



**2007 ANS/ENS INTERNATIONAL MEETING  
AND NUCLEAR TECHNOLOGY EXPO**

*“Making the Renaissance Real”*

**NOVEMBER 11-15, 2007 • WASHINGTON, DC • OMNI SHOREHAM HOTEL**

**ANS YOUNG PROFESSIONALS WORKSHOP**

**Grow Strong Communities—Break Ground on Your Future**

**PROFESSIONAL DEVELOPMENT WORKSHOP**

**TMI-2: A Textbook in Severe Accident Management  
(A Severe Accident Primer for Young Engineers)**

**OFFICIAL PROGRAM**

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**2007 ANS/ENS International Meeting**

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# 2007 ANS/ENS International Meeting and Nuclear Technology Expo

## “Making the Renaissance Real”

November 11-15, 2007 • Washington, DC • Omni Shoreham Hotel

Updated: November 8, 2007

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*Come join us for an exciting and creative evening at the Corcoran Gallery of Art!*

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*Washington, DC is a powerful symbol not only of our nation but also of democracy and freedom. The District of Columbia's neighborhoods, people, history and culture truly embody the American Experience—from Duke Ellington to John Phillip Sousa and from the Civil War to civil rights. Only in Washington, DC can visitors be inspired by touring the magnificent Capitol Building and Washington Monument by day and be moved by taking in magical performances by the National Symphony Orchestra and world-class opera by night.*

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# Meeting Highlights

## Saturday, November 10, 2007

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- 8:00 a.m. – 5:00 p.m. Teachers' Workshop
- 8:30 a.m. – 5:00 p.m. 2007 ANS Young Professionals Workshop: "Grow Strong Communities – Break Ground on Your Future"
- 5:00 p.m. – 8:00 p.m. Professional Divisions Workshop

## Sunday, November 11, 2007

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- 9:00 a.m. – 5:00 p.m. Professional Development Workshop: "TMI-2: A Textbook in Severe Accident Management (A Severe Accident Primer for Young Engineers)"
- 1:00 p.m. – 1:30 p.m. First-Time Attendees Orientation
- 4:00 p.m. – 5:00 p.m. Student Assistant Training Session
- 5:00 p.m. – 6:00 p.m. Mentoring Program
- 6:00 p.m. – 7:30 p.m. ANS/ENS Presidents' Reception (in the Nuclear Technology Expo)

## Monday, November 12, 2007

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- 8:00 a.m. – 10:00 a.m. Spouse/Guest Hospitality
- 8:30 a.m. – 11:30 a.m. Opening Plenary Session: "Making the Renaissance Real"
- 11:30 a.m. – 1:00 p.m. Attendee Luncheon in the Nuclear Technology Expo
- 11:30 a.m. – 6:00 p.m. ANS Nuclear Technology Expo
- 1:00 p.m. – 2:30 p.m. ANS/ENS Honorary Chairs' Special Session:  
"Government Policy's Impact on Nuclear's Future: What Every Voter Needs to Know"
- 1:00 p.m. – 4:00 p.m. Spouse/Guest Tour: "Lights, Camera, Action: Hollywood in Washington, DC"
- 2:30 p.m. – 4:15 p.m. Technical Sessions: 2007 ANS/ENS International Meeting
- 4:30 p.m. – 6:00 p.m. Reception in the Nuclear Technology Expo
- 7:00 p.m. – 10:00 p.m. Evening Event: "Dinner/Reception at the Corcoran Gallery of Art"

## Tuesday, November 13, 2007

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- 8:00 a.m. – 10:00 a.m. Spouse/Guest Hospitality
- 8:30 a.m. – 11:30 a.m. Technical Sessions: 2007 ANS/ENS International Meeting
- 10:00 a.m. – 2:00 p.m. ANS Nuclear Technology Expo
- 11:30 a.m. – 1:00 p.m. ANS Honors and Awards Luncheon
- 1:00 p.m. – 4:00 p.m. Technical Sessions: 2007 ANS/ENS International Meeting
- 1:00 p.m. – 5:00 p.m. Spouse/Guest Tour: "Adventures in Art"
- 4:00 p.m. – 6:00 p.m. Student Poster Session

## Wednesday, November 14, 2007

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- 8:00 a.m. – 10:00 a.m. Spouse/Guest Hospitality
- 8:30 a.m. – 11:30 a.m. Technical Sessions: 2007 ANS/ENS International Meeting
- 1:00 p.m. – 4:00 p.m. Technical Sessions: 2007 ANS/ENS International Meeting
- 4:00 p.m. – 6:00 p.m. ANS Public Communications Workshop: "Focus on Communications: Speaking with the Media"
- 7:00 p.m. – 10:00 p.m. Evening Event: "Dinner/Reception at the Washington Club"

## Thursday, November 15, 2007

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- 8:30 a.m. – 11:30 a.m. Technical Sessions: 2007 ANS/ENS International Meeting
- 12:00 p.m. – 5:00 p.m. Technical Tour: National Institute of Standards and Technology
- 1:00 p.m. – 4:00 p.m. Technical Sessions: 2007 ANS/ENS International Meeting



# Meeting Officials

**Donald C. Hintz**  
Consultant  
ANS HONORARY CHAIR



**David R. Bonser**  
BNFL  
ENS HONORARY CHAIR



**Andrew C. White**  
GE-Hitachi Nuclear Energy  
ANS GENERAL CHAIR



**Dr. Manfred Thumann**  
NOK Nuclear Power Division  
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**Claire Zurek**  
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**Dr. Jess Gehin**  
Oak Ridge National Laboratory  
ANS TECHNICAL PROGRAM CHAIR



**Andre Versteegh**  
NRG Nuclear Research & Consultancy  
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**Renee Pavkov**  
GE-Hitachi Nuclear Energy  
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**Dr. Charles (Chip) Martin**  
Defense Nuclear Facilities Safety Board  
SPOUSE PROGRAM CHAIR



**Lisa Stiles-Shell**  
Dominion  
MEDIA CHAIR



**Scott Luchau**  
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STUDENT PROGRAM CHAIR



**Anjna Mehta**  
GE-Hitachi Nuclear Energy  
ASSISTANT STUDENT PROGRAM CHAIR



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



# Meeting Information

## “Making the Renaissance Real”



Omni Shoreham Hotel

The 2007 ANS/ENS International Meeting will be held November 11-15, 2007, in Washington, DC. There will be a Professional Development Workshop held in conjunction with the 2007 ANS/ENS International Meeting: “TMI-2: A Textbook in Severe Accident Management (A Severe Accident Primer for Young Engineers),” as well as the ANS Nuclear Technology Expo.

### Accommodations/Hotel Information

The Omni Shoreham Hotel will be the location for the 2007 ANS/ENS International 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 2007 ANS/ENS International Meeting in the Lower Level Exhibit Hall of the hotel. Please turn to page 34 for additional information.

### ANS Registration

ANS Registration will be located at the West Registration Desk of the hotel, on Saturday, November 10th through Thursday, November 15th. Meeting and workshop registration, speakers’ and 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 10, 2007

7:30 a.m. – 9:00 a.m.\*

(\*Registration for workshop participants only)

2:00 p.m. – 5:00 p.m.

SUNDAY, NOVEMBER 11, 2007

8:00 a.m. – 9:30 a.m.\*

(\*Registration for workshop participants only)

11:00 a.m. – 7:00 p.m.

MONDAY, NOVEMBER 12, 2007

7:30 a.m. – 5:00 p.m.

TUESDAY, NOVEMBER 13, 2007

7:30 a.m. – 5:00 p.m.

WEDNESDAY, NOVEMBER 14, 2007

7:30 a.m. – 5:00 p.m.

THURSDAY, NOVEMBER 15, 2007

7:30 a.m. – 2:00 p.m.

### 2007 American Nuclear Society Young Professionals Workshop

#### “Grow Strong Communities – Break Ground on Your Future”

SATURDAY, NOVEMBER 10, 2007

8:30 a.m. – 5:00 p.m.

Location: Congressional A

Additional information can be found on page 32.

### Student Assistant Program

Attendance at the 2007 ANS/ENS International 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 11, 2007, 4:00 p.m. – 5:00 p.m. in the Palladian Ballroom. Student assistants receive free meeting registration and a copy of the meeting TRANSACTIONS. All students are responsible for paying their own room, tax, and incidentals. ANS student members who register for the meeting and/or work as session chairs’ assistants should pick up a travel assistance form which can be found in the student headquarters room. Student travel assistance is provided through contributions from the ANS professional divisions. The student headquarters room will be located in the Director’s Room.

### 2007 ANS/ENS International Meeting — Student Assistant Mixer

MONDAY, NOVEMBER 12, 2007

8:00 p.m. – 9:30 p.m.

Location: Ireland’s Four Fields Restaurant & Pub  
3412 Connecticut Avenue, NW  
Washington, DC 20008

Ireland’s Four Fields is located within walking distance of the hotel. Transportation will not be provided. Includes appetizers, dinner buffet and soft drinks. Cash bar will also be available. Bring your ID – you will be asked to show proof of age. Each student assistant will receive one ticket for the Student Assistant Mixer. Additional tickets for guests may be purchased at the ANS Registration Desk for \$25. Tickets will not be sold at the door.

### Student Poster Session

TUESDAY, NOVEMBER 13, 2007

4:00 p.m. – 6:00 p.m.

Location: Blue Room

### 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, on Sunday, November 11th, 1:00–1:30 p.m. in Parlor # 500.

### Mentoring Program

A special mentoring program will be held from 5:00–6:00 p.m. on Sunday, November 11th, in the Palladian Ballroom. ANS members who will serve as mentors hold a variety of positions within the Society, serving on governance committees and working within the divisions. Mentors encompass a wide range of careers and technical specialties, which they hope to share with first-time attendees, student members, new members, those seeking career advancement and networking opportunities.

### Notice for Speakers

All speakers/session chairs must sign in at the “Speakers’ Desk,” located in the West Registration Foyer of the hotel during registration hours. A Speakers’ Preview Room, the Committee Room of the hotel, will be available during the following hours:

SUNDAY, NOVEMBER 11, 2007

7:30 a.m. – 3:00 p.m.

MONDAY, NOVEMBER 12, 2007

7:00 a.m. – 4:00 p.m.

TUESDAY, NOVEMBER 13, 2007

7:00 a.m. – 4:00 p.m.

WEDNESDAY, NOVEMBER 14, 2007

7:00 a.m. – 4:00 p.m.

THURSDAY, NOVEMBER 15, 2007

7:00 a.m. – 12:00 p.m.

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

### Conference Office

Location: Sales Conference Room

### ANS Secretariat

Location: Executive Room

### ANS Media Center

MONDAY, NOVEMBER 12, 2007

7:45 a.m. – 4:00 p.m.

TUESDAY, NOVEMBER 13, 2007

8:00 a.m. – 4:00 p.m.

WEDNESDAY, NOVEMBER 14, 2007

8:00 a.m. – 4:00 p.m.

LOCATION: Parlor # 215

# Meeting Information

## ANS Media Workroom

The Public Information Committee will offer individualized sessions to ANS members interested in honing their communication skills. Conducted by experienced media professionals, coaching sessions will feature hands-on practice using videotaped interviews followed by constructive critiques. Candid feedback will help ANS members cultivate their abilities to tell their stories, respond to tough questions, and confidently share their knowledge with news media, policy makers and the public. Sessions will be held Monday through Wednesday between 11:30 a.m. – 1:00 p.m. in the Media Center (Parlor # 215).

## ANS Public Communications Workshop

### “Focus on Communications: Speaking with the Media”

WEDNESDAY, NOVEMBER 14, 2007

4:00 p.m. – 6:00 p.m.

Location: Congressional A

The ANS Public Information Committee is pleased to offer a no-cost opportunity for ANS members to improve their effectiveness in communicating with the public. Join us for a relaxed workshop-style short course and reception that will provide an introduction to sound public

communications practices and some insights into the science of communications. Instructors are communications specialists and experts from industry communications programs and media consultant organizations. Refreshments will be provided.

- 4:00–4:30 Welcome Reception/Introductions
- 4:30–4:50 It Takes Two to Communicate – How to Prepare for YOUR Audience
- 4:50–5:10 Don't Get Caught Speechless – How to Develop YOUR Message
- 5:10–5:30 Special Delivery – How to Get YOUR Point Across
- 5:30–6:00 Put It To The Test – Are YOU Ready?

## Spouse/Guest Hospitality

Spouse/guest hospitality breakfast will be served from 8:00–10:00 a.m., Monday, November 12th, through Wednesday, November 14th, in Suite # 325. 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 ANS/ENS Presidents' Reception and admittance to the spouse/guest breakfast only—it does not include technical sessions or other events.

Spouse/guest tours are scheduled. Registration for the tours is separate from the spouse/guest meeting registration.

## Attention Runners: ANS Fun Run

On Tuesday, November 13, 2007, there will be a noncompetitive run starting at 6:00 a.m. from the front entrance of the hotel. We are looking forward to seeing you at the fun run in Washington, DC. Bring shoes and a big smile.

## Professional Development Workshop

PLEASE NOTE:

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

## “TMI-2: A Textbook in Severe Accident Management (A Severe Accident Primer for Young Engineers)”

SUNDAY, NOVEMBER 11, 2007

9:00 a.m. – 5:00 p.m.

Location: Capitol Room

Registration price for the workshop is \$450 for ANS members and \$550 for non-members. Additional workshop information can be found on page 33.

# Special Events

## PLEASE NOTE:

*The times listed are departure times and return times to/from the hotel. Busses will leave promptly from the Parkview Entrance of the Omni Shoreham Hotel, located just outside of the Blue Room.*

## CONFERENCE LUNCHEONS

### Attendee Luncheon in the Nuclear Technology Expo

MONDAY, NOVEMBER 12, 2007

11:30 a.m. – 1:00 p.m.

Location: Exhibit Hall

One ticket is included with the full meeting registration. Extra tickets can be purchased at the ANS Registration Desk for \$54.

### Honors and Awards Luncheon

TUESDAY, NOVEMBER 13, 2007

11:30 a.m. – 1:00 p.m.

Location: Blue Room

Plan to attend the Honors and Awards Luncheon held to recognize the outstanding efforts of the award winners and to celebrate their accomplishments. Tickets can be purchased at the ANS Registration Desk for \$54.

## EVENING EVENTS

### PLEASE NOTE:

*You must be registered for the meeting to attend evening events.*

## ANS/ENS Presidents' Reception

SUNDAY, NOVEMBER 11, 2007

6:00 p.m. – 7:30 p.m.

Location: Exhibit Hall

The ANS/ENS Presidents' Reception kicks off the meeting on Sunday, November 11, 2007. One ticket to the ANS/ENS Presidents' Reception is included in the full meeting registration fee. Additional tickets can be purchased at the ANS Registration Desk for \$75.

## Dinner/Reception at the Corcoran Gallery of Art

MONDAY, NOVEMBER 12, 2007

7:00 p.m. – 10:00 p.m.



Corcoran Gallery of Art

Tonight, guests will experience an exciting and creative evening at the Corcoran Gallery of Art.

Located across from the south lawn of the White House, the Corcoran was designed in the Beaux-arts style of architecture and was described by Frank Lloyd Wright as the “best designed building in Washington, DC.” The Permanent Collection and visiting exhibits will be available to view. The Corcoran's permanent collection of 19th-century American art is among the best in the world. The collections paintings and sculpture are the legacy of William Wilson Corcoran (1798-1888), the museum's founder and a leading patron of American art. Together with its noted holdings of 19th century American prints and drawings, the collection brings us face-to-face with the people, the landscape and the lifestyles of a dramatically different time. In keeping with its founder's commitment to the art of his day, the Corcoran continues to broaden its collection to include a wide selection of works by contemporary artists. Today, the Corcoran is renowned for its collection of 20th century painting, sculpture and photography. In total, the Corcoran's American holdings illuminate the nation's history and artistic development from colonial times through the 20th century.

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



# Special Events

## Dinner/Reception at the Washington Club

WEDNESDAY, NOVEMBER 14, 2007  
7:00 p.m. – 10:00 p.m.

The Washington Club was the second women's organization to be incorporated in the United States. Founded by Elizabeth Blair Lee in 1891, this high society group of women entertained, prospered through educational programs and fulfillment of social intercourse in the grand home. Today, the Washington Club is still a thriving women's organization and still resides at 15 Dupont Circle.

This beaux arts style mansion was built in 1902 by famed Architect, Stanford White for Mr. and Mrs. Robert Patterson, and presides prominently over Dupont Circle. Robert was the son of famed Chicago Tribune Chief Editor and owner, Joseph Medill. Along with Robert's cousin, Robert McCormick, they were editors and publishers of the newspaper. In 1927, President and Mrs. Coolidge resided at the Patterson home for eight months, while some renovations were being made to The White House. During this time as the temporary White House, the home was the location of many social events. The most famous was the Welcome Home celebration for Colonel Charles A. Lindbergh after his famous Trans-Atlantic flight. Colonel Lindbergh and his mother stayed the night as guests to President Coolidge.

In 1933, the Patterson's only daughter took over the house in Dupont Circle. Eleanor Medill Patterson, known as Cissy, was the flamboyant editor and publisher of the Washington Times-Herald. She resided here until her death in 1948. Cissy was known for her extravagant parties and reclusive behavior. Upon her death, Cissy willed the home to the American Red Cross, who already had a headquarters building in Washington. The mansion sat vacant for three years, until 1951 when Dorothy Betts Marvin, the President of the Washington Club purchased the home for the club.



Inside the Washington Club

Tonight, you will experience an evening of decadence in this historic mansion in one of Washington's most affluent neighborhoods. As you enter, you will be greeted and directed to the second floor. A jazz trio will be

positioned on the landing of the staircase at the beginning of the evening. You can mingle and enjoy cocktails in the Grand Ballroom. Following cocktails, the doors to the President's room will open for you to proceed to dinner. Here you will be dazzled by the gilded gold look of the room. You will enjoy a three-course dinner while you are entertained by the jazz trio. After dinner, you will enjoy a special stand-up comedy performance. This unique setting will provide for a memorable dining experience.

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

## SPOUSE/GUEST TOURS

### Lights, Camera, Action: Hollywood in Washington, DC

MONDAY, NOVEMBER 12, 2007  
1:00 p.m. – 4:00 p.m.

Today, you will enjoy all the glitz and glam that DC has to offer while touring the sites of your favorite TV shows and movies that have been shot in the nation's capitol! You will see more than 30 locations, used in over 50 movies and TV shows, on the tour, which will be led by local actors.

You can...

