Kurtz *(PNNL)*, A. Sagara *(NIFS)*, R. Nygren *(SNL)*, Y. Ueda *(Osaka Univ)*,

R. Doerner *(Univ of California, San Diego)*, P. Sharpe *(INL)*, T. Kunugi *(Kyoto Univ)*, N. Morley *(UCLA)*, Y. Hatano *(Toyama Univ)*, M. Sokolov *(ORNL)*, T. Yamamoto *(Univ of California, Santa Barbara)*, A. Hasegawa *(Tohoku Univ)*, Y. Katoh *(ORNL)*, N. Ohno *(Nagoya Univ)*, K. Tokunaga *(Kyushu Univ)*, S. Konishi *(Kyoto Univ)*, S. Fukada *(Kyushu Univ)*, P. Calderoni *(INL)*, T. Yokomine *(Kyushu Univ)*, K. Massadek *(UCLA)*, Y. Oya *(Shizuoka Univ)*, N. Hashimoto *(Hokkaido Univ)*, T. Hinoki *(Kyoto Univ)*, H. Hashizume *(Tohoku Univ)*, T. Norimatsu *(Osaka Univ)*, T. Shikama *(Tohoku Univ)*, R. Stoller *(ORNL)*, K.A. Tanaka *(Osaka Univ)*, M. Tillack *(Univ of California, San Diego)*, invited

10:40 a.m.
Vapor Pressure of Beryllides, J. Reimann *(KIT)*, O. Benes, J.-Y. Colle *(JRC-ITU, Karlsruhe)*, C. Dorn *(Brush Wellman Inc)*, H. Harsch *(GVT)*, P. Kurinskiy *(KIT)*

10:55 a.m.
Constitutive Modeling of the Irradiation Effect on SiC/SiC Composites Utilizing Ion Irradiation Technique, Tatsuya Hinoki, Takaaki Koyanagi, Sosuke Kondo *(Kyoto Univ)*

11:10 a.m.
Fracture Toughness of Advanced NSF Alloys for Fusion Applications, M. A. Sokolov, D. T. Hoelzer, L. Tan *(ORNL)*

11:25 a.m.
Thermal Aging Effect on HIP Joining of RAFM/RAFM, Duck Young Ku, Mu-Young Ahn, In-Keun Yu, Seungyon Cho *(NFRI)*, Seungjin Oh *(KHNP)*

11:40 a.m.
Effect of PWHT in Dissimilar Weld Joint with F82H and SUS316L Steels, S. Nogami, N. Hara *(Tohoku Univ)*, T. Nagasaka *(NIFS)*, A. Hasegawa *(Tohoku Univ)*, T. Muroga *(NIFS)*

Safety and Environment

Session Chair: Lee Cadwallader *(INL)*

Royale Skybox 211
10:00 a.m.
Challenges of Fusion Power Plant Licensing: Differences and Commonalities with Existing Systems, L. El-Guebaly *(Univ of Wisconsin, Madison)*, L. Cadwallader *(INL)*, W. Sowder *(Quality Management Services Inc)*, invited

10:20 a.m.
Post-Shot Radiation Environment Inside the Target Bay at the National Ignition Facility, S. Sitaraman, S. Brereton, L. Dauffy, J. Hall, L. Hansen, H. Khater, S. Kim, B. Pohl, J. Verbeke, M. Young *(LLNL)*, invited

10:40 a.m.
Radioactive Safety for ITER TBM Systems, M. Zucchetti *(Politecnico di Torino)*, L. Guerrini, Y. Poitevin, I. Ricapito, M. Zmitko *(F4E)*

10:55 a.m.
Successive Volume Reduction of Hydrogen-Isotopic Gaseous Waste by Pressure Swing Adsorption Using SZ-13 Column, K. Kotoh *(Kyushu Univ)*, M. Tanaka *(NIFS)*, T. Tsuge, S. Moriyama, S. Takashima *(Kyushu Univ)*, Yamato Asakura, T. Uda *(NIFS)*, T. Sugiyama *(Nagoya Univ)*

11:10 a.m.
Safety Implications of Dust Particle Size Distributions, Paul W. Humrickhouse, J. Phil Sharpe *(INL)*

11:25 a.m.
Studies on Permeation Behavior of Tritium in Cooling Piping Material, Yasuhisa Oya, Wanjing Wang, Rie Kurata, Makoto Kobayashi *(Shizuoka Univ)*, Masao Matsuyama *(Univ of Toyama)*, Takumi Hayashi, Toshihiko Yamanishi *(JAEA–Japan)*, Yamato Asakura *(NIFS)*, Kenji Okuno *(Shizuoka Univ)*

11:40 a.m.
Personnel Dose Assessment at the PRIMA Neutral Beam Test Facility, Sandro Sandri, Marco D'Arienzo *(ENEA)*, A. Daniele *(RFX)*, A. Coniglio *(FBF Rome)*, Luigi Di Pace, M. Pillon *(ENEA)*

TUESDAY, NOVEMBER 9, 2010, 1:30–3:30 P.M.

Divertor and High Heat Flux Components

Session Chair: Satoshi Konishi *(Kyoto Univ)*

Royale Skybox 209
1:30 p.m.
Prediction of Critical Heat Flux in Plasma-Facing Components Using Computational Fluid Dynamics, D. L. Youchison, M. A. Ulrickson, J. H. Bullock *(SNL)*, invited

1:50 p.m.
Pushing the Limits of He-Cooled High Heat Flux Materials and Components, M. S. Tillack, X. R. Wang, D. Navaei, J. Burke *(Univ of California, San Diego)*, S. Malang *(Consultant)*, invited

2:10 p.m.
High Performance Divertor Target Concept for a Power Plant: A Combination of Plate and Finger Concepts, X. R. Wang *(Univ of California, San Diego)*, S. Malang *(Consultant)*, M. S. Tillack *(Univ of California, San Diego)*

2:30 p.m.
W-Based Alloys for Advanced Divertor Designs: Options and Environmental Impact of State-of-the-Art Alloys, L. El-Guebaly *(Univ of Wisconsin, Madison)*, R. Kurtz *(PNNL)*, M. Rieth *(KIT)*, H. Kurishita *(Tohoku Univ)*, A. Robinson *(Univ of Wisconsin, Madison)*

2:45 p.m.
Experimental and Numerical Investigation of Fin Enhancement for Gas-Cooled Divertor Concepts, B. Mills, J. Rader, D. L. Sadowski, M. Yoda, S. I. Abdel-Khalik *(Georgia Tech)*

3:00 p.m.
Design and Fabrication of a Flat-Plate Multichannel He-Cooled Refractory HX for Divertor Applications, Shahram Sharafat, Aaron Takeo Aoyama, Nasr M. Ghoniem *(UCLA)*, Brian Williams *(Ultramet Inc)*

3:15 p.m.
Divertor Design and Simulated Experiment for the Biomass-Fusion Hybrid Reactor GNOME, Kenzo Ibano, Yasushi Yamamoto, Satoshi Konishi *(Kyoto Univ)*

Nuclear Systems: Analysis and Experiments

Session Chair: Michael Loughlin *(ITER)*

Royale Skybox 210
1:30 p.m.
Status of Fusion Neutronics Predictive Capabilities, M. E. Sawan, P. P. H. Wilson, T. D. Bohm, B. Smith, A. Ibrahim *(Univ of Wisconsin, Madison)*, invited

1:50 p.m.
Neutronics Analysis of the ITER Generic Diagnostic Upper Port Plug Using ATTILA, Russell Feder *(PPPL)*, Mahmoud Youssef *(UCLA)*, invited

2:10 p.m.
Global Evaluation of Prompt Dose in ITER Using Hybrid Monte Carlo/Deterministic Technique, A. M. Ibrahim *(Univ of Wisconsin, Madison)*, S. W. Mosher, T. M. Evans, D. E. Peplow *(ORNL)*, M. E. Sawan, P. P. H. Wilson *(Univ of Wisconsin, Madison)*, J. C. Wagner *(ORNL)*

2:25 p.m.
Measurement of Reaction Rates in Li/V-Alloy Assembly with 14-MeV Neutron Irradiation, T. Tanaka *(NIFS)*, S. Sato, K. Kondo, K. Ochiai *(JAEA)*, I. Murata *(Osaka Univ)*, K. Takakura *(JAEA)*, F. Sato *(Osaka Univ)*, W. Kada *(JAEA)*, T. Iida *(Osaka Univ)*, C. Konno *(JAEA)*, T. Muroga *(NIFS)*

2:40 p.m.
Neutronics Analysis in Support of the Fusion Development Facility Design Evolution, M. E. Sawan, A. M. Ibrahim, P. P. H. Wilson, E. P. Marriott *(Univ of Wisconsin, Madison)*, R. D. Stambaugh, C. P. C. Wong *(General Atomics)*

2:55 p.m.
Measurements of Decay Heat Produced in Materials Irradiated with D-T Neutrons: Comparison with EASY-2007 Code Predictions, M. Pillon, M. Angelone *(EURATOM/ENEA Fusion Assoc)*, S. Sandri *(ENEA IONIRP)*

3:10 p.m.
Adjoint-Based Uncertainty Analysis for Essential Reactions in a Laser Inertial Fusion Engine, Jeffrey E. Seifried *(Univ of California, Berkeley/LLNL)*, Massimiliano Fratoni, Kevin J. Kramer, Jeffery F. Latkowski *(LLNL)*, Per F. Peterson *(Univ of California, Berkeley)*, Jeffrey Powers *(Univ of California, Berkeley/LLNL)*, Janine M. Taylor *(LLNL)*

Magnets

Session Chair: Thomas Brown *(PPPL)*

Royale Skybox 211
1:30 p.m.
Structural Optimization of In-Vessel Coil Support System for JET, M. Mardenfeld *(PPPL)*, R. Baker *(EFDA-CSU)*, M. Cole *(ORNL)*, R. Crowe, C. G. Lowry *(EFDA-CSU)*, G. H. Neilson *(PPPL)*, V. Thompson *(EFDA-CSU)*, I. Zatz *(PPPL)*, invited

1:50 p.m.
Status of HT Superconducting Magnet Development, L. Bromberg *(MIT)*, invited

2:10 p.m.
Integration of the ITER In-Vessel Coil System, A. Martin, E. Daly *(ITER)*, P. Heitzenroeder *(PPPL)*, invited

2:25 p.m.
Design Progress on the High-Temperature Superconducting Coil Option for the LHD-Type Fusion Energy Reactor FFHR, Nagato Yanagi *(NIFS)*, Gourab Bansal *(Inst Plasma Research)*, Romain Champailler *(Institut National des Sciences et Techniques Nucléaires)*, Toshiyuki Mito, Hitoshi Tamura *(NIFS)*, Shinsaku Imagawa, Akio Sagara *(Inst Plasma Research)*

2:40 p.m.
A Fundamental Research of Mechanical Lap Joint of High-Temperature Superconducting Conductor, Yoshiko Uchida, Satoshi Ito, Hidetoshi Hashizume *(Tohoku Univ)*

2:55 p.m.
Investigation on HTS Cable-in-Conduit Conductor for Fusion Magnets, M. Takayasu *(MIT PSFC)*, J. V. Minervini *(MIT)*, L. Bromberg *(MIT PSFC)*

3:10 p.m.
Centerstack and Magnets for NSTX Upgrades, J. H. Chrzanowski, L. Dudek, C. Neumeyer, P. Titus, B. Paul, L. Morris, R. Upcavage *(PPPL)*

TUESDAY, NOVEMBER 9, 2010, 3:30–5:30 P.M.

Poster Session—I

Session Chairs: Paul Humrickhouse *(INL)*, Kazuo Tanaka *(Osaka Univ)*

Grande Ballroom A
3:30 p.m.

Experiments, Alternate Concepts, and Magnets

Mock-up Divertor of KTM Tokamak on the Base of Lithium CPS, I. Tazhibayeva *(NNC RK)*, I. Lyublinski, A. Vertkov *(FSUE)*, V. Lazarev, A. Azizov *(TRINITI)*, G. Mazzitelli, P. Agostini *(ENEA)*

Experimental Investigation of the Beam Extraction Performance of the KSTAR NBI Ion Source, K. W. Lee, S. H. Jeong, T. S. Kim, D. H. Chang, B. H. Oh, S. R. In, J. T. Jin, D. S. Chang, C. S. Seo *(KAERI–Korea)*, J. Kim *(ProScience)*, K. Watanabe, T. Inoue, M. Dairaku, H. Tobari, M. Kashiwagi, M. Hanada *(JAEA)*

TOFE: Technical Sessions by Day: Tuesday

Analysis Efforts Supporting NSTX Upgrades, H. Zhang, P. Titus, P. Rogoff, A. Zolfaghari, D. Mangra, M. Smith *(PPPL)*

Numerical Study of Ion Recirculation in an Improved Spherical Inertial Electrostatic Confinement Fusion Scheme by Use of a Multistage High-Voltage Feedthrough, Kai Masuda, Yu Yamagaki, Taiju Kajiwara, John Kipritidis, Kazunobu Nagasaki *(Kyoto Univ)*

Hydrogen Production Process from Woody Biomass Using Nuclear Fusion Heat, Kazuya Oyama, Kazuyuki Noborio, Yuto Takeuchi, Yasushi Yamamoto, Satoshi Konishi *(Kyoto Univ)*

Analysis of NSTX Upgrade OH Magnet and Centerstack, A. Zolfaghari, P. Titus, J. Chrzanawski, A. Salehzadeh, F. Dahlgren *(PPPL)*

Plasma Engineering, Diagnostics, and Machine Assembly

A Technique for Producing Large Dual-Layer Pellets in Support of Disruption Mitigation Experiments on DIII-D, S. K. Combs *(ORNL)*, J. W. Leachman *(Univ of Wisconsin, Madison)*, S. J. Meitner, L. R. Baylor, N. Commaux, T. C. Jernigan *(ORNL)*

Development of PC-Based Control System in JT-60SA, Yoichi Kawamata, Toru Sugimura, Taiji Yamaguchi, Michiharu Sueoka, Shinya Sakata, Toshiyuki Totsuka, Minoru Sato, Toshiharu Kominato, Osamu Naito *(JAEA)*

Architecture Plan of the Real-Time Diagnostic Signals Acquisition System Toward JT-60SA Project, Shinya Sakata *(JAEA)*, Michiharu Sueoka, Yoichi Kawamata, Taiji Yamaguchi, Toru Sugimura, Toshiyuki Totsuka, Minoru Sato, Toshiharu Kominato, Osamu Naito *(JAEA)*

Operation of the New Ohmic Heating Power System for the Lithium Tokamak Experiment (LTX), T. A. Kozub, R. Majeski, R. Kaita, G. Rossi, R. Woolley, L. Berzak *(PPPL)*

Development of a Compact Diagnostic System for Monitoring Hard X-Rays, Y. S. Lee *(NFRI)*, U.W. Nam *(Korea Astronomy Space Sci Inst)*, A. C. England, Z. Y. Chen, J. W. Yoo, W. C. Kim, Y. K. Oh *(NFRI)*

Improvement of Proton Collimation System for Measurement of Spatial Distributions of Fusion Reactions in an Inertial Electrostatic Confinement Device, Taiju Kajiwara, John Kipritidis, Kai Masuda, Yu Yamagaki, Kazunobu Nagasaki *(Kyoto Univ)*

Development of the Lead-Lithium High-Temperature Ultrasonic Velocimetry, Y. Ueki *(Kyoto Univ)*, M. Hirabayashi *(JAEA)*, T. Kunugi *(Kyoto Univ)*, K. Nagai, J. Saito, K. Ara *(JAEA)*, N. B. Morley *(UCLA)*

IFE Technology

Planning Tools for Estimating Radiation Exposure at the National Ignition Facility, J. Verbeke *(LLNL)*, M. Young *(Oregon State Univ)*, S. Brereton, L. Dauffy, J. Hall, L. Hansen, H. Khater, S. Kim, B. Pohl, S. Sitaraman *(LLNL)*

Waste Management Assessment of Candidate Materials for HiPER Reaction Chamber, R. Juárez *(Inst Nucl Fusion)*, J. Sanz *(Univ Nacional Educación a Distancia)*, J. M.l Perlado *(Inst Nucl Fusion)*

Electron-Ion-Radiation Coupling Benchmarks for Verification of HEDP/IFE Codes, Ryan G. McClarren, Daniel A. Holladay *(Texas A&M)*

Gas Fill Intervention in an IFE Target Chamber, C. A. Gentile, W. Blanchard, T. Kozub, M. Aristova, S. Natta *(PPPL)*

Nuclear Analysis

Transmutation and Property Change of Tungsten Alloys Under Neutron Irradiation, Takashi Tanno *(Tohoku Univ)*, Teruya Tanaka *(NIFS)*, Shuhei Nogami, Akira Hasegawa *(Tohoku Univ)*

Investigation of Observed Peaking in Nuclear Parameters at Steel/Water Interfaces, T. D. Bohm, M. E. Sawan, B. Smith, P. P. H. Wilson *(Univ of Wisconsin, Madison)*

Assessment of the Surface Source Approach in 3-D Neutronics Analysis for Fusion Systems, T. D. Bohm, B. Smith, M. E. Sawan, P. P. H. Wilson *(Univ of Wisconsin, Madison)*

Neutronic Analyses for the Upper Ports in the Neutral Beam Cell of ITER, A. Serikov, U. Fischer, D. Grosse *(KIT)*, M. J. Loughlin *(ITER)*, M. Majerle, S. Schreck, P. Spaeh, D. Strauss *(KIT)*

Activation and Radiation Damage Characteristics of W-Based Divertor of ARIES Power Plants, A. Robinson, L. El-Guebaly, D. Henderson *(Univ of Wisconsin, Madison)*

Rigorous Evaluation of Biological Dose for Fusion Systems and Comparison with Approximate Contact Dose Approach, A. Robinson, L. El-Guebaly, D. Henderson *(Univ of Wisconsin, Madison)*

Neutronic Studies for a High-Field Tokamak Neutron Source, Massimo Zucchetti *(Politecnico di Torino/MIT)*, Zachary S. Hartwig *(MIT)*

Neutron Activation Evaluations for an Advanced-Fuel Fusion Device, Massimo Zucchetti *(Politecnico di Torino/MIT)*

Neutronics Analysis of the Divertor Interferometer Diagnostics Inside the Lower Port #8 Plug of ITER with ATTILA 3-D CAD-Based FEM Code, Mahmoud Z. Youssef *(UCLA)*, Russell Feder *(PPPL)*, Mohamed Dagher, Aaron Aoyama *(UCLA)*

Activation Analysis for a DEMO Fusion Reactor Based on a He/LiPb Dual Coolant Blanket Concept, J. P. Catalán *(ETSII UNED)*, F. Ogando, J. Sanz *(ETSII UNED/Instituto de Fusion Nuclear)*, L. Sedano *(CIEMAT)*

Neutronic Analysis of Breeder Unit Adopting Korean Helium-Cooled Solider Breeder TBM Concept, Sunghwan Yun, Nam Zin Cho *(KAIST)*, Mu-Young Ahn, Seungyon Cho *(NFRI)*

TOFE: Technical Sessions by Day: Tuesday/Wednesday

Safety and Environment

Tritium Bubbler Operating Experience Review, L. C. Cadwallader, S. A. Bruyere, B. J. Denny *(INL)*

Classification of ITER Tokamak Cooling Water System in Accordance with French Regulations Concerning Pressure and Nuclear Pressure Equipment, Fan Li, Vladimir Barabash, Warren Curd, Giovanni Dell'Orco, Babulal Gopalapillai, Keun-Pack Chang, Steve Ployhar, Fabio Somboli *(ITER)*

Safety Analyses for an Advanced-Fuel Fusion Device, Massimo Zucchetti *(Politecnico di Torino/MIT)*, Mattia Massone *(Politecnico di Torino)*

A Channel Facility for ITER Safety Relevant Dust Mobilization Studies, V. Cocilovo, R. De Angelis, M. T. Porfiri *(ENEA UTS FUS-TEC)*

Computational Tools and Validation Experiments

Tritium Transport in Poloidal Flows of a DCLL Blanket, M. J. Pattison *(HyPerComp Inc)*, S. Smolentsev *(UCLA)*, R. Munipalli *(HyPerComp Inc)*, M. A. Abdou *(UCLA)*

Multidimensional Radiation Hydrodynamic Simulation on Laser Ablated Plume, A. Sunahara *(Inst Laser Technol)*, S. Misaki, K. A. Tanaka *(Osaka Univ)*

Modeling of Tritium Transport in PbLi Breeder Blankets, H. Zhang, A. Ying, M. Abdou *(UCLA)*, B. Merrill *(INL)*

A New Simulation Platform Based on the Kepler and Scicos Open-Source Software for the Design and Qualification of Tokamak Control Algorithms: First Test Case Results, Oliviero Barana *(IRFM-CEA Cadarache)*, Cédric Boulbe *(Univ de Nice Sophia-Antipolis)*, Sylvain Brémond *(IRFM-CEA Cadarache)*, Simone Mannori *(INRIA Rocquencourt)*, Philippe Jacques Moreau, Nathalie Ravenel *(IRFM-CEA Cadarache)*

ITER Safety Studies: Benchmarking of the Safety Code AINA 2.0, Jose-Carlos Rivas, Javier Dies *(UPC-BarcelonaTech)*

Development of A-LITE Model for Use in ATTILA Radiation Transport Finite Element Analysis of Lower Divertor Region, Aaron T. Aoyama, Mohamad Dagher *(UCLA)*, Russell Feder *(PPPL)*, Mahmoud Youssef *(UCLA)*

Application of PACTITER v3.3 to the ACPs Assessment of ITER Neutral Beam Injectors Primary Heat Transfer System, Luigi Di Pace *(EURATOM/ENEA Fusion Assoc)*, Dario Carloni *(Università di Pisa)*, Lorenzo Perna *(F4E)*, Sandro Paci *(Università di Pisa)*

Design and Operation of PbLi Circulation System for Tritium Permeation Test Under Neutron Irradiation, Akihiro Suzuki, Masaru Nagura, Juro Yagi, Daisuke Komiyama, Takayuki Terai *(Univ of Tokyo)*

Experimental Investigation on Anisotropic Effective Thermal Conductivity of Pebble Bed, Takehiko Yokomine, Shohei Hayashikawa, Bunphet Bongkot *(Kyushu Univ)*

Experimental Study of the First Wall Cooling with Gas Loop for Developing the Korean Test Blanket Module, Jun-Soo Lee *(Seoul Natl Univ)*, Dong-Won Lee *(KAERI)*, Goon-Cherl Park *(Seoul Natl Univ)*

WEDNESDAY • NOVEMBER 10, 2010

7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 9:30 AM	TOFE: VELIKHOV PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS
10:00 AM – 11:30 AM	TOFE: TECHNICAL SESSIONS • Materials and Plasma-Material Interactions • In-Vessel Components—I (FW, BL, Shield, and VV) • IFE Designs and Technology
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
1:30 PM – 3:30 PM	TOFE: TECHNICAL SESSIONS • In-Vessel Components—II (FW, BL, Shield, and VV) • Computational Tools, Modeling, and Validation • Fusion Technologies: Fabrication, Maintenance, Fueling, and Diagnostics
3:30 PM – 5:30 PM	TOFE: POSTER SESSION—II
4:30 PM – 6:30 PM	FOCUS ON COMMUNICATIONS WORKSHOP
6:30 PM – 10:00 PM	EVENING EVENT: "Barbra & Frank: The Concert That Never Was"

WEDNESDAY, NOVEMBER 10, 2010, 8:30–9:30 A.M.