- Stand on the Exorcist steps
- Visit the St. Elmo's Fire bar
- Walk the park used in *The Sentinel*
- See locations from *West Wing*, *Wedding Crashers*, *Independence Day*, *Forrest Gump* & many more.

This fun and lively tour will have you singing TV theme songs and reminiscing about your favorite films and TV shows!

Tickets can be purchased at the ANS Registration Desk for \$85.

## Adventures in Art

TUESDAY, NOVEMBER 13, 2007  
1:00 p.m. – 5:00 p.m.

You will begin your "Adventures in Art" in Dupont Circle, widely known for its many private art galleries and boutiques. First stop will be at the Phillips Collection, the first museum of modern art in the United States. In 1921, Marjorie and Duncan Phillips opened their home in the exclusive Dupont Circle area to the citizens of Washington, DC. On the walls of the Phillips Collection are paintings by Renoir, Cezanne, Manet, Matisse, O'Keefe and Picasso, compiling an impressive collection of Post-Impressionistic and Modern Art in an intimate setting. The highlight of the museum's collection is *The*

*Luncheon of the Boating Party* by Pierre-Auguste Renoir (1814-1919); a magnificent painting that is considered a Renoir masterpiece. Your tour will include the special exhibition featured at the time of your tour, after which you will be given an additional opportunity to explore the museum on your own.

Then, it is onto the National Museum of Women in the Arts, the first museum in the world devoted specifically to works of art produced by women throughout the centuries and from around the world. The museum was established in response to a need voiced by art historians, collectors, and museum professionals for an institution that focuses on the contributions of women to the history of art. The National Museum of Women in the Arts is housed in 78,810-square-foot Washington landmark near the White House, formerly a Masonic Temple, which has won numerous architectural awards.

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

## TECHNICAL TOUR

### National Institute of Standards and Technology (NIST)

THURSDAY, NOVEMBER 15, 2007  
12:00 p.m. – 5:00 p.m.

An optional tour of the National Institute of Standards and Technology (NIST) will be held in conjunction with the ANS/ENS International Meeting. The technical tour will consist of a visit to the NIST Center for Neutron Research (NCNR), located in Gaithersburg, Maryland.

The NCNR has a reactor and various neutron facilities which focus on providing neutron measurement capabilities to the U.S. research community. NCNR conducts work in numerous areas such as thermal neutron and cold neutron instrumentation, high resolution neutron scattering, crystallography, reflectometry, and spectroscopy. The neutron interactions and dosimetry group develops, maintains, and disseminates accurate standards for neutron dosimetry and neutron interactions measurements, and engages in research on neutron physics metrology to meet the future needs. NCNR also has various analytical methods including prompt gamma-ray activation analysis and other techniques.

Picture identification will be required.

### PLEASE NOTE:

*Tickets for this tour are not available on-site.*



# Technical Sessions by Track

(Asterisks indicate special sessions)

## Track 1: Making the Renaissance Real

\*Opening Plenary: Making the Renaissance Real, Mon. a.m. (8:30-11:30 a.m.)

\*ANS/ENS Honorary Co-Chairs' Special Session: Government Policy's Impact on Nuclear's Future: What Every Voter Needs to Know, Mon. p.m. (1:00-2:30 p.m.)

Status of Workforce Development for the Renaissance—Panel, Tues. a.m.

Contributions of Nuclear Science and Technology to Sustainable Development, Wed. a.m.

## Track 2: Nuclear Power and New Construction of Nuclear Systems

Advanced Instrumentation and Control, Mon. p.m.

New Construction Quality and Inspection—Papers/Panel, Tues. p.m.

Equipment Reliability: A Continuing Force in Nuclear Asset Performance—Panel, Wed. a.m.

Advanced Instrumentation and Control Licensing Status—Panel, Wed. a.m.

Update on Status of Small Power Reactors—Papers/Panel, Wed. p.m.

Introduction to Codes and Standards and Their Significance—Tutorial, Wed. p.m.

Human Factors Concepts and Considerations in New Plant Designs, Thurs. a.m.

## Track 3: Fuel Cycle, Waste Management, and Decommissioning Technologies

Modeling and Simulation for Enhanced Safeguards—Panel, Mon. p.m.

Decommissioning, Decontamination, and Reutilization Technology—Papers/Panel, Mon. p.m.

What About the Front End?—Panel, Tues. a.m.

Head End Improvements and Waste Forms, Tues. p.m.

Recent Developments in Fuel Cycle Modeling and Systems Analysis, Wed. a.m.

Closing the Fuel Cycle, Wed. p.m.

Safety in Waste Burning and Fast Reactors, Thurs. p.m.

U.S. Department of Energy Fuel Nuclear Energy Research Initiative Overview—Panel, Thurs. p.m.

## Track 4: Nuclear Facility and Criticality Safety

Innovations in Probabilistic Risk Assessment, Tues. a.m.

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

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

Consideration and Integration of the American Society of Mechanical Engineers and American Nuclear Society Probabilistic Risk Assessment Methodology Standards—Panel, Tues. p.m.

Nuclear Fuel Recycling Data Needs—Panel, Wed. a.m.

Emerging Issues in Nuclear Facility Safety and Safety Culture, Wed. p.m.

Current Issues in Reactor Safety, Thurs. a.m.

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

## Track 5: Environmental Science and Technologies

Environmental Sciences: General, Mon. p.m.

Lessons Learned in Responses to Inadvertent Groundwater Contamination Events at U.S. Nuclear Power Plants—Panel, Tues. a.m.

Site Characterization, Monitoring, and Modeling Strategies for Groundwater Transport of Radionuclides at Nuclear Facilities—Panel, Tues. p.m.

## Track 6: Medical and Nonpower Applications of Radiation

Nuclear-Based Imaging Techniques in Biology and Medicine, Mon. p.m.

Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—I, Tues. a.m.

Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—II, Tues. p.m.

Biology and Medicine: General, Tues. p.m.

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

Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—I, Wed. a.m.

Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—II, Wed. p.m.

Advances in Boron Neutron Capture Therapy, Wed. p.m.

Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—I: Industrial, Thurs. a.m.

Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—II: Medical, Thurs. a.m.

## Track 6: Medical and Nonpower Applications of Radiation (cont'd)

Research Reactors: General, Thurs. a.m.

Development of Radiological Standards, Thurs. p.m.

## Track 7: Nuclear Science and Engineering

Light Water Reactor Automatic Core Design Optimization, Mon. p.m.

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

Reactor Physics: General, Tues. a.m.

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

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

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

Transport Methods: General, Tues. a.m.

Reactor Analysis Methods—I, Tues. p.m.

Reactor Analysis Methods—II, Wed. p.m.

The TRIPOLI Monte Carlo Code, Tues. p.m.

Computational Methods for Time-Dependent Transport, Tues. p.m.

Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—I, Wed. a.m.

Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—II, Wed. p.m.

The SCALE Code System, Wed. a.m.

Fuel Performance, Wed. a.m.

Computational Methods: General—I, Wed. a.m.

Computational Methods: General—II, Wed. p.m.

Young Professional Thermal-Hydraulics Research Competition, Wed. p.m.

Reactor Fuels and Materials, Wed. p.m.

Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform, Thurs. a.m.

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

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

Experiments and Validation in Thermal Hydraulics, Thurs. a.m.

Robotics Research and Robotics Deployments Across the DOE Complex—Panel, Thurs. a.m.

General Two-Phase Flow, Thurs. p.m.

DOE University Research Program in Robotics (URPR), Thurs. p.m.

## Track 8: Advanced Energy Research and Emerging Technologies

Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—I, Mon. p.m.

Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—II—Panel, Tues. p.m.

Thermal Hydraulics of Conceptual and Innovative Reactor Designs, Mon. p.m.

Design and Evaluation of Advanced Burner Reactors—I, Wed. a.m.

Design and Evaluation of Advanced Burner Reactors—II, Wed. p.m.

Advanced/Gen-IV Reactors—I: Gas/Liquid Metal, Thurs. a.m.

Advanced/Gen-IV Reactors—II: Water, Thurs. p.m.

## Track 9: Education, Training, and Communication with the Public

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

Focus on Communications—II: Communicating with Policy Makers—Panel, Tues. p.m.

Focus on Communications—III: Pronuclear Activism—Panel, Thurs. p.m.

Recruiting, Retention, and Outreach, Mon. p.m.

Student Design Competition, Tues. a.m.

Innovations in Nuclear Engineering Education, Training, and Distance Learning, Tues. p.m.

Training Excellence Awards, Wed. p.m.

Innovations in Nuclear Infrastructure and Education Review—Panel, Thurs. p.m.

## Track 10: Nuclear Nonproliferation and Security

Detection Technologies for Homeland Security Applications, Mon. p.m.

Nuclear Safeguards Implications of New Fuel Cycle Activities, Thurs. a.m.

## Track 11: Professional Development

Monte Carlo TRIPOLI Tutorial, Wed. p.m.

Monte Carlo SCALE Tutorial, Thurs. a.m.

Monte Carlo MCNPX Tutorial, Thurs. p.m.

# Technical Sessions by Division

*(Asterisks indicate special sessions.)  
(Parentheses indicate cosponsorship.)*

## Special Sessions

\*Opening Plenary: Making the Renaissance Real, Mon. a.m.  
(8:30-11:30 a.m.)

\*ANS/ENS Honorary Co-Chairs' Special Session: Government Policy's Impact on Nuclear's Future: What Every Voter Needs to Know, Mon. p.m.  
(1:00-2:30 p.m.)

## Biology and Medicine (BMD)

Nuclear-Based Imaging Techniques in Biology and Medicine, Mon. p.m.

Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—I, Tues. a.m.

Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—II, Tues. p.m.

Biology and Medicine: General, Tues. p.m.

(Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—I, Wed. a.m.)

(Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—II, Wed. p.m.)

Advances in Boron Neutron Capture Therapy, Wed. p.m.

Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—II: Medical, Thurs. a.m.

## Decommissioning, Decontamination, and Reutilization (DDR D)

Decommissioning, Decontamination, and Reutilization Technology—Papers/Panel, Mon. p.m.

## Education and Training (ETD)

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

Focus on Communications—II: Communicating with Policy Makers—Panel, Tues. p.m.

Focus on Communications—III: Pronuclear Activism—Panel, Thurs. p.m.

Recruiting, Retention, and Outreach, Mon. p.m.

Student Design Competition, Tues. a.m.

Innovations in Nuclear Engineering Education, Training, and Distance Learning, Tues. p.m.

Training Excellence Awards, Wed. p.m.

## Environmental Sciences (ESD)

Environmental Sciences: General, Mon. p.m.

Lessons Learned in Responses to Inadvertent Groundwater Contamination Events at U.S. Nuclear Power Plants—Panel, Tues. a.m.

Site Characterization, Monitoring, and Modeling Strategies for Groundwater Transport of Radionuclides at Nuclear Facilities—Panel, Tues. p.m.

Contributions of Nuclear Science and Technology to Sustainable Development, Wed. a.m.

## Fuel Cycle and Waste Management (FCWMD)

Modeling and Simulation for Enhanced Safeguards—Panel, Mon. p.m.

What About the Front End?—Panel, Tues. a.m.

Head End Improvements and Waste Forms, Tues. p.m.

Recent Developments in Fuel Cycle Modeling and Systems Analysis, Wed. a.m.

Closing the Fuel Cycle, Wed. p.m.

Nuclear Safeguards Implications of New Fuel Cycle Activities, Thurs. a.m.

U.S. Department of Energy Fuel Nuclear Energy Research Initiative Overviews—Panel, Thurs. p.m.

## Human Factors (HFD)

Human Factors Concepts and Considerations in New Plant Designs, Thurs. a.m.

## Isotopes and Radiation (IRD)

(Detection Technologies for Homeland Security Applications, Mon. p.m.)

(Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—I, Tues. a.m.)

(Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—II, Tues. p.m.)

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

Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—I, Wed. a.m.

Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—II, Wed. p.m.

Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—I: Industrial, Thurs. a.m.

(Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—II: Medical, Thurs. a.m.)

Development of Radiological Standards, Thurs. p.m.

## Materials Science and Technology (MSTD)

Fuel Performance, Wed. a.m.

Reactor Fuels and Materials, Wed. p.m.

(Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—I: Industrial, Thurs. a.m.)

## Mathematics and Computation (MCD)

(Light Water Reactor Automatic Core Design Optimization, Mon. p.m.)

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

Transport Methods: General, Tues. a.m.

(Reactor Analysis Methods—I, Tues. p.m.)

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

Computational Methods for Time-Dependent Transport, Tues. p.m.

(Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—I, Wed. a.m.)

(Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—II, Wed. p.m.)

Computational Methods: General—I, Wed. a.m.

Computational Methods: General—II, Wed. p.m.

(Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform, Thurs. a.m.)

# Technical Sessions by Division

## **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.  
(The SCALE Code System, Wed. a.m.)  
Nuclear Fuel Recycling Data Needs—Panel, Wed. a.m.  
(Monte Carlo SCALE Tutorial, Thurs. a.m.)  
Nuclear Criticality Safety Standards—Forum, Thurs. a.m.

## **Nuclear Installations Safety (NISD)**

Innovations in Probabilistic Risk Assessment, Tues. a.m.  
Consideration and Integration of the American Society of Mechanical Engineers and American Nuclear Society Probabilistic Risk Assessment Methodology Standards—Panel, Tues. p.m.  
Emerging Issues in Nuclear Facility Safety and Safety Culture, Wed. p.m.  
Current Issues in Reactor Safety, Thurs. a.m.  
Safety in Waste Burning and Fast Reactors, Thurs. p.m.

## **Operations and Power (OPD)**

(Light Water Reactor Automatic Core Design Optimization, Mon. p.m.)  
Advanced Instrumentation and Control, Mon. p.m.  
Status of Workforce Development for the Renaissance—Panel, Tues. a.m.  
(Lessons Learned in Responses to Inadvertent Groundwater Contamination Events at U.S. Nuclear Power Plants—Panel, Tues. a.m.)  
New Construction Quality and Inspection—Papers/Panel, Tues. p.m.  
(Site Characterization, Monitoring, and Modeling Strategies for Groundwater Transport of Radionuclides at Nuclear Facilities—Panel, Tues. p.m.)  
(Innovations in Nuclear Engineering Education, Training, and Distance Learning, Tues. p.m.)  
Equipment Reliability: A Continuing Force in Nuclear Asset Performance—Panel, Wed. a.m.  
Advanced Instrumentation and Control Licensing Status—Panel, Wed. a.m.  
Update on Status of Small Power Reactors—Papers/Panel, Wed. p.m.  
Introduction to Codes and Standards and Their Significance—Tutorial, Wed. p.m.  
Advanced/Gen-IV Reactors—I: Gas/Liquid Metal, Thurs. a.m.  
Advanced/Gen-IV Reactors—II: Water, Thurs. p.m.  
Research Reactors: General, Thurs. a.m.  
(Human Factors Concepts and Considerations in New Plant Designs, Thurs. a.m.)  
Innovations in Nuclear Infrastructure and Education Review—Panel, Thurs. p.m.

## **Radiation Protection and Shielding (RPSD)**

Detection Technologies for Homeland Security Applications, Mon. p.m.  
Radiation Protection and Shielding: General, Tues. a.m.  
The TRIPOLI Monte Carlo Code, Tues. p.m.  
The SCALE Code System, Wed. a.m.  
Monte Carlo TRIPOLI Tutorial, Wed. p.m.  
Monte Carlo SCALE Tutorial, Thurs. a.m.  
Monte Carlo MCNPX Tutorial, Thurs. p.m.

## **Reactor Physics (RPD)**

Light Water Reactor Automatic Core Design Optimization, Mon. p.m.  
Reactor Physics: General, Tues. a.m.  
(Transport Methods: General, Tues. a.m.)  
Reactor Analysis Methods—I, Tues. p.m.  
Reactor Analysis Methods—II, Wed. p.m.  
(Computational Methods for Time-Dependent Transport, Tues. p.m.)  
Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—I, Wed. a.m.  
Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—II, Wed. p.m.  
Design and Evaluation of Advanced Burner Reactors—I, Wed. a.m.  
Design and Evaluation of Advanced Burner Reactors—II, Wed. p.m.  
(Recent Developments in Fuel Cycle Modeling and Systems Analysis, Wed. a.m.)  
Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform, Thurs. a.m.  
Reactor Physics Design, Validation, and Operating Experience—I, Thurs. a.m.  
Reactor Physics Design, Validation, and Operating Experience—II, Thurs. p.m.

## **Robotics and Remote Systems (RRSD)**

Robotics Research and Robotics Deployments Across the DOE Complex—Panel, Thurs. a.m.  
DOE University Research Program in Robotics (URPR), Thurs. p.m.

## **Thermal Hydraulics (THD)**

Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—I, Mon. p.m.  
Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—II—Panel, Tues. p.m.  
Thermal Hydraulics of Conceptual and Innovative Reactor Designs, Mon. p.m.  
General Thermal Hydraulics—I, Tues. a.m.  
General Thermal Hydraulics—II, Wed. a.m.  
Young Professional Thermal Hydraulics Research Competition, Wed. p.m.  
Experiments and Validation in Thermal Hydraulics, Thurs. a.m.  
General Two-Phase Flow, Thurs. p.m.

## **Young Members Group (YMG)**

(Focus on Communications—I: Meet the Media—Panel, Mon. p.m.)  
(Focus on Communications—II: Communicating with Policy Makers—Panel, Tues. p.m.)  
(Focus on Communications—III: Pronuclear Activism—Panel, Thurs. p.m.)  
(Status of WorkForce Development for the Renaissance—Panel, Tues. a.m.)  
(The TRIPOLI Monte Carlo Code, Tues. p.m.)  
(Contributions of Nuclear Science and Technology to Sustainable Development, Wed. a.m.)  
(The SCALE Code System, Wed. a.m.)  
(Monte Carlo TRIPOLI Tutorial, Wed. p.m.)  
(Monte Carlo SCALE Tutorial, Thurs. a.m.)  
(Monte Carlo MCNPX Tutorial, Thurs. p.m.)



# Condensed Schedule

ROOM	MONDAY, NOVEMBER 12, 2007			TUESDAY, NOVEMBER 13, 2007	
	8:30–11:30 A.M.	1:00–2:30 P.M.	2:30–4:15 P.M.	8:30–11:30 A.M.	1:00–4:00 P.M.
<b>Regency Ballroom</b>	Opening Plenary: Making the Renaissance Real	ANS/ENS Honorary Cochairs' Special Session: Government Policy's Impact on Nuclear's Future: What Every Voter Needs to Know			
<b>Diplomat Ballroom</b>			Light Water Reactor Automatic Core Design Optimization	Reactor Physics: General	Reactor Analysis Methods—I
<b>Palladian Ballroom</b>			Environmental Sciences: General	Lessons Learned in Responses to Inadvertent Groundwater Contamination Events at U.S. Nuclear Power Plants—Panel	Site Characterization, Monitoring, and Modeling Strategies for Groundwater Transport of Radionuclides at Nuclear Facilities—Panel
<b>Cabinet Room</b>			Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—I	General Thermal Hydraulics—I	Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—II—Panel
<b>Forum Room</b>			Nuclear-Based Imaging Techniques in Biology and Medicine	Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—I	Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—II ----- Biology and Medicine: General
<b>Congressional A</b>			Thermal Hydraulics of Conceptual and Innovative Reactor Designs	Innovations in Probabilistic Risk Assessment	Consideration and Integration of the ASME and ANS Probabilistic Risk Assessment Methodology Standards—Panel
<b>Congressional B</b>			Detection Technologies for Homeland Security Applications	Radiation Protection and Shielding: General	The TRIPLOI Monte Carlo Code
<b>Hampton Ballroom</b>			Focus on Communications—I: Meet the Media—Panel	Data, Analysis, and Operations for Nuclear Criticality Safety—I	Data, Analysis, and Operations for Nuclear Criticality Safety—II
<b>Calvert Room</b>			Recruiting, Retention, and Outreach	Student Design Competition	Innovations in Nuclear Engineering Education, Training, and Distance Learning ----- Focus on Communications—II: Communicating with Policy Makers—Panel
<b>Capitol Room</b>			Decommissioning, Decontamination, and Reutilization Technology—Papers/Panel		Isotopes and Radiation: General
<b>Embassy Room</b>			Modeling and Simulation for Enhanced Safeguards—Panel	What About the Front End?—Panel	Head End Improvements and Waste Forms
<b>Governor's Boardroom</b>			Current Issues in Computational Methods—Roundtable	Transport Methods: General	Computational Methods for Time-Dependent Transport
<b>Empire Ballroom</b>			Advanced Instrumentation and Control	Status of Workforce Development for the Renaissance—Panel	New Construction Quality and Inspection—Papers/Panel

# Condensed Schedule

ROOM	WEDNESDAY, NOVEMBER 14, 2007		THURSDAY, NOVEMBER 15, 2007	
	8:30–11:30 A.M.	1:00–4:00 P.M.	8:30–11:30 A.M.	1:00–4:00 P.M.
<b>Empire Ballroom</b>	Equipment Reliability: A Continuing Force in Nuclear Asset Performance—Panel	Update on Status of Small Power Reactors—Papers/Panel	Advanced/Gen-IV Reactors—I: Gas/Liquid Metal	
<b>Diplomat Ballroom</b>	Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—I	Reactor Analysis Methods—II ----- Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—II	Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform	
<b>Palladian Ballroom</b>	Design and Evaluation of Advanced Burner Reactors—I	Design and Evaluation of Advanced Burner Reactors—II	Reactor Physics Design, Validation, and Operating Experience—I	Reactor Physics Design, Validation, and Operating Experience—II
<b>Cabinet Room</b>	General Thermal Hydraulics—II	Young Professional Thermal Hydraulics Research Competition	Experiments and Validation in Thermal Hydraulics	General Two-Phase Flow
<b>Forum Room</b>	Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—I	Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—II ----- Advances in Boron Neutron Capture Therapy	Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—I: Industrial ----- Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—II: Medical	Development of Radiological Standards
<b>Congressional A</b>	Contributions of Nuclear Science and Technology to Sustainable Development	Emerging Issues in Nuclear Facility Safety and Safety Culture	Current Issues in Reactor Safety	Safety in Waste Burning and Fast Reactors
<b>Congressional B</b>	The SCALE Code System	Monte Carlo TRIPOLI Tutorial	Monte Carlo SCALE Tutorial	Monte Carlo MCNPX Tutorial
<b>Hampton Ballroom</b>	Nuclear Fuel Recycling Data Needs—Panel	Training Excellence Awards	Nuclear Criticality Safety Standards—Forum	Focus on Communications—III: Pronuclear Activism—Panel
<b>Calvert Room</b>	Fuel Performance	Reactor Fuels and Materials	Robotics Research and Robotics Deployments Across the DOE Complex—Panel	DOE University Research Program in Robotics (URPR)
<b>Capitol Room</b>	Advanced Instrumentation and Control Licensing Status—Panel	Introduction to Codes and Standards and Their Significance—Tutorial	Research Reactors: General	Advanced/Gen-IV Reactors—II: Water
<b>Embassy Room</b>	Recent Developments in Fuel Cycle Modeling and Systems Analysis	Closing the Fuel Cycle	Nuclear Safeguards Implications of New Fuel Cycle Activities	Innovations in Nuclear Infrastructure and Education Review—Panel
<b>Governor's Boardroom</b>	Computational Methods: General—I	Computational Methods: General—II	Human Factors Concepts and Considerations in New Plant Designs	U.S. Department of Energy Fuel Nuclear Energy Research Initiative Overviews—Panel

# Technical Sessions by Day: Monday

## MONDAY • NOVEMBER 12, 2007

<b>7:30 A.M. – 5:00 P.M.</b>	<b>MEETING REGISTRATION</b>
<b>8:00 A.M. – 10:00 A.M.</b>	<b>SPOUSE/GUEST HOSPITALITY</b>
<b>8:30 A.M. – 11:30 A.M.</b>	<b>OPENING PLENARY</b> "Making the Renaissance Real"
<b>11:30 A.M. – 1:00 P.M.</b>	<b>ATTENDEE LUNCHEON IN THE NUCLEAR TECHNOLOGY EXPO</b>
<b>11:30 A.M. – 6:00 P.M.</b>	<b>ANS NUCLEAR TECHNOLOGY EXPO</b>
<b>1:00 P.M. – 2:30 P.M.</b>	<b>ANS/ENS HONORARY CO-CHAIRS' SPECIAL SESSION</b> "Government Policy's Impact on Nuclear's Future: What Every Voter Needs to Know"
<b>1:00 P.M. – 4:00 P.M.</b>	<b>SPOUSE/GUEST TOUR:</b> "Lights, Camera, Action: Hollywood in Washington, DC"
<b>2:30 P.M. – 4:15 P.M.</b>	<b>2007 ANS/ENS INTERNATIONAL MEETING TECHNICAL SESSIONS</b> <ul style="list-style-type: none"><li>• Light Water Reactor Automatic Core Design Optimization</li><li>• Environmental Sciences: General</li><li>• Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—I</li><li>• Nuclear-Based Imaging Techniques in Biology and Medicine</li><li>• Thermal Hydraulics of Conceptual and Innovative Reactor Designs</li><li>• Detection Technologies for Homeland Security Applications</li><li>• Focus on Communications—I: Meet the Media—Panel</li><li>• Recruiting, Retention, and Outreach</li><li>• Decommissioning, Decontamination, and Reutilization Technology—Papers/Panel</li><li>• Modeling and Simulation for Enhanced Safeguards—Panel</li><li>• Current Issues in Computational Methods—Roundtable</li><li>• Advanced Instrumentation and Control</li></ul>
<b>4:30 P.M. – 6:00 P.M.</b>	<b>RECEPTION IN THE NUCLEAR TECHNOLOGY EXPO</b>
<b>7:00 P.M. – 10:00 P.M.</b>	<b>EVENING EVENT: "Dinner/Reception at the Corcoran Gallery of Art"</b>

## MONDAY, NOVEMBER 12, 2007 • 8:30 A.M.

**Opening Plenary: Making the Renaissance Real.** *Cochairs:* Andrew C. White (*GE-Hitachi Nuclear Energy*), Manfred Thumann (*NOK*) [Track 1]

### Regency Ballroom

#### WELCOMING REMARKS:

- Donald C. Hintz (ANS Honorary Chair)
- David R. Bonser (ENS Honorary Chair)

#### SPEAKERS:

- Jeffrey R. Immelt (*Chairman and Chief Executive Officer, General Electric Company*)
- The Honorable Tom Carper (*United States Senator - Delaware*)
- Adolfo Garcia Rodriguez (*CEO, Empresarios Agrupados*)
- The Honorable Eileen Claussen (*President, Pew Center on Global Climate Change*)

## MONDAY, NOVEMBER 12, 2007 • 1:00 P.M.

**ANS/ENS Honorary Co-Chairs' Special Session: Government Policy's Impact on Nuclear's Future: What Every Voter Needs to Know.** *Cochairs:* Donald C. Hintz (*Consultant*), David R. Bonser (*BNFL*) [Track 1]

### Regency Ballroom

Expect a stimulating session as speakers with expertise in policy development across local, state, federal and international realms share their points of view and engage session participants in provocative discussion of topical issues.

#### SPEAKERS:

- Clarence H. 'Bud' Albright (*Under Secretary of Energy, U.S. Department of Energy*)
- John H. Sununu (*President, JHS Associates, Ltd*)
- Richard J. Myers (*Vice President, Policy Development, Nuclear Energy Institute*)

## MONDAY, NOVEMBER 12, 2007 • 2:30 P.M.

**Light Water Reactor Automatic Core Design Optimization,** sponsored by RPD; cosponsored by OPD, MCD. *Session Organizer:* Albert Gu (*AREVA NP*). *Chair:* Albert Gu [Track 7]

### Diplomat Ballroom

#### 2:30 p.m.

Westinghouse PWR Loading Pattern Search, Frank Popa (*Westinghouse*), invited

#### 2:55 p.m.

Advances in Fuel Optimization with BALO, Ralph G. Grummer, Albert G. Gu (*AREVA NP*), invited

#### 3:20 p.m.

GNF ePrometheus™ N-StreamingSM Application for Nine Mile Point Unit 2 Nuclear Power Station, Serkan Yilmaz, Gerald Kvaall (*GNF*), Carl Lepine, Jeff Winklebleck (*Constellation Energy Group*), invited

#### 3:45 p.m.

PWR Core Design Optimization Using Genetic Algorithms, Fatih Alim (*TAEA*), Serkan Yilmaz (*GNF*), Kostadin Ivanov, Samuel H. Levine (*Penn State*)

**Environmental Sciences: General,** sponsored by ESD. *Session Organizer:* Rebecca Steinman (*Advent Eng*). *Chair:* Pete Fledderman (*SRS*) [Track 5]

### Palladian Ballroom

#### 2:30 p.m.

Making Environmental Data Accessible Through Geographic Information Systems, Michael Hall, Derek Pizarro, Sarah Slagle-Garrett (*O'Brien & Gere*)

#### 2:55 p.m.

Groundwater Analysis of HLW Repository in the Korea Geological Formation, Mi-Seon Jeong, Yong Soo Hwang, Chul Hyung Kang (*KAERI*)

#### 3:20 p.m.

Development of CYPRUS and Its Perspective, Yongsoo Hwang, Mi-Seon Jeong (*KAERI*)

#### 3:45 p.m.

Research Agenda to Improve the Response to Radnuc Incidents in Populated Areas, Thomas E. Kiess (*DOE*)

#### 4:10 p.m.

Effects of Particle Size Variations in Inhalation Dose Assessment for Short-term Radiological Events, Boonchawee Srimok, Man-Sung Yim (*NCSU*)

**Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—I,** sponsored by THD. *Session Organizers:* K. Muftuoglu (*Westinghouse*), Brian G. Woods (*Oregon State Univ*). *Chair:* Brian G. Woods [Track 8]

### Cabinet Room

#### 2:30 p.m.

Thermal Hydraulic Analysis of Oregon State University TRIGA Reactor Using RELAP5-3D, Wade Marcum, Brian Woods (*Oregon State Univ*), invited

#### 2:55 p.m.

EREC-STRESA—Web-Based Database on LWR NPPs Safety, Vladimir N. Blinkov, Mikhail V. Davydov (*Electrogorsk Research & Engineering Center on NPPs Safety*)

#### 3:20 p.m.

Development of Prismatic VHTR Model Using the MELCOR Code, N. Zhen, K. Vierow (*Texas A&M*), S. Rodriguez, R. O. Gauntt (*SNL*)

#### 3:45 p.m.

An Improvement of the MIDAS Computer Code for a Gap Cooling Model, S. H. Park, Y. M. Song, D. H. Kim, J. H. Park, K. R. Kim (*KAERI*)

#### 4:10 p.m.

A Cell-Centered Numerical Scheme for a Two-Fluid Three-Field Model, H. Y. Yoon, J. Kim, J. J. Jeong (*KAERI*)

**Nuclear-Based Imaging Techniques in Biology and Medicine,** sponsored by BMD. *Session Organizer:* Nicholas Spyrou (*Univ of Surrey*). *Chair:* Nicholas Spyrou. All invited. [Track 6]

### Forum Room

#### 2:30 p.m.

Molecule Specific Imaging Using Synchrotron Radiation, K. D. Rogers, S. Wilkinson (*Cranfield Univ*)



# Technical Sessions by Day: Monday

## 2:55 p.m.

A Comparison Between PET Scanner Architectures, B. W. Jakoby (*Univ of Tennessee/Univ of Surrey/Siemens Molecular Imaging*), D. W. Townsend (*Univ of Tennessee*), N. M. Spyrou (*Univ of Surrey*)

## 3:20 p.m.

The Role of PET/CT Imaging in the Management of the Patient with Cancer, Claude Nahmias (*Univ of Tennessee*)

## 3:45 p.m.

PET/CT Motion Correction in Paediatric Gut Inflammation Drug Response Therapy, M. A. Masoomi, Y. Bouchareb (*Royal Hospital Haslar-Portsmouth NHS Trust*), A. Robinson (*Portsmouth NHS Trust & Univ of Surrey*), N. M. Spyrou (*Univ of Surrey*)

**Thermal Hydraulics of Conceptual and Innovative Reactor Designs**, sponsored by THD. *Cochairs:* Chang Oh, Piyush Sabharwal (*INL*) [Track 8]

## Congressional A

### 2:30 p.m.

Transient Analysis of Battery Omnibus Reactor Integral System, Hyoung M. Son, J. Seok Hwang, W. Soo Jeong, Kune Y. Suh (*Seoul Natl Univ*)

### 2:55 p.m.

Development of Three-Dimensional Thermal-Hydraulic Analysis Code for Supercritical Water-Cooled Reactor, Takeharu Misawa, Hiroyuki Yoshida, Hidesada Tamai, Kazuyuki Takase (*JAEA*)

### 3:20 p.m.

Conceptual Design of a Superheat Boiling Water Reactor, Zachary Ferrara, L. E. Hochreiter (*Penn State*)

### 3:45 p.m.

Conceptual Design of Space Power Reactor Integral System, Seung H. Nam (*Seoul Natl Univ*), Seong G. Kang (*PHILOSOPHIA*), Kune Y. Suh (*Seoul Natl Univ/PHILOSOPHIA*)

**Detection Technologies for Homeland Security Applications**, sponsored by RPSD; cosponsored by IRD. *Session Organizer:* Raymond Klann (*ANL*). *Chair:* Everett Redmond II (*NEI*) [Track 10]

## Congressional B

### 2:30 p.m.

Deuterium Ionization for Pyroelectric Crystal Accelerators, Don Gillich, Yaron Danon, Jeffrey A. Geuther, Becky Marus, Brian McDermott (*RPI*)

### 2:55 p.m.

Technical Developments Behind the Advanced Transparency Framework, Carmen M. Mendez (*Sociotecnica Solutions*), Gary Rochau, Virginia Cleary, David York (*SNL*), Naoko Inoue (*JAEA*)

### 3:20 p.m.

Efficiency of a LaBr<sub>3</sub> Imaging Array for Homeland Security Applications, James E. Baciak, Rebecca Detwiler, Yuxin Feng (*Univ of Florida*)

### 3:45 p.m.

Use of a Geiger-Mueller Detector to Assess Internal Dose After a Radiological Dispersion Device, Ryan Manger, Nolan Hertel (*Georgia Tech*)

**Focus on Communications—I: Meet the Media—Panel**, sponsored by ETD; cosponsored by YMG. *Session Organizer:* Mimi Limbach (*Potomac Communications*). *Chair:* Mimi Limbach [Track 9]

## Hampton Ballroom

### 2:30 p.m.

With the potential of an American nuclear energy renaissance rising on the horizon, media interest in the future of nuclear science and technology

continues to expand in both breadth and depth across the nation and around the globe. American Nuclear Society members are actively engaging the media in discussions about the benefits of safe, clean, and reliable nuclear energy and the important contributions of nuclear science and technology to our quality of life. This session will provide a forum for the Society's members to Meet the Media, learn how editors and reporters develop their stories and determine what is newsworthy, and learn how the industry can support the media's rising interest in nuclear science and technology issues.

#### PANELISTS:

- Jeff Beattie (*Energy Daily*)
- Tom Doggett (*Reuters*)
- Gwen Morgan (*Independent filmmaker*)
- Margaret Ryan (*Platts*)

**Recruiting, Retention, and Outreach**, sponsored by ETD. *Chair:* Peter Caracappa (*RPI*) [Track 9]

## Calvert Room

### 2:30 p.m.

Influencing Policymakers to Support Nuclear Engineering, Science and Technology Education, Leah Spradley (*Vanderbilt Univ*), Tyler M. Schweitzer (*NCSU*)

### 2:55 p.m.

A Summer to Remember, A. Irani, J. E. Chang, M. Karasulu (*Entergy*)

### 3:20 p.m.

A Second Chance: Communicating Our Message in Today's World, Michael DeWitte (*SNL*)

**Decommissioning, Decontamination, and Reutilization Technology—Papers/Panel**, sponsored by DDRD. *Session Organizer:* John Bowen (*Mega-Tech Svcs*). *Chair:* John D. Parkyn (*Private Fuel Storage*) [Track 3]

## Capitol Room

### PAPERS

#### 2:30 p.m.

Pathfinder Decommissioning: 1967-2007, C. E. Burtoff, J. W. Closs, J. M. Gushue, J. J. Holthaus, K. Lucken, J. C. Seitz (*Nuclear Management*)

#### 2:55 p.m.

Decontamination of Soils in the Medium of Liquid CO<sub>2</sub> or Freons, D. Shafikov, A. Shadrin, A. Murzin, V. Kamachev (*V.G. Khlopin Radium Inst*)

### PANEL DISCUSSION

#### 3:20 p.m.

##### PANELISTS:

- Naeem Abdurrahman (*Fluor Hanford*)
- Jamie Seitz (*Nuclear Management*)
- Denis Shafikov (*V.G. Khlopin Radium Inst*)
- John D. Parkyn (*Private Fuel Storage*)

**Modeling and Simulation for Enhanced Safeguards—Panel**, sponsored by FCWMD. *Session Organizer:* Humberto Garcia (*INL*). *Chair:* Trond Bjornard (*INL*) [Track 3]

## Embassy Room

### 2:30 p.m.

##### PANELISTS:

- Michael Golay (*MIT*)
- John Murphy (*NNSA*)
- Robert Parker (*LANL*)
- Kemal Pasamehmetoglu (*INL*)
- Meng Yue (*BNL*)

# Technical Sessions by Day: Monday/Tuesday

**Current Issues in Computational Methods–Roundtable**, sponsored by MCD. *Session Organizer:* Jasmina Vuijc (*Univ of California*). *Chair:* Jasmina Vuijc [Track 7]

## Governor's Boardroom

2:30 p.m.