Velikhov Plenary

Session Chair: Alvin Trivelpiece *(Consultant)*

Grande Ballroom A

8:30 a.m.

Fusion—Promise, Progress, and Problems, E. P. Velikhov *(Retired, Kurchatov Inst)*

WEDNESDAY, NOVEMBER 10, 2010, 10:00 A.M.

Materials and Plasma-Material Interactions

Session Chair: Dennis Youchison *(SNL)*

Royale Skybox 209

10:00 a.m.

Carbon Plume Stagnation: Platform for Vapor Shield Study, K. A. Tanaka, T. Kono, S. Misaki, T. Ohishi, M. Osada *(Osaka Univ)*, A. Sunahara *(Inst Laser Technol)*, Y. Hirooka *(NIFS)*, invited

10:20 a.m.

Irradiation Creep in Silicon Carbide: Experimental Results from TITAN Program and Implications to Stress Evolution in Flow Channel Inserts for Fusion Liquid Metal Blankets, Yutai Katoh, Lance L. Snead *(ORNL)*, Akira Hasegawa, Shuhei Nogami *(Tohoku Univ)*, Tatsuya Hinoki *(Kyoto Univ)*, Youngbum Choi *(Hiroshima Univ)*

10:40 a.m.

Damage and Lifetime Analysis of Plasma Instabilities on Tokamak's Plasma Facing Components, Filippo Genco, Ahmed Hassanein *(Purdue Univ)*

10:55 a.m.
Surface Pore Formation in Helium Implanted Fine-Grain Tungsten and Tungsten Needles as Engineered First Wall and Divertor Plate Materials, Samuel J. Zenobia, Lauren M. Garrison, Gerald L. Kulcinski *(Univ of Wisconsin, Madison)*

11:10 a.m.
Surface Defect Formation Mechanisms Due to He and He/H Plasmas Interacting with Tungsten, Karl D. Hammond *(Univ of California, Berkeley/Univ of Tennessee)*, Faiza Sefta *(Univ of California, Berkeley)*, Niklas Juslin, Brian D. Wirth *(Univ of California, Berkeley/Univ of Tennessee)*

11:25 a.m.
The PFC Erosion in DEMO Due to Runaway Impact, Y. Igitkhanov, B. Bazylev *(KIT)*

11:40 a.m.
Stress Analysis for Assessment of Suitable Beryllium Tile Size in ITER First Wall, Ryan Hunt, Alice Ying *(UCLA)*, Michael A. Ulrickson *(SNL)*

In-Vessel Components—I (FW, BL, Shield, and VV)

Session Chair: Mohamed Sawan *(Univ of Wisconsin, Madison)*

Royale Skybox 210
10:00 a.m.
Development of the Dual Coolant Lead lithium (DCLL) Blanket Concept, S. Malang *(Consultant)*, M. Tillack *(Univ of California, San Diego)*, C. P. C. Wong *(General Atomics)*, N. Morley *(UCLA)*, invited

10:20 a.m.
Assessment of the DCLL TBM Thermostructural Response Using ITER Design Criteria, Shahram Sharafat, Aaron T. Aoyama, Nasr M. Ghoniem *(UCLA)*

10:40 a.m.
Electromagnetic Analysis of Forces and Torques on Selected Components of the ITER Blanket System due to Plasma Disruption, J. D. Kotulski, R. S. Coats, M. F. Pasik, M. Ulrickson *(SNL)*

10:55 a.m.
Study on the Optimization of the ITER Tokamak Cooling Water System, Giovanni Dell'Orco, Warren Curd, Fabien Berruyer *(ITER)*, Jan Berry, Seokho Kim, Roy Shearin, Juan Ferrada *(US ITER)*

11:10 a.m.
Novel Solution for the Problem of Neutron Streaming Through Inboard Assembly Gaps of ARIES Tokamak Power Plants, Tim D. Bohm, Laila A. El-Guebaly *(FTI)*

11:25 a.m.
Thermofluid Simulation in a Liquid Metal Blanket with Three-Surface-Multi-Layered Channel, Mitsuhiro Aoyagi, Satoshi Ito, Shinji Ebara, Hidetoshi Hashizume *(Tohoku Univ)*, Takeo Muroga *(NIFS)*

11:40 a.m.
Study on Compatibility Between SiC and Solid Breeding Materials Irradiated in HFIR, H. Katsui, A. Hasegawa *(Tohoku Univ)*, Y. Katoh *(ORNL)*, T. Hinoki *(Kyoto Univ)*, S. Nogami *(Tohoku Univ)*, T. Tanaka *(NIFS)*, T. Shikama *(Tohoku Univ)*

IFE Designs and Technology

Session Chair: Jeff Latkowski *(LLNL)*

Royale Skybox 211
10:00 a.m.
Compact, Efficient Laser Systems Required to Harness the Power of the Sun, A. Bayramian, C. Boley, A. Bullington, D. Chen, R. Deri, A. Erlandson, M. Henesian, K. Manes, W. Molander, K. Schaffers, M. Spaeth, S. Sutton, S. Telford, J. Caird *(LLNL)*, invited

10:20 a.m.
New Opportunities for IFE in the Pulsed Power ICF Program on the Refurbished Z Facility, M. E. Cuneo, D. Ampleford, B. Atherton, G. Chandler, P. Christenson, B. Cipiti, J. Cook, G. Cooper, S. Durbin, A. Edens, D. Flicker, W. Fowler, S. Hansen, H. Hanshaw, D. Hanson, G. Heffelfinger, M. Herrmann, C. Jennings, B. Jones, M. Jones, D. Laampa, K. LeChein, G. Leifeste, R. Lemke, R. Leeper, A. Lopez, M. Lopez, M. K. Matzen, M. Mazarakis, R. McBride, J. McKenney, T. Mehlhorn, C. Morrow, C. Nakhleh, C. Olson, K. Peterson, T. Pointon, J. Porter, M. Savage, A. Sefkow, D. Sinars, S. Slutz, W. Stygar, S. Rosenthal, D. Rovang, G. A. Rochau, G. E. Rochau, C. Ruiz, T. Renk, L. Schneider, D. Seidel, I. Smith, J. P. VanDevender, R. Vesey, E. Waisman, W. Weed, J. Woodworth *(SNL)*

10:40 a.m.
Study of the Effect of Neutrons on Electronics at the National Ignition Facility, Lucile Dauffy, James Mcnaney *(LLNL)*

10:55 a.m.
Investigation of Liquid Film Flow on Chamber Ceiling of Laser-Fusion Reactor, Kunihiro Yamamoto, Zensaku Kawara, Tomoaki Kunugi *(Kyoto Univ)*, Takayoshi Norimatsu *(Osaka Univ)*

11:10 a.m.
Materials Research for HiPER Laser Fusion Facilities: Chamber Wall, Blanket, Structural Material and Final Optics, J. Alvarez, A. Rivera, R. Gonzalez-Arrabal, D. Garoz, E. del Rio, J. M. Perlado *(UPM)*

11:25 a.m.
Textured Coatings as First-Wall Materials: Exposure to Energetic Ions on RHEPP-1, T. J. Renk *(SNL)*, Brian Williams *(Ultramet)*

11:40 a.m.
Nanoscale Issues in Advanced Materials for Inertial Fusion Technology, Santiago Cuesta-Lopez, M. Victoria, J. M. Perlado *(Inst Nucl Fusion)*

WEDNESDAY, NOVEMBER 10, 2010, 1:30 P.M.

In-Vessel Components—II (FW, BL, Shield, and VV)

Session Chair: Jake Blanchard *(Univ of Wisconsin, Madison)*

Royale Skybox 209
1:30 p.m.
Recent Progress of CLAM Steel and DRAGON Series LiPb Loops in China, Qunying Huang, Yican Wu *(Inst Plasma Physics, Chinese Academy of Sciences/Univ of Science and Technol of China)*, Qingsheng Wu, Chunjing Li, Zhiqiang Zhu, Shaojun Liu, S. Gao, Bo Huang, Yong Song, Songlin Liu *(Inst Plasma Physics, Chinese Academy of Sciences)*, invited

1:50 p.m.
Effects of Radial Variation of the Magnetic Field on the Pressure Distribution in the European Liquid-Metal Blanket Concept, Leo Bühler, Chiara Mistrangelo *(KIT)*, invited

2:10 p.m.
Direct Simulation and Experiment Compare Study on MHD Flow in Pb-17Li Blanket with Flow Channel Insert, Ming-Jiu Ni, Shi-Jing Xu, Zeng-Hui Wang *(Chinese Academy of Sciences)*

2:25 p.m.
High-Temperature Operation of LiPb Loop, K. Noborio, Y. Yamamoto, C. Park, Y. Takeuchi, S. Konishi *(Kyoto Univ)*

2:40 p.m.
Neutral Beam Armor for NSTX Upgrades, K. Tresemer, T. Stevenson, C. Priniski, J. Winkleman, L. Bryant *(PPPL)*

2:55 p.m.
Innovative First Wall Concept Providing Additional Armor at High Heat Flux Regions, X. R. Wang *(Univ of California, San Diego)*, S. Malang *(Consultant)*, M. S. Tillack *(Univ of California, San Diego)*

3:10 p.m.
Ratcheting Models for Fusion Component Design, James P. Blanchard, Carl J. Martin *(Univ of Wisconsin, Madison)*, Mark Tillack, Xueren Wang *(Univ of California, San Diego)*

Computational Tools, Modeling, and Validation

Session Chair: Shahram Sharafat *(UCLA)*

Royale Skybox 210
1:30 p.m.
RAMI Analysis for Designing an Optimized Tokamak Cooling Water System (TCWS) for the ITER's Fusion Reactor, J. J. Ferrada, W. T. Reiersen *(ORNL)*, invited

1:50 p.m.
Approach to Integrated Modeling for Corrosion/Deposition and Tritium Transport in Liquid-Metal Blankets and Its Application to DCLL Blanket, S. Smolentsev, M. Abdou *(UCLA)*, S. Malang *(Consultant)*, R. Moreau *(Laboratoire SIMAP/EMP)*, N. Morley *(UCLA)*, R. Munipalli *(HyPerComp Inc)*, A. Ying *(UCLA)*

2:10 p.m.
Simulation of Evolution of the Inertial Fusion Energy Chamber Environment, Robert Martin, Farrokh Najmabadi *(Univ of California, San Diego)*

2:25 p.m.
Development of a Numerical Tool to Simulate Magneto-Hydrodynamic Interactions of Liquid Metals with Strong Applied Magnetic Fields, Chiara Mistrangelo, Leo Bühler *(KIT)*

2:40 p.m.
Numerical Simulation on Anisotropic Effective Thermal Conductivity of Pebble Bed, Bunphet Bongkot, Takehiko Yokomine *(Kyushu Univ)*

2:55 p.m.
Aerosol Formation by Colliding Ablation Plumes in Inertial Confinement Reactors, Y. Hirooka *(NIFS)*, M. Osada, T. Oishi, T. Kohno, K. A. Tanaka *(Osaka Univ)*

3:10 p.m.
Mathematical Simulation of Diffusion Processes in Lithium Titanate Under Neutron Irradiation, I. Tazhibayeva *(IAE NNC RK)*, I. Beckman *(Moscow State Univ)*

Fusion Technologies: Fabrication, Maintenance, Fueling, and Diagnostics

Session Chair: Charles Neumeyer *(PPPL)*

Royale Skybox 211
1:30 p.m.
Welding Last Advances in 2010 for Fusion Energy Material, P. Aubert *(CEA)*, M. Rieth *(FzK)*, F. Tavassoli *(CEA)*, E. Diegele *(F4E)*, invited

1:50 p.m.
Evaluation of the Electroforming Technique for IFMIF-EVEDA Beam Dump Manufacturing, F. Arranz, B. Brañas *(CIEMAT)*, M. Busch *(Galvano-T)*, M. Gonzalez, A. Muñoz *(CIEMAT)*, B. Scepaniack *(Galvano-T)*, L. Castro, P. Galán, D. Iglesias, J. Lapeña, I. Rucandio, D. Plaza *(CIEMAT)*

2:10 p.m.
Design Study of Remote Handling System for Lower Divertor Cassettes in JT-60SA, T. Hayashi, S. Sakurai, K. Shibanuma, A. Sakasai *(JAEA)*

2:25 p.m.
Design of Tritium Collection System from LiPb and LiPb Dropping Experiment, Yasushi Yamamoto, Mai Ichinose, Kasuyuki Noborio, Satoshi Konishi *(Kyoto Univ)*

2:40 p.m.
Development of SiCf/SiC Composites with High Thermal Conductivity for Fusion Reactor, Youngju Lee, Yihyun Park, Tatsuya Hinoki *(Kyoto Univ)*

2:55 p.m.
Modeling of an Ablation-Free Electrothermal Plasma Pellet Accelerator, A. L. Winfrey *(NCSU)*, M. A. Al-Halim *(Benha Univ)*, J. G. Gilligan, M. A. Bourham *(NCSU)*

3:10 p.m.
Visco-Plastic Flow Predictions of Solidified Deuterium-Tritium Mixtures, J. W. Leachman *(Univ of Wisconsin, Madison/Washington State Univ)*

WEDNESDAY, NOVEMBER 10, 2010, 3:30–5:30 P.M.

Poster Session—II

Session Chairs: Takeo Muroga *(NIFS)*, Minami Yoda *(Georgia Tech)*

3:30 p.m.
Grande Ballroom A
ITER

Thermohydraulic Performance Analysis for Conceptual Design of ITER Blanket Shield Block, Duck-Hoi Kim, Byoung-Yoon Kim, Byoung-Chul Kim, Hee-Jae Ahn, Joo-Shik Bak *(NFRI)*, F. Zhang, R. Raffray *(ITER)*, G. D. Loesser *(PPPL)*

Thermal Transfer of Helium Cooled, Roughened Surfaces for Fusion Test Blanket, J. Tipton *(Univ of Evansville)*, A. Lumsdaine *(ORNL)*, M. Sawan, E. Marriott *(Univ of Wisconsin, Madison)*, M. Dagher *(UCLA)*, C. Wong *(General Atomics)*

Optimizing ITER Power Supplies Operation Through RAMI and Standardization, François Sagot, Didier van Houtte, Katsumi Okayama, Inho Song, Joel Hourtoule *(ITER)*

Performance Test of the Electromagnetic Pump in an Experimental Liquid Breeder Loop for Developing the KO Test Blanket Module, Jae-Sung Yoon, Dong Won Lee, Young-Dug Bae, Suk Kwon Kim *(KAERI–Korea)*

Multicycle Performance of Air Detritiation Dryer Packed with Silica Gel, Yasunori Iwai, Toshihiko Yamanishi *(JAEA–Japan)*

New Design of The ITER Vacuum Vessel Cooling System, Juan J. Carbajo, Graydon L. Yoder, Seokho H. Kim *(ORNL)*

Critical Design Issues of the Tokamak Cooling Water System of ITER's Fusion Reactor, Seokho H. Kim, Jeanette B. Berry *(ORNL)*

High Heat Flux Test of the KO Standard Mockups for ITER First Wall Semi-Prototype, Suk-Kwon Kim, Dong Won Lee, Young-Dug Bae, Jae-Sung Yoon, Hyun-Kyu Jung, Yang-Il Jung, Jeong-Yong Park, Yong-Hwan Jeong *(KAERI)*, Byoung Yoon Kim *(NFRI)*

Small Mock-up Fabrication and High Heat Flux Test for Preparing the Second Qualification of the ITER Blanket First Wall, Dong Won Lee, Suk Kwon Kim, Young-Dug Bae, Yang Il Jung, Jeong Yong Park, Yong Hwan Jeong *(KAERI)*, Byung Yoon Kim *(NFRI)*

Thermal Analysis on Detailed 3-D Finite Element Models of ITER Thermal Shield, Kwanwoo Nam, Chang Hyun Noh, Wooho Chung *(ITER)*

Thermomechanical Analysis of the Revised U.S. ITER DCLL Test Blanket Module, Shahram Sharafat, Aaron T. Aoyama, Nasr Ghoniem, Mohamad Dagher *(UCLA)*, Clement Wong *(General Atomics)*

Divertor Studies

Design of a Rectangular He-Cooled Refractory-Foam HX Channel for Divertor Applications, Shahram Sharafat, Aaron T. Aoyama, Nasr Ghoniem *(Digital Materials Solutions)*, Brian Williams *(Ultramet)*

High Flux FRC Facility for ITER Divertor Studies, John Slough, Richard Milroy *(Univ of Washington)*

Experimental and Numerical Investigation of the Thermal Performance of the Gas-Cooled Jet-Impingement Finger-Type Divertor Concept, J. Rader, Br. Mills, D. L. Sadowski, M. Yoda, S. I. Abdel-Khalik *(Georgia Tech)*

Experimental Studies of the Thermal Performance of Gas-Cooled Plate-Type Divertors, M. D. Hageman, D. L. Sadowski, M. Yoda, S. I. Abdel-Khalik *(Georgia Tech)*

Rapidly Moving Divertor Plates in a Tokamak, S. J. Zweben, R. A. Ellis, P. Titus, H. Zhang *(PPPL)*

Optimization of ARIES T-Tube Divertor Concept, Jeremy A. Burke, X. R. Wang, M. S. Tillack *(Univ of California, San Diego)*

Elastic-Plastic Analysis of the Transition Joint for High-Performance Divertor Target Plate, D. Navaei, X. R. Wang, M. S. Tillack *(Univ of California, San Diego)*, S. Malang *(Consultant)*

Sub-Channels-Inserted Porous Evaporator for Efficient Divertor Cooling, Kazuhisa Yuki *(Tokyo Univ Sci)*, Hidetoshi Hashizume *(Tohoku Univ)*, Saburo Toda *(Tohoku Radiation Science Center)*

Blanket and Power Plant Studies

MHD Flow in a Rectangular Duct with a Nonconducting Flow Insert: A 3-D Numerical Analysis, Damien Sutevski, Neil B. Morley, Sergey Smolentsev, Mohamed Abdou *(UCLA)*

Velocity Field Measurement of a Lead-Lithium Flow in a Channel, Y. Ueki *(Kyoto Univ)*, N. Morley *(UCLA)*, T. Kunugi *(Kyoto Univ)*, K. Yuki *(Tokyo Univ Sci)*, M. Hirabayashi, K. Ara *(JAEA–Japan)*, T. Yokomine *(Kyushu Univ)*, S. Smolentsev, M. Abdou *(UCLA)*

Stability Analysis for Buoyancy-Opposed Flows in Poloidal Ducts of the DCLL Blanket, N. Vetcha, S. Smolentsev, M. Abdou *(UCLA)*

Thermonuclear Analysis of Flibe Blanket with Cs, Hidetoshi Hashizume, Noritaka Yusa, Kentaro Matsui *(Tohoku Univ)*

Heat Transfer Experiments Using a High Pr Number Fluid Flowing in Sphere-Packed Pipe for Flibe Blanket Design, Katsuya Shimizu, Shinji Ebara, Hidetoshi Hashizume *(Tohoku Univ)*

Impact of Neutronics on the Determination of a Radial Build of Tokamak Reactor Systems, B. G. Hong *(Chonbuk National Univ)*

Combination of Power Sources for Fusion Start-up on DC Microgrid, Eriko Yamakawa, Kazuyuki Noborio, Yasushi Yamamoto, Satoshi Konishi *(Kyoto Univ)*

Evaluation of Power Constraint Condition for Fusion-Driven Subcritical Energy Reactor, Yunqing Bai, Ming Jin *(Inst Plasma Physics, Chinese Academy of Sciences/Univ of Science and Technol of China)*, Yican Wu *(Inst Plasma Physics, Chinese Academy of Sciences)*

Engineering Design of Combined Valve for Supercritical CO_2 Brayton Cycle Fusion Reactor Power Conversion System, B. Halimi *(Seoul Natl Univ–Korea)*, Seung H. Kim *(PHILOSOPHIA Inc)*, A. Pirouzmand, Kune Y. Suh *(Seoul Natl Univ–Korea)*