Panelists to be determined.

**Advanced Instrumentation and Control**, sponsored by OPD. *Chair:* Edward Quinn (*Consultant*) [Track 2]

## Empire Ballroom

2:30 p.m.

Nuclear Qualification of the Input/Output Modules for a Safety-Grade Programmable Logic Controller, Kyung Ho Cha, Jong Gyun Choi, Kee Choon Kwon (*KAERI*)

2:55 p.m.

The Application of Noise Analysis to Find the Miss-connection of LPRM Cable Connectors, Osamu Kubota, Akira Maki, Tomomichi Uegata (*TEPCO*)

3:20 p.m.

New Architecture of APR1400 Man-Machine Interface Systems, Seo-Ryong Koo, Jung-Surk Sur, Chang-Ho Cho (*Doosan Heavy Industries & Construction*)

3:45 p.m.

Digitized Source Range Neutron Detection, C. C. McCarthy (*Northrop Grumman*)

**TUESDAY, NOVEMBER 13, 2007 • 8:30 A.M.**

**Status of Workforce Development for the Renaissance–Panel**, sponsored by OPD; cosponsored by YMG. *Chair:* Kenneth Ferguson (*Consultant*) [Track 1]

## Empire Ballroom

8:30 a.m.

The ability of the nuclear industry to effectively respond to the opportunities of a renaissance includes adequately staffing the functions and organization structures to deliver the needs of such a future. Development and utilization of pipelines of new sources of support and assistance will be vital. Top-level assessments have confirmed the need for such action. This panel will provide a status of what is being planned and implemented in response to this current and growing need. The panel will include nuclear utility, large vendor, and consulting company representation.

### PANELISTS:

- Lisa Stiles (*Dominion*)
- Bernie Copsey (*AREVA*)
- Benjamin Cross (*Washington Group Int*)
- Willie Clark (*Parsons Infrastructure & Technol Group*)

**Reactor Physics: General**, sponsored by RPD. *Session Organizer:* Bojan Petrovic (*Georgia Tech*). *Chair:* Pavel Tsvetkov (*Texas A&M*) [Track 7]

## Diplomat Ballroom

8:30 a.m.

Convergence Acceleration for  $k_{\text{eff}}$  Using Power Iteration, Paolo Picca (*Politecnico di Torino*), Barry D. Ganapol, Roberto Furfaro (*Univ of Arizona*)

8:55 a.m.

Combining In-Core-Detector Readings with Diffusion in Eigenvalue Flux Calculations for CANDU Reactors, Eleodor Nichita, Benjamin Rouben (*Univ of Ontario Inst of Technol*)

9:20 a.m.

An Application of Discontinuous Finite Element Methods to the Solution of the Bateman Equations, Paul H. Smith, Anil K. Prinja (*Univ of New Mexico*)

9:45 a.m.

Three-dimensional Core Simulations of BWR Bundles with Americium Target Pins, Jack D. Galloway (*Univ of Cincinnati*), G. Ivan Maldonado (*Univ of Tennessee*)

10:10 a.m.

Minimization of the Reactivity Swing by Burnable Poisons in VHTR, Chang Keun Jo, Yonghee Kim, Jae Man Noh (*KAERI*)

10:35 a.m.

Multibatch Fuel Management for Gen IV Fast Reactors, M. J. Driscoll, C. S. Handwerk (*MIT*)

11:00 a.m.

Optimization of Axial Fuel Shuffling Strategy in a Block-Type VHTR, Yonghee Kim, Chang Keun Jo, Jae Man Noh (*KAERI*)

**Lessons Learned in Responses to Inadvertent Groundwater Contamination Events at U.S. Nuclear Power Plants–Panel**, sponsored by ESD; cosponsored by OPD. *Chair:* Thomas J. Nicholson (*NRC*) [Track 5]

## Palladian Ballroom

8:30 a.m.

Over the past several years, a few operating U.S. commercial nuclear power plants have experienced inadvertent releases of radionuclides into the subsurface. These releases have attracted considerable public attention and have resulted in on-site monitoring programs and consideration of remediation. These programs are designed to characterize, monitor, and

## TUESDAY • NOVEMBER 13, 2007

7:30 A.M. – 5:00 P.M.

### MEETING REGISTRATION

8:00 A.M. – 10:00 A.M.

### SPOUSE/GUEST HOSPITALITY

8:30 A.M. – 11:30 A.M.

### 2007 ANS/ENS INTERNATIONAL MEETING TECHNICAL SESSIONS

- Status of Workforce Development for the Renaissance–Panel
- Reactor Physics: General
- Lessons Learned in Responses to Inadvertent Groundwater Contamination Events at U.S. Nuclear Power Plants–Panel
- General Thermal Hydraulics—I
- Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—I
- Innovations in Probabilistic Risk Assessment
- Radiation Protection and Shielding: General
- Data, Analysis, and Operations for Nuclear Criticality Safety—I
- Student Design Competition
- What About the Front End?–Panel
- Transport Methods: General

10:00 A.M. – 2:00 P.M.

### ANS NUCLEAR TECHNOLOGY EXPO

11:30 A.M. – 1:00 P.M.

### ANS HONORS AND AWARDS LUNCHEON

1:00 P.M. – 4:00 P.M.

### 2007 ANS/ENS INTERNATIONAL MEETING TECHNICAL SESSIONS

- New Construction Quality and Inspection–Papers/Panel
- Reactor Analysis Methods—I
- Site Characterization, Monitoring, and Modeling Strategies for Groundwater Transport of Radionuclides at Nuclear Facilities–Panel
- Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—II–Panel
- Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—II
- Biology and Medicine: General
- Consideration and Integration of the American Society of Mechanical Engineers and American Nuclear Society Probabilistic Risk Assessment Methodology Standards–Panel
- The TRIPOLI Monte Carlo Code
- Data, Analysis, and Operations for Nuclear Criticality Safety—II
- Innovations in Nuclear Engineering Education, Training, and Distance Learning
- Focus on Communications—II: Communicating with Policy Makers–Panel
- Isotopes and Radiation: General
- Head End Improvements and Waste Forms
- Computational Methods for Time-Dependent Transport

1:00 P.M. – 5:00 P.M.

### SPOUSE/GUEST TOUR: "Adventures in Art"

4:00 P.M. – 6:00 P.M.

### STUDENT POSTER SESSION

# Technical Sessions by Day: Tuesday

analyze the radionuclide release sources and migration to groundwater. A panel session will focus on lessons learned from the responses to these events and program achievements by industry. The panel is composed of technical experts from industry, academia, and regulatory oversight organizations who are knowledgeable of these events, programs, and lessons. Information from these lessons is being considered in the development of a national standard on “Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Production Facilities.”

## PANELISTS:

- Thomas J. Nicholson (*NRC*)
- Matt Barvenik (*GeoEnvironmental*)
- David Scott (*Radiation Safety & Control Svc*)
- Gerry van Noordennen (*CYAPCO*)
- John Shaffer (*Univ of South Carolina*)
- Todd Rasmussen (*Univ of Georgia*)

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**General Thermal Hydraulics—I**, sponsored by THD. *Cochairs:* Yassin Hassan (*Texas A&M*), Shripad Revankar (*Purdue Univ*) [Track 7]

## Cabinet Room

### 8:30 a.m.

A Two-Phase Jet-Plume Model for Suppression Pool, Timothy L. Norman, Shripad T. Revankar (*Purdue Univ*)

### 8:55 a.m.

Loss Coefficients Determination for Side Entry Orifices through CFD Simulations, Jin Yan, Jens Andersen, Brian Golchert (*GE-Hitachi Nuclear Energy*)

### 9:20 a.m.

Investigation of Stability Characteristics of Natural Circulation Boiling Water Reactor During Startup Transient, K. Woo, M. Ishii, S. Kuran, Y.-J. Yoo (*Purdue Univ*), Y. Yamamoto, S. Kawamura (*Toshiba Corp*)

### 9:45 a.m.

Kernkraftwerk Leibstadt AG (KKL) TRACG ADS Event Analysis, Francis Bolger, Baris Sarikaya (*GE-Hitachi Nuclear Energy*), Robert Engel (*KKL*)

### 10:10 a.m.

CFD Analysis of Thermal Mixing in T-junction with Elbow Upstream, Shin K. Kang (*Texas A&M*), Kojiro Takeyama (*Tokyo Univ*), Yassin A. Hassan (*Texas A&M*)

### 10:35 a.m.

Influence of Mixture Initial Conditions on the Steam Explosion in PWR Cavity, Boštjan Končar, Matjaž Leskovar (*Jozef Stefan Inst*)

### 11:00 a.m.

MAAP 4.07 Justification for PRA Level 1 Analysis of the U.S. EPR, Robert P. Martin, Ramu K. Sundaram, Farrokh Seifae, Jennifer S. Butler (*AREVA NP*)

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**Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—I**, sponsored by BMD; cosponsored by IRD. *Session Organizer:* Amares Chatt (*Dalhousie Univ*). *Chair:* Amares Chatt [Track 6]

## Forum Room

### 8:30 a.m.

Pushing the Metrological Frontiers of NAA: A Thirty-Year Effort to Improve Accuracy, Uncertainty and Detection Limits, Robert R. Greenberg (*NIST*), invited

### 9:20 a.m.

Use of RNAA for NIST SRM Certification, E. A. Mackey, R. R. Greenberg (*NIST*), invited

### 9:45 a.m.

Characterizing the NBSR for Establishing  $k_0$ -NAA at NIST, Rachel S. Popelka-Filcoff, Richard M. Lindstrom (*NIST*)

### 10:10 a.m.

Prompt Gamma-ray Activation Analysis for Metrological Comparisons, Rick L. Paul (*NIST*), invited

### 10:35 a.m.

INAA with Gamma-gamma Coincidence: Successful Application in a CCQM Pilot Study, Márcio A. Bacchi, Elisabete A. De Nadai Fernandes, Cláudio L. Gonzaga, Fábio S. Tagliaferro, Elvis J. França (*Univ of São Paulo*), invited

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**Innovations in Probabilistic Risk Assessment**, sponsored by NISD. *Session Organizer:* Raymond H. V. Gallucci (*NRC*). *Cochairs:* Raymond H. V. Gallucci, Young Choi (*KAERI*) [Track 4]

## Congressional A

### 8:30 a.m.

Severe Accident Management Scheme Using an Accident Scenario Database, Y. Choi, S. Y. Park, K. I. Ahn, D. H. Kim, K. Y. Kim (*KAERI*)

### 8:55 a.m.

Design and Implementation of a Risk Informed Level-2 Simulator, Ko Ryu Kim, Sun Hee Park, Yong Man Song (*KAERI*)

### 9:20 a.m.

Adding Dynamic Nodes to RGGG and Making Probability Tables, Seung Ki Shin, Poong Hyun Seong (*KAIST*)

### 9:45 a.m.

Risk Contribution of Digitalized Safety-Critical Systems of Nuclear Power Plants, Hyun Gook Kang, Seung-Cheol Jang (*KAERI*)

### 10:10 a.m.

Benchmarking the NRC “Circuits Risk Screening Tool,” Raymond H. V. Gallucci, Daniel M. Frumkin, See-Meng Wong (*NRC*)

### 10:35 a.m.

Risk Achievement Worth for Component Used for Special Initiators, Kilyoo Kim, Joon-Eon Yang (*KAERI*)

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**Radiation Protection and Shielding: General**, sponsored by RPSD.

*Session Organizer:* John Hendricks (*LANL*). *Chair:* Javier Palacios (*ININ*) [Track 7]

## Congressional B

### 8:30 a.m.

Activity Determination for Gas Sphere Sources Using a Compact Analytical Method, S. S. Nafee, M. I. Abbas (*Alexandria Univ Faculty of Science*)

### 8:55 a.m.

Evaluation of Rim Effect on PWR Fuel Utilizing TRITON, Tanya N. Sloma (*Bechtel SAIC/UNLV*), Charlotta E. Sanders (*Bechtel SAIC*)

### 9:20 a.m.

Neutron Channel Analysis of Electron Accelerator Driven System, Zhaopeng Zhong, Yousry Gohar, H. Belch (*ANL*)

### 9:45 a.m.

Reactor Streaming and Monte Carlo Convergence Time, Andrew D. Hodgdon, Glen D. Seeburger (*AREVA*), Ian M. Davis (*Transpire*)

### 10:10 a.m.

A Human Voxel Phantom Distributed Source Monte Carlo Solution, Stephanie Lamart (*IRSN*), John S. Hendricks (*LANL*)

### 10:35 a.m.

Estimation of Radiation Dose for a Sitting Phantom Using PIMAL, Hatice Akkurt, Keith F. Eckerman (*ORNL*)



# Technical Sessions by Day: Tuesday

**Data, Analysis, and Operations for Nuclear Criticality Safety—I**, sponsored by NCSD. *Session Organizer:* Lane Paschal (*Paschal Solutions*). *Chair:* Bradley T. Rearden (*ORNL*) [Track 4]

## Hampton Ballroom 8:30 a.m.

Criticality Considerations Associated with Restarting Operations in the THORP Feed Clarification Cell, Mike Kendall, Jane Edge (*BNG*)

## 8:55 a.m.

Criticality Safety Computational Issues of Loosely Coupled Systems, Larry L. Wetzel (*BWX Technol*)

## 9:20 a.m.

Sprinkler Evaluation Methodology for Criticality Safety, Barbara Krögfuss, Tom Christman (*BWX Technol*)

## 9:45 a.m.

Validation of Accuracy of Criticality Calculations of Damp Mixed Oxide Powders, Lev Tocheny (*Intl Science and Technology Center*), Anatoly Tsibulya (*IPPE*), Calvin M. Hopper (*ORNL*), Véronique Rouyer (*Institut de Radioprotection et de Sécurité Nucléaire*), J. Blair Briggs (*INL*)

## 10:10 a.m.

Evaluation of Applicability of CRC Models for Burnup Credit Validation, Georgeta Radulescu, Donald E. Mueller, John C. Wagner (*ORNL*)

## 10:35 a.m.

Computerized Applications for Criticality Safety in Processing Activities, David Erickson (*Fluor Government Group*), Hans Toffer (*Consultant*)

## 11:00 a.m.

Measurement of the Thermal Absorption Cross Section in Lucite Using Fermi-Age Theory, Rene Sanchez, John Bounds, David Hayes (*LANL*)

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**Student Design Competition**, sponsored by ETD. *Session Organizer:* H. Lee Dodds (*Univ of Tennessee*). *Chair:* H. Lee Dodds [Track 9]

## Calvert Room

### UNDERGRADUATE CATEGORY

## 8:30 a.m.

Design Analysis of an Advanced Molten Salt Burner Reactor, Jacob DeWitte, Timothy Goede, Christopher Perfetti, Thomas Plower, Michael Wayson (*Univ of Florida*)

## 8:55 a.m.

Design for a Compact Neutron Interferometer, Jennifer Choy, Leslie Dewan, Jennifer Lobo, Yuri Podpaly, Bao Truong (*MIT*)

### GRADUATE CATEGORY

## 9:20 a.m.

VVER-1000 Fuel Rod Design and Optimization, Michael J. Meholic, Daniel J. Skilone (*Penn State Univ*)

## 9:45 a.m.

A Small Mobile Molten Salt Reactor (SM-MSR) for Underdeveloped Countries and Remote Locations, William Casino, Kirk Sorensen, Christopher A. Whitener (*Univ of Tennessee*)

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**What About the Front End?—Panel**, sponsored by FCWMD. *Session Organizer:* Stephen L. Turner (*TerranearPMC*). *Cochairs:* Stephen L. Turner, Harold F. McFarlane (*INL*) [Track 3]

## Embassy Room

## 8:30 a.m.

This panel session includes brief presentations of capabilities in the uranium supply, conversion, and enrichment activities from the viewpoints of the suppliers, converters, enrichers, regulators, and utilities. The meeting concludes with a briefing on a consolidated projection of the capabilities in the key front-end fuel cycle elements. The objective is to understand if there are adequate resources, including qualified staff, to ensure a robust enriched uranium supply and front-end services to support the nuclear renaissance.

## PANELISTS:

- James Dobchuk (*Cameco*)
- Don Falconer (*Aurora*)
- Jim Graham (*Converdyn*)
- Gary Fox (*AREVA*)
- John Donelson (*USEC*)
- Kirk Schnoebelen (*Urenco*)
- Robert C. Pierson (*NRC*)
- Felix M. Killar, Jr. (*NEI*)
- Jeff Combs (*UxC Consult*)

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**Transport Methods: General**, sponsored by MCD; cosponsored by RPD. *Session Organizer:* Dmitriy Anistratov (*NCSU*). *Chair:* Nick Gentile (*LLNL*) [Track 7]

## Governor's Boardroom

## 8:30 a.m.

Prompt Gamma-Ray Imaging, Libai Xu, Robin P. Gardner (*NCSU*), invited, Mark Mills Award Winner

## 8:50 a.m.

A Continuous Finite Element-Based, Linear Discontinuous Finite Element Method for  $S_N$  Transport, J. S. Warsa (*LANL*)

## 9:10 a.m.

New 'Monte Carlo Functional' Methods for Estimating  $k$ -Eigenvalues and Eigenfunctions, Edward W. Larsen, Jinan Yang (*Univ of Michigan*)

## 9:30 a.m.

Universal Prior Criterion for Source Stationarity in Iterated-Source Monte Carlo Computation, Taro Ueki (*Univ of New Mexico*)

## 9:50 a.m.

The Quasidiffusion Method for Transport Problems in 2D Cartesian Geometry on Grids Composed of Arbitrary Quadrilaterals, William A. Wieselquist, Dmitriy Y. Anistratov (*NCSU*)

## 10:10 a.m.

A Diamond-Difference-Like SBA Scheme (SBA-DDL) for Polyhedral Meshes, Robert E. Grove, Aaron M. Watson, Micheal T. Shearer (*KAPL, Lockheed Martin*)

## 10:30 a.m.

The Effectiveness of Krylov Methods Applied to SBA, Aaron M. Watson, Robert E. Grove, Micheal T. Shearer (*KAPL, Lockheed Martin*)

## 10:50 a.m.

Functional Transformation of Maxwellian Velocities for Nuclei Interacting with Epithermal Neutrons, Hansem Joo (*Bechtel Bettis*)

## TUESDAY, NOVEMBER 13, 2007 • 1:00 P.M.

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**New Construction Quality and Inspection—Papers/Panel**, sponsored by OPD. *Chair:* Brian Grimes (*Consultant*) [Track 2]

## Empire Ballroom

### PAPERS

## 1:00 p.m.

Construction Quality Issues for New Nuclear Power Plants, Brian K. Grimes (*Consultant*)

## 1:25 p.m.

Industry Lessons Learned for 21st Century Nuclear Projects, Kenneth J. Aupperle (*High Bridge Assoc*), Charles W. Hess (*Burns and Roe*)

### PANEL DISCUSSION

## 1:50 p.m.

### PANELISTS:

- Glenn Tracy (*NRC*)
- Petteri Tiippana (*STUK*)
- Marvin Smith (*Dominion Virginia Power*)
- Raul Baron (*TVA*)
- James Carter (*Navigant Consulting*)
- Russ Bell (*NEI*)

# Technical Sessions by Day: Tuesday

**Reactor Analysis Methods—I**, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Bojan Petrovic (*Georgia Tech*). *Chair:* Kevin Clarno (*ORNL*) [Track 7]

## Diplomat Ballroom

1:00 p.m.

Implementation of Transport Synthetic Acceleration in NEWTRNX, Seth R. Johnson (*Univ of Michigan*), Kevin T. Clarno (*ORNL*)

1:25 p.m.

Space-Time Reactor Kinetics via Monte Carlo Method, Nam Zin Cho, Sunghwan Yun (*KAIST*)

1:50 p.m.

Implementation of Generalized Coarse-Mesh Rebalance in NEWTRNX for Acceleration of Parallel Block-Jacobi Transport, Kevin T. Clarno (*ORNL*)

2:15 p.m.

Enhancing the Accuracy of the Simplified k-ratio Method of Estimating the Delayed Neutron Importance Factor, Bedirhan Akdeniz (*Penn State*), Erwin Müller, Dobromir Panayotov (*Westinghouse*), Kostadin N. Ivanov (*Penn State*)

2:40 p.m.

JENDL-3.3, JEFF-3.1 and ENDF/B-VII.0 Results for the Doppler-Defect Benchmark Suite, Russell D. Mosteller (*LANL*), Yasunobu Nagaya (*JAEA*)

**Site Characterization, Monitoring, and Modeling Strategies for Groundwater Transport of Radionuclides at Nuclear Facilities—Panel**, sponsored by ESD; cosponsored by OPD. *Session Organizer:* James Bollinger (*SRNL*). *Chair:* Todd Rasmussen (*Univ of Georgia*) [Track 5]

## Palladian Ballroom

1:00 p.m.

An expert panel of groundwater scientists and professionals will summarize current techniques and methods for acquiring data sets suitable for understanding and modeling groundwater transport of radionuclides at nuclear facilities. The first part of the session will present (a) subsurface characterization and monitoring strategies; (b) groundwater modeling methodologies, strategies, and information needs; and (c) a summary of groundwater programs at two federal (U.S. Department of Energy) nuclear facilities. The second part will provide an opportunity for the panelists to discuss these issues in greater detail and to respond to additional issues raised by the audience. The goal of the session is to provide insight into, and understanding of, the range of alternative subsurface radionuclide transport procedures currently employed (or in development) that meet the needs of radionuclide isolation programs.

### PANELISTS:

- Borehole Methods for Characterizing Groundwater Flow and Transport, Fred J. Molz III (*Clemson Univ*)
- Groundwater Modeling Methodologies, Strategies, and Information Needs, Varut Givanasen (*HydroGeoLogic*)
- Groundwater Characterization and Monitoring Programs at the DOE Waste Isolation Pilot Plant, Richard Beauheim (*SNL*)
- Groundwater Characterization and Monitoring Programs at the DOE Savannah River Site, Daniel Wells (*Washington SRC*)
- Groundwater Characterization and Monitoring Strategies—I, Edwin Weeks (*USGS*)
- Groundwater Characterization and Monitoring Strategies—II, Michael Young (*Desert Resch Inst*)

**Research Needs and Current Developments in Best Estimate Computational Thermal-Hydraulic Codes—II—Panel**, sponsored by THD. *Session Organizers:* L. E. Hochreiter (*Penn State*), Cesare Frepoli (*Westinghouse*). *Chair:* Jens Andersen (*GNF*) [Track 8]

## Cabinet Room

1:00 p.m.

### PANELISTS:

- Larry Hochreiter (*Penn State*)
- Jens Andersen (*GNF*)
- Steve Bajorek (*NRC*)
- Cesare Frepoli (*Westinghouse*)
- Horst Glaeser (*GRS*)
- Ralph Landry (*NRC*)
- Rick Schultz (*INL*)

**Metrology and Quality Assurance: A Session in Honor of Dr. Robert R. Greenberg—II**, sponsored by BMD; cosponsored by IRD. *Session Organizer:* Amares Chatt (*Dalhousie Univ*). *Chair:* Amares Chatt. All invited. [Track 6]

## Forum Room

1:00 p.m.

Silver and Gold: Possible Evidence of Dust Storms in Tree-rings, D. K. H. Schwarz, K. Ünlü (*Penn State*)

1:25 p.m.

Actinide Analytical Chemistry—Past, Present, & Future, Lav Tandon, Kevin Kuhn, Diane Tompkins, Thomas Burr, Donald Temer, Elizabeth Hastings, Usha Narayanan, Donivan Porterfield, Amy Wong (*LANL*), Pam Thompson (*AWE*), Jacqueline Fannesbeck (*INL*), Jon Nuehoff (*New Brunswick Laboratory*), Richard Torres (*LLNL*), Michael Holland (*Savannah River Site*)

1:50 p.m.

Metrology of Organoiodine Compounds in Bovine Milk by Neutron Activation Analysis, K. Isaac-Olive, A. Chatt (*Dalhousie Univ*)

**Biology and Medicine: General**, sponsored by BMD. *Session Organizer:* Dennis James (*Texas A&M*). *Chair:* Dennis James [Track 6]

## Forum Room

2:20 p.m.

An Evaluation of Current Recommendations on High-Energy Radiotherapy Accelerator Shielding, M. P. W. Chin, N. M. Spyrou (*Univ of Surrey*), N. Tomlinson (*Dept of Health, UK*)

2:45 p.m.

A Burning Question: What Happens to Heavy Metals in a Wildfire, Sheldon Landsberger, Jason Z. Edwards (*Univ of Texas*)

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

**Consideration and Integration of the American Society of Mechanical Engineers and American Nuclear Society Probabilistic Risk Assessment Methodology Standards—Panel**, sponsored by NISD. *Chair:* Robert Budnitz (*LLNL*) [Track 4]

## Congressional A

1:00 p.m.

Since 1999, a multipronged effort has been underway to develop a full suite of Probabilistic Risk Assessment (PRA) Methodology standards. The American Society of Mechanical Engineers (ASME) standard covering internal-events PRA at full power and the American Nuclear Society (ANS) standard covering external-events PRA at full power have been published. ANS standards in fire PRA and low-power-shutdown PRA should be completed by early 2008. The ANS launched working groups to develop Level-2 PRA and Level-3 PRA standards. Finally, ASME and ANS launched a new working group to develop an integrated standard designed to include some or all of the above into a single, comprehensive document. In this panel session, representatives from each of these efforts will present a program report.

# Technical Sessions by Day: Tuesday

## PANELISTS:

- Robert Budnitz (*LLNL*)
- Carl R. Grantom (*STOC*)
- Mary Drouin (*NRC*)
- Biff Bradley (*NEI*)
- M. K. Ravindra (*ABS Consult*)

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**The TRIPOLI Monte Carlo Code**, sponsored by RPSD; cosponsored by YMG. *Session Organizer:* M. Jean-Christophe Trama (*CEA Saclay*). *Chair:* Cheikh Diop (*CEA Saclay*). All invited. [Track 7]

## Congressional B

### 1:00 p.m.

TRIPOLI-4: Nuclear Data Management, J. C. Trama, C. Jouanne (*CEA Saclay*)

### 1:25 p.m.

TRIPOLI-4: The Automatic Variance Reduction Scheme, O. Petit, C. M. Diop (*CEA Saclay*)

### 1:50 p.m.

TRIPOLI-4: Green Functions, S. Bourganel, O. Petit (*CEA Saclay*)

### 2:15 p.m.

TRIPOLI-4: Parallelism Capability, J. C. Trama, F. X. Hugot (*CEA Saclay*)

### 2:40 p.m.

TRIPOLI-4: Verification and Validation, Y. K. Lee, F. X. Hugot (*CEA Saclay*)

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## Data, Analysis, and Operations for Nuclear Criticality Safety—II,

sponsored by NCSD. *Session Organizer:* Lane Paschal (*Paschal Solutions*). *Chair:* Larry L. Wetzel (*BWX Technol*) [Track 4]

## Hampton Ballroom

### 1:00 p.m.

Criticality Calculations Supporting PWR Spent Fuel Pool Activities, Vefa N. Kucukboyaci, William J. Marshall, Michael G. Anness (*Westinghouse*)

### 1:25 p.m.

The Relationship and Meaning of the Process Analysis Requirement and Double Contingency Principle, S. P. Monahan, D. G. Bowen, C. D. Harmon, M. V. Mitchell (*LANL*)

### 1:50 p.m.

Late Response to Ancient Fast Reactions and Reflections, Dennis Mennerdahl (*E Mennerdahl Systems*)

### 2:15 p.m.

Criticality Safety Index for NCS Control of Storage Arrays, Norman F. Schwens, David C. Losey (*SNL*)

### 2:40 p.m.

Criticality Safety Program Improvement Plan at Los Alamos National Laboratory, Douglas G. Bowen, Shean P. Monahan (*LANL*)

### 3:05 p.m.

Safety Criticality Standards Using the French CRISTAL Code Package, M. Doucet, L. Durand Terrasson, J. Mouton (*AREVA NP*)

### 3:30 p.m.

Criticality Accidents and the Blue Glow, Douglas M. Minnema (*DNFSB*), Valerie Putman (*INL*)

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## Innovations in Nuclear Engineering Education, Training, and Distance Learning,

sponsored by ETD; cosponsored by OPD. *Session Organizer:* John Wheeler (*Entergy Nuclear Northeast*). *Chair:* Ann Winters (*INPO*) [Track 9]

## Calvert Room

### 1:00 p.m.

Implementation of an Undergraduate Radiochemistry Program at Florida Memorial University: An Educational Collaboration with The University of Texas at Austin, Sheldon Landsberger (*Univ of Texas, Austin*), Rose Stiffin, Michael Elliott, Ayivi Huisso, Dimitri Tamalis (*Florida Memorial Univ*)

### 1:20 p.m.

Integration of a Data Acquisition System to the OSU Nuclear Reactor Lab Control Room, Ryan D. Winningham (*Ohio State*), Anvar Alot (*Central State Univ*), Andrew Kauffman, Brian K. Hajek (*Ohio State*)

### 1:40 p.m.

Three-Dimensional, Virtual, Game-Like Environments for Education and Training, Joel Dixon, Stefano Markidis, Cheng Luo, Jared Reynolds, Rizwan-uddin (*Univ of Illinois*)

### 2:00 p.m.

Radiation Awareness Training Using a CAVE™, Vaughn E. Whisker III (*Penn State*)

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## Focus on Communications—II: Communicating with Policy

**Makers-Panel**, sponsored by ETD; cosponsored by YMG. *Session Organizer:* David Pointer (*ANL*). *Chair:* Laura Hermann (*Potomac Communications*) [Track 9]

## Calvert Room

### 2:30 p.m.

With the Society's current emphasis on grassroots communications, providing members with the skills needed to communicate with policy makers has acquired a new significance. This session will explore communication between constituents and policy makers regarding highly technical topics from both perspectives. Effective approaches for building relationships with policy makers and reliable strategies for communications between the scientific and public policy communities will be highlighted.

## PANELISTS:

- Annie Caputo (*Senate Environment & Public Works Committee*)
- Scott Peterson (*NEI*)
- Craig Piercy (*ANS Washington Office*)
- Craig Cooper (*Science and Technology Fellow, Senator Feinstein*)
- Robert Zogelman (*Westinghouse*)

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

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**Isotopes and Radiation: General**, sponsored by IRD. *Chair:* Jack S. Brenizer, Jr. (*Penn State*) [Track 6]

## Capitol Room

### 1:00 p.m.

Cyclotron Production of No Carrier Added Cu-64, At-211/Po-211 and Re-186g, Mauro L. Bonardi, Flavia Groppi, Elisa Persico (*Università degli Studi di Milano and INFN Milano*)

### 1:25 p.m.

Development of an Automated Sample Changer System for Neutron Activation Analysis Applications, Evan K. Life, Olawale Oladiran, William H. Miller, Kenneth Beamer, Gayla M. Neumeyer (*Univ of Missouri-Columbia*)

### 1:50 p.m.

Out of Core Tests of the North Carolina State University PULSTAR Reactor Positron Beam, J. Moxom, A. G. Hathaway, A. I. Hawari (*NCSU*)

### 2:15 p.m.

Design of a Slow Pulsed Positron Beam for Positron Annihilation Lifetime Spectroscopy, A. G. Hathaway, J. Moxom, A. I. Hawari (*NCSU*), J. Xu (*ORNL*)

### 2:40 p.m.

A  $\gamma$ - $\gamma$  Coincidence Spectrometer for INAA at NIST, B. E. Tomlin, R. Zeisler (*NIST*)



# Technical Sessions by Day: Tuesday/Wednesday

**Head End Improvements and Waste Forms**, sponsored by FCWMD. *Session Organizer:* Steve Turner (*TerranearPMC*). *Chair:* Barry Spencer (*ORNL*) [Track 3]

## Embassy Room

1:00 p.m.

Top Ten Reasons for DEOX as a Front End to Pyroprocessing, B. R. Westphal, K. J. Bateman, S. D. Herrmann (*INL*)

1:25 p.m.

Characteristics of  $UO_2$  Dissolution under Geologic Disposal Conditions Using SPFT, Amanda Kline (*Univ of Missouri-Columbia*), Brady Hanson (*PNNL*), William Miller (*Univ of Missouri-Columbia*)

1:50 p.m.

Overview of the Dissolution Process Development in JAEA, Koichi Ohyama, Yuichi Sano, Tadahiro Washiya, Jun Komaki (*JAEA*)

2:15 p.m.

Possible Recycle of Most Components from LWR Spent Fuel Including Uranium, Cladding and Transuranium Elements, G. D. Del Cul, L. D. Trowbridge, J. P. Renier, R. J. Ellis, K. A. Williams, E. D. Collins (*ORNL*)

2:40 p.m.

Evaluation of Zirconium-Iron-Rhenium Alloy Surrogates for a Technetium Alloy Waste Form, P. A. Mews, S. M. McDeavitt (*Texas A&M*)

3:05 p.m.

Secondary Waste Minimization in New Solvent Extraction Processes, I. V. Smirnov, V. A. Babain (*Khlopin Radium Inst*), T. A. Todd (*INL*)

**Computational Methods for Time-Dependent Transport**, sponsored by MCD; cosponsored by RPD. *Session Organizers:* Ryan McClarren, Jae Chang (*LANL*). *Cochairs:* Ryan McClarren, Jae Chang [Track 7]

## Governor's Boardroom

1:00 p.m.

Semi-Implicit Time Integration for the  $P_n$  Equations, Ryan G. McClarren (*LANL*), Thomas M. Evans (*ORNL*), Robert B. Lowrie (*LANL*), invited

1:20 p.m.

An Unconditionally-Stable Time-Dependent Transport Method Without Sweeps, Gregory Davidson, Edward W. Larsen (*Univ of Michigan*)

1:40 p.m.

Error Control in a Time-Dependent Slice-Balance Method, Steven Hamilton (*Emory Univ*), Cassiano de Oliveira (*Imperial College*), Kevin Clarno (*ORNL*), invited

2:00 p.m.

Time-Dependent, One-Speed Integral Transport for One-Dimensional Infinite Media, C. S. Aplin, D. L. Henderson (*Univ of Wisconsin-Madison*)

2:20 p.m.

Time-Step Limits for a Semi-Implicit Discretization of the Compton-Scattering Fokker-Planck Equation, Jeffery D. Densmore, James S. Warsa, Robert B. Lowrie (*LANL*), invited

2:40 p.m.

A Comparison of Various Temporal Discretization Schemes for Infinite Media Radiation Transport, N. A. Gentile (*LLNL*), invited

3:00 p.m.

An Efficient, Robust, Domain-Decomposition Algorithm for Particle Monte Carlo, Thomas A. Brunner (*SNL*), invited

3:20 p.m.

Progress Towards Optimally Efficient Schemes for Monte Carlo Thermal Radiation Transport, Richard P. Smedley-Stevenson (*AWE*), Eugene D. Brooks III (*LLNL*), invited

## WEDNESDAY • NOVEMBER 14, 2007

7:30 A.M. – 5:00 P.M.

### MEETING REGISTRATION

8:00 A.M. – 10:00 A.M.

### SPOUSE/GUEST HOSPITALITY

8:30 A.M. – 11:30 A.M.

### 2007 ANS/ENS INTERNATIONAL MEETING TECHNICAL SESSIONS

- Equipment Reliability: A Continuing Force in Nuclear Asset Performance—Panel
- Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—I
- Design and Evaluation of Advanced Burner Reactors—I
- General Thermal Hydraulics—II
- Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—I
- Contributions of Nuclear Science and Technology to Sustainable Development
- The SCALE Code System
- Nuclear Fuel Recycling Data Needs—Panel
- Fuel Performance
- Advanced Instrumentation and Control Licensing Status—Panel
- Recent Developments in Fuel Cycle Modeling and Systems Analysis
- Computational Methods: General—I

1:00 P.M. – 4:00 P.M.