Materials

The Corrosion Influence of Lithium and Lead-Lithium on Microstructure and Mechanical Properties of ODS and CLAM Steels, Yanfen Li *(NIFS/Institute of Plasma Phys)*, Masatoshi Kondo, Takuya Nagasaka, Takeo Muroga, Valentyn Tsisar *(NIFS)*

High-Temperature Liquid Metal Compatibility Testing, Michael G. Hvasta, Mark H. Anderson *(Univ of Wisconsin, Madison)*

Postimplantation Thermal Desorption of Helium from Poly- and Single-Crystalline Iron, Xunxiang Hu, Donghua Xu, Brian D. Wirth *(Univ of California, Berkeley)*

The Electrical Conductivity of 2D-SiC_f/CVI-SiC, G. E. Youngblood *(PNNL)*, R. J. Shinavski *(Hyper-Therm HTC Inc)*

Hydrogen Isotope Behavior Transferring Through Water Metal Boundary, T. Hayashi, H. Nakamura, K. Isobe, K. Kobayashi *(JAEA)*, Y. Oya, K. Okuno *(Shizuoka Univ)*, T. Yamanishi *(JAEA)*

TOFE: Technical Sessions by Day: Wednesday/Thursday

Experimental Analysis on Thermophysical Properties of $ZrCoH_x$, Sei-Hun Yun, Seungyon Cho, Min Ho Chang, Hyun-Goo Kang, Min Kyu Lee, Ki Jung Jung, Ka Young Park *(NFRI)*, Hongsuk Chung, Dae Seo Koo *(KAERI)*, Kyu Min Song *(KEPRI)*

Adsorption Behavior of Hydrogen Isotopes on Mordenite Adsorbents at 77K, Kenzo Munakata *(Akita Univ)*, Yoshinori Kawamura *(JAEA)*

Analysis of Tritium Behavior in the Atmosphere Near the Water Surface, Toshihiro Shibata, Kazuyuki Noborio, Yasushi Yamamoto, Satoshi Konishi *(Kyoto Univ)*

Modeling of Tritium Permeation Through Erbium Oxide Coatings, Takumi Chikada, Akihiro Suzuki *(Univ of Tokyo)*, Hans Maier *(Max-Planck-Inst)*, Takayuki Terai *(Univ of Tokyo)*, Takeo Muroga *(NIFS)*

Resistivity Recovery Curves of Electron-Irradiated FeCr Alloys with Object Kinetic Monte Carlo: Influence of Cr Interactions, L. Gámez, Berta Gámez *(Inst Nucl Fusion)*, M. J. Caturla *(Univ de Alicante)*, D. Terentyev, L. Malerba *(SCK/CEN)*, J. M. Perlado *(Inst Nucl Fusion)*

Influence of Quenching Process on Structures and Microhardness of CLAM Steel, Qian Han, Qunying Huang, Shaojun Liu, Qingsheng Wu, Chunjing Li, Lei Peng, Bo Huang, Yican Yu *(Univ Sci Technol China/Inst Plasma Physics, Chinese Academy of Sciences)*

Retention and Desorption Behavior of Hydrogen Isotopes in Gamma-Ray Irradiated Li_2TiO_3, Akiko Hamada, Rie Kurata, Makoto Kobayashi, Masato Suzuki *(Shizuoka Univ)*, Hajimu Yamana, Toshiyuki Fujii *(Kyoto Univ)*, Yasuhisa Oya, Kenji Okuno *(Shizuoka Univ)*

Dynamic Behaviors of Deuterium Retained in SS-316 Oxidized at Various Temperatures, Makoto Kobayashi, Wanjing Wang, Rie Kurata *(Shizuoka Univ)*, Masao Matsuyama *(Univ of Toyama)*, Takumi Hayashi, Toshihiko Yamanishi *(JAEA–Japan)*, Yamato Asakura *(NIFS)*, Yasuhisa Oya, Kenji Okuno *(Shizuoka Univ)*

High-Temperature Tensile Properties of Y-Added Vanadium Alloy, Takeshi Miyazawa *(Graduate Univ for Advanced Studies)*, Takuya Nagasaka, Yoshimitsu Hishinuma, Takeo Muroga *(Graduate Univ for Advanced Studies/NIFS)*, Yanfen Li *(NIFS)*

Impurity Effects on Hydrogen Isotope Retention in Carbon-Oxygen Contained Boron Film, Katsushi Matsuoka, Makoto Kobayashi, Rie Kurata, Junya Osuo *(Shizuoka Univ)*, Naoko Ashikawa, Akio Sagara *(NIFS)*, Yasuhisa Oya, Kenji Okuno *(Shizuoka Univ)*

Study on Dissimilar Welding with Vanadium and Austenitic Stainless Steel, S. Nogami, J. Miyazaki *(Tohoku Univ)*, T. Nagasaka *(NIFS)*, A. Hasegawa *(Tohoku Univ)*, T. Muroga *(NIFS)*

Impact Properties of Low Activation Vanadium Alloy After Low-Temperature Neutron Irradiation Below 400°C, Takuya Nagasaka, Yoshimitsu Hishinuma, Takeo Muroga *(NIFS)*, Hideo Watanabe *(Kyushu Univ)*, Masanori Yamazaki *(Tohoku Univ)*

Simulation of He and H in W, N. Juslin, B. D. Wirth *(Univ of California, Berkeley)*

Joining of Be to Ferrictic-Martensitic Steels with Diffusion Barrier Interlayers, Jeong-Yong Park, Yang-Il Jung, Byoung-Kwon Choi, Yong Hwan Jeong, Suk-Kwon Kim, Dong Won Lee *(KAERI)*, Seungyon Cho *(NFRI)*

THURSDAY • NOVEMBER 11, 2010	
7:30 AM – 2:00 PM	MEETING REGISTRATION
8:30 AM – 10:00 AM	TOFE: JAPAN ITER-DEMO PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS
10:15 AM – 12:15 PM	TOFE: TECHNOLOGY NEEDS FOR FUSION ENERGY–PANEL
12:15 PM – 12:30 PM	TOFE: MEETING CLOSING
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS

THURSDAY, NOVEMBER 11, 2010, 8:30–10:00 A.M.

Japan ITER-DEMO Plenary

Session Chair: Shahram Sharafat *(UCLA)*

Grande Ballroom A

SPEAKERS:

8:30 a.m.

Fusion Technology Activities in Japan for ITER, BA, and DEMO, H. Takatsu, H. Horiike, T. Hayashi *(JAEA)*

9:15 a.m.

Impact of Burning Plasmas on Fusion Technology Development, Akio Sagara *(NIFS)*

THURSDAY, NOVEMBER 11, 2010, 10:15 A.M.–12:15 P.M.

Technology Needs for Fusion Energy–Panel

Session Chair: Laila El-Guebaly *(Univ of Wisconsin, Madison)*

Grande Ballroom A

10:15 a.m.

"Fusion Nuclear Sciences Program and Roadmap for MFE and IFE"

PANELISTS:

- Chuck Kessel *(PPPL)*
- Farrokh Najmabadi *(UCSD)*
- Ron Stambaugh *(General Atomics)*
- Akio Sagara *(NIFS)*
- Mike Dunne *(LLNL)*

THURSDAY, NOVEMBER 11, 2010, 12:15 P.M.

Meeting Closing

Session Chair: Farrokh Najmabadi *(UCSD)*

Grande Ballroom A

12:15 p.m.

Closing Statements, Farrokh Najmabadi *(Univ of California)*

12:30 p.m.

Adjourn

NPIC&HMIT 2010: Condensed Schedule

ROOM	NOVEMBER 8, 2010 MONDAY 1:00–4:00 P.M.	NOVEMBER 9, 2010 TUESDAY 8:30–11:30 A.M.	 1:00–4:00 P.M.	NOVEMBER 10, 2010 WEDNESDAY 8:30–11:30 A.M.	 1:00–4:00 P.M.	NOVEMBER 11, 2010 THURSDAY 8:30–11:30 A.M.	 1:00–4:00 P.M.
Capri 101	NPIC&HMIT Opening Plenary	Digital I&C Issues—I	Digital I&C Issues—II	Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—III	Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—IV	Wireless Technology Applications in Nuclear Power Plants	General I&C—I
Capri 102		Regulatory Aspects of I&C in the U.S. and Other Countries—I	Regulatory Aspects of I&C in the U.S. and Other Countries—II	Field Programmable Gate Arrray (FPGA) for I&C Applications—I	Modeling Digital I&C Systems in PRA/PSA	Advanced Sensors andMeasurement Techniques—II	Virtual Reality: Applications and Issues
Capri 107		I&C Needs of Small and Medium Modular Reactors	I&C Applications for Physical and Cyber Security	Licensing Criteria and Lessons Learned in Licensing Digital Safety Systems (NRC Special Session)	Field Programmable Gate Arrray (FPGA) for I&C Applications—II	I&C Modernization Experience—II	General I&C—II
Capri 111		Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—I	Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—II	Operator Training	I&C Modernization Experience—I	Failure and Fault Analysis of Digital Systems	Management of I&C Aging and Obsolescence
Capri 112		Current Concepts in Advanced Control Rooms	I&C Knowledge Management and Training	Diversity and Defense in Depth (D3) for Nuclear Plant I&C Systems	Human Performance Modeling in the Nuclear Environment	Software Verification & Validation (V&V) Methodologies, Issues, and Practices	Applications of Technology to Enhance Maintenance and Operations
Capri 113		Use of Simulation for Design, Engineering, Maintenance, and Verification Activities	Advanced Sensors and Measurement Techniques—I: In-Pile Instrumentation for Materials and Test Reactors	Human Interaction with Automation	Safety Culture and Human Reliability Issues	General HMIT—I	Information Presentation Techniques to Improve Human Decision Making
Capri 114		HFE Design and Analysis Tools	HFE Standards and Guidelines	NRC Panel: International I&C Activities and Topics	Working Together in the Instrumentation, Control, and Human System Domains to Successfully Extend Nuclear Power Plant Operating Life to at Least 80 Years–Panel	General HMIT—II	General I&C—III
Capri 115		Nuclear Power Plant Productivity Improvements Through Application of Advanced Technologies–Panel	I&C & HMIT Needs of Newcomer Countries to Nuclear Power–Panel			Setpoint Methodology–Panel	

NPIC&HMIT 2010: Technical Sessions by Day: Monday

7th International Topical Meeting on Nuclear Plant Instrumentation, Control and Human Machine Interface Technologies (NPIC&HMIT 2010)

Sponsorship provided by: Altran Solutions, Analysis and Measurement Services Corp., Invensys, Lockheed Martin, and Westinghouse Electric Company

Publications sponsored by: BEA/INL, NRC and the U.S. DOE

HONORARY CHAIR:
Dr. Peter B. Lyons
U.S. Department of Energy

GENERAL CHAIR:
John O'Hara
Brookhaven National Laboratory

GENERAL CHAIR:
Joseph Naser
Electric Power Research Institute

TECHNICAL PROGRAM CO-CHAIR:
Alireza Haghighat
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Hash Hashemian
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TECHNICAL PROGRAM CO-CHAIR:
Douglas Hill
AREVA NP

TECHNICAL PROGRAM CO-CHAIR:
Poong Hyun Seong
KAIST, Korea / Khalifa University of Science, Technology & Research (KUSTAR), UAE

MONDAY • NOVEMBER 8, 2010

7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: OPENING PLENARY "Nuclear Progress!"
10:00 AM – 2:00 PM	SPOUSE/GUEST TOUR "Shop 'Til You Drop at the Las Vegas Premium Outlet"
11:30 AM – 1:00 PM	ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXHIBIT
11:45 AM – 12:45 PM	GREEN BAG LUNCH: "Focus on Communications"
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: OPENING PLENARY
1:00 PM – 4:30 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: OPENING PLENARY
1:30 PM – 2:45 PM	TOFE: MEETING WELCOME AND ITER PLENARY
3:30 PM – 5:30 PM	TOFE: TECHNICAL SESSIONS
4:00 PM – 6:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSION Sustainable Nonproliferation Policy and Measures–Panel
4:00 PM – 6:00 PM	STUDENT POSTER SESSION
7:00 PM – 10:30 PM	EVENING EVENT: "Reception at the Atomic Testing Museum"

MONDAY, NOVEMBER 8, 2010, 1:00 P.M.

NPIC&HMIT Opening Plenary

Capri 101
1:00 p.m.

SPEAKERS:

- KEYNOTE SPEAKER:
  Dr. Peter B. Lyons
  Acting Assistant Secretary for Nuclear Energy,
  United States Department of Energy, Office of Nuclear Energy
- Mr. Harry J. Faulhaber
  Division Manager–Nuclear Engineering,
  Omaha Public Power District, Ft. Calhoun Nuclear Plant
- Mr. Ken D. Thomas
  Manager, Fleet Technical Support,
  Duke Energy, Nuclear Generation
- Mr. Yeong Cheol Shin
  General Manager, NETEC (KHNP) MMIS Team,
  Nuclear Engineering and Technology Institute of Korea Hydro and Nuclear Power
- Dr. Valerie Barnes
  Senior Technical Adviser for Human Factors, Division of Risk Analysis,
  Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission

NPIC&HMIT 2010: Technical Sessions by Day: Tuesday

TUESDAY • NOVEMBER 9, 2010	
7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 9:30 AM	TOFE: NIF PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS • Digital I&C Issues—I • Regulatory Aspects of I&C in the U.S. and Other Countries—I • I&C Needs of Small and Medium Modular Reactors • Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—I • Current Concepts in Advanced Control Rooms • Use of Simulation for Design, Engineering, Maintenance, and Verification Activities • HFE Design and Analysis Tools • Nuclear Power Plant Productivity Improvements Through Application of Advanced Technologies–Panel
9:00 AM – 1:00 PM	SPOUSE/GUEST TOUR "Springs Preserve"
10:00 AM – 11:30 AM	TOFE: TECHNICAL SESSIONS
11:30 AM – 1:00 PM	ANS HONORS AND AWARDS LUNCHEON
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS • Digital I&C Issues—II • Regulatory Aspects of I&C in the U.S. and Other Countries—II • I&C Applications for Physical and Cyber Security • Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—II • I&C Knowledge Management and Training • Advanced Sensors and Measurement Techniques—II: In-Pile Instrumentation for Materials and Test Reactors • HFE Standards and Guidelines • I&C & HMIT Needs of Newcomer Countries to Nuclear Power–Panel
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
1:30 PM – 3:30 PM	TOFE: TECHNICAL SESSIONS
3:30 PM – 5:30 PM	TOFE: POSTER SESSION—I
7:00 PM – 9:30 PM	NPIC&HMIT 2010: "Reception and Dinner"

TUESDAY, NOVEMBER 9, 2010, 8:30 A.M.

Digital I&C Issues—I

Session Cochairs: Victor Shyu *(INER)*, Scott Patterson *(Diablo Canyon Power Plant)*

Capri 101
8:30 a.m.
Managed Complexity: An Architectural Paradigm for the Integration of Digital Systems in Nuclear Power Plants, Paul J. Rebstock, Jr. *(NRC)*

8:55 a.m.
Terrible "T"s of Technology—Ensuring an Effective Knowledge Management Program Exists in Future Nuclear Power Plants, William Roggenbrodt *(NRC)*

9:20 a.m.
Development of a Computer-Aided Licensing Support System (CALS) for Digital I&C System Review Process, Swu Yih *(Ching Yun Univ)*, Chin-Feng Fan *(Yuan-Ze Univ)*, Yu-Shu Hu *(DCS)*

9:45 a.m.
Communication Issues of Nuclear Digital I&C Systems for TaiNICS Design, Ting-Chia Ou, Chung-Lin Lee, Po-Ju Chen, Victor S. S. Shyu *(INER)*, Tzu-Chen Hung *(Natl Taipei Univ of Technol)*

10:10 a.m.
Performance Evaluation of Token-Pass–Based Computer Network Protocol for Nuclear Instrument and Control Environment, Chih-Ta Chiu, Yung-Chung Wang, Men-Shen Tsai *(Natl Taipei Univ Technol)*, Tsung-Hsun Wu *(Formosa Plastics Corp Electrics Group)*, Po-Ju Chen, Ting-Chia Ou, Chung-Lin Lee *(INER)*

10:35 a.m.
The Conceptual Design of a Nuclear Safety Controller for TaiNICS Project, Ting-Chia Ou, Chun-Lin Lee, Chang-Kuo Chen *(INER)*, Tsung-Hsun Wu, Si-Fu Hsieh *(Formosa Plastics Corp Electronics Group)*

11:00 a.m.
Effects of the in-the-Loop Interfaces Fidelity on the Simulation of NPP Processes, Drew J. Rankin, Jin Jiang *(Univ of Western Ontario)*

Regulatory Aspects of I&C in the U.S. and Other Countries—I

Session Cochairs: Bruce Cook *(Westinghouse)*, Jerry Voss *(EXCEL Services Corp)*

Capri 102
8:30 a.m.
Revision of Branch Technical Position 7-19 Regarding D3 Evaluation of Digital I&C, Eugene O. Eagle, Jr. *(NRC)*

8:55 a.m.
Digital I&C DAC (Design Acceptance Criteria) /ITAAC (Inspections Tests, Analysis, and Acceptance Criteria) Inspections, Dinesh Taneja *(NRC)*

9:20 a.m.
Classification of I&C Systems: A Practical Approach, Bruce M. Cook *(Westinghouse)*

9:45 a.m.
Assessment of Digital Instrumentation and Control at IRSN: Principles and Application to EPR Flamanville 3, Jean Gassino, Pascal Regnier *(IRSN)*

10:10 a.m.
10CFR50.59 Evaluation of a Digital Upgrade at Catawba and McGuire Nuclear Station, Frederick J. Twogood *(Altran Solutions/Duke Energy)*, invited

I&C Needs of Small and Medium Modular Reactors

Session Cochairs: Belle Upadhyaya *(Univ of Tennessee)*, Sean Smith *(Lockheed Martin)*

Capri 107

8:30 a.m.
Applicability of an In-Core Instrument to the SMART (System-Integrated Modular Advanced Reactor), Jin-Young Jung, Jin Seok Park, Won Jae Lee *(KAERI)*

8:55 a.m.
The Role of Instrumentation and Control Technology in Enabling Deployment of Small Modular Reactors, Dwight Clayton, Richard Wood *(ORNL)*

9:20 a.m.
Development of an Optimal Sensor Placement Strategy for Nuclear Power Systems, F. Li, B. R. Upadhyaya *(Univ of Tennessee)*

9:45 a.m.
Fast Valving for Small and Medium-Sized Nuclear Reactors, Alan S. Rominger, J. Michael Doster *(NCSU)*, invited

10:10 a.m.
Potential Application of Electrical Signature Analysis Methods for Monitoring Small Modular Reactor Components, Brian Damiano, Howard D. Haynes, Raymond W. Tucker, Jr. *(ORNL)*

10:35 a.m.
Dynamic Modeling and Control Strategy for Multi-Modular Integral Pressurized Water Reactors, S. R. P. Perillo, B. R. Upadhyaya *(Univ of Tennessee)*

11:00 a.m.
State Observer Design for IRIS Nuclear Reactor Based on Dissipation Based High Gain Filter, Yin Guo, Xin Jin, Robert M. Edwards *(Penn State)*

Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—I

Session Cochairs: Enrico Zio, Piero Baraldi *(Politecnico di Milano)*

Capri 111

8:30 a.m.
Application of Failure Prognostics to the IRIS Plant, Jamie Coble, J. Wesley Hines, Belle R. Upadhyaya *(Univ of Tennessee)*

8:55 a.m.
Signal Grouping for Condition Monitoring of Nuclear Power Plant Components, Piero Baraldi, Roberto Canesi, Enrico Zio *(Politecnico di Milano)*, Redouane Seraoui, Roger Chevalier *(EdF R&D)*

9:20 a.m.
Mímir—Continued Work on a Modular Framework for Condition Monitoring and Diagnostics, Harald P.-J. Thunem, Mario Hoffmann, Terje Bodal *(Inst for Energy Technol)*

9:45 a.m.
Control Rod Monitoring of Advanced Gas-Cooled Reactors, C. J. Wallace, G. M. West, G. J. Jahn, S. D. J. McArthur *(Univ of Strathclyde)*, D. Towle, G. Buckley *(EDF Energy)*

10:10 a.m.
Redundant Continuous Wavelet Tranform for Fault Detection and Diagnosis, S. Seker *(Istanbul Tech Univ)*, B. R. Upadhyaya *(Univ of Tennessee)*, T. Senguler, A. H. Kayran *(Istanbul Tech Univ)*

10:35 a.m.
General Class of Data Fusion Methods for the Plant Components Faults Detection, Sergey S. Anikanov, Nicholas J. Marangoni *(Westinghouse)*, Igor V. Stolyetniy *(Westron LLC)*

11:00 a.m.
A Method for Estimating the Confidence in the Identification of Nuclear Transients by a Bagged Ensemble of FCM Classifiers, Piero Baraldi, Roozbeh Razavi-Far, Enrico Zio *(Politecnico di Milano)*

Current Concepts in Advanced Control Rooms

Session Cochairs: Scott Malcolm *(AECL)*, Thomas Gunnarsson *(OKG AB)*

Capri 112

8:30 a.m.
Advanced Alarm Systems: A Survey of Industry Guidelines, Garry T. Simmons *(Westinghouse)*

8:55 a.m.
U.S.-APWR Human System Interface System Verification and Validation Program for Digital I&C Design, Satoshi Hanada *(Mitsubishi)*, Kenji Mashio *(Mitsubishi Nucl)*, Masashi Hirahatake, Koichi Takahashi *(Mitsubishi Electric)*

9:20 a.m.
The Use of Test Facilities in the Design of the AP1000™ Nuclear Power Plant Control Room, Steven P. Dobos, George Guzik, Julie I. Reed *(Westinghouse)*