### 2007 ANS/ENS INTERNATIONAL MEETING TECHNICAL SESSIONS

- Update on Status of Small Power Reactors—Papers/Panel
- Reactor Analysis Methods—II
- Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—II
- Design and Evaluation of Advanced Burner Reactors—II
- Young Professional Thermal Hydraulics Research Competition
- Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—II
- Advances in Boron Neutron Capture Therapy
- Emerging Issues in Nuclear Facility Safety and Safety Culture
- Monte Carlo TRIPOLI Tutorial
- Training Excellence Awards
- Reactor Fuels and Materials
- Introduction to Codes and Standards and Their Significance—Tutorial
- Closing the Fuel Cycle
- Computational Methods: General—II

4:00 P.M. – 6:00 P.M.

### ANS PUBLIC COMMUNICATIONS WORKSHOP

"Focus on Communications: Speaking with the Media"

7:00 P.M. – 10:00 P.M.

### EVENING EVENT:

"Dinner/Reception at the Washington Club"

## WEDNESDAY, NOVEMBER 14, 2007 • 8:30 A.M.

**Equipment Reliability: A Continuing Force in Nuclear Asset Performance—Panel**, sponsored by OPD. *Chair:* Kenneth Ferguson (*Consultant*) [Track 2]

## Empire Ballroom 8:30 a.m.

Equipment reliability is an important aspect of nuclear asset performance. This session will present technologies, technical initiatives, and programs that can enhance equipment reliability at nuclear power plants. Presenters from nuclear utilities and supportive private sector companies will participate. Especially desired is involvement from (1) commercial organizations who have demonstrated related technologies or services as well as (2) reactor site initiatives in which equipment reliability process or equipment reliability improvement projects are planned or underway. The audience will gain an appreciation of the capabilities and attentions oriented to plant asset management with a focus on equipment reliability.

### PANELISTS:

- Elliot Flick (*Exelon Nuc*)
- Bob Ferguson (*Duke Energy*)
- Joel Woodcock (*Westinghouse Nuc Sys*)
- Ted Nichols (*Altran Solutions*)
- Kenneth Ferguson (*Consultant*)

**Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—I**, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Akio Yamamoto (*Nagoya Univ*). *Chair:* Akio Yamamoto [Track 7]

## Diplomat Ballroom 8:30 a.m.

Steady-State Nuclear Analysis Methods at Global Nuclear Fuel, Scott Palmtag, Ugur Merturek, Brian R. Moore, Masatoshi Sugawara, Akiko Toishigawa (*GNF*), invited



# Technical Sessions by Day: Wednesday

## 8:55 a.m.

AEGIS/SCOPE2, a Next-Generation In-core Fuel Management System (1) Lattice Physics Code, AEGIS, Naoki Sugimura, Tadashi Ushio (*Nuclear Engineering*), Akio Yamamoto (*Nagoya Univ*), Masahiro Tatsumi (*Nuclear Fuel Industries*)

## 9:20 a.m.

AEGIS/SCOPE2, a Next-Generation In-core Fuel Management System (2) Core Calculation Code, SCOPE2, Masahiro Tatsumi, Hideaki Hyoudou (*Nuclear Fuel Industries*), Naoki Sugimura (*Nuclear Engineering*), Akio Yamamoto (*Nagoya Univ*)

## 9:45 a.m.

UNIC: Development of a New Reactor Physics Analysis Tool, M. A. Smith, C. Rabiti, G. Palmiotti, D. Kaushik, A. Siegel, B. Smith, T. Tautges, W. S. Yang (*ANL*), invited

## 10:10 a.m.

SN2ND Component of the UNIC Code, M. A. Smith, C. Rabiti, G. Palmiotti, W. S. Yang (*ANL*), invited

## 10:35 a.m.

Applicability of the SP3 Nodal Method for BWR Pin-by-pin Core Analysis with Staggered Mesh, Akio Yamamoto, Kenichi Tada, Yasunori Kitamura, Yoshihiro Yamane (*Nagoya Univ*)

## 11:00 a.m.

Development of a New Lattice Physics Code GALAXY for Flexible Geometry Representation in Next Generation Core Analyses System, Kazuya Yamaji, Hideki Matsumoto (*Mitsubishi Heavy Industries*), Kazuki Kirimura, Toshikazu Takada (*Osaka Univ*), Akio Yamamoto (*Nagoya Univ*)

## Design and Evaluation of Advanced Burner Reactors—I,

sponsored by RPD. *Session Organizers:* Taek Kyum Kim, Won Sik Yang (*ANL*). *Chair:* Ronald Ellis (*ORNL*) [Track 8]

### Palladian Ballroom

## 8:30 a.m.

An Innovative Hybrid Loop-Pool Design for Sodium Cooled Fast Reactor, Haihua Zhao, Hongbin Zhang (*INL*)

## 8:55 a.m.

Design Overview of a Fast, Subcritical Advanced Burner Reactor, E. F. Gayton, W. M. Stacey, W. Van Rooijen, T. L. Bates, E. M. Colvin, J. A. Dion, J. S. Feener, D. G. Gibbs, C. M. Grennor, J. W. Head, F. W. Hope, J. A. Ireland, A. A. Johnson, B. L. Jones, N. A. Mejias, C. M. Myers, A. E. Schmitz, C. M. Sommer, T. S. Sumner, L. P. Tschaepé (*Georgia Tech*)

## 9:20 a.m.

Spent Fuel Transmutation in a Molten Salt Burner Reactor, Jacob DeWitte, Timothy Goede, Michael Wayson (*Univ of Florida*), invited

## 9:45 a.m.

Impacts of Fixed Absorber on Neutronics Performances of an Advanced Burner Reactor, T. K. Kim, W. S. Yang (*ANL*)

## 10:10 a.m.

Thermal Analysis of a Fast, Subcritical Advanced Burner Reactor, N. A. Mejias, T. L. Bates, J. A. Dion, D. G. Gibbs, W. M. Stacey, L. P. Tschaepé, W. F. Van Rooijen (*Georgia Tech*)

## 10:35 a.m.

ISTC#1606 Developments for Molten Salt Actinide Recycler & Transmuter, Victor Ignatiev (*RRC Kurchatov Inst*)

## General Thermal Hydraulics—II, sponsored by THD. Cochairs:

Brian Golchert (*GE-Hitachi Nuclear Energy*), Kevin Hoggan (*Texas A&M*) [Track 7]

### Cabinet Room

## 8:30 a.m.

Numerical Examination of Coolant Flow and Fuel Temperature in Pebble Bed Reactor, Wang-Kee In (*KAERI*), Yassin A. Hassan (*Texas A&M*)

## 8:50 a.m.

Inertial Deposition of Aerosols in Pebble Beds in the Turbulent Regime, Margaret Mkhosi (*Purdue Univ*), Richard Denning (*Ohio State*)

## 9:10 a.m.

Improved Heat Transfer Predictions of the Low-Reynolds Number  $k-\epsilon$  Model in Liquid Metal Flows, Constantine P. Tzanos (*ANL*)

## 9:30 a.m.

Heat Transfer Characteristic of Plate-fin Heat Exchanger for HTGR, Takeshi Matsuo, Masanori Tanihira, Yasuyuki Miyoshi (*Mitsubishi Heavy Industries*)

## 9:50 a.m.

Flow Characteristics in Microchannel Driven by High Pressure Differential, Shin K. Kang, Sridhar Hari, Yassin A. Hassan (*Texas A&M*)

## 10:10 a.m.

Pinhole Breaches in Spent Fuel Containers: Improvements to Conservative Models of Aerosol Release and Plugging, Andrew M. Casella (*Univ of Missouri-Columbia/PNNL*), Sudarshan K. Loyalka (*Univ of Missouri-Columbia*), Brady D. Hanson (*PNNL*)

## 10:30 a.m.

Correlation for Void Fraction Measurements of the BFBT X-Ray Densitometers, Fatih Aydogan, Lawrence Hochreiter, Kostadin Ivanov (*Penn State*)

## 10:50 a.m.

Effect of Non-uniform Loading of Spent Fuel Cask on Repository Thermal Limits, Mark Nicholson, Man-Sung Yim (*NCSU*)

## Neutron Beam Applications: A Session in Honor of Dr. Richard

M. Lindstrom—I, sponsored by IRD; cosponsored by BMD. *Chair:* Amares Chatt (*Dalhousie Univ*). [Track 6]

### Forum Room

## 8:30 a.m.

The Past, Present, and Future of Prompt-Gamma Activation Analysis, Richard M. Lindstrom (*NIST*)

## 9:20 a.m.

Ecological Relevance of Soil Chemical Composition for the Atlantic Forest, Elvis J. De França, Elisabete A. De Nadai Fernandes (*Univ of São Paulo*)

## 9:45 a.m.

Event-by-Event Monte Carlo Tracking of Neutron-Nucleus Collisions in Neutron Detectors, M. P. W. Chin, N. M. Spyrou (*Univ of Surrey*)

## 10:10 a.m.

Neutron Characterization of Neutron Beam Port of the Penn State Breazeale Reactor, Kimberly Burns, Nolan Hertel (*Georgia Tech*), Kenan Unlu, Jack Brenizer, Cihangir Celik, Danielle Schwratz (*Penn State*)

## 10:35 a.m.

Soft Error Rate Measurements in Semiconductor Memories at Pennsylvania State University, C. Celik, K. Ünlü, S. M. Cetiner, N. Vijaykrishnan, M. J. Irwin, Y. Xie, V. Degalahal (*Penn State*)

## Contributions of Nuclear Science and Technology to Sustainable

Development, sponsored by ESD; cosponsored by YMG. *Session Organizer:* Rebecca Steinman (*Advent Eng*). *Chair:* Jan Van Erp (*Consultant*) [Track 1]

### Congressional A

## 8:30 a.m.

Contribution of Advanced Nuclear Technologies in Promoting Environmental Sustainability and Energy Security, Vatsal Bhatt, Ann Reisman, John Lee, Michael Todosow (*BNL*)

# Technical Sessions by Day: Wednesday

## 8:55 a.m.

IAEA International Project on Innovative Nuclear Reactors and Fuel Cycles, Collaborative Projects of Phase 2, Y. Sokolov, A. Rao, A. Omoto, M. Khoroshev (*IAEA*)

## 9:20 a.m.

Development of Innovative Nuclear Power in the Russian Federation, Vladimir Kagramanyan, Alexander Chebeskov (*IPPE*)

## 9:45 a.m.

Evaluation of the Scenario for Innovative Russian Nuclear Power Development, Alexander Chebeskov, Victor Dekusar (*IPPE*)

## 10:10 a.m.

Nuclear Carbonization and Gasification of Biomass for Removing Atmospheric CO<sub>2</sub>, Masao Hori (*Nucl Syst Assoc*)

## 10:35 a.m.

US DOE Loan Guarantee Program—Guaranteed to Fail?, Edward Kee, Robert Mudge (*CRA International*)

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**The SCALE Code System**, sponsored by RPSD; cosponsored by NCSD, YMG. *Session Organizer:* Steve Bowman (*ORNL*). *Cochairs:* Michael E. Dunn, Mark Williams (*ORNL*). All invited. [Track 7]

## Congressional B

### 8:30 a.m.

Overview of the SCALE Code System, S. M. Bowman (*ORNL*)

### 8:55 a.m.

KENO Monte Carlo Code Capabilities, S. Goluoglu, S. M. Bowman, M. E. Dunn (*ORNL*)

### 9:20 a.m.

Advanced Variance Reduction Strategies for Optimizing Mesh Tallies in MAVRIC, Douglas E. Peplow, Edward D. Blakeman, John C. Wagner (*ORNL*)

### 9:45 a.m.

High-Fidelity Depletion Capabilities of the SCALE Code System Using TRITON, Mark D. DeHart (*ORNL*)

### 10:10 a.m.

Overview of ORIGEN-ARP and its Application to VVER and RBMK, Germina Ilas, Brian D. Murphy, Ian C. Gauld (*ORNL*)

### 10:35 a.m.

TSUNAMI Sensitivity and Uncertainty Analysis Capabilities in SCALE 5.1, B. T. Rearden (*ORNL*)

### 11:00 a.m.

Plans for Future SCALE Development Beyond Version 6.0, M. L. Williams, S. M. Bowman, C. V. Parks (*ORNL*)

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**Nuclear Fuel Recycling Data Needs—Panel**, sponsored by NCSD. *Session Organizer:* Adolf S. Garcia (*DOE*). *Chair:* Adolf S. Garcia [Track 4]

## Hampton Ballroom

### 8:30 a.m.

With the onset of U.S. nuclear fuel reprocessing, both in the research and development and commercial areas, many new schemes are being considered. The need for all work to be capable of commercial throughput and U.S. Nuclear Regulatory Commission licensing demands the designs to be safe and effective. Nuclear data, both in the form of cross-section measurements and critical experiments, will be needed to validate optimized system designs. Benchmark quality data will allow reducing the uncertainty of their proposed systems. For safety, efficiency, and the ability to predict technically defensible margins of safety, it is imperative that the best data be available for the analytical work. The smaller the uncertainty in the data, the stronger the confidence of the final design. In addition, the pressure to design and build systems that will work the first time out makes it necessary to identify all

technical data needs as soon as possible. In order to start lining up the work involved in the planning and prioritization of measurements and experiments, it is necessary for the technical community to identify the data needs of the various reprocessing schemes under consideration. The ability to correctly predict (and technically defend) the reactivity of a system will influence the choice of design.

#### PANELISTS:

- Richard Mcknight (*ANL*)
- David Hayes (*LANL*)
- Jerry McKamy (*DOE*)
- Robert Busch (*Univ of New Mexico*)
- Richard E. Malenfant (*Retired*)

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**Fuel Performance**, sponsored by MSTD. *Session Organizer:* Kenneth Geelhood (*PNNL*). *Chair:* Kenneth Geelhood [Track 7]

## Calvert Room

### 8:30 a.m.

Control Rod Survivability During a Loss of Coolant Accident (LOCA), David B. Mitchell, David J. Colburn, Robert B. Sisk, William H. Slagle (*Westinghouse*)

### 8:55 a.m.

Improvements to the INTERPIN Code for High Burnup and MOX Fuel, Gerardo M. Grandi, Daniel Hagman (*Studsvisk Scandpower*)

### 9:20 a.m.

Measurement of Thermal Conductivity of (U<sub>0.68</sub>Pu<sub>0.3</sub>Am<sub>0.02</sub>)O<sub>2-x</sub> in High Temperature Region, Akira Komeno, Kyoichi Morimoto, Masato Kato, Motoaki Kashimura (*JAEA*), Masahiro Ogasawara, Takeo Sunaoshi (*Inspection Development Co*)

### 9:45 a.m.

Evaluation of Thermal Conductivity of (U, Pu, Am)O<sub>2-x</sub>, Kyoichi Morimoto, Masato Kato, Akira Komeno, Motoaki Kashimura (*JAEA*)

### 10:10 a.m.

Three-dimensional X-ray CT Image of Irradiated FBR Fuel Assembly, Kozo Katsuyama, Tsuyoshi Nagamine, Yasuo Nakamura, Takeo Asaga, Hiroataka Furuya (*JAEA*)

### 10:35 a.m.

Effects of Recladding in CANDU Reactor, Akito Nagata, Hiroshi Sekimoto (*Tokyo Inst of Technol*)

### 11:00 a.m.

The Application of Thorium Fuel in Long-Life Core Design, Ganglin Yu, Kan Wang, Huayun Shen (*Tsinghua Univ*)

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**Advanced Instrumentation and Control Licensing Status—Panel**, sponsored by OPD. *Chair:* Edward Quinn (*Consultant*) [Track 2]

## Capitol Room

### 8:30 a.m.

This session will provide panel presentations on the current engineering, licensing, and programmatic status of digital instrumentation systems in new nuclear plant designs for deployment in the U.S. and around the world. Speakers represent the U.S. Nuclear Regulatory Commission, vendors, utilities, and international representatives and will address both successes to date and challenges in this focused area.

#### PANELISTS:

- Scott Patterson (*PG&E*)
- Mike Miller (*Duke*)
- Richard Miller (*GE-Hitachi Nuclear Energy*)
- Ian Jung (*NRC*)

Additional panelists to be determined.

# Technical Sessions by Day: Wednesday

**Recent Developments in Fuel Cycle Modeling and Systems Analysis**, sponsored by FCWMD; cosponsored by RPD. *Session Organizer:* Mary Lou Dunzik-Gougar (*Idaho State Univ.*). *Chair:* Mary Lou Dunzik-Gougar [Track 3]

## Embassy Room

8:30 a.m.

The Economics of Recycling Reprocessed Uranium, K. A. Williams (*ORNL*)

8:55 a.m.

Fuel Cycle Optimization of a Helium-cooled, Sub-critical, Fast Transmutation Reactor, James Maddox (*AREVA NP*), Weston Stacey (*Georgia Tech*)

9:20 a.m.

Repository Uncertainty Analysis with Advanced Fuel Cycles, J. Preston, M. Humberstone, T. Anderson, L. F. Miller (*Univ of Tennessee*)

9:45 a.m.

Isotopic Composition of Spent Fuel from Advanced Burner Reactors as a Function of Burnup, Matt Humberstone, Jeff Preston, L. F. Miller (*Univ of Tennessee*)

10:10 a.m.

Importance of the (n,γ) Cm-247 Evaluation on Neutron Emission in Fast Reactor Fuel Cycle Analysis, Benoit Forget, Mehdi Asgari, Rodolfo M. Ferrer, Samuel Bays (*INL*)

10:35 a.m.

Reuse in LWRs of Uranium Recovered from Spent Fuel: Neutronic Evaluation of Multiple Cycles of Re-enrichment and Reactor Irradiation, J. P. Renier, L. D. Trowbridge, G. D. Del Cul (*ORNL*)

11:00 a.m.

Optimizing SFR Transmutation Through Direct Adjoining Control Theory, Jeffrey C. Davis, John C. Lee (*Univ of Michigan*)

**Computational Methods: General—I**, sponsored by MCD. *Session Organizer:* Dmitriy Anistratov (*NCSU*). *Chair:* Barry Ganapol (*Univ of Arizona*) [Track 7]

## Governor's Boardroom

8:30 a.m.

Extrapolated Iterative Solution of the Transport Equation in Inhomogeneous Media, Paolo Picca (*Politecnico di Torino*), Roberto Furfaro, Barry D. Ganapol (*Univ of Arizona*)

8:55 a.m.

Forward-Weighted CADIS Method for Global Variance Reduction, John C. Wagner, Edward D. Blakeman, Douglas E. Peplow (*ORNL*)

9:20 a.m.

Degradation Estimation by Particle Filtering Using Multiple Data Sources, Bulent Alpay, James Paul Holloway (*Univ of Michigan*)

9:45 a.m.