9:45 a.m.
Guidance on Identifying and Implementing Supplemental Human-System Interfaces (HSIs): An Update, Robert T. Fink, Charles D. Killian *(CDF Services Inc)*, Joseph A. Naser *(EPRI)*

10:10 a.m.
Development of the Advanced CANDU Reactor Control Centre, G. Raiskums, S. Anam, R. Leger *(AECL)*

10:35 a.m.
Developing the Human System Interface (HSI) and the Supporting Instrumentation and Control (I&C) Architecture for a Multi-Module Control Room, Charles Weaver, Kenneth Harris, Steve Blomgren *(NuScale Power Inc)*

11:00 a.m.
The Influence of Working Postures and Physical Demands on the Operational Performance in the Advanced Control Room, Chih-Wei Yang, Yuan-Chang Yu, Tzu-Chung Yenn, Tsung-Chieh Cheng, Ming-Huei Chen *(INER)*, Tung-Ming Wu *(Taiwan Power Co.)*

Use of Simulation for Design, Engineering, Maintenance, and Verification Activities

Session Cochairs: Chuan-Chung Chen *(Taipower)*, Doug Hill *(AREVA NP)*

Capri 113
8:30 a.m.
The Development and Design of the Human Machine Interface of the Monitor and Control System for Nuclear Power Plants, Shou-yu Cheng, Zhong-kun Liu, Cheng Gong, Qiang Zhao, Min-jun Peng *(Harbin Engineering Univ)*

8:55 a.m.
A Deterministic Assessment of Lungmen DI&C System Using the Engineering Simulator, Tze-Chieh Horng, H. P. Chou *(National Tsing Hua Univ)*, Kin Wah Wong *(A-D Technol)*

9:20 a.m.
Real-Time Engineering Simulator Application for Plant Design, V&V, and Human Factors, Steven Freel *(GSE Systems Inc)*

9:45 a.m.
Modern Nuclear DCS Hardware Testing Verification Using Simulation, Jody Ryan, Pascal Gain *(Corys Thunder/CORYSTESS)*

10:10 a.m.
The Development of a Human Systems Simulation Laboratory at Idaho National Laboratory: Progress, Requirements, and Lessons Learned, Katya L. Le Blanc, David I. Gertman, Alan Mecham, William Phoenix *(INL)*

HFE Design and Analysis Tools

Session Cochairs: Dave Lillis *(British Energy)*, Tung-Ming Wu *(Taipower)*

Capri 114
8:30 a.m.
Review of Methods Related to Assessing Human Performance in Nuclear Power Plant Control Room Simulations, Katya Le Blanc, David Gertman, Ronald Boring *(INL)*

8:55 a.m.
Operational Sequence Analysis for the Design of the AP1000™ Nuclear Power Plant, Zhonghai Li, Julie I. Reed *(Westinghouse)*

9:20 a.m.
Displays and Controls Sequential Ordering Optimization Based on Ant Colony Algorithm, Yan Shengyuan, Chen Yu, Wang Shuaiqi, Zhang Zhijian, Peng Minjun, Yang Ming *(Harbin Engineering Univ)*

9:45 a.m.
A Study on the Evaluation Method for Human Factor Engineering of Nuclear Power Plant Main Control Room Layout, Huixian Fan, Yuan Liu, Yanxiong Yang *(CTEC)*

10:10 a.m.
Operating High Level Displays for Advanced Main Control Rooms, Luis Rejas *(Tecnatom)*

10:35 a.m.
Multilayered HSI Design: Part-Plant Overview Displays, Christer Nihlwing *(Institute for Energy Technology)*

11:00 a.m.
Technical Improvements for Human System Interface in the Digital System of LINGAO 3&4, Shi Ji, Jiang Guojin, Xu Xiaomei et al. *(China Nuclear Power Design Co Ltd)*

Nuclear Power Plant Productivity Improvements Through Application of Advanced Technologies–Panel

Session Cochairs: Joseph Naser *(EPRI)*, Clayton Scott *(Invensys Corp)*

Capri 115
8:30 a.m.
The nuclear power industry is concerned about its ability to maintain current high plant performance levels in spite of aging and obsolescence, knowledge drain, fewer plant staff, and increasing requirements. These concerns increase as plants extend their operating lives. In addition, there is a desire to further improve performance while reducing human errors and an increasing focus on reducing costs of operation and maintenance. The panel will discuss how improved and new instrumentation and control, human-system interface, information and communications technologies used properly can address concerns about cost-effectively maintaining current performance levels and enable shifts to even higher performance levels.

PANELISTS:
- Joseph Naser *(EPRI)*
- Amadeus Burger *(CSA)*
- Chris Wiegand *(Invensys)*
- Gyrd Skraaning *(Halden Reactor Project)*
- Michael Louka *(Halden Reactor Project)*
- Michael Platt *(Lockheed Martin)*

TUESDAY, NOVEMBER 9, 2010, 1:00 P.M.

Digital I&C Issues—II

Session Cochairs: Steven Arndt *(NRC)*, Sean Smith *(Lockheed Martin)*

Capri 101

1:00 p.m.
Diablo Canyon Power Plant Digital Process Protection System Replacement Update, Scott B. Patterson *(PG&E)*, John W. Hefler *(Altran Solutions Corp)*, Edward L. Quinn *(Technology Resources)*

1:25 p.m.
Design Considerations of Analog to Digital Conversion for Digital In-Core Wide Range Neutron Monitoring Applications, Hsun-Hua Tseng *(INER)*, Hwai-Pwu Chou, Mon-Hwan Hsieh *(Natl Tsing Hua Univ)*

1:50 p.m.
Assessment and Qualification of Smart Sensors, Sofia Guerra *(Adelard)*, Peter Bishop, Robin Bloomfield *(Adelard/CSR)*, Daniel Sheridan *(Adelard)*

2:15 p.m.
Survey on Techniques for Modeling of Dependencies in the Digital I&C Design Phase, Sizarta Sarshar *(Institute for Energy Technology)*, Monica Kristiansen *(Østfold Univ College)*, Terje Sivertsen *(Institute for Energy Technology)*

2:40 p.m.
Digital Controls Upgrade Experience Lessons Learned, Key Issues, and Recommendations, Roy Raychaudhuri *(Nuclear Power Technologies)*

Regulatory Aspects of I&C in the U.S. and Other Countries—II

Session Cochairs: Ken Thomas *(Duke Energy)*, Clayton Scott *(Invensys Corp)*

Capri 102

1:00 p.m.
Development of a Harmonized Approach to Qualification of Electrical Equipment for Nuclear Plants Around the World, Richard Wood *(ORNL)*, James Gleason *(IEEE NPEC)*, Edward L. Quinn *(Technology Resources)*

1:25 p.m.
Guidance to Consistent Compliance of Licensing Digital I&C Systems and Equipment in Nuclear Power Plants, Clayton Scott *(Invensys)*, Oszvald Glockler *(IAEA)*, Edward L. Quinn *(Technology Resources)*

1:50 p.m.
Standards Frameworks and Their Effect on Harmonization, Gary L. Johnson *(IAEA)*

2:15 p.m.
NRC Digital I&C Software Regulation Application Experiences: Issues, Resolutions and Recommendations, Jiin-Ming Lin, Jeen-Yee Lee *(Taiwan Power Co)*, Swu Yih *(Ching Yun Univ)*

2:40 p.m.
Ukrainian NPP I&C Standard Base: Elaboration and Application, Mykhaylo Yastrebenetsky, Yuri Rozen *(SSTC NRS)*, Alexander Siora, Vladimir Bezsaly *(Radiy)*

3:05 p.m.
Development and Harmonization of International Standards, Leroy Hardin *(NRC)*

I&C Applications for Physical and Cyber Security

Session Cochairs: Rob Austin *(EPRI)*, Brent Shumaker *(AMS)*

Capri 107

1:00 p.m.
Development of A New IEC Standard—Requirements for Security Programs for Computer-Based Systems, Leroy Hardin *(NRC)*, Edward L. Quinn *(Technology Resources)*

1:25 p.m.
Practical Cyber-Security Guidance for New Digital Plant Systems, Robert E. Austin, III *(EPRI)*, B. E. Martin, David N. Woodard *(Computer Eng Svcs)*

1:50 p.m.
Wireless Network Security in Nuclear Facilities, J. Dion *(NRC)*, M. K. Howlader, P. D. Ewing *(ORNL)*

2:15 p.m.
Introduction of Cyber Security Assessment Methodology for the I&C Systems in Nuclear Facilities, Youngdoo Kang, Dai. I. Kim *(KINS)*, Hagtae Kim, Kil To Chong *(Chonbuk Natl Univ)*

Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—II

Session Cochairs: Wes Hines *(Univ of Tennessee)*, Man Gyun Na *(Chosun Univ)*

Capri 111

1:00 p.m.
On-Line Monitoring Techniques for Improved Reliability and Maintenance of Research Reactors, R. D. O'Hagan, H. M. Hashemian, J. P. McConkey *(AMS)*

1:25 p.m.
Experiences with Residual Approach to Validation of In-Core Sensors by PEANO Neuro-Fuzzy System, Stefan Figedy *(VUJE Inc)*

1:50 p.m.
Study of the Precision of the MTC Estimate by Noise Analysis, Griet Monteyne *(Vrije Univ Brussel)*, Peter Baeten *(SCK-CEN)*, Johan Schoukens *(Vrije Univ Brussel)*

2:15 p.m.
Elimination and Similarity Fault Diagnostics, M. Humberstone, J. W. Hines *(Univ of Tennessee)*

2:40 p.m.
Knowledge-Based Accident Diagnostics for APR1400 Nuclear Plants, Sung Han Lee, Young Gyu No, Man Gyun Na *(Chosun Univ)*, Kwang-Il Ahn, Soo Yong Park *(KAERI)*

3:05 p.m.
Prediction of Axial DNBR Distribution Using Artificial Intelligence, Dong Su Kim, Sim Won Lee, Man Gyun Na *(Chosun Univ)*

3:30 p.m.
Influence of Feedback on MTC Estimate by Noise Analysis, Griet Monteyne *(Vrije Univ Brussel)*, Peter Baeten *(SCK-CEN)*, Johan Schoukens *(Vrije Univ Brussel)*

I&C Knowledge Management and Training

Session Cochairs: Jin Jiang *(Univ of Western Ontario)*, Jerry Voss *(EXCEL Services Corp)*

Capri 112
1:00 p.m.
I&C Knowledge Management for Regulatory and Expert Activity, Oleksandr Klevtsov, Mykhaylo Yastrebenetsky *(SSTC NRS)*

1:25 p.m.
Continuous Training to Excel in Products and Services for Nuclear Industry, I. Bakhmach, A. Siora, O. Baranova *(RPC Radiy)*

1:50 p.m.
Partnerships in Managing NPP I&C Knowledge—A Win-Win Strategy for All, Andrey Kosilov, Oszvald Glockler *(IAEA)*

2:15 p.m.
Testing Digital Instrumentation and Control Systems Within the Distributed Test Facility (DTF), Qingti Guo, Carol Smidts, Tunc Aldemir, Don Miller *(Ohio State)*, Edward L. Quinn *(Technology Resources)*

2:40 p.m.
A Course on Software Engineering for Safety-Related Systems, Thomas Swain, Jason Carter, Carmen Trammell, Lan Lin *(Univ of Tennessee)*

3:05 p.m.
Development of IAEA Programs on Instrumentation and Control for Nuclear Power Plants, Oszvald Glöckler *(IAEA)*, János Eiler *(Paks Nuclear Power Plant Co)*, Richard Wood *(ORNL)*, Edward L. Quinn *(Technology Resources)*

Advanced Sensors and Measurement Techniques—I: In-Pile Instrumentation for Materials and Test Reactors

Session Cochairs: William Kemper *(NRC)*, Darrell Knudson *(INL)*

Capri 113
1:00 p.m.
Development of an In Situ Creep Testing Capability for the Advanced Test Reactor, Bong Goo Kim *(KAERI)*, Joy L. Rempe, Darrell L. Knudson, Keith G. Condie, Bulent H. Sencer *(INL)*

1:25 p.m.
Hot Wire Needle Probe for In-Pile Thermal Conductivity Detection, Joshua Daw, Joy Rempe, Keith Condie, Darrell Knudson *(INL)*, S. Curtis Wilkins *(Private Consultant)*, Brandon S. Fox, Heng Ban *(Utah State Univ)*

1:50 p.m.
Flux Sensor Evaluations at the ATR Critical Facility, Troy Unruh, Joy Rempe, David Nigg, Paul Hart *(INL)*, George Imel, Jason Harris, Eric Bonebrake *(Idaho State Univ)*

2:15 p.m.
Recommendations for Use of LVDTs in ATR High Temperature Irradiation Testing, D L. Knudson, J. L. Rempe *(INL)*

2:40 p.m.
Ultrasonic Thermometry for In-Pile Temperature Detection, Joshua Daw, Joy Rempe, Steven Taylor *(INL)*, John Crepeau *(Univ of Idaho)*, S. Curtis Wilkins *(Private Consultant)*

HFE Standards and Guidelines

Session Cochairs: Steve Fleger *(NRC)*, Dave Holcomb *(ORNL)*

Capri 114
1:00 p.m.
IEEE and IEC Nuclear Power, Instrumentation, and Control Standardization—Opportunities and Challenges, J. Scott Malcolm, James F. Gleason *(AECL)*, invited

1:25 p.m.
Reviewing Consensus HFE Standards for NRC Use: A Case Study Using the IEEE Standard for Computerized Operating Procedure Systems, John O'Hara, James Higgins *(BNL)*, Jing Xing, Stephen Fleger *(NRC)*

1:50 p.m.
Updating the NRC's Human Factors Engineering Design Review Guidance, Stephen Fleger *(NRC)*, John O'Hara *(BNL)*

2:15 p.m.
Evaluation of Usability of "The Guideline for the Human Reliability Analysis Data Collection and Evaluation" to the Software Failure Scenario of Digital Instrumentation and Control Systems, Takaya Hata, Ryuji Kubota *(JNES)*

2:40 p.m.
An Overview of the IEEE Human Factors Standard Development Activities, Stephen Fleger *(NRC)*

3:05 p.m.
A Suggestion for the Improvement of HMI Design Review Guideline Based on the Design Review Experiences of Digital Devices for Nuclear Power Plants, Tong-Il Jang, Yong-Hee Lee, Seong-Hwan Hwang *(KAERI)*, Jaekyu Park *(Korea Univ)*

3:30 p.m.
A Method to Implement the Request of Minimum Inventory of Human System Interfaces in Advanced Main Control Room According to ISG-05, Chuang Chun-Yu, Peng Cheng-Chun, Cheng Tsung-Chieh, Chen Ming-Huei *(INER)*

I&C & HMIT Needs of Newcomer Countries to Nuclear Power–Panel

Session Cochairs: H. M. Hashemian *(AMS)*, Oszvald Glockler *(IAEA)*

Capri 115
1:00 p.m.
This panel will address the following and other related topics. Participants in the audience from newcomer countries will be invited to share their experiences.

1. Newcomer's interest in advanced (digital) I&C and HMIT technologies.
2. Interface (communication) between safety and nonsafety systems.
3. Advanced I&C lifetime and obsolescence issues.
4. Analog backup for safety I&C.
5. High reliability digital I&C in lieu of analog backup.
6. Training to migrate from analog to digital I&C and HMIT.
7. Conflict between proven technology (analog) and desired technology (digital).
8. First step in introducing digital I&C/HMIT in nuclear power plants in newcomer countries.

PANELISTS:
- H. M. Hashemian *(AMS)*
- Joseph Naser *(EPRI)*
- Oszvald Glockler *(IAEA)*
- Jin Jiang *(Univ of Western Ontario)*
- Chris Wiegand *(Invensys)*

WEDNESDAY • NOVEMBER 10, 2010

7:30 AM – 5:00 PM	MEETING REGISTRATION
8:00 AM – 10:00 AM	SPOUSE/GUEST HOSPITALITY
8:30 AM – 9:30 AM	TOFE: VELIKHOV PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS • Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—III • Field Programmable Gate Array (FPGA) for I&C Applications—I • Licensing Criteria and Lessons Learned in Licensing Digital Safety Systems (NRC Special Session) • Operator Training • Diversity and Defense in Depth (D3) for Nuclear Plant I&C Systems • Human Interaction with Automation • NRC Panel: International I&C Activities and Topics
10:00 AM – 11:30 AM	TOFE: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS • Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—IV • Modeling Digital I&C Systems in PRA/PSA • Field Programmable Gate Array (FPGA) for I&C Applications—II • I&C Modernization Experience—I • Human Performance Modeling in the Nuclear Environment • Safety Culture and Human Reliability Issues • Working Together in the Instrumentation, Control, and Human System Domains to Successfully Extend Nuclear Power Plant Operating Life to at Least 80 Years–Panel
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
1:30 PM – 3:30 PM	TOFE: TECHNICAL SESSIONS
3:30 PM – 5:30 PM	TOFE: POSTER SESSION—II
4:30 PM – 6:30 PM	FOCUS ON COMMUNICATIONS WORKSHOP
6:30 PM – 10:00 PM	EVENING EVENT: "Barbra & Frank: The Concert That Never Was"

WEDNESDAY, NOVEMBER 10, 2010, 8:30 A.M.

Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—III

Session Cochairs: Madeline Feltus *(DOE)*, Oszvald Glockler *(IAEA)*

Capri 101
8:30 a.m.
Diagnostics of Core Barrel and Fuel Assembly Vibrations in the Swedish Ringhals PWRs, I. Pázsit *(Chalmers Univ of Tech)*, C. Montalvo-Martín *(Chalmers Univ of Tech/Univ of Madrid)*, A. Hernandes-Soís, P. Bernitt Cartemo *(Chalmers Univ of Tech)*, H. Nylén *(Vattenfall Ringhals)*

8:55 a.m.
Predicting the Aging of Advanced Gas-Cooled Reactor (AGR) Graphite Bricks, G. M. West, C. J. Wallace, G. J. Jahn, S. D. J. McArthur *(Univ of Strathclyde)*, D. Towle *(EDF Energy)*

9:20 a.m.
Use of Online Monitoring to Support Condition Based Maintenance of Safety Category Sensors at Sizewell "B" Nuclear Power Plant, David J. Lillis *(EDF Energy)*

9:45 a.m.
A Bayesian Prognostic Algorithm for Assessing Remaining Useful Life of Nuclear Power Components, Pradeep Ramuhalli, Leonard J. Bond, Jeffrey W. Griffin, Mukul Dixit, Charles H. Henager, Jr. *(PNNL)*

10:10 a.m.
An Antineutrino Detector for Monitoring a CANDU™ Reactor, C. Jewett, R. Didsbury, G. Jonkmans, B. Sur *(AECL)*

10:35 a.m.
Design and Implementation of Advanced NSSS Integrity Monitoring System for APR1400, Soo-Young Choi, Hyung-Hyun Byun, Soo-Am Kim *(Doosan Heavy Industries & Construction)*

11:00 a.m.
Leakage Diagnostics in Pressure Sensing Lines for Nuclear Power Plants, Keith E. Holbert, Kang Lin *(Arizona State Univ)*

Field Programmable Gate Array (FPGA) for I&C Applications—I

Session Cochairs: Mykhaylo Yastrebenetsky *(State Center on Nuclear and Radiation Safety)*, Patrick Salaun *(EDF R&D)*

Capri 102
8:30 a.m.
Design and Qualification of I&C Systems on the Basis of FPGA Technologies, Ievgenii Bakhmach, Vyachesklav Kharchenko, Alexander Siora, Volodymyr Sklyar, Victor Tokarev *(RPC Radiy)*

8:55 a.m.
Using TMR to Mitigate SEUs for Digital Instrumentation and Control in Nuclear Power Plants, Xin Wang *(Beijing Jiaotong Univ)*, Keith E. Holbert, Lawrence T. Clark *(Arizona State Univ)*

9:20 a.m.
Qualification of Toshiba's FPGA-Based Safety-Related Systems, Atsushi Kojima, Mamoru Kato, Masayoshi Tahira, Miyazaki Tadashi, Naotaka Oda, Yasushi Goto, Toshifumi Hayashi, Toshifumi Sato, Shinji Igawa *(Toshiba)*

9:45 a.m.
Conceptual Design of FPGA-Based RPS for the Lungmen Nuclear Power Plant, Jun-Jen Lu, Hwai-Pwu Chou *(National Tsing Hua Univ)*, Kin-Wah Wong *(A-D Technol)*

10:10 a.m.
Issues on Validation of Programmable Logic Design for Digital Instrumentation and Control System, G. Y. Park, Dai I. Kim, C. H. Jung *(KINS)*

10:35 a.m.
Using FPGA Technology as an Obsolescence Tolerant Replacement I&C Solution in the Nuclear Industry, Martin Harrison *(Ultra Electronics Command & Control Systems)*

Licensing Criteria and Lessons Learned in Licensing Digital Safety Systems (NRC Special Session)

Session Cochairs: William Kemper, Dan Santos *(NRC)*

Capri 107
8:30 a.m.
Licensing Field-Programmable Gate Arrays in Safety Systems, Bernard F. Dittman *(NRC)*

8:55 a.m.
Oconee Digital Safety System Licensing Experience, Richard Stattel *(NRC)*, invited

9:20 a.m.
Security of Digital Safety Systems, Tim Mossman *(NRC)*

9:45 a.m.
Licensing Process for Digital Safety Systems, Norbert N. Carte, Derek Halverson *(NRC)*

10:10 a.m.
Licensing of the Oconee Nuclear Station Digital Protection System, Michael E. Bailey *(Duke Energy Carolinas)*, invited