A Monte Carlo Program for Modeling Particulate Flows Through Pinhole Breaches in Spent Fuel Canisters, Andrew M. Casella (*Univ of Missouri-Columbia/PNNL*), Sudarshan K. Loyalka (*Univ of Missouri-Columbia*), Brady D. Hanson (*PNNL*)

10:10 a.m.

Adaptive Mesh Refinement Applied to the Multi-Dimensional, Multi-Group,  $SP_N$  Equations with Marshak Boundary Condition Treatment, Yaqi Wang, Jean C. Ragusa (*Texas A&M*)

10:35 a.m.

Ab Initio-Based Defect Properties for Radiation-Induced Segregation Modeling in Fe-Ni-Cr Alloys, J. D. Tucker, T. R. Allen, D. Morgan (*Univ of Wisconsin-Madison*)

**WEDNESDAY, NOVEMBER 14, 2007 • 1:00 P.M.**

**Update on Status of Small Power Reactors—Papers/Panel**, sponsored by OPD. *Chair:* Chris Lapp (*Lapp Consulting Svcs*) [Track 2]

## Empire Ballroom

PAPERS

1:00 p.m.

The Use of Small Reactor Technology for Biofuel Production, Christopher W. Lapp (*Lapp Consulting Svcs*)

1:25 p.m.

Conceptual Design of Modular Optimized Brayton Integral System, Tae W. Kim, Nam H. Kim, Hyoung M. Son, Kune Y. Suh (*Seoul Natl Univ*)

1:50 p.m.

The Building Block Reactor, The Economically Attractive Alternative, Gert C. van Uiter (*Ministry of Economic Affairs*)

PANEL DISCUSSION

2:15 p.m.

PANELISTS:

- Marvin Yoder (*City Manager, Galena, Alaska*)
- Yoshiaki Sakoshita (*Toshiba*)
- Phillip Moor (*Burns and Roe*)
- Matias F. Travieso-Diaz (*Pillsbury, Winthrop, Shaw, and Pittman*)
- Izuma Kinoshita (*CRIEPI*)
- Christopher W. Lapp (*Lapp Consulting Svcs*)
- John R. Deal (*Hyperion Power Generation*)
- Representative from NRC to be determined.

**Reactor Analysis Methods—II**, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Bojan Petrovic (*Georgia Tech*). *Chair:* Bojan Petrovic [Track 7]

## Diplomat Ballroom

1:00 p.m.

Broad Energy Group Structure Sensitivity Studies for the PBMR, J. Han (*Penn State*), A. M. Ougouag (*INL*), K. Ivanov (*Penn State*), H. D. Gougar (*INL*), P. T. Mkhabela (*Penn State*)

1:25 p.m.

Visualizing MCNP Tally Segment Geometry and Coupling Results with ABAQUS, J. R. Parry, J. A. Galbraith (*INL*)

**Latest Lattice Physics/Core Simulation Methods for Reactor Analysis—II**, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Akio Yamamoto (*Nagoya Univ*). *Chair:* Micheal Smith (*ANL*) [Track 7]

## Diplomat Ballroom

1:55 p.m.

CASMO-5 ENDF/B-VII R0 Comparison to B&W Criticals Series 1810, Joel Rhodes, Kord Smith, Deokjung Lee, Zhiwen Xu (*Studsvisk Scandpower*)

2:20 p.m.

Gamma Flux Calculations in Lattice Physics Code LANCER02, Ugur Mertuyrek (*GNF*)

2:45 p.m.

Accuracy of a Rapid Cell-Heterogeneous Calculation Method for LWR Core Analysis, Akio Yamamoto (*Nagoya Univ*)

3:10 p.m.

Solving the C5G7 MOX Benchmark Problem Using the Nodal Diffusion Method, Chuntao Tang, Hao Huang, Shaohong Zhang (*Shanghai Jiao Tong Univ*), Y. A. Chao (*Shanghai Jiao Tong Univ/Westinghouse*)

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



# Technical Sessions by Day: Wednesday

**Design and Evaluation of Advanced Burner Reactors—II**, sponsored by RPD. *Session Organizers:* Taek Kyum Kim, Won Sik Yang (ANL). *Chair:* Taek Kyum Kim [Track 8]

## Palladian Ballroom

### 1:00 p.m.

Heterogeneous Recycle in Fast Burner Reactors, E. A. Hoffman, W. S. Yang, T. A. Taiwo, R. N. Hill, R. C. Petroski (ANL)

### 1:25 p.m.

Annular Sodium-Cooled TRU Burners Having Improved Safety and Performance, Ser Gi Hong, Yonghee Kim (KAERI)

### 1:50 p.m.

Reactor Physics Aspects of the SABR Concept, W. F. G. van Rooijen, E. Colvin, J. Dion, J. Feener, C. Grannor, A. Johnson, T. Jones, C. Sommer, W. M. Stacey, T. Sumner (Georgia Tech)

### 2:15 p.m.

Initial Verification and Validation of ENDF/B-VII.0 Libraries of MC<sup>2</sup>-2 Against Fast Critical Systems, C. H. Lee, W. S. Yang, R. N. Hill (ANL)

### 2:40 p.m.

Fuel for the Fast, Subcritical Advanced Burner Reactor, F. W. Hope, E. F. Gayton, J. A. Ireland, C. M. Myers, W. M. Stacey (Georgia Tech)

### 3:05 p.m.

Monte Carlo Depletion Analysis of a TRU Burning Sodium Cooled Fast Reactor, Volkan Seker, Christopher Glass (Purdue Univ), Kevin Kramer, Thomas J. Downar (Univ of California, Berkeley)

**Young Professional Thermal Hydraulics Research Competition**, sponsored by THD. *Session Organizers:* Donald Todd (AREVA), Cetin Unal (LANL). *Chair:* A. Kurshad Muftuoglu (Westinghouse) [Track 7]

## Cabinet Room

### 1:00 p.m.

Implementation of a New Diffusion Layer Model for Condensation with Noncondensable Gases into MELCOR, K. J. Hogan (Texas A&M), Y. Liao (Paul Scherrer Inst), K. Vierow (Texas A&M), R. K. Cole, Jr., R. O. Gauntt (SNL)

### 1:25 p.m.

Uncertainty Analysis Methodology of US EPR Severe Accident Ex-vessel Safety Issues, Michael W. Bingham, Robert P. Martin (AREVA NP)

### 1:50 p.m.

Utilization of the OECD/NRC BFBT Benchmark Data Base for Single Phase CFD Code Validation, B. Neykov (Penn State), E. Popov (ORNL), K. Ivanov, L. Hochreiter (Penn State)

### 2:15 p.m.

Aerosol Particle Deposition in Pebble Beds Under Low Flow Conditions, Margaret Mkhosi, Richard Denning (Ohio State)

### 2:40 p.m.

Application of the Biasi CHF Correlation: Purposeful Interpretation or Historical Accident?, Donald R. Todd, Hong Tang (AREVA NP)

### 3:05 p.m.

Parametric Study to Identify HPCI Flow Requirements to Mitigate SBLOCAs in BWRs, Nicholas J. DiFrancesco (Westinghouse)

**Neutron Beam Applications: A Session in Honor of Dr. Richard M. Lindstrom—II**, sponsored by IRD; cosponsored by BMD. *Chair:* Amares Chatt (Dalhousie Univ). [Track 6]

## Forum Room

### 1:00 p.m.

Characterization and Reduction of the Gamma Ray Background for PGAA Applications, R. K. Harrison, Zs. Revay, E. Alvarez, S. Biegalski, S. Landsberger (Univ of Texas, Austin)

### 1:25 p.m.

Simulation of the UT-Austin PGAA Facility with Monte Carlo Codes, R. K. Harrison, Sheldon Landsberger (Univ of Texas, Austin)

### 1:50 p.m.

Automated Sample Changer for Texas PGAA Facility, B. Copple, S. Biegalski, R. Schuldes, A. Swantner, S. Landsberger (Univ of Texas, Austin)

### 2:15 p.m.

Hydrogen Determination in Metal Oxides by Prompt Gamma Activation Analysis, E. Alvarez, S. R. Biegalski, S. Landsberger (Univ of Texas, Austin)

**Advances in Boron Neutron Capture Therapy**, sponsored by BMD. *Session Organizer:* Nolan Hertel (Georgia Tech). *Chair:* Nicholas Spyrou (Univ of Surrey) [Track 6]

## Forum Room

### 2:45 p.m.

Boron Neutron Capture Therapy: Medical Linear Accelerator Versus Reactor Beams, A. Alfuraih, M. P. W. Chin, N. M. Spyrou (Univ of Surrey), invited

### 3:10 p.m.

A Small-Animal Irradiation Facility for Neutron Capture Therapy Research at the RA-3 Research Reactor, Emiliano Pozzi (CNEA), David W. Nigg (INL), Marcelo Miller, Silvia I. Thorp, Amanda E. Schwint, Elisa M. Heber, Veronica A. Trivillin, Leandro Zarza, Guillermo Estryk (CNEA)

### 3:35 p.m.

Cell Survival Experiments for BNCT at the OSU Research Reactor, C. Willis, V. Krishnan, B. Khorsandi, T. E. Blue, Michele Swindall, R. F. Barth (Ohio State), invited

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

**Emerging Issues in Nuclear Facility Safety and Safety Culture**, sponsored by NISD. *Session Organizer:* Lawrence Zull (DNFSB). *Cochairs:* Lawrence Zull, Douglas Minnema (DNFSB) [Track 4]

## Congressional A

### 1:00 p.m.

Addressing Ethical Issues in Nuclear Engineering, Man-Sung Yim, Jun Li (NCSU)

### 1:25 p.m.

Safety Culture Basics, William R. Corcoran (NSRC)

### 1:50 p.m.

Leadership and Oversight in Safety Culture: Lessons Learned from Davis-Besse, Douglas M. Minnema (DNFSB)

### 2:15 p.m.

Design Management for Developing Nuclear Systems at Conceptual Phase: Applications of Axiomatic Design, Gyunyoung Heo (Kyung Hee Univ)

### 2:40 p.m.

Readiness Reviews Conducted at DOE Nuclear Facilities, Lawrence M. Zull, Donald F. Owen (DNFSB)

**Monte Carlo TRIPOLI Tutorial**, sponsored by RPSD; cosponsored by YMG. *Session Organizer:* M. Jean-Christophe Trama (CEA Saclay). *Chair:* Cheikh Diop (CEA Saclay) [Track 11]

## Congressional B

### 1:00 p.m.

The Monte Carlo TRIPOLI Tutorial is a hands-on session where participants will learn how and practice setting up and running sample Monte Carlo problems with TRIPOLI. There will be sufficient laptop computers with the TRIPOLI code, graphics, and data libraries available. The tutorial is intended for those already familiar with other Monte Carlo codes to see how calculations are made using TRIPOLI.



# Technical Sessions by Day: Wednesday

TRIPOLI is the foremost reactor modeling Monte Carlo code in France. It features continuous-energy physics for neutrons and photons, advanced and automatic variance reduction strategies, 3-D geometry, full time-dependence, and highly parallel operation. It is used principally for shielding and criticality. TRIPOLI is the major Monte Carlo design tool for the French nuclear industry, one of the most advanced nuclear programs in the world, and is used for fast reactors, thermal reactors, and advanced nuclear design.

Monte Carlo codes are used more and more worldwide. Thanks to progress in computing power, more nuclear engineering design will rely on such codes. As real measurements can be expensive or impossible, it is important to be able to compare many independent codes. The developers of TRIPOLI are pleased to present this outstanding code at the national meeting of the American Nuclear Society.

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**Training Excellence Awards**, sponsored by ETD. *Session Organizer:* Richard Coe (*Excelsior College*). *Chair:* Richard Coe [Track 9]

## Hampton Ballroom

**1:00 p.m.**

The ANS-ETD Training Excellence Awards are given to recognize individuals and/or groups who have made significant contributions to the field of nuclear training and education. The Training Excellence Pioneer Award is given to individuals who were instrumental in the design, development, and industry support of nuclear training and education.

Award recipients are invited to make a presentation at the award session or at the Conference on Training and Education (CONTE '09).

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**Reactor Fuels and Materials**, sponsored by MSTD. *Session Organizer:* Robert Hanrahan (*LANL*). *Chair:* Robert Hanrahan [Track 7]

## Calvert Room

**1:00 p.m.**

R&D of Lifetime Extension for Primary Materials by Active Chemistry Control for Coolant Helium: Corrosion Tests of Heat Resistant Alloy, Yoichi Takeda (*Tohoku Univ*), Shimpei Hamamoto, Nariaki Sakaba (*JAEA*)

**1:25 p.m.**

R&D of Lifetime Extension for Primary Materials by Active Chemistry Control for Coolant Helium: A Study of Chemical Equilibrium in the HTGR Core, Nariaki Sakaba, Shimpei Hamamoto (*JAEA*), Yoichi Takeda (*Tohoku Univ*)

**1:50 p.m.**

Monte Carlo Modeling of Molecular Flow Through Nano-Pathways in Irradiated TRISO Fuels, Andrew M. Casella (*Univ of Missouri-Columbia/PNNL*), Sudarshan K. Loyalka (*Univ of Missouri-Columbia*), Brady D. Hanson (*PNNL*)

**2:15 p.m.**

Radiation Damage Effects and Thermophysical Properties of Nitride Fuels, V. V. Rondinella, A. Ciriello, D. Staicu, J. Somers, T. Wiss (*Inst for Transuranium Elements*)

**2:40 p.m.**

Investigation of High Temperature Deformation Properties of Alloy 617 Using Scanning Kelvin Probe Force Microscope, Md. S. Rahman, K. S. Raja (*Univ of Nevada, Reno*), C. Nesbitt (*Michigan Technol Univ*), M. Misra (*Univ of Nevada, Reno*)

**3:05 p.m.**

The Evaluation of Methanol Effect on Gel-form Resins, C. M. Warren, M. J. Bell, B. A. Fender, M. G. Pop (*AREVA NP*)

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**Introduction to Codes and Standards and Their Significance—Tutorial**, sponsored by OPD. *Chair:* N. Prasad Kadambi (*NRC*) [Track 2]

## Capitol Room

**1:00 p.m.**

This session is a tutorial, designed to provide an overview of the codes and standards used in building and operating a nuclear power plant.

### PANELISTS:

- Peter Hastings (*Duke Energy*)
- N. Prasad Kadambi (*NRC*)
- Jennifer Uhle (*NRC*)

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**Closing the Fuel Cycle**, sponsored by FCWMD. *Session Organizer:* Mary Lou Duznik-Gougar (*Idaho State Univ*). *Chair:* David E. Shropshire (*INL*) [Track 3]

## Embassy Room

**1:00 p.m.**

Development of Nitrogen Oxide Closed System in the Future Reprocessing Process (1) Plan of Study and Progress Report, Y. Takaoku, I. Hattori, T. Watanabe, N. Moriya, Y. Sumida, S. Araya (*JNFL*), S. Homma (*Saitama Univ*), Y. Suzuki (*JGC*), Y. Akai (*Toshiba*)

**1:25 p.m.**

Development of Nitrogen Oxide Closed System in the Future Reprocessing Process (2) A Study on a Catalytic Nitrate Reduction Process for Reprocessing, Y. Suzuki, K. Takahashi, T. Kato (*JGC*), Y. Takaoku, I. Hattori, T. Watanabe, N. Moriya, Y. Sumida, S. Araya (*JNFL*)

**1:50 p.m.**

Development of a Scaling Methodology for a Spent Fuel Assembly, Seung Hun Yoo, Hyeun Min Kim, Hee Cheon No (*KAIST*)

**2:15 p.m.**

Evaluation of Reuse of Reprocessed Uranium in the Context of the U.S. Global Nuclear Energy Partnership Program, L. D. Trowbridge, J. P. Renier, G. D. Del Cul (*ORNL*)

**2:40 p.m.**

Prospects of Using Reprocessed Uranium in CANDU Reactors, in the US GNEP Program, Ronald J. Ellis (*ORNL*)

**3:05 p.m.**

Examining Parameter Uncertainty in Repository Thermal Analysis, Jun Li, Mark Nicholson, Man-Sung Yim (*NCSU*), David McNelis (*UNC-Chapel Hill*)

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**Computational Methods: General—II**, sponsored by MCD. *Chair:*

Jean Ragusa (*Texas A&M*) [Track 7]

## Governor's Boardroom

**1:00 p.m.**

Study of Methods of Stationarity Detection for Monte Carlo Criticality Analysis with KENO V.a, Michael T. Wenner, Alireza Haghighat (*Univ of Florida*)

**1:25 p.m.**

Development of Differential Operator Point Detector Tallies for Slowing-Down-Time Spectrometry Simulations, T. Zhou, A. I. Hawari (*NCSU*)

**1:50 p.m.**

Elimination of Variance Bias in Monte Carlo Eigenvalue Calculations, Hyung Jin Shim (*KAERI*), Chang Hyo Kim (*Seoul Natl Univ*)

**2:15 p.m.**

Theory of Periodically Pulsed Feynman- and Rossi-alpha Methods, Imre Pázsit, Andreas Enqvist (*Dept of Nuclear Engineering*)

**2:40 p.m.**

Direct Simulation Method for Transient Three-Dimensional Neutron Transport, Huayun Shen, Kan Wang (*Tsinghua Univ*)

# Technical Sessions by Day: Thursday

## THURSDAY • NOVEMBER 15, 2007

7:30 A.M. – 2:00 P.M.

8:30 A.M. – 11:30 A.M.

### MEETING REGISTRATION

### 2007 ANS/ENS INTERNATIONAL MEETING

#### TECHNICAL SESSIONS

- Advanced/Gen-IV Reactors—I: Gas/Liquid Metal
- Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform
- Reactor Physics Design, Validation, and Operating Experience—I
- Experiments and Validation in Thermal Hydraulics
- Nuclear Methods in Support of Nano-Domain in Micro-Domain Sciences—I: Industrial
- Nuclear Methods in Support of Nano-Domain in Micro-Domain Sciences—II: Medical
- Current Issues in Reactor Safety
- Monte Carlo SCALE Tutorial
- Nuclear Criticality Safety Standards–Forum
- Robotics Research and Robotics Deployments Across the DOE Complex–Panel
- Research Reactors: General
- Nuclear Safeguards Implications of New Fuel Cycle Activities
- Human Factors Concepts and Considerations in New Plant Designs

12:00 P.M. – 5:00 P.M.

1:00 P.M. – 4:00 P.M.