Operator Training

Session Cochairs: Makoto Takahashi *(Tohoku Univ)*, Ronald Boring *(INL)*

Capri 111
8:30 a.m.
Operator Tracking System Using Particle Filter for Operation Skill Evaluation in Plant Control Room, Shigeru Kanamoto, Aiguo He, Takenobu Kazuma, Shiyang Wang *(Univ of Aizu)*, Yo-ichi Kawai *(BWR OTC)*

8:55 a.m.
Evaluation of Support System for Characterization of Training Scenarios for BWR, Soshi Suzuki, Makoto Takahashi, Toshio Wakabayashi *(Tohoku Univ)*, Kouji Iwatare *(BWR OTC)*

9:20 a.m.
Physical Fidelity Considerations for NRC Advanced Reactor Control Room Training Simulators Used for Inspector/Examiner Training, Kristi Branch, Mark Mitchell *(PNNL)*, Mark Miller, Steven Cochrum *(NRC Technical Training Center)*

9:45 a.m.
Human Factors Engineering as an Influence on Design Process for Overall Plant Design, Jeffrey M. Jones *(AREVA NP)*

10:10 a.m.
Lessons Learned from the Challenger Disaster, Robert E. Austin, III *(EPRI)*

Diversity and Defense in Depth (D3) for Nuclear Plant I&C Systems

Session Cochairs: Richard Wood *(ORNL)*, Ron Jarrett *(TVA)*

Capri 112
8:30 a.m.
Diversity Strategies to Mitigate Postulated Common Cause Failure Vulnerabilities, Richard T. Wood *(ORNL)*

8:55 a.m.
The INSAG Defense-in-Depth Concept and Defense-in-Depth and Diversity in Instrumentation and Control, Gary Johnson *(IAEA)*

9:20 a.m.
Multi-Diversity versus Common Cause Failures: FPGA-Based Multi-Version NPP I&C Systems, Vyacheslav Kharchenko, Alexander Siora, Volodymyr Sklar, Andriy Volkovly, Volodymyr Bezsaliy *(RPC RADIY)*

9:45 a.m.
Diversity Design Features in APR1400 MMIS, S. M. Baek, S. K. Nam, S. G. Han, H. K. Shin, H. B. Kim *(KEPCO E&C)*

10:10 a.m.
Development of a Diversity and Defense-in-Depth Strategy for the CNNC Fuqing and Fangjiashan Nuclear Plants, John DiBartolomeo *(Invensys)*, Jerry Mauck *(JLM Eng Technol Resources)*, Mike Howard *(CSA Inc)*, Edward L. Quinn *(Technology Resources)*

10:35 a.m.
Homogenous or Diversity-Based Digital I&C Systems Using Diverse Elements in Reactor Protection Systems—Approaches Taken in Germany, Alfred Weich, Stefen Heinz, Reinhard Schildheuer *(TÜV SÜD Energietechnik GmbH)*

11:00 a.m.
Development of a Diverse Actuation System for Four New Nuclear Plants in China, Eric Bernard *(Invensys)*, Chen Rigang *(CNPEC)*, Liu Hongchun *(Nuclear Power Institute of China)*, Jerry Mauck *(JLM Eng Technol Resources)*, Edward L. Quinn *(Technology Resources)*

Human Interaction with Automation

Session Cochairs: Tung-Ming Wu *(Taipower)*, Poong Hyun Seong *(KAIST, KUSTAR)*

Capri 113
8:30 a.m.
The Need for Improving Nuclear Plant Productivity, Robert E. Austin, III *(EPRI)*

8:55 a.m.
The Improvement of Display and Control Interface in the Digital Systems, Yi Chen Yang, Sheue Ling Hwang *(Natl Tsing Hua Univ)*, Chang-Fu Chuang *(Atomic Energy Council)*

9:20 a.m.
Human-System Interfaces for Automatic Systems, John O'Hara, James Higgins *(BNL)*, Stephen Fleger, Valerie Barnes *(NRC)*

9:45 a.m.
The Alarm System Design in Automation Systems, Tzu-Yi Yeh Liu, Sheue-Ling Hwang *(Natl Tsing Hua Univ)*, Sheau-Farn Max Liang *(National Taipei Univ of Technol)*, Chang-Fu Chuang *(Atomic Energy Council)*

10:10 a.m.
Applying Design Principles of User Interfaces on the Screen Display in the Lungmen Nuclear Power Plant, Sheau-Farn Max Liang, Po-Yi Chen *(Natl Taipei Univ of Technol)*

10:35 a.m.
Guidelines for Design and Implementation of Computerized Procedure Systems: An Update, Robert T. Fink, Charles D. Killian *(CDF Services Inc)*, Lewis F. Hanes *(Consultant)*, Joseph A. Naser *(EPRI)*

11:00 a.m.
Coping with Automation in Future Plants, Gyrd Skraaning, Jr., Maren H. R. Eitrheim *(OECD Halden Reactor Project)*, Nathan Lau *(Univ of Toronto)*

NRC Panel: International I&C Activities and Topics

Session Cochairs: Terry Jackson *(NRC)*, Ian Jung *(NRC)*

Capri 114
8:30 a.m.
This panel session will provide a forum to exchange the latest information on the challenges and activities associated with the global nature of new nuclear power plants focusing on digital instrumentation and control. Topics will include the key challenges and lessons learned, the current efforts on cooperation among regulators for licensing harmonization and enhanced safety reviews, the regulators' perspectives, the industry perspectives, and other international activities such as IAEA efforts and standards developments.

PANELISTS:
- Terry Jackson *(NRC)*
- Ian Jung *(NRC)*
- Pascal Regnier *(IRSN)*
- Clayton Scott *(Invensys)*
- Shelby Small *(AREVA)*
- Gary Johnson *(IAEA)*

WEDNESDAY, NOVEMBER 10, 2010, 1:00 P.M.

Advanced Surveillance, Diagnostics, and Prognostic Technologies and Applications—IV

Session Cochairs: Imre Pazsit *(Chalmers Univ of Technol)*, Jiri Pliska *(I&C Energo)*

Capri 101

1:00 p.m.
A Method for Detection of Drift in Measurements, Sungwhan Cho, Jin Jiang *(Univ of Western Ontario)*

1:25 p.m.
An Integrated System for Static and Dynamic Online Monitoring of Nuclear Power Plant Systems and Components, B. D. Shumaker, G. W. Morton, R. J. Wunderlich, S. D. Caylor, H. M. Hashemian *(AMS)*

1:50 p.m.
Equipment Monitoring via Transient Methods: EPRI Technology Innovation Program, Michael E. Sharp, J. W. Hines *(Univ of Tennessee)*, Robert Austin *(EPRI)*

2:15 p.m.
PowerOPTI—Thermal Performance Monitoring for Balance of Plant, J. Pliska, Z. Machat, V. Horky, P. Sury, L. Havlat *(I & C Energo)*

2:40 p.m.
Advanced Digital Rod Position Indication System for Existing and Next Generation Nuclear Reactors, G. W. Morton, S. D. Caylor, B. D. Shumaker, H. M. Hashemian *(AMS)*

Modeling Digital I&C Systems in PRA/PSA

Session Cochairs: Hyun Gook Kang *(KAERI)*, Nguyen Thuy *(EDF R&D)*

Capri 102

1:00 p.m.
A Potential Methodology for Developing Software Common Cause Failure Parametric Model Parameters, Steven A. Arndt *(NRC)*

1:25 p.m.
Risk Analysis for Digital Reactor Protection System with Consideration of Human Errors in Maintenance Tasks, M. Khalaquzzaman, Hyun Gook Kang *(KAIST)*, Man Cheol Kim *(KAERI)*, Poong Hyun Seong *(KAIST, KUSTAR)*

1:50 p.m.
Development of a Quantitative Analysis Method for Dynamic Reactor Trip Signal Generation Failure in Nuclear Power Plants, Seung Ki Shin, Poong Hyun Seong *(KAIST, KUSTAR)*

2:15 p.m.
Two Insights and Their Implications in Fault Detection Coverage of Digital I&C Systems, Man Cheol Kim *(KAERI)*

2:40 p.m.
Reliability Assessment of Diversity in Digital I&C Systems at Nuclear Power Plants, Jiri Sedlak *(Nuclear Research Institute Rez plc)*

3:05 p.m.
A Theoretical and Empirical Investigation of the Validity of Current Software Reliability Measurement Practice, Swu Yih *(Ching Yun Univ)*, Chin-Feng Fan, Wan-Hui Tseng *(Yuan-Ze Univ)*

3:30 p.m.
Quantitative Safety Analysis of Nuclear Safety Software, Gee-Yong Park, Heung-Seop Eom, Se-Woo Cheon, Seung-Cheol Jang, Dong-Hoon Kim *(KAERI)*

Field Programmable Gate Array (FPGA) for I&C Applications—II

Session Cochairs: Oleksandr Siora, Ievgenii Bakhmach *(RPC Radiy)*

Capri 107

1:00 p.m.
Guidelines and a Primer on Application of Field-Programmable Gate Arrays in Nuclear Plant I&C Systems, Robert T. Fink, Charles D. Killian *(CDF Services Inc)*, Thuy Nguyen, Antoine Druilhe, Frederic Daumas *(EdF)*, Joseph A. Naser *(EPRI)*

1:25 p.m.
Formal Verification of an FPGA Emulation of the Motorola 6800 Microprocessor, Antoine Druilhe, Frederic Daumas, Thuy Nguyen *(EdF)*

1:50 p.m.
Use of FPGA Technology in Implementation of the Logic of the Modernized Rod Control System (RCS) of the 900 MW EDF Fleet, Julien Bach, Ivan Tavolara *(Rolls-Royce Civil Nuclear SAS)*

2:15 p.m.
FPGA-Based Controller in CANDU® Nuclear Safety-Reactor Applications, Anqing Xing, John de Grosbois, Paul Archer, Anika Awwal *(AECL)*, Vladimir Sklyar *(RPC Radiy)*

I&C Modernization Experience—I

Session Cochairs: Sergey Anikanov *(Westinghouse)*, Manfred Marzendorfer *(Kernkraftwerk Leibstadt AG)*

Capri 111

1:00 p.m.
Experience of I&C Systems Modernization Using FPGA Technology, Ievgenii Bakhmach, Vyacheclav Kharchenko, Alexander Siora, Volodymyr Sklyar, Anton Andrashov *(RPC Radiy)*

1:25 p.m.
Impact of Data Processing and Monitoring System (DPMS) on Plant Operations, Sergey S. Anikanov *(Westinghouse)*

1:50 p.m.
The Main Control Board Upgrade Project at the Ikata Power Station for Units 1 and 2, Hiroshi Morikawa, Hiroshi Watanabe *(SEPC)*

2:15 p.m.
Implementation of Control Rod Control System to Eliminate Potential for SPV in PWR, Chae-Ho Nam, Soo-Am Kim, Kook-Hum Kim *(Doosan Heavy Industries & Construction)*

2:40 p.m.
Replacement of Plant Monitoring System (PMS) for Ulchin Unit 1&2 Plants, Jeong-Kweon Lee, Yong-Chul Shin, Hang-Bae Kim *(KEPCO E&C)*, Cheol-Ha An *(KHNP)*, O-Mo Sung *(Woori Technol Inc)*, Ji-Hun Lee *(BNF Technol Inc)*

3:05 p.m.
Manufacture and Function Test of Qualified Indication and Alarm System—Non Safety, Hyung-soo Lee, Jung-jin Park, Dae-jae Kim, Deok-in Kim, Seung-yeob Baeg *(Doosan Heavy Industries & Construction)*

Human Performance Modeling in the Nuclear Environment

Session Cochairs: Jay Persensky *(INL)*, Leonard Bond *(PPNL)*

Capri 112
1:00 p.m.
Information Foraging in Control Rooms, Ronald Laurids Boring *(INL)*

1:25 p.m.
Inferring Operator's Thought with Eye Movement Data, Jun Su Ha *(KINS)*, Poong Hyun Seong *(KAIST, KUSTAR)*

1:50 p.m.
Operationalizing Human Performance Models Using a Federation of Models Approach, Shelly Scott-Nash, Chris Plott *(Alion Sci Technol)*

2:15 p.m.
Extension of Functional Capabilities of NPP Information Computing System, A. Terekhov, K. Butkus, A. Voevodin *(Baltic Info Sys)*

2:40 p.m.
Evolution of the Human Client, Brian K. S. Smith, Jude Alexander *(AECL)*

Safety Culture and Human Reliability Issues

Session Cochairs: Joseph Murray *(Lockheed Martin)*, Atoosa Thunem *(OECD Halden Reactor Project)*

Capri 113

1:00 p.m.
Comparing Safe vs. At-Risk Behavioral Data to Predict Accidents, Jeffrey C. Joe *(INL)*

1:25 p.m.
Integration of Human Reliability Analysis with Human Factors Engineering Design, He Jiandong, Qiu Yongping, Hu Juntao *(SNERDI)*

1:50 p.m.
Systematic Evaluation of Human-Machine Reliability, Victor Mihaylov, Rolf Wichman *(AECL)*

2:15 p.m.
Development of a HRA Method Based on Human Factor Issues for Advanced NPP, Seung Woo Lee, Jun Su Ha, Poong Hyun Seong *(KAIST, KUSTAR)*

2:40 p.m.
Scrutinizing Cultural Factors in the Course of Events, Atoosa P.-J. Thunem *(OECD Halden Reactor Project)*

3:05 p.m.
Human Reliability Analysis for Design: Using Reliability Methods for Human Factors Issues, Ronald Laurids Boring *(INL)*

Working Together in the Instrumentation, Control, and Human System Domains to Successfully Extend Nuclear Power Plant Operating Life to at Least 80 Years–Panel

Session Cochairs: Joseph Naser *(EPRI)*, Jean-Pierre Burel *(Rolls Royce)*

Capri 114
1:00 p.m.
Throughout the world nuclear utilities are considering extending or already have extended the operating licenses for their plants. In the United States, several plants have already extended their licenses from 40 to 60 years, with most others planning to do this in the future. The U.S. nuclear industry is now evaluating future extensions to 80 years. Although there are many issues that need to be examined to make sure that the plant can operate safely and economically throughout its extended lifetime, the role for instrumentation and control, advanced human system interfaces, and information technology will be the subject of this panel discussion. Topics will include the DOE's Light Water Reactor Sustainability Program and the Electric Power Research Institute's Long Term Operation Project.

PANELISTS:
- Joseph Naser *(EPRI)*
- Bruce Hallbert *(INL)*
- Frank Lipinski *(Entergy)*
- Ken Thomas *(Duke)*
- Richard Wood *(ORNL)*
- Morgan Cox *(Chair, IEC Nuclear Standards Board)*

NPIC&HMIT 2010: Technical Sessions by Day: Thursday

THURSDAY • NOVEMBER 11, 2010	
7:30 AM – 2:00 PM	MEETING REGISTRATION
8:30 AM – 10:00 AM	TOFE: JAPAN ITER-DEMO PLENARY
8:30 AM – 11:30 AM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS
8:30 AM – 11:30 AM	NPIC&HMIT 2010: TECHNICAL SESSIONS • Wireless Technology Applications in Nuclear Power Plants • Advanced Sensors and Measurement Techniques—I • I&C Modernization Experience—II • Failure and Fault Analysis of Digital Systems • Software Verification & Validation (V&V) Methodologies, Issues, and Practices • General HMIT—I • General HMIT—II • Setpoint Methodology–Panel
10:15 AM – 12:15 PM	TOFE: TECHNOLOGY NEEDS FOR FUSION ENERGY–PANEL
12:15 PM – 12:30 PM	TOFE: MEETING CLOSING
1:00 PM – 4:00 PM	2010 ANS WINTER MEETING: TECHNICAL SESSIONS
1:00 PM – 4:00 PM	NPIC&HMIT 2010: TECHNICAL SESSIONS • General I&C—I • Virtual Reality: Applications and Issues • General I&C—II • Management of I&C Aging and Obsolescence • Applications of Technology to Enhance Maintenance and Operations • Information Presentation Techniques to Improve Human Decision Making • General I&C—III • Diversity and Defense in Depth: Status and Recent Experience–Panel
1:00 PM – 6:10 PM	ISOTOPES FOR MEDICINE AND INDUSTRY: TECHNICAL SESSIONS

THURSDAY, NOVEMBER 11, 2010, 8:30 A.M.

Wireless Technology Applications in Nuclear Power Plants

Session Cochairs: In Soo Koo *(KAERI)*, Ryan O'Hagan *(AMS)*

Capri 101

8:30 a.m.
The Emerging Role of Wireless Technologies in Nuclear Power Plants, Chad Kiger *(AMS)*, invited

8:55 a.m.
Issues Associated With Deploying Wireless Systems in Nuclear Facilities, M. K. Howlader, P. D. Ewing *(ORNL)*, Jeanne Dion *(NRC)*

9:20 a.m.
Prototype of a Wireless Padlock for Administrative Clearances Monitoring, Francois Dionis *(EdF R&D)*

9:45 a.m.
Analysis of High Luminance LED Beam Degradation for Visible Light Communication, Jai-Wan Cho, Seok-Boong Hong, In Soo Koo *(KAERI)*

Advanced Sensors and Measurement Techniques—II

Session Cochairs: Harald Thunem *(OECD Halden Reactor Project)*, Jiri Pliska *(I&C Energo)*

Capri 102

8:30 a.m.
Ultrasonic Waveguide Transducer for Under-Sodium Viewing, H.-T. Chien, K. Wang, W. P. Lawrence, D. Engel, D. Miranda, S.-H. Sheen *(ANL)*

8:55 a.m.
3-D Measurement and As-Built CAD Modeling by Photogrammetry and Laser Scanning in Nuclear Environments, Arnauld Dumont *(DimEye Corp)*, invited

9:20 a.m.
Measurement of True Process Temperatures and Pressures in Nuclear Power Plants, H. M. Hashemian *(AMS)*

9:45 a.m.
A Detector System for Noncontact Imaging of Contamination Patterns, A. Das, B. Sur, S. Yue, M. Gaudet, P. Tonner, G. Jonkmans, N. Munir *(AECL)*

10:10 a.m.
Data-Driven Fault Detection in Nuclear Power Plants Under Sensor Degradation, Xin Jin, Yin Guo, Robert M. Edwards, Asok Ray *(Penn State)*

10:35 a.m.
Design of High-Temperature Ultrasonic Linear Array for Under-Sodium Viewing, J. W. Griffin, L. J. Bond, A. M. Jones, T. J. Peters *(PNNL)*

I&C Modernization Experience—II

Session Cochairs: Ievgenii Bakhmach *(RPC Radiy)*, Alireza Haghighat *(Univ of Florida)*

Capri 107

8:30 a.m.
Manufacture and Function Test of Engineered Safety Features-Component Control System for Supply New Nuclear Power Plant, Jeyoung Ryu, Seongtae Kim, Seungyeob Baeg, Kookhun Kim et al. *(Doosan Heavy Industries & Construction)*

8:55 a.m.
The Challenges of Replacing the Safety System in an Operating Nuclear Plant, Stephen Fowler *(Westinghouse)*, Jan-Erik Thomander *(Ringhals AB)*

9:20 a.m.
DRPI Upgrade Case Study, Joseph M. Maurio, Chris McClure *(Northrop Grumman)*

9:45 a.m.
The TWICE Lifecycle Engineering System, Caj E. Svensson *(Westinghouse)*

10:10 a.m.
Digital Upgrade of the UFTR Protection and Control Systems, Alireza Haghighat, Gabriel Ghita *(Univ of Florida)*, Lionel Bates, Eric Wallace *(AREVA NP)*

NPIC&HMIT 2010: Technical Sessions by Day: Thursday

Failure and Fault Analysis of Digital Systems

Session Cochairs: Ray Torok *(EPRI)*, Sean Smith *(Lockheed Martin)*

Capri 111

8:30 a.m.
Installation Phase Software Safety Analysis, Hui-Wen Huang, Ming-Huel Chen, Shian-Shing Shyu, Tsung-Chieh Cheng, Tseng Mao-Sheng *(INER)*, Jiin-Ming Lin *(Taiwan Power Co)*

8:55 a.m.
An Investigation of Digital Instrumentation and Control System Failure Modes, Kofi Korsah, Sacit Cetiner, Michael Muhlheim, W. P. Poore III *(ORNL)*

9:20 a.m.
New Fault Injection and Dependability Analysis Methods for Safety Critical Digital I&C Systems: Application to Commercial Safety Grade I&C Platforms, Carl R. Elks, Barry W. Johnson, Michael Reynolds, Nishant George, Nishant George, Marko Miklo *(Univ of Virginia)*, Michael Waterman, Jeanne Dion *(NRC)*

9:45 a.m.
Digital System Failure Analysis Methodologies, Bruce J. Geddes *(Southern Engineering Services Inc)*, Raymond C. Torok *(EPRI)*, invited

Software Verification & Validation (V&V) Methodologies, Issues, and Practices

Session Cochairs: Steve Yang *(AREVA NP)*, Janne Valkonen *(VTT Technical Research Centre of Finland)*

Capri 112

8:30 a.m.
Formal Validation of Safety I&C Systems, Robert R. Moniri *(AREVA NP)*

8:55 a.m.
Experience of NPP with VVER I&C Software V&V with the Use of Computer Codes Applied for Nuclear Steam Supply System Designs Substantiation, M. A. Podshibyakin *(GIDROPRESS)*

9:20 a.m.
Verification of Automated Changeover Switching Unit by Model Checking, Kim Björkman, Janne Valkonen, Jukka Ranta *(VTT Technical Research Centre of Finland)*

9:45 a.m.
Integrating Model Checking with Safety-Critical I&C Software Design, Antti Pakonen, Jussi Lahtinen, Veli-Pekka Kuutti, Tommi Karhela *(VTT Technical Research Centre of Finland)*

10:10 a.m.
Analyzing Quality Aspects in Safety-Related Standards, Isabella Biscoglio, Mario Fusani *(ISTI-CNR)*

10:35 a.m.
RELAP5 Water-Hammer Benchmarking via a Theta-Implicit Finite-Element Algorithm, Stuart A. Walker, Arthur E. Ruggles *(Univ of Tennessee)*

General HMIT—I

Session Cochairs: Zhijian Zhang *(Harbin Engineering Univ)*, Manfred Marzendorfer *(Kernkraftwerk Leibstadt AG)*

Capri 113

8:30 a.m.
MMOTION Project, the European Project for Defining the EU Research Roadmap on HF, I&C and HSI for NPPs, G. Filippi *(EDF)*, L. Norros *(VTT Technical Research Centre of Finland)*, D. Pirius *(EDF SEPTEN)*, F. Dionis *(EDF R&D)*, All MMOTION Partners

8:55 a.m.
The Effects of Degraded Digital Instrumentation and Control Systems on Human-System Interfaces and Operator Performance, John O'Hara, Bill Gunther, Gerardo Martinez-Guridi *(BNL)*, Jing Xing, Valerie Barnes *(NRC)*

9:20 a.m.
Human Factors Aspects of Operating Small Modular Reactors, John O'Hara, James Higgins, Richard Deem *(BNL)*, Jing Xing, Amy D'Agostino *(NRC)*

9:45 a.m.
Human Error Modes According to the Design of Soft Controls in Advanced Main Control Rooms, Seung Jun Lee, Jaewhan Kim, Seung-Cheol Jang *(KAERI)*

10:10 a.m.
Development of AREVA's Human Factors Engineering Strategy for German Modernization Projects, Gwendolin Holzner, Tobias Koeber *(AREVA NP)*

General HMIT—II

Session Cochairs: Jean-Pierre Burel *(Rolls Royce)*, Poong Hyun Seong *(KAIST, KUSTAR)*

Capri 114

8:30 a.m.
The Control Room Upgrade in Oskarshamn 2 Modernization Project, Lessons Learned from Ongoing Human Factor Engineering Design Process, Thomas Gunnarsson, Magnus Eliasson *(OKG AB)*

8:55 a.m.
Licensing Issues of Human Factors Engineering for Digital Control Room in China, Shuhui Zhang, Fei Song, Danying Gu, Zhonghe Ning *(Shanghai Nucl Eng Research Design Inst)*

9:20 a.m.
Human Factors Engineering Review of a Digital Upgrade at McGuire Nuclear Station, Frederick J. Twogood *(Altran Solutions/Duke Energy)*, invited

9:45 a.m.
Some Advanced Alarm Functions, François Chériaux, Patrick Salaün *(EdF R&D)*, Joseph Naser *(EPRI)*

10:10 a.m.
Improving Alarm Visualization and Consistency for a BWR Large Screen Display Using the Information Rich Design Concept, Alf Ove Braseth ,Tommy Karlsson, Håkon Jokstad *(Inst for Energy Technol)*

10:35 a.m.
Assuring MMIS Integration for Shin Kori 3&4, Daryl L. Harmon, Nancy Jo Roseberry *(Westinghouse)*

11:00 a.m.
Hybrid Control Room Design: Challenges and Solutions, Alberto Foronda *(Tecnatom)*

Setpoint Methodology–Panel
Session Chair: Jerry Voss *(EXCEL Services Corp)*

Capri 115
8:30 a.m.
We will be discussing current NRC Request for Setpoint Methodology changes based on recent Licensing Amendment Requests and plant inspection items. We will also discuss Setpoint Methodology as applicable to new plants as well.

PANELISTS:
- Jerry Voss *(ISYS Consulting)*
- Bill Kemper *(NRC)*
- Ron Jarrett *(TVA)*
- A representative from NPPD for Cooper Nuclear Station – to be determined.
- A representative from Dominion for Kewaunee – to be determined.

THURSDAY, NOVEMBER 11, 2010, 1:00 P.M.

General I&C—I
Session Cochairs: Humberto Garcia *(INL)*, Darrell Mitchell *(AMS)*

Capri 101
1:00 p.m.
Application Prospect Analysis of the H1 Fieldbus in Nuclear Power Plant, Zhou Kun, Lin Jie, Sang Ming *(CTEC)*

1:25 p.m.
A New Type of the Technological Flow Designing Method, Zhi Pang, Yuan Liu *(CTEC)*, Yang Zhang *(Beijin Electric Power Corp)*

1:50 p.m.
Current Status of Instrumentation for a Fluoride-Salt Heat Transport Demonstration Loop, Roger Kisner, David Holcomb *(ORNL)*

2:15 p.m.
Effect of Drywell Temperature Variations on Boiling Water Reactor Level Instrumentation Readings, Miguel Ceceñas F., Rosember Ovando C. *(Instituto de Investigaciones Electricas)*, Moisés A. Cruz G., Miguel A. Castañeda G., Andrés Vargas A., Jorge Cárdenas J. *(CFE)*

2:40 p.m.
Model-Based Condition Monitoring Techniques for Balance of Plant Analysis Using TEMPO, William Beere, Steven Mullet, Emil Wingstedt, Øivind Berg *(OECD Halden Reactor Project)*, Samuli Savoainen, Tero Lahti *(Fortum Power and Heat)*

3:05 p.m.
An Inverse Control-Based Set-Point Function for the Reduction of Water Level Fluctuations in a U-Tube Steam Generator for Nuclear Power Plants, Mahmood Akkawi, Jin Jiang *(Univ of Western Ontario)*

Virtual Reality: Applications and Issues
Session Cochairs: Bruce Hallbert *(INL)*, Yeong Cheol Shin *(KHNP)*

Capri 102
1:00 p.m.
Application of Virtual Models to Support Control Room Upgrades, Lewis F. Hanes *(Consultant)*, Christopher J. Sterba *(OPPD, Ft. Calhoun)*, Risa Larsen *(Lockheed-Martin Simulation)*, Joseph Naser *(EPRI)*, invited

1:25 p.m.
Optimized Power Reactor from Drawing Board to Virtual Reality, Kune Y. Suh *(PHILOSOPHIA/Seoul Natl Univ)*, Young M. You *(PHILOSOPHIA)*

1:50 p.m.
A Comparative Study of Radiation Visualization Techniques for Interactive 3-D Software Applications, Michael N. Louka, Grete Rindahl *(OECD Halden Reactor Project)*

2:15 p.m.
Laser Scanning Technology in Support of Nuclear Plant Lifecycle Prepared for HMIT Conference, Amadeus Burger *(CSA)*

General I&C—II
Session Cochairs: Robert Queenan *(Scientech)*, Tighe Smith *(Thermo Fishier Scientific)*

Capri 107
1:00 p.m.
Solid State Protection System Refurbishments Using the RPC303 Automatic Test System, Michael J. Kmita , Joseph G. Kapusta *(Kimka Inc)*

1:25 p.m.
Regulatory Activities on Digital I&C Systems for Compliance with Electromagnetic Compatibility Requirements at Korean Nuclear Power Plants, Hong-Seok Jang, Bok-Ryul Kim, Sang-Keun Lee, Dae-Sik Kim *(KINS)*

1:50 p.m.
Requirements and Test Methods for EMC Qualification Testing of Nuclear Power Plant Equipment to Support Digital Upgrades, Chad Kiger *(AMS)*

2:15 p.m.
Going from Analog to Digital: Radiated Emissions Performance of a Nuclear Plant Control System Upgrade from 100 Hz to 6 GHz, Philip F. Keebler *(EPRI)*, Stephen Berger *(TEM Consulting)*

Management of I&C Aging and Obsolescence
Session Cochairs: Rob Austin *(EPRI)*, H. M. Hashemian *(AMS)*

Capri 111
1:00 p.m.
Advanced Environmental Qualification Test and Condition-Based Environmental Qualification For Cables, Toshio Yamamoto, Takefumi Minakawa *(JNES)*

1:25 p.m.
Applications of Joint Time-Frequency Domain Reflectometry for Health Assessment of Cable Insulation Integrity in Nuclear Power Plants, David Coats, JingJiang Wang, Yong-June Shin, Roger A. Dougal *(Univ of South Carolina)*, Thomas Koshy *(NRC)*, invited

1:50 p.m.
Benefits of Failure Analysis and Destructive Physical Analysis in Aging Management of Electronic Boards, Laurent Cretinon, Dominique Talbourdet *(EdF R&D)*

Applications of Technology to Enhance Maintenance and Operations

Session Cochairs: Hidekazu Yoshikawa *(Harbin Engineering Univ)*, Yangping Zhou *(Tsinghua Univ)*

Capri 112
1:00 p.m.
An Integrated Tool for Developing Operator Support System of Nuclear Power Plant, Yangping Zhou, Yujie Dong *(Tsinghua Univ)*, Hidekazu Yoshikawa *(Symbio Community Forum/Harbin Engineering University)*

1:25 p.m.
Development of Semiotic Framework of Proactive Trouble Prevention Knowledge Base System and Its Application for FBR Prototype Plant "Monju," Hidekazu Yoshikawa, Ming Yang *(Symbio Community Forum)*, Morten Lind *(Technical Univ of Denmark)*, Kiyoshi Tamayama, Kyoichi Okusa *(JAEA)*

1:50 p.m.
Online Maintenance Support Technology Based on MFM and GO-FLOW, Zhang Xu, Yang Ming *(Harbin Engineering Univ)*

2:15 p.m.
Toward the Preparation of Operating Procedures and Clearances Using 2-D Interactive Drawings, Renaud Aubin *(EdF R&D)*

2:40 p.m.
Knowledge Representation for Integrated Plant Operation and Maintenance, Morten Lind *(Tech Univ of Denmark)*

3:05 p.m.
Data Storage and Analysis Techniques for Monitoring Advanced Gas-Cooled Reactor Structural Integrity, G. Jahn, S. D. J. McAuthur *(Univ of Strathclyde)*, D. Towle *(EDF Energy)*

Information Presentation Techniques to Improve Human Decision Making

Session Cochairs: Paolo Fantoni *(Inst for Energiteknikk)*, Atoosa Thunem *(OECD Halden Reactor Project)*

Capri 113

1:00 p.m.
Knowledge Capture for the Utilities, Robert R. Hoffman *(Inst Human Machine Cognition)*, Brian Moon *(Perigean Technol LLC),* invited

1:25 p.m.
Application of Knowledge Extraction Method for Aging Management in Nuclear Power Plant, Natsuki Shiraishi, Makoto Takahashi, Toshio Wakabayashi *(Tohoku Univ)*

1:50 p.m.
Performance Ahead: Innovative Digital, Information and Communication Technologies for Safer and More Efficient Outages in Nuclear Power Plants, Laurent Coudert, Fabrice Saintamon, Samuel Parfouru *(EdF R&D)*, Jon Kvalem *(OECD Halden Reactor Project)*, Pierre Salom, Stéphanie Rey *(IntuiLab)*

2:15 p.m.
Lessons Learned in Knowledge Elicitation with Nuclear Experts, Brian M. Moon *(Perigean Technol LLC)*, Matthew H. Kelley *(Westinghouse)*

2:40 p.m.
Methods Applied at Comanche Peak NPP for Eliciting and Presenting Valuable Knowledge, Lewis F. Hanes *(Consultant)*, James Gallman *(Luminant Energy Comanche Peak Nuclear Power Plant)*, Joseph Naser *(EPRI)*, invited

General I&C—III

Session Cochairs: Nguyen Thuy *(EDF R&D)*, Janos Eiler *(Paks Nuclear Power Plant)*

Capri 114
1:00 p.m.
R&D Projects in the NPIC&HMIT Area Sponsored by DOE Under the SBIR Program, Madeline Anne Feltus *(DOE)*, H. M. Hashemian *(AMS)*, invited

1:25 p.m.
Review of Passive Safety Systems in Nuclear Power Plants, Baosheng Wang, Dongqing Wang, Jianmin Zhang *(Xi'an Jiaotong Univ)*, Jin Jiang *(Xi'an Jiatong Univ/Univ of Western Ontario)*

1:50 p.m.
Formal Verification of Freedom from Intrinsic Software Faults in Digital Control Systems, Sébastien Labbé, Nguyen Thuy *(EDF)*

2:15 p.m.
Modeling for the Nuclear Reactor Power Control System Based on T-S Fuzzy Model, Gong Cheng, Peng Minjun, Cheng Shouyu *(Harbin Engineering Univ)*

2:40 p.m.
Development of a New Working Group on Advanced Instrumentation, Control and Information System Technology for the LWR Sustainability Program, Ken D. Thomas *(Duke Energy)*, Frank P. Lipinski *(Entergy Nuclear)*, Edward L. Quinn *(Technology Resources)*, Bruce P. Hallbert *(INL)*, Joseph Naser *(EPRI)*

Isotopes for Medicine and Industry

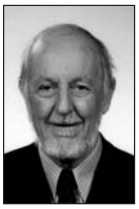
Sponsored by:
Accelerator Applications Division, Biology and Medicine Division, Isotopes and Radiation Division of the American Nuclear Society

Co-sponsorship provided by:
Canadian Nuclear Society, Isotope Technologies Garching, University of Missouri Research Reactor Center, and the U.S. Department of Energy

GENERAL CHAIR:
J. David Robertson
University of Missouri Research Reactor Center

GENERAL CO-CHAIR:
Mauro Bonardi
University of Milan, Italy

GENERAL CO-CHAIR:
Robert W. Atcher
U.S. Department of Energy



TECHNICAL PROGRAM CHAIR:
Rolf Zeisler
National Institute of Standards and Technology

MONDAY, NOVEMBER 8, 2010, 1:00 P.M.

Opening Plenary
Session Chairs: J. David Robertson *(Univ of Missouri, Columbia)*, Robert W. Atcher *(DOE)*, Mauro Bonardi *(Univ of Milan, Italy)*, Rolf Zeisler *(NIST)*

Capri 108 & 109

OPENING REMARKS

1:00 p.m.
WELCOME / INTRODUCTION
Joe F. Colvin *(ANS President)*

KEYNOTE
1:20 p.m.
The Future of Isotopes in Health, Environment, and Trade
Natesan Ramamoorthy *(IAEA)*, Werner Burkart *(DDG, IAEA)*

PLENARY SPEAKERS
2:10 p.m.
GTRI'S Efforts to Accelerate the Establishment of a Medical Isotope Production Capability Without the Use of Highly Enriched Uranium, Parrish Staples, Rilla Hamilton, Martie Larson *(DOE-NNSA)*, Cheryl Fitzgerald *(INL)*, Jeff Lindemyer *(YFH & Assoc)*

2:40 p.m.
Overview of High-Energy Accelerator Production of Biomedical Radionuclides in Europe, Mauro Bonardi *(Univ of Milan, Italy)*, Boris Zhuikov *(INR)*, Flavia Groppi *(LASA)*

3:10 p.m.
Radiometric Detection: Robust, High Sensitivity Technology for Diverse Applications in Academic, Biotech, and Pharma Markets, Pat Meyer *(Perkin Elmer)*

3:40 p.m.
COFFEE BREAK

PLENARY SPEAKERS
4:10 p.m.
Recent Developments in Isotope Production at Oak Ridge National Laboratory, Jeffrey L. Binder, Ronald A. Crone, Christopher Dennis Bryan, Timothy P. Powers *(ORNL)*

4:40 p.m.
New Developments in the DOE Isotope Program, Robert W. Atcher *(DOE-BES)*

5:10 p.m.
Securing and Supplementing Medical Isotope Supplies: The IAEA Role and Support to Member States, Natesan Ramamoorthy, Mohammad Haji-Saeid, Edward Bradley, Pablo Adelfang *(IAEA)*

Isotopes: Technical Sessions by Day: Tuesday

TUESDAY, NOVEMBER 9, 2010, 8:30 A.M.

Reactor- and Accelerator-Based Production of ^{99}Mo—I

Session Chairs: Parrish Staples *(DOE-NNSA)*, Steve Biegalski *(Univ of Texas, Austin)*

Capri 108 & 109

8:30 a.m.
Molybdenum-99 Generation Utilizing Existing Reactor Infrastructure, Jennifer Varnedoe, Alison Thomas, John Berger *(GE Hitachi Nuclear)*, Lin-Wen Hu *(MIT)*

8:50 a.m.
Developing a U.S. Supply of ^{99}Mo Using Low-Enriched Uranium, George F. Vandegrift *(ANL)*, Lloyd Jollay *(Y-12 NSC)*, invited

9:10 a.m.
The Target Fueled Isotope Reactor, Richard Coats, Edward Parma, James Dahl *(SNL)*

9:30 a.m.
INVAP's Experience in the Construction of LEU ^{99}Mo Production Facilities, Amaya Daniel *(INVAP)*

9:50 a.m.
An Overview of the B&W Medical Isotope Production System: Mo-99 Production with Aqueous Homogenous Reactors, W. Evans Reynolds *(BWX Technol)*

10:10 a.m.
Conceptual Facility Design for ^{99}Mo Isotope Production Using the Target Fueled Isotope Reactor, Edward Parma, Richard Coats, Milton Vernon *(SNL)*

10:30 a.m.
Thermal/Mechanical/Hydraulic Experimental Tools for Molybdenum-99 Production Target Analysis, P. F. Makarewicz, K. K. Turner, G. L. Solbrekken *(Univ of Missouri)*, J. S. Morrell *(B&W Y-12)*

10:50 a.m.
Non-Dimensional Analytical Analysis of a Simply Supported Molybdenum-99 Production Target, K. K. Turner, G. L. Solbrekken *(Univ of Missouri, Columbia)*, J. S. Morrell *(B&W Y-12)*

11:10 a.m.
Feasibility Study of Neutron Capture Molybdenum-99 Production, Christopher D. Bryan, Randy W. Hobbs, Jeffrey L. Binder *(ORNL)*, invited

TUESDAY, NOVEMBER 9, 2010, 1:00 P.M.

Reactor- and Accelerator-Based Production of Mo-99—II

Session Chairs: Sheldon Landsberger *(Univ of Texas, Austin)*, Phillip D. Ferguson *(ORNL)*

Capri 108 & 109

1:00 p.m.
Aqueous Homogenous Reactor Fuel Reuse for Molybdenum-99 Production, Daniel E. Glenn, Steven W. Schilthelm *(Babcock & Wilcox)*

1:20 p.m.
Recent Advances in Understanding Aqueous Homogeneous Reactor Operating Characteristics, John Ireland *(LANL)*, Steven Klein *(Techsource)*, Richard Malenfant *(Sumner Assoc)*, invited

1:40 p.m.
Using Electron-Linacs to Meet Canada's Requirement for ^{99m}Tc, Raphael Galea, Carl Ross, Patrick Saull *(Natl Rsch Council–Canada)*

2:00 p.m.
Engineering Activities Supporting Commercial U.S. Accelerator Production of ^{99}Mo, Gregory Dale *(LANL)*, Sergey Chemerisov, George Vandegrift *(ANL)*, invited

2:20 p.m.
3000 6day-Ci/Week ^{99}Mo Produced in a Single Accelerator LEU Solution Reactor, Robert E. Schenter, Michael K. Korenko, Nigel R. Stevenson *(AMIC)*

2:40 p.m.
Direct Production of Tc-99m with a Medical Cyclotron, S. A. McQuarrie, K. Gagnon, J. Wilson *(Univ of Alberta)*, invited

3:00 p.m.
Concept of a Compact Accelerator-Driven Neutron Multiplier for ^{99}Mo Production, Itacil C. Gomes *(IC Gomes Consulting & Investment Inc)*, Jerry A. Nolen *(ANL)*

3:20 p.m.
Production of Mo-99 Uusing 30-MeV Electrons and a Mo-100 Target, Y. Danon *(RPI)*, R. Block *(Science Enterprise Group LLC)*, J. Harvey *(NorthStar Medical Radioisotopes LLC)*

3:40 p.m.
COFFEE BREAK

Reactor Production of Medical Isotopes

Session Chairs: Richard Henkelmann *(Isotope Technologies Garching)*, F. Meiring Nortier *(LANL)*

Capri 108 & 109

4:10 p.m.
Establishment of a Daily Supply Chain of ^{177}Lu n.c.a. for Targeted Tumor Therapy, S. Marx, M. Harfensteller, R. Henkelmann, J. Küfner, O. Leib *(ITG GmbH)*, T. Nikula *(ITM AG)*, H. Gerstenberg *(Forschungs-Neutronenquelle Heinz Maier-Leibnitz)*, G. Bukalis *(HZB)*, F. Gajdos *(KFKI-Hungary)*, C. Toma *(Inst Nucl Rsch Pitesti-Mioveni)*, B. Ponsard *(Studiecentrum voor Kernenergie)*, U. Koester *(Inst Laue-Langevin)*, invited

4:30 p.m.
Neutron Capture Cross Sections for the Reactor Production of Tungsten-188, Robyn E. Spink *(Univ of Michigan/ORNL)*, Marc A. Garland, Furn F. (Russ) Knapp, Saed Mirzadeh *(ORNL)*

4:50 p.m.
Clinton Power Station—Bulk Isotope Generation, Michael Reitmeyer *(Exelon Nuclear)*, Bradley Bloomquist *(GE Hitachi Nuclear)*, Michael Downs *(Global Nuclear Fuels)*, Timothy Byam, Douglas Wise *(Exelon Nuclear)*, invited

5:10 p.m.
Medical Isotope Production in the Advanced Test Reactor, Frances M. Marshall *(INL)*

5:30 p.m.
Production of Medical Isotopes in the BR2 High-Flux Reactor, B. Ponsard *(SCK/CEN)*, invited

5:50 p.m.
Reactor Production at MURR: 44 Years and Still Going Strong, Cathy Cutler, Leonard Manson III, Gary Ehrhardt, Jack Lydon, Alan Ketring *(Univ of Missouri, Columbia)*, invited

WEDNESDAY, NOVEMBER 10, 2010, 8:30 A.M.

Applications in Nuclear Medicine Diagnostics—I

Session Chairs: Henry VanBrocklin *(Univ of California, San Francisco)*, Nicholas Spyrou *(Univ of Surrey)*, Robert W. Atcher *(DOE)*

Capri 108 & 109
8:30 a.m.
Comparison Between FBP and OSEM Reconstruction in Bone SPECT Images, Nadiyah A. Hadi, Layla M. Ali *(Kuwait Univ)*, Nicholas M. Spyrou *(Univ of Surrey)*, invited

8:50 a.m.
FDG PETCT in Case of HCC with Y90 Radioembolization, Yu-Wen Chen, Yung-Chang Lai *(Kaohsiung Medical Univ)*

9:10 a.m.
Simulation of Beehive Shape Segmentation of Gamma Camera, Andy K. Ma *(Univ of Dammam)*, Djelloul Mahboub *(University of Ha'il)*, Ali A. Alghamdi *(Univ of Dammam)*, invited

9:30 a.m.
Investigation of Bias and Variance in PET Oncology Images Using OSEM Reconstruction, T. J. Spinks *(Hammersmith Imanet)*, F. Kotasidis *(Univ of Manchester)*, K. Contractor *(MRC Clinical Sciences Centre)*, invited

9:50 a.m.
A Prototype Lanthanum-Based Scanner Using Three Photon Positron Annihilation, M. A. Alkhorayef, K. S. Alzimami, N. M. Spyrou *(Univ of Surrey, King Saud Univ)*, invited

10:10 a.m.
An Assessment of Time of Flight Positron Emission Tomography, Bjoern W. Jakoby *(Univ of Surrey/Univ of Tennessee Medical Center/Siemens Medical Solutions USA)*, Joshua D. Schaefferkoetter *(Univ of Tennessee Medical Center)*, Maurizio Conti *(Siemens Medical Solutions USA)*, Nicholas M. Spyrou *(Univ of Surrey)*, David W. Townsend *(Singapore Bioimaging Consortium and National Univ)*, invited

10:30 a.m.
Optimized Energy Window Selection for ^{89}Zr PET Imaging Using Monte Carlo Simulation, K. S. Alzimami *(King Saud Univ)*, S. A. Sassi *(Inst Cancer Rsch/Royal Marsden NHS Foundation Trust)*, A. A. Alfuraih, M. A. Alkhorayef *(King Saud Univ)*, N. M. Spyrou *(Univ of Surrey)*, invited

10:50 a.m.
Radiochemical Studies on the Radiolabeling and Chromatographic Separation of Tracers for Radioimmunoassay Purposes, Kh. M. Sallam, K. A. Moustafa, T. Syam *(Egyptian Atomic Energy)*

WEDNESDAY, NOVEMBER 10, 2010, 1:00 P.M.

Applications in Nuclear Medicine Diagnostics—II

Session Chairs: Buck Rogers *(Washington Univ, St. Louis)*, Rui Zhang *(MD Anderson)*, All invited

Capri 108 & 109
1:00 p.m.
Radiosynthesis, Biodistribution and Scintigraphy of the ^{99m}Tc-Teicoplanin Complex in Artificially Infected Animal Models, Syed Qaiser Shah *(Univ of Peshawar)*

1:20 p.m.
Review of Targeted Radionuclide Therapy Dosimetry, Firas Mourtada *(Univ of Texas ACC)*

Applications in Nuclear Medicine—Therapeutics

Session Chairs: Buck Rogers *(Washington Univ, St. Louis)*, Rui Zhang *(MD Anderson)*

Capri 108 & 109
1:40 p.m.
Preparation and Use of ^{198}Au/^{199}Au for Potential Applications in Cancer Therapy and Imaging, Cathy Cutler, Para Kan, Nripen Chanda, Silvia Jurisson *(Univ of Missouri, Columbia)*, Lisa D. Watkinson *(Truman Hosp)*, John R. Lever, Jeffrey C. Smith, K. V. Katti, Raghuramen Kannan, Kattesh Katti *(Univ of Missouri, Columbia)*, invited

2:00 p.m.
Radioimmunotherapy of Fungal Infection with ^{213}Bi-Labeled Antibody, Ekaterina Dadachova, Ruth Bryan, Zewei Jiang, Arturo Casadevall, Alfred Morgenstern, Frank Bruchertseifer *(Albert Einstein Coll of Medicine)*, invited

2:20 p.m.
Effective Half-Life Measurement of Postsurgical I-131 Treatment Thyroid Cancer Patient, Yung-Chang Lai, Yu-Wen Chen, Ying-Fong Huang *(Kaohsiung Medical Univ)*

2:40 p.m.
Differential Effects of ^{213}Bi- and ^{225}Ac-Labeled Tumor-Homing Peptides in Tumors and Normal Tissue in Preclinical Models of Peritoneal Carcinomatosis, Markus Essler *(Technische Univ München)*, Alfred Morgenstern, Frank Bruchertseifer *(EC-JRC)*, Christof Seidl *(Technische Univ München)*

3:00 p.m.
COFFEE BREAK

Cyclotron Production of Biomedical Tracers

Session Chairs: Suzanne Lapi *(Washington Univ, St. Louis)*, Kimberly Hardin *(NRC NMSS)*

Capri 108 & 109

3:30 p.m.
Current and Future Uses of Cyclotrons in Medical PET Imaging, John A. Correia *(Massachusetts Genl Hosp)*, invited

3:50 p.m.
Solid Target Production of Positron Emitters on Medical Cyclotrons, Jason S. Lewis *(Memorial Sloan-Kettering Cancer Center)*, invited

4:10 p.m.
Cyclotron Production of ^{64}Cu Through the Irradiation of ^{64}Ni, J. M. Gahl, J. D. Robertson, A. Yu. Garnov, L. A. Saale, M. D. Weichelt *(Univ of Missouri, Columbia)*

4:30 p.m.
In the Beginning: A Review of the Production of Radionuclides Utilizing Gas Phase Systems. What Have We Learned and What Do We Need to Do Now?, Thomas J. Ruth *(TRIUMF)*, invited

4:50 p.m.
Production of Fluorine-18 with a Cyclotron: Double, Double, Toil and Trouble, Beam Burn and Cauldron Bubble, David J. Schlyer *(BNL)*, Thomas Ruth *(TRIUMF)*, Robert Jerome Nickles *(University of Wisconsin, Madison)*, Mikael Jensen *(Hevesy Lab)*, Ibrahim Al-Jammaz *(King Faisal Specialist Hosp and Research Center)*, Abdul Hamid Al Rayyes *(AEC–Syria)*, Jong-Seo Chai *(Sungkyunkwan Univ)*, Hermann Schweickert, Franz Oberndorfer *(ZAG Zyklotron)*, Olof Solin *(Univ of Turku)*, Deniz Kivrakdal, Ayfer Soylu *(MONROL Nuclear Co)*, Ferenc Ditroi *(Hungarian Academy of Sciences)*, Pierre Van den Winkel, Razvan Adam Rebeles *(Vrije Univ)*, invited

Distribution and Transportation Issues

Session Chairs: Suzanne Lapi *(Washington Univ, St. Louis)*, Kimberly Hardin *(NRC NMSS)*

Capri 108 & 109

5:10 p.m.
NRC Process Improvements for Medical Isotope Foreign Transportation Package Reviews, Kimberly Hardin *(NRC)*, invited

5:30 p.m.
Denial of Shipment of Radioactive Materials, Paul Gray *(MDS Nordion)*

THURSDAY, NOVEMBER 11, 2010, 8:30 A.M.

Manpower and Education–Panel

Session Chairs: Kenan Ünlü *(Penn State)*, Rolf Zeisler *(NIST)*

Capri 108 & 109

PANELISTS:

8:30 a.m.
NRC's Role in Manpower and Education, John Gutteridge *(NRC)*

8:42 a.m.
Reestablishment of Radiochemistry Education in the United States, Craig Williamson *(SCUREF)*

8:54 a.m.
Nuclear Energy University Program (NEUP): Progress, 2010 Status, and a Look Toward the Future, Marsha J. Lambregts *(INL)*

9:06 a.m.
Training the Next Generation of Radiochemists at the University of Missouri, Silvia Sabine Jurisson, J. David Robertson, Susan Z. Lever, Timothy J. Hoffman *(Univ of Missouri)*

9:18 a.m.
Training in Nuclear Sciences: The DOE Cares!, Dennis R. Phillips *(DOE-ONP)*

9:30 a.m.
Development of a Radiochemistry Laborator y for the Production of ^{99m}Tc Using Neutron Activation, Sheldon Landsberger *(Univ of Texas)*

Production and Application of Alpha Emitters

Session Chairs: Alfred Morgenstern *(EC JRC Karlsruhe)*, Steve LaMont *(LANL)*

Capri 108 & 109

9:50 a.m.
Radioimmunotherapy of Bladder Cancer with the Alpha-Emitter Bi-213, Christof Seidl, Birgit Pfost, Silvia Rötzer, Julia Fazel *(Technische Univ München)*, Klaus-Peter Gilbertz *(Inst of Radiobiology)*, Sandra Rauser, Annette Feuchtinger *(Inst Pathology)*, Alfred Morgenstern, Frank Bruchertseifer *(Inst for Transuranium Elements)*, Michael Autenrieth, Reingard Senekowitsch-Schmidtke *(Technische Univ München)*, invited

10:10 a.m.
Advances in the Development of Astatine-Radiolabelling Protocols: Exploring the Metallic Character of Astatine, G. Montavon *(Subatech)*, J. Champion, M. Seydou *(Subatech/CEISAM)*, M. Chérel *(CRCNA)*, N. Galland *(CEISMA)*, invited

10:30 a.m.
Recovery of Actinium-227 from Legacy Actinium-Beryllium Neutron Sources, M. Du, C. W. Alexander, R. A. Boll *(ORNL)*

10:50 a.m.
Production, Labeling, and Clinical Testing of Ac-225/Bi-213, Frank Bruchertseifer, Christos Apostolidis, Alfred Morgenstern *(ECJRC, Inst for Transuranium Elements)*

11:10 a.m.
A New Approach for Production of Ac-225, Itacil C. Gomes *(IC Gomes Consulting & Investment Inc.)*, Jerry Nolen *(ANL)*, Thomas Kroc *(Fermilab)*, James T. Harvey *(NorthStar Medical Radioisotopes LLC)*

THURSDAY, NOVEMBER 11, 2010, 1:00 P.M.

Production and Applications of Research and Industrial Isotopes

Session Chairs: Lin-Wen Hu *(MIT)*, Lei (Raymond) Cao *(Ohio State Univ)*

Capri 108 & 109
1:00 p.m.
Radioisotopic Impurities in Promethium-147 Produced at the ORNL High Flux Isotope Reactor, James Hinderer *(Univ of Tennessee/ORNL)*, Marc Garland *(ORNL)*, Lawrence Heilbronn *(Univ of Tennessee)*, F. F. (Russ) Knapp Jr., Saed Mirzadeh *(ORNL)*

1:20 p.m.
Technology Opportunities and Challenges for Cf-252, Julie G. Ezold *(ORNL)*

1:40 p.m.
Production of Radioactive Nanoparticles for Biological Radiotracing Applications, K. Abbas, F. Simonelli, U. Holzwarth, I. Cydzik, A. Bulgheroni, N. Gibson, J. Kozempel *(EC-JRC)*, invited

2:00 p.m.
Betavoltaic Battery for Industry and Medicine Use Employing Isotopes from Nuclear Reactor and Weapon Waste, George H. Miley, Nie Luo *(Univ of Illinois)*

2:20 p.m.
Neutron Tomography, Radiography, and Detection Using MCP Solid-State Imagers, W. Bruce Feller *(NOVA Scientific Inc)*, Anton S. Tremsin *(Univ of California, Berkeley)*, invited

2:40 p.m.
Project ERAWAST—First Big-Scale Extraction of Exotic Radionuclides from Accelerator Wastes, Marin Ayranov, Dorothea Schumann, Niko Kivel *(PSI)*, invited

3:00 p.m.
COFFEE BREAK

High Energy Accelerator/Cyclotron Production of Isotopes

Session Chairs: W. Runde *(LANL)*, Mauro Bonardi *(Univ of Milan, Italy)*

Capri 108 & 109
3:10 p.m.
High Power RbCl Salt Targets for Large-Scale Production of Sr-82, F. Meiring Nortier, H. T. Bach, M. Connors, K. D. John *(LANL)*, J. W. Lenz *(FRIB)*, E. Olivas, F. O. Valdez, J. W. Weidner *(LANL)*, invited

3:30 p.m.
The Production of ^{82}Sr Using Larger Format RbCl Targets, N. P. van der Meulen *(iThemba LABS)*, T. N. van der Walt *(Cape Peninsula Univ of Technol)*, G. F. Steyn *(iThemba LABS)*, invited

3:50 p.m.
Target Compatibility Issues for Simultaneous Physics Experiment and Isotope Production at BLIP, L. F. Mausner, N. Simos *(BNL)*, invited

4:10 p.m.
Proposal of Mo-100(X,n)Mo-99 Reaction Study Using Compton Back-Scattering X-Ray Beams at LNF-INFN, Mauro L. Bonardi *(Univ degli Studi di Milano)*, Francesco Broggi *(INFN Milano)*, Flavia Groppi *(Univ degli Studi di Milano/INFN Milano)*, Luca Serafini *(INFN Milano)*, invited

4:30 p.m.
ARRONAX: Current Status and Perspectives, F. Haddad, N. Michel *(SUBATECH/GIP ARRONAX)*, C. Alliot *(GIP ARRONAX/Univ de Nantes)*, M. Mokili *(GIP ARRONAX)*, V. Bossé *(SUBATECH/Univ de Nantes)*, A. C. Bonraisin, J. Laizé, C. Bourdeau *(GIP ARRONAX)*, invited

4:50 p.m.
Improving Yield and Specific Activity of Copper-67 at Brookhaven Linac Isotope Producer, Dmitri G. Medvedev, Leonard F. Mausner, George E. Meinken, Slawko O. Kurczak *(BNL)*, invited

5:10 p.m.
Synthesis and Observation of New Chemical Element Number 117, D. A. Shaughnessy, K. J. Moody, R. A. Henderson *(LLNL)*

5:30 p.m.
Excitation Functions of Proton-Induced Reactions on Natural Iron up to 40 MeV, Kwangsoo Kim, Kyung-Sook Kim, Manwoo Lee, Guinyun Kim *(Kyungpook National Univ)*

Professional Development Workshop

"Digital Instrumentation and Control"

Sunday, November 7, 2010
8:00 a.m. – 5:00 p.m.
Location: Capri 109 & 110

This course addresses the latest developments on the use of software-based equipment on nuclear plant applications, both for existing and new plants. This has become increasingly important as plants move into License Renewal, and in consideration of Obsolete Equipment Upgrades and replacements at existing facilities. Speakers will provide the perspectives of the Nuclear Regulatory Commission, the Electric Power Research Institute, industry and international participation, with emphasis on most recent developments and ongoing activities including the new plant Combined Operating License (COL) application process in the U.S. and the NRC Interim Staff Guidance (ISG) on digital ICHMI.

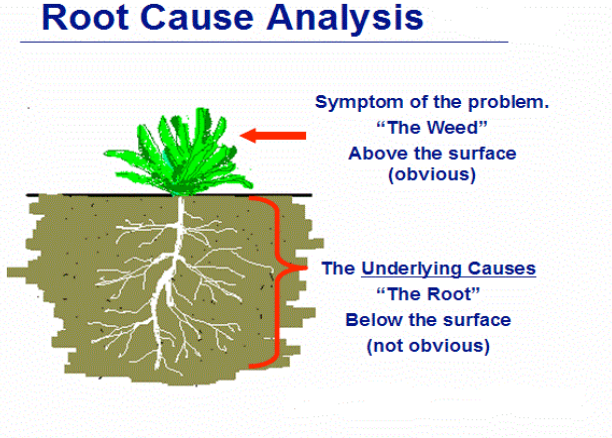
PRELIMINARY AGENDA:

8:00 A.M. – 8:15 A.M.	Introduction of Participants and Welcome Richard Wood *(Chair, HFICD)*
8:15 A.M. – 8:45 A.M.	Licensing Review of Oconee – NRR S. Arndt
8:45 A.M. – 9:15 A.M.	New Reactor Digital I&C Licensing Reviews, Status, and Issues – NRO D. Santos
9:15 A.M. – 9:45 A.M.	Security of Digital Systems Including Cyber Security E. Lee *(NSIR)*
9:45 A.M. – 10:00 A.M.	Break
10:00 A.M. – 10:30 A.M.	NRC Research Jeanne Dion *(US NRC)*
10:30 A.M. – 11:00 A.M.	LWR Sustainability Program B. Hallbert *(INL)*/K. Thomas *(Duke)*
11:00 A.M. – 11:30 A.M.	International Efforts (IAEA, MDEP, IEEE/IEC) T. Quinn *(IEC SC45A WG Chair)*
11:30 A.M. – 12:30 P.M.	Lunch
12:30 P.M. – 1:00 P.M.	NEI Lessons Learned/Next Steps G. Clefton
1:00 P.M. – 1:30 P.M.	EPRI Programs R. Torok
1:30 P.M. – 2:00 P.M.	Vendors Perspectives – Westinghouse Sergey Anikanov *(Westinghouse)*
2:00 P.M. – 2:15 P.M.	Break
2:15 P.M. – 2:45 P.M.	Vendors Perspectives – Invensys Clayton Scott
2:45 P.M. – 3:15 P.M.	Vendors Perspectives – AREVA Philippe Paris *(AREVA)*
3:15 P.M. – 3:45 P.M.	Vendors Perspectives – GEH R. Miller
3:45 P.M. – 5:00 P.M.	Panel Discussion (ALL)

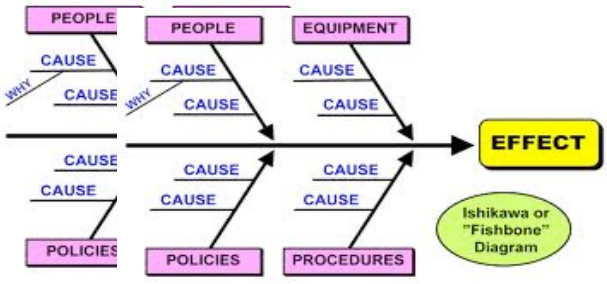
Criticality Safety Root Cause Analysis Workshop

A 6 hour Introduction to Root Cause Analysis workshop will be held on Friday, November 12, 2010 at the Rivera Hotel following the 2010 ANS Las Vegas Winter Meeting. There will be no charge for the workshop.

Friday, November 12, 2010
8:00 a.m. – 5:00 p.m.
Location: Capri 101



The Root Cause Analysis Workshop training session will focus on criticality safety issues and will introduce the basic 5 step process of root cause analysis with an introduction to various methods used to perform root cause analysis (cause/effect, wishbone, change, barrier, etc.). Following the introduction to the basic 5 step process and the different methods, a case study will be presented that allows the attendees an opportunity to use a selected method. The case study would focus on global issues that a criticality safety engineer would expect to see regarding safety programs (i.e., procedures, supervision and maintenance) and how they affect limits & controls (identify and correcting causes not just the symptoms).



Committee Meetings

NATIONAL COMMITTEES

Accreditation Policies and Procedures
SUNDAY, 11:00 A.M. – 12:00 P.M.
Location: Capri 113

Board of Directors
Professional Division Reports
WEDNESDAY, 4:00 P.M. – 6:00 P.M.
Location: Grande Ballroom E

Board of Directors
THURSDAY, 8:00 A.M. – 5:00 P.M.
Location: Grande Ballroom E

Bylaws and Rules
SUNDAY, 4:30 P.M. – 6:00 P.M.
Location: Capri 107

Finance
TUESDAY, 4:00 P.M. – 7:00 P.M.
Location: Royale Skybox 202

Honors and Awards
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Royale Skybox 201

International
SUNDAY, 11:30 A.M. – 2:30 P.M.
Location: Royale 6

Local Sections/Workshop
SUNDAY, 8:00 A.M. -12:00 P.M.
Location: Capri 101

Membership
SUNDAY, 11:00 A.M. – 12:00 P.M.
Location: Capri 112

National Program Committee (NPC)
Program
WEDNESDAY, 4:00 P.M. – 7:00 P.M.
Location: Grande Ballroom F

Screening and International
SUNDAY, 10:00 A.M. – 12:00 P.M.
Location: Royale 8

NEED
SUNDAY, 7:30 P.M. – 9:00 P.M.
Location: Capri 101

Planning
SUNDAY, 2:00 P.M. – 6:00 P.M.
Location: Royale 7

Professional Development Workshop
TUESDAY, 7:30 A.M. – 8:30 A.M.
Location: Royale Skybox 202

Professional Divisions
Committee Meeting
TUESDAY, 4:00 P.M. – 6:30 P.M.
Location: Top of the Riviera North

Training Workshop
SATURDAY, 5:00 P.M. – 6:30 P.M.
Location: Capri 109/110

Professional Engineering Exam
Committee Meeting
SUNDAY, 3:00 P.M. – 5:00 P.M.
Location: Monaco Tower 17

Exam Writers Group
SATURDAY, 6:00 P.M. – 10:00 P.M.
Location: Capri 108

Professional Women in ANS
MONDAY, 11:30 A.M. – 1:00 P.M.
Location: Capri 112

Public Information
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Capri 108

Public Policy
WEDNESDAY, 11:30 A.M. – 1:30 P.M.
Location: Royale Skybox 207

Publications Steering
Book Publishing
SUNDAY, 11:00 A.M. – 12:30 P.M.
Location: Capri 111

Meetings, Proceedings and Transactions
SUNDAY, 9:00 A.M. – 10:00 A.M.
Location: Capri 111

Nuclear News Editorial Advisory
SUNDAY, 4:00 P.M. – 5:30 P.M.
Location: Royale Sky Box 206

NS&E Editorial Advisory
SUNDAY, 9:00 A.M. – 10:00 A.M.
Location: Capri 112

NT Editorial Advisory
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Capri 112

Publications Steering
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Capri 114

Technical Journals
SUNDAY, 1:00 P.M. – 4:00 P.M.
Location: Capri 112

Scholarship Policy and Coordination
MONDAY, 12:00 P.M. – 1:00 P.M.
Location: Capri 113

Student Sections
Executive
MONDAY, 6:00 P.M. – 7:00 P.M.
Location: Royale 4

Student Sections
Reports & Roundtable Discussion
MONDAY, 7:00 P.M. – 8:00 P.M.
Location: Royale 4

SPECIAL COMMITTEES

Government Relations
TUESDAY, 1:30 P.M. – 3:00 P.M.
Location: Royale Skybox 203

Integration Oversight
TUESDAY, 9:00 A.M. – 11:00 A.M.
Location: Royale Skybox 203

Nuclear Nonproliferation
SUNDAY, 2:00 P.M. – 4:00 P.M.
Location: Royale 8

Small Modular Reactors (SMRs) Generic Licensing Issues
SUNDAY, 3:00 P.M. – 5:00 P.M.
Location: Royale 6

OTHER COMMITTEES

ATR NSUF Users
MONDAY, 4:00 P.M. – 8:00 P.M.
Location: Monaco Tower 17

CNF
MONDAY, 7:30 P.M. – 10:00 P.M.
Location: Capri 112

CONTE 2011 Planning Committee
SUNDAY, 12:00 P.M. – 1:30 P.M.
Location: Capri 108

CSSG
THURSDAY, 1:00 P.M. – 4:00 P.M.
Location: Monaco Tower 16

Eagle Alliance Board of Directors
SUNDAY, 1:00 P.M. – 3:00 P.M.
Location: Monaco Tower 17

Mathematics and Computation/ Reactor Physics/ Radiation Protection & Shielding Joint Benchmark Meeting
SUNDAY, 11:00 A.M. – 1:00 P.M.
Location: Capri 115

NEDHO
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Royale 3

NURETH-14
TPC Coordinating Committee
SUNDAY, 1:30 P.M. – 2:30 P.M.
Location: Capri 116

PAK Workshop
SATURDAY, 8:00 A.M. – 5:00 P.M.
Location: Capri 108

Past Presidents' Meeting
TUESDAY, 7:00 AM – 9:00 AM
Location: Royale Skybox 201

UWC 2011 Planning Committee
SUNDAY, 12:00 P.M. – 1:00 P.M.
Location: Capri 116

DIVISION COMMITTEES

Accelerator Applications
Executive
MONDAY, 11:30 A.M. – 1:00 P.M.
Location: Capri 114

Aerospace Nuclear Science and Technologies
SUNDAY, 12:00 P.M. – 2:00 P.M.
Location: Royale 8

Biology and Medicine
Committee of the Whole
SUNDAY, 4:00 P.M. – 5:30 P.M.
Location: Capri 102

Computational Medical Physics Working Group
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Capri 114

Joint Program Committee – I&R and B&M
SUNDAY, 1:30 P.M. – 2:30 P.M.
Location: Capri 107

Decommissioning, Decontamination and Reutilization
Executive Committee Meeting
SUNDAY, 4:30 P.M. – 5:30 P.M.
Location: Monaco Tower 16

Program Committee Meeting
SUNDAY, 3:30 P.M. – 4:30 P.M.
Location: Monaco Tower 16

Education, Training, and Workforce Development
Alpha Nu Sigma
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Royale Sky Box 207

Executive/Membership/ Honors and Awards
SUNDAY, 1:30 P.M. – 4:00 P.M.
Location: Capri 108

Program
SUNDAY, 10:30 A.M. – 12:00 P.M.
Location: Capri 108

University/Industry/ Government Relations
SUNDAY, 9:30 A.M. – 10:30 A.M.
Location: Capri 108

Committee Meetings

Environmental Sciences
ESD Special Committee on Climate Change
SUNDAY, 1:00 P.M. – 3:00 P.M.
Location: Monaco Tower 16

Executive
SUNDAY, 10:00 A.M. – 12:00 P.M.
Location: Capri 107

Nuclear Production of Hydrogen Working Group
SUNDAY, 12:00 P.M. – 1:00 P.M.
Location: Capri 107

Program
SUNDAY, 8:30 A.M. – 10:00 A.M.
Location: Capri 107

Fuel Cycle and Waste Management
Executive
SUNDAY, 1:00 P.M. – 2:30 P.M.
Location: Capri 102

Program
SUNDAY, 12:00 P.M. – 1:00 P.M.
Location: Capri 102

Technical Operating and Standards Committee
SUNDAY, 2:30 P.M. – 3:30 P.M.
Location: Capri 102

Fusion Energy
Executive
SUNDAY, 3:00 P.M. – 5:00 P.M.
Location: Capri 113

Human Factors, Instrumentation, and Controls
Executive/Program
SUNDAY, 12:00 P.M. – 2:30 P.M.
Location: Royale Sky Box 206

Isotopes and Radiation
Executive
SUNDAY, 2:30 P.M. – 4:00 P.M.
Location: Capri 107

Joint Program Committee – I&R and B&M
SUNDAY, 1:30 P.M. – 2:30 P.M.
Location: Capri 107

Materials Science and Technology
Executive
MONDAY, 7:00 P.M. – 9:00 P.M.
Location: Capri 113

Mathematics and Computation
Computational Medical Physics Working Group
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Capri 115

Mathematics and Computation
Executive
SUNDAY, 2:00 P.M. – 4:00 P.M.
Location: Capri 115

Program
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Capri 115

Nuclear Criticality Safety
Education Meeting
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Royale 5

Executive
SUNDAY, 3:00 P.M. – 4:30 P.M.
Location: Royale 5

Program
SUNDAY, 2:00 P.M. – 3:00 P.M.
Location: Royale 5

Nuclear Installation Safety
Executive
SUNDAY, 7:30 P.M. – 9:00 P.M.
Location: Capri 114

Program
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Capri 114

Operations and Power
Executive
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Capri 101

Nuclear Construction Working Group
SUNDAY, 12:30 P.M. – 2:30 P.M.
Location: Capri 101

Program
SUNDAY, 2:30 P.M. – 4:00 P.M.
Location: Capri 101

Radiation Protection and Shielding
Executive
SUNDAY, 1:30 P.M. – 2:30 P.M.
Location: Capri 113

Program
SUNDAY, 12:30 P.M. – 1:30 P.M.
Location: Capri 113

Shielding Standards
SUNDAY, 12:00 P.M. – 12:30 P.M.
Location: Capri 113

Reactor Physics
Executive
SUNDAY, 4:00 P.M. – 6:00 P.M.
Location: Capri 111

Goals and Planning
SUNDAY, 1:00 P.M. – 2:00 P.M.
Location: Capri 111

Reactor Physics
Honors and Awards
SUNDAY, 10:00 A.M. – 11:00 A.M.
Location: Capri 113

Program
SUNDAY, 2:00 P.M. – 4:00 P.M.
Location: Capri 111

Robotics and Remote Systems
Executive
SUNDAY, 12:00 P.M. – 4:00 P.M.
Location: Capri 114

Thermal Hydraulics
Executive
SUNDAY, 4:30 P.M. – 6:00 P.M.
Location: Capri 116

Program
SUNDAY, 2:30 P.M. – 4:30 P.M.
Location: Capri 116

Young Member Group
Executive Committee
MONDAY, 11:30 A.M. – 1:00 P.M.
Location: Capri 111

STANDARDS COMMITTEES

ANS Standards Board
TUESDAY, 9:00 A.M. – 5:00 P.M.
Location: Royale Sky Box 207

ANS-5.1
TUESDAY, 8:00 A.M. – 10:00 A.M.
Location: Monaco Tower 17

ANS-6
SUNDAY, 12:00 P.M. – 12:30 P.M.
Location: Capri 113

ANS-8.1
SUNDAY, 8:00 A.M. – 12:00 P.M.
Location: Monaco Tower 16

TUESDAY, 7:00 A.M. – 8:30 A.M.
Location: Monaco Tower 16

ANS-8.10
WEDNESDAY, 2:00 P.M. – 4:00 P.M.
Location: Royale Skybox 205

ANS-8.12
MONDAY, 4:00 P.M. – 6:00 P.M.
Location: Monaco Tower 16

ANS-8.20
SUNDAY, 9:00 A.M. – 12:00 P.M.
Location: Monaco Tower 17

ANS-8.21
THURSDAY, 7:00 A.M. – 8:30 A.M.
Location: Royale Skybox 205

ANS-8.22
WEDNESDAY, 2:00 P.M. – 4:00 P.M.
Location: Royale Skybox 203

ANS-8.xx Working Group
MONDAY, 7:00 A.M. – 8:30 A.M.
Location: Capri 116

ANS-10.7
SATURDAY, 8:30 A.M. – 4:30 P.M.
Location: Capri 107

ANS-19
SUNDAY, 9:30 A.M. – 11:00 A.M.
Location: Capri 116

ANS-19.1
SUNDAY, 11:00 A.M. – 12:00 P.M.
Location: Capri 116

ANS-19.3
SUNDAY, 9:00 A.M. – 9:30 A.M.
Location: Capri 116

ANS-54.1
MONDAY, 7:30 P.M. – 9:30 P.M.
Location: Monaco Tower 16

ANS-58.8
TUESDAY, 8:00 A.M. – 5:00 P.M.
Location: Royale Skybox 204

ANS-58.16
TUESDAY, 8:30 A.M. – 4:00 P.M.
Location: Royale Sky Box 205

WEDNESDAY, 8:30 A.M. – 4:00 P.M.
Location: Royale Sky Box 204

THURSDAY, 8:30 A.M. – 4:00 P.M.
Location: Royale Sky Box 204

N16
SATURDAY, 1:00 P.M. – 5:00 P.M.
Location: Capri 108

NFSC
MONDAY, 8:30 A.M. – 4:30 P.M.
Location: UNLV
University of Nevada, Las Vegas
Barrick Museum Auditorium
4505 S. Maryland Pkwy
Las Vegas, NV 89154

ANS Nuclear Technology Expo

Sunday, November 7
6 - 7:30pm *(ANS President's Reception)*

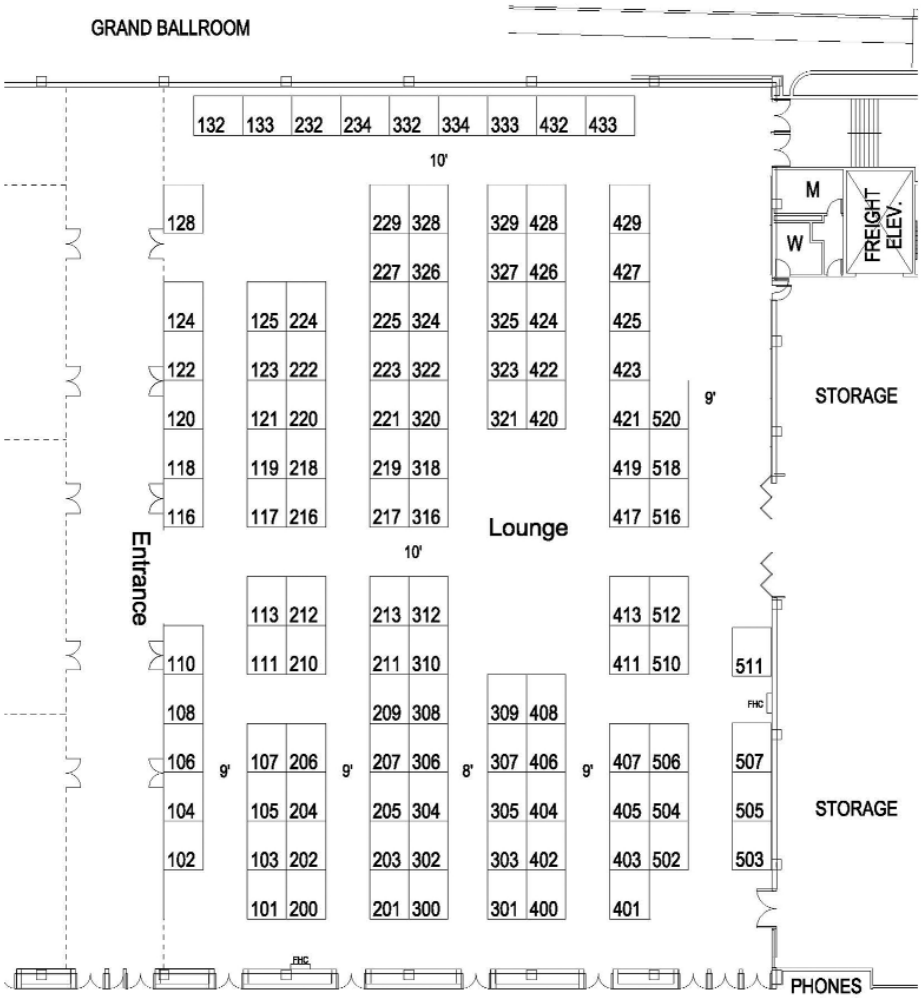
Monday, November 8
11:30am - 6pm *(ANS Attendee Luncheon • Prizes • ANS Expo Fest)*

Tuesday, November 9
10am - 2pm *(Prizes • Dessert Reception)*

The ANS Nuclear Technology Expo will be held November 7-9, 2010 in the Grande Ballroom E-H of the Riviera Hotel in Las Vegas, NV. The ANS Expo will open Sunday-Tuesday with many special events taking place in the Exhibit Area.

ANS Nuclear Technology Expo

FLOOR PLAN
Grand Ballroom E-H • Riviera Hotel, Las Vegas, NV



We thank the following companies for their generous support of the ANS Expo Special Events:

Bechtel Power Corporation
(Attendee Prizes)

EXCEL Services Corporation
(Grand Prizes)

Lockheed Martin
(ANS Expo Fest)

Westinghouse Electric Power
(ANS Expo Fest)

MARK YOUR CALENDARS — PLAN TO ATTEND!

American Nuclear Society:
2011 ANNUAL MEETING

June 26-30, 2011

Hollywood, FL

The Westin Diplomat

Call for Papers available NOW! www.ans.org

MARK YOUR CALENDARS — PLAN TO ATTEND!

2011 ANS Winter Meeting and Nuclear Technology Expo

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

Visit the ANS home page www.ans.org for future meetings and more!

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.

2011 ANS Annual Meeting • Hollywood, Florida

2011 ANS Winter Meeting • Washington, D.C.

Make plans now to attend!

2011 NATIONAL MEETINGS

DATE	TITLE	LOCATION
Jun 26-30, 2011	**2011 ANS ANNUAL MEETING**	**Hollywood, Florida** *The Westin Diplomat*
Oct 30-Nov 3, 2011	**2011 ANS WINTER MEETING AND NUCLEAR TECHNOLOGY EXPO**	**Washington, DC** *Omni Shoreham Hotel*

2011 TOPICAL AND OTHER IMPORTANT MEETINGS

DATE	TITLE	LOCATION
Feb 6-9, 2011	**CONTE: Conference on Nuclear Training and Education and Vendor Technology Expo**	**Jacksonville, Florida** *Hyatt Regency Jacksonville Riverfront Hotel*
Feb 7-10, 2011	**Nuclear and Emerging Technologies for Space 2011 (NETS 2011)**	**Albuquerque, New Mexico** *Albuquerque Marriott*
Mar 13-17, 2011	**International Topical Meeting on Probabilistic Safety Assessment and Analysis (PSA 2011)**	**Wilmington, North Carolina** *Hilton Wilmington Riverside Hotel*
Apr 3-7, 2011	**Tenth International Topical Meeting on Nuclear Applications of Accelerators (AccApp '11)**	**Knoxville, Tennessee** *Hilton Knoxville*
Apr 10-14, 2011	**International High-Level Radioactive Waste Management**	**Albuquerque, New Mexico** *Albuquerque Marriott*
May 15-19, 2011	**15th International Conference on Emerging Nuclear Energy Systems**	**San Francisco, California** *Hyatt at Fisherman's Wharf*
Aug 7-10, 2011	**Third International Joint Topical Meeting on Emergency Preparedness and Response and Robotics and Remote Systems**	**Knoxville, Tennessee** *Marriott Hotel*
Aug 14-17, 2011	**Utility Working Conference and Vendor Technology Expo**	**Hollywood, Florida** *The Westin Diplomat*

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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
Terra Power, LLC
Tetra Tech
Thermo Fisher Scientific
Toshiba America Nuclear Energy Corporation
TradeTech, LLC
TVA Nuclear Power Group
TW Metals

UR-Energy USA Inc.
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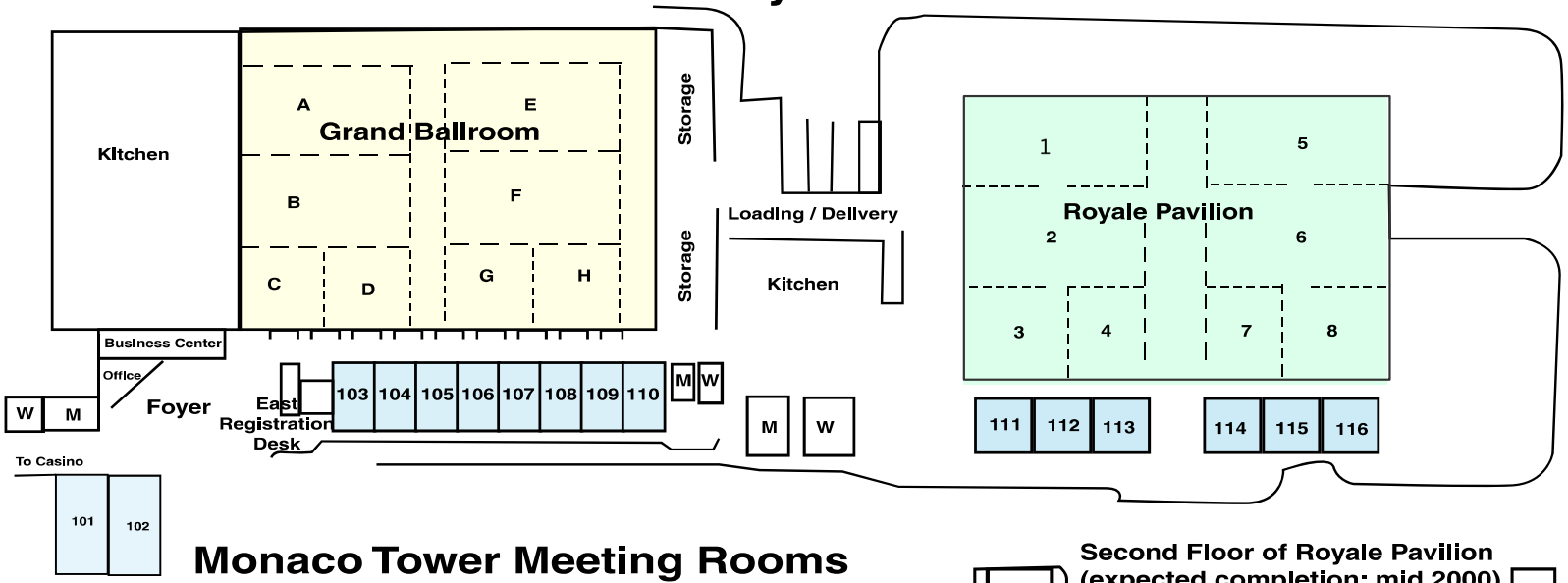
Wyle Laboratories

About the American Nuclear Society

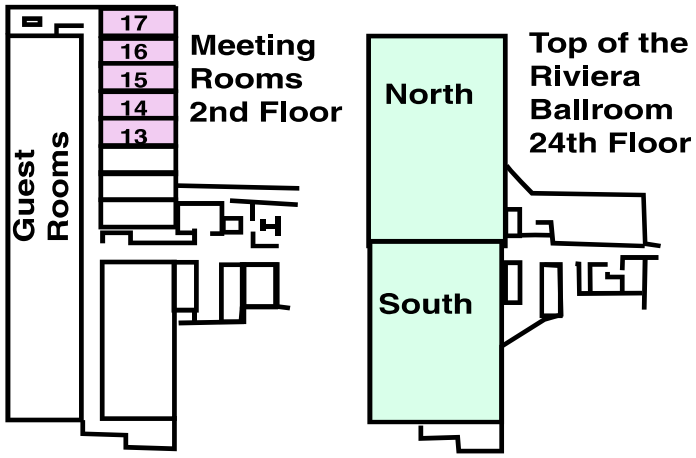
The American Nuclear Society (ANS) is an international, not-for-profit, scientific and educational organization consisting of about 11,000 individual members, more than 1,600 organizations, 80 Organization Members, 20 professional divisions/technical groups, 51 U.S. and 9 non-U.S. local sections/affiliated societies, 14 plant branches, and 34 student sections. ANS also maintains about 30 formal agreements for cooperation with international organizations.

The Society's main objectives are the advancement of engineering and science relating to the atomic nucleus, and to the integration of the science and management disciplines constituting nuclear science and technology. Other purposes are to encourage research, establish scholarships, disseminate information, inform the general public about nuclear-related activities, conduct meetings at which scientific and technical papers are presented, and cooperate with government agencies, educational institutions, and other organizations having similar purposes.

First floor of Royale Pavilion



Monaco Tower Meeting Rooms



Second Floor of Royale Pavilion (expected completion: mid 2000)