**TECHNICAL TOUR:** “National Institute of Standards and Technology”

### 2007 ANS/ENS INTERNATIONAL MEETING

#### TECHNICAL SESSIONS

- Reactor Physics Design, Validation, and Operating Experience—II
- General Two-Phase Flow
- Development of Radiological Standards
- Safety in Waste Burning and Fast Reactors
- Monte Carlo MCNPX Tutorial
- Focus on Communications—III: Pronuclear Activism–Panel
- DOE University Research Program in Robotics (URPR)
- Advanced/Gen-IV Reactors—II: Water
- Innovations in Nuclear Infrastructure and Education Review–Panel
- U.S. Department of Energy Fuel Nuclear Energy Research Initiative Overviews–Panel

## THURSDAY, NOVEMBER 15, 2007 • 8:30 A.M.

**Advanced/Gen-IV Reactors—I: Gas/Liquid Metal**, sponsored by OPD. *Chair:* Art Wharton (*Westinghouse*) [Track 8]

### Empire Ballroom

8:30 a.m.

Nuclear Design Feasibility of a Lead-Cooled Fast Reactor with Flexible Conversion Ratio, E. Shwageraus (*Ben-Gurion Univ of the Negev*), P. Hejzlar, M. J. Driscoll (*MIT*)

8:55 a.m.

Thermal Hydraulics of Liquid Lead-Cooled Flexible Conversion Ratio (FCR) Reactor, Anna S. Nikiforova, Pavel Hejzlar, Neil E. Todreas (*MIT*)

9:20 a.m.

Conceptual Design of Naval Application Vessel Integral System, Nam H. Kim, B. Halimi, Kune Y. Suh (*Seoul Natl Univ*)

9:45 a.m.

Effect of Spectral Characterization of Gaseous Fuel Reactors on Transmutation of Actinides, Cindy Fung (*GE-Hitachi Nuclear Energy*), Samim Anghaie (*Univ of Florida*)

10:10 a.m.

Analysis of TRU-Fueled VHTR Prismatic Core Performance Domains, Tom G. Lewis III, David E. Ames II, Pavel V. Tsvetkov (*Texas A&M*)

10:35 a.m.

Compact Transportable Nuclear Power for Remote Locations and Humanitarian Applications, James R. Powell, J. Paul Farrell (*Brookhaven Technology Group*), George Merkel (*Army Research Laboratory*)

**Advanced Methods, Codes, and Benchmarking of the NURESIM Core Physics European Simulation Platform**, sponsored by RPD; cosponsored by MCD. *Session Organizer:* Jose M. Aragones (*Politechnic Univ of Madrid College of Indus Eng*). *Chair:* Jose M. Aragones [Track 7]

### Diplomat Ballroom

8:30 a.m.

DESCARTES: An Advanced Code System for Neutronic Calculations., C. Calvin, C. Fédon-Magnaud (*CEA/DEN/DANS/DM2S/SERMA*)

8:55 a.m.

An Overview on the Monte Carlo Particle Transport Code TRIPOLI-4, C. M. Diop, E. Dumonteil, F. X. Hugot, C. Jouanne, Y. K. Lee, F. Malvagi, A. Mazzolo, O. Petit, J. C. Trama (*CEA/DEN/DANS/DM2S/SERMA*)

9:20 a.m.

Development and Performance of the Analytic Nodal Diffusion Solver ‘ANDES’ in Multigroups for 3D Rectangular Geometry, Juan Andrés Lozano, José M. Aragonés, Nuria García-Herranz (*Universidad Politécnica de Madrid*)

9:45 a.m.

Spacial Domain Decomposition for LWR Cores at the Pin Scale, José-Javier Herrero, Carol Ahnert, José-María Aragonés (*Universidad Politécnica de Madrid*)

10:10 a.m.

Multigroup Diffusion and SP<sub>3</sub> Solutions for a PWR MOX/UO<sub>2</sub> Benchmark with the Code DYN3D, C. Beckert, U. Grundmann, S. Mittag (*FZR*)

10:35 a.m.

PWR Cell Calculations Using APOLLO-2 Within the NURESIM Benchmark Framework, H. Ferroukhi, J. M. Hollard, O. Zerkak, P. Coddington (*Paul Scherrer Inst*)

11:00 a.m.

OECD VVER-1000 LEU and MOX Assembly Benchmark Solution with APOLLO2, N. Kolev, G. Todorova, N. Petrov (*Inst for Nuclear Research and Nuclear Energy*), P. Bellier (*CEA/DEN/DANS/DM2S/SERMA*)

**Reactor Physics Design, Validation, and Operating Experience—I**, sponsored by RPD. *Session Organizer:* Bojan Petrovic (*Georgia Tech*). *Chair:* Gray Chang (*INL*) [Track 7]

### Palladian Ballroom

8:30 a.m.

SIMULATE-3K/RELAP5-3D, A Coupled Code System, Jerry Judd, Gerardo Grandi (*Studsвик Scandpower*)

8:55 a.m.

Development and Testing of a MCNP-Based Method for the Analysis of Substitution Experiments, Blair P. Bromley, Fred P. Adams, G. Bruce Wilkin (*AECL Chalk River—Canada*)

9:20 a.m.

AGR-1 Fuel Compact Fission Power Deposition Validation in ATR, G. S. Chang, M. A. Lillo (*INL*)

9:45 a.m.

Development of Er-SHB Fuel: Critical Experiments and Analyses of Homogeneously Erbium-Loaded Cores in KUCA, Yoichi Goto, Akio Yamamoto (*Nagoya Univ*), Hironobu Unesaki (*Kyoto Univ*), Toshikazu Takeda (*Osaka Univ*), Masaaki Mori (*Nuclear Engineering*), Masatoshi Yamasaki (*Nuclear Fuel Industries*)

10:10 a.m.

Verification of TRITON Through Evaluation of PWR Rim Effect, Tanya N. Sloma, Charlotta E. Sanders (*UNLV*)

10:35 a.m.

Assessment of Uncertainties Relative to Core Monitoring Systems, Gérard Rio, Antoine Gautier (*AREVA NP*)

**Experiments and Validation in Thermal Hydraulics**, sponsored by THD. *Chair:* A. Kurshad Muftuoglu (*Westinghouse*) [Track 7]

### Cabinet Room

8:30 a.m.

Direct Contact Condensation of Steam-Air Mixtures in Large Sub-Cooled Pool, Timothy L. Norman, Shripad T. Revankar (*Purdue Univ*)

# Technical Sessions by Day: Thursday

## 8:50 a.m.

Jet Flow Mixing Measurements in the Vicinity of Rod Bundles Using PIV, E. E. Dominguez-Ontiveros, C. E. Estrada-Perez, N. Amini, Y. A. Hassan (*Texas A&M*)

## 9:10 a.m.

The Experimental Study of Thermal Sleeve Loosening in OPR1000, Sang-Gyu Lim, Sang-Nyung Kim (*Kyunghee Univ*)

## 9:30 a.m.

Air and Helium Thermal Hydraulic Experiments for a Printed Circuit Heat Exchanger, In Hoon Kim, Cheol Shin Lee, Hee Cheon No (*KAIST*)

## 9:50 a.m.

Evaluation of Thermal Time Constant for the BFBT Heater Rods, Fatih Aydogan, Lawrence Hochreiter, Kostadin Ivanov (*Penn State*)

## 10:10 a.m.

PIV Measurements Within a Cyclone Separator, C. del C. Gutiérrez-Torres (*Instituto Politécnico Nacional*), Y. A. Hassan (*Texas A&M*), J. A. Jiménez-Bernal, J. G. Barbosa-Saldaña (*Instituto Politécnico Nacional*)

## 10:30 a.m.

COMET-L2: A Large Experiment on Core Degradation and Melt Coolability, Gert Sdouz (*Austrian Research Centers GmbH-ARC*), Hans Alsmeyer, Alexei Miassoedov (*FZK GmbH*)

## 10:50 a.m.

Commissioning of the ATLAS Thermal-Hydraulic Integral Test Facility, Y. S. Kim, K. Y. Choi, H. S. Park, S. Cho, B. J. Yun, T. S. Kwon, K. H. Kang, W. P. Baek (*KAERI*)

**Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—I: Industrial**, sponsored by IRD; cosponsored by MSTD. *Session Organizer:* Rolf Zeisler (*NIST*). *Chair:* Rolf Zeisler. [Track 6]

## Forum Room

### 8:30 a.m.

Helium Retention in Nano-Cavity Tungsten Implanted with Helium Threat Spectrum Mimicking IFE Reactor Conditions, R. G. Downing (*NIST*), R. Parker, R. Scelle, N. Parikh (*UNC-Chapel Hill*)

### 8:50 a.m.

Applications of Neutron Scattering Techniques to Hydrogen Storage Materials, Yun Liu (*NIST/Univ of Maryland*), Craig M. Brown (*NIST/Indiana Univ, Bloomington*), Theodore F. Baumann (*LLNL*), Dan A. Neumann (*NIST*), invited

### 9:10 a.m.

Neutron Reflectometry for the Study of Next-Generation Photolithography, Kristopher A. Lavery, Vivek M. Prabhu, Eric K. Lin, Wen-li Wu (*NIST*)

### 9:30 a.m.

Instrumental Neutron Activation Analysis and Cold Neutron Prompt Gamma Activation Analysis Used for the Chemical Characterization of Nanotube Materials, Rolf Zeisler, Rabia O. Spatz, Rick L. Paul (*NIST*)

**Nuclear Methods in Support of Nano-Domain to Micro-Domain Sciences—II: Medical**, sponsored by BMD; cosponsored by IRD. *Session Organizer:* Rolf Zeisler (*NIST*). *Chair:* Rolf Zeisler. All invited. [Track 6]

## Forum Room

### 9:55 a.m.

Nanoparticle and Bacterial Pathogen Association with Water System Biofilms, Jayne B. Morrow, R. Dave Holbrook, Vytas Reipa, Kenneth Cole (*NIST*)

## 10:15 a.m.

Small-Angle Neutron Scattering from Cobalt Nanoparticle Assemblies, Guangjun Cheng, Susan Krueger, Angela R. Hight Walker (*NIST*)

## 10:35 a.m.

Immobilization and Characterization of Nanobioparticles, Natalia Farkas, John A. Dagata (*NIST*), Kathleen F. Pirollo, Esther H. Chang (*Georgetown Univ Medical Center*)

## 10:55 a.m.

Gold Nanoshells: A Multifunctional Agent for Integrated Diagnosis and Therapy, W. D. James (*Texas A&M*), A. M. Gobin, M. H. Lee, N. J. Halas, R. A. Drezek, J. L. West (*Rice Univ*)

## 11:15 a.m.

Design and Development of Site Directed Gold Nanoparticles for Molecular Imaging and Therapy, Kattesh V. Katti (*Univ of Missouri, Columbia*)

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

**Current Issues in Reactor Safety**, sponsored by NISD. *Session Organizer:* Stephen Schultz (*Duke Energy*). *Cochairs:* Luciano Burgazzi (*ENEA*), Inn Seock Kim (*ISSA Technol*) [Track 4]

## Congressional A

### 8:30 a.m.

A Perspective on Risk-Informed Performance-Based Licensing Approaches, I. S. Kim (*ISSA Technology*), S. K. Ahn, H. J. Lee (*KINS*), S. J. Hong (*FNC Technology*)

### 8:55 a.m.

Improvement of Nuclear Power Plant Design by Applying Requirements Engineering, Hyeong Heon Kim, Taek Sang Choi (*KOPEC*)

### 9:20 a.m.

Development of Fire Dynamics Tools for Fire Hazard Analysis, Naeem Iqbal (*NRC*)

### 9:45 a.m.

Passive System Performance Assessment Based on Correlated Parameters, Luciano Burgazzi (*ENEA*)

### 10:10 a.m.

Boric Acid Solubility in Boric Acid-Water Mixture with NaOH, Hu Luo, Hee Cheon No (*KAIST*)

### 10:35 a.m.

SNF Calculations of Spent Fuel Source Terms for Fuel Pools and Storage Casks, Axel Becker (*Studsвик Scandpower GmbH*), Gerd Anton, Sigurd Børresen (*Studsвик Scandpower AS*)

**Monte Carlo SCALE Tutorial**, sponsored by RPSD; cosponsored by YMG, NCSD. *Session Organizer:* Steve Bowman (*ORNL*). *Chair:* Steve Bowman [Track 11]

## Congressional B

### 8:30 a.m.

The Monte Carlo SCALE tutorial is a hands-on session where attendees will learn how and practice setting up and running simple Monte Carlo problems with the SCALE code system from Oak Ridge National Laboratory. Participants are encouraged to bring their personal laptop computers with SCALE 5.1 previously installed. Example problems will be demonstrated on screen so all attendees can observe and learn how to use these codes.

**Nuclear Criticality Safety Standards-Forum**, sponsored by NCSD. *Session Organizer:* Thomas P. McLaughlin (*Consultant*). *Chair:* Nick Brown (*Nuclear Fuel Services*) [Track 4]

## Hampton Ballroom

### 8:30 a.m.



# Technical Sessions by Day: Thursday

**Robotics Research and Robotics Deployments Across the DOE Complex—Panel**, sponsored by RRSDD. *Session Organizer:* Carl Crane (*Univ of Florida*). *Chair:* Mike Rinker (*PNNL*) [Track 7]

## Calvert Room

8:30 a.m.

The panel will focus on recent advances in robotics technologies as they are being developed and deployed for nuclear and other applications.

### PANELISTS:

- Intelligent Systems Now and in the Future, James “Red” Jones (*SNL*)
- Robotics at the Oak Ridge National Laboratory, Reid Kress (*ORNL*)
- Robotics at the Savannah River Site, Frank Heckendorn (*Washington SRS*)
- Remote Systems at PNNL, Mike Rinker (*PNNL*)
- Cross Cutting Technologies for DOE Applications, Al Sturm (*PaR Systems*)
- Late Breaking News: DARPA Urban Challenge, Carl Crane (*Univ of Florida*)

**Research Reactors: General**, sponsored by OPD. *Chair:* Sean O’Kelly (*Univ of Texas*) [Track 6]

## Capitol Room

8:30 a.m.

Advanced Test Reactor Research Design and Irradiation Capabilities: A National Scientific User Facility, Clifford J. Stanley, Frances M. Marshall (*INL*)

8:55 a.m.

Air Pollution in the Arctic: A Case Study Using Neutron Activation Analysis, Sheldon Landsberger (*Univ of Texas, Austin*), Aurelien Courtial (*ENSICAEN*), Jon Braisted (*Univ of Texas, Austin*)

9:20 a.m.

Performance Optimization of the Neutron Powder Diffractometer at the NC State University PULSTAR Reactor, D. D. DiJulio, A. I. Hawari (*NCSU*)

9:45 a.m.

Investigation of Phase Contrast Neutron Imaging of Mixed Phase-Amplitude Objects, K. K. Mishra, A. I. Hawari (*NCSU*)

10:10 a.m.

Radiation Damage Study of Nano-Scale Metals at the University of Texas-Austin, Joshua L. Peterson, Christopher E. Carlton, Erich A. Schneider (*Univ of Texas, Austin*)

10:35 a.m.

High Temperature and High Pressure Experiment of HI Decomposition in the IS Process, Ho Joon Yoon, Hee Cheon No, Byung Jin Lee, Seung Jun Kim, Eung Soo Kim (*KAIST*)

11:00 a.m.

Grounding of Novel Concepts Through International Collaboration (Survey of the ISTC Research Programs), L. V. Tocheny (*ISTC*)

**Nuclear Safeguards Implications of New Fuel Cycle Activities**, sponsored by FCWMD. *Session Organizer:* Steven Mladineo (*PNNL*). *Chair:* Benjamin J. Cross (*Washington SRC*) [Track 10]

## Embassy Room

8:30 a.m.

Recycle and Proliferation, William H. Hannum, George S. Stanford (*retired*)

8:55 a.m.

Protected Plutonium Production in Fast Breeder Reactor—Attractiveness of Plutonium, Yoshitalia Meiliza, Masaki Saito, Hiroshi Sagara (*Tokyo Inst Technol*)

9:20 a.m.

Relative Proliferation Risks for Nuclear Fuel Leasing Arrangements, Lap Y. Cheng, Meng Yue, Robert A. Bari (*BNL*)

9:45 a.m.

Experimental Program on Validation of Reactor Constants for Fast Reactors Calculations and Reactor Fuel Cycle, A. L. Kochetkov, I. P. Matveyenko, Yu. S. Khomyakov, A. M. Tsiboulia (*IPPE*), L. V. Tocheny (*ISTC*)

10:10 a.m.

Uncertainty Analysis of Advanced Fuel Cycles Using Dynamic System Modeling, Thomas Anderson, Jeff Preston (*Univ of Tennessee*), Luc Van Den Durpel (*ANL*), L. F. Miller (*Univ of Tennessee*)

**Human Factors Concepts and Considerations in New Plant Designs**, sponsored by HFD; cosponsored by OPD. *Session Organizer:* Tyrone Tonkinson (*Simple Approach*). *Chair:* John M. O’Hara (*BNL*) [Track 2]

## Governor’s Boardroom

8:30 a.m.

From NDE to Prognostics: A Revolution in Asset Management for Advanced Nuclear Power Plants, Leonard J. Bond, Steven Doctor (*PNNL*)

8:55 a.m.

Advanced Alarm System—Solutions Through Application of Human Factors, Richard Gutierrez (*GE-Hitachi Nuclear Energy*)

9:20 a.m.

Design and Implementation of Advanced Power Control System for APR1400, Chae-Ho Nam, Chan-Young Park, Sam-Won Lee, Jung-Han Nam, Chang-Ho Cho (*Doosan Heavy Industries & Construction*)

9:45 a.m.

Power Generation Control System—Automated ABWR Startup, Shutdown, and Load Following, D. Gould, J. Marks, I. Poppel, C. Tang, J. McGrady, A. Hekmati, K. Yu (*GE-Hitachi Nuclear Energy*)

## THURSDAY, NOVEMBER 15, 2007 • 1:00 P.M.

**Reactor Physics Design, Validation, and Operating Experience—II**, sponsored by RPD. *Session Organizer:* Bojan Petrovic (*Georgia Tech*). *Chair:* Fausto Franceschini (*Westinghouse*) [Track 7]

## Palladian Ballroom

1:00 p.m.

Modeling of SEU Critical Experiments in ZED-2 Using WIMS/PANTHER and MCNP, M. T. Sissaoui, B. Arsenaault, J. R. Lebenhaft (*AECL*)

1:25 p.m.

Development and Testing of a Revised ENDF/B-VII Capture Cross Section for <sup>113</sup>Cd, Russell D. Mosteller, Robert E. MacFarlane (*LANL*), Said Mughabghab (*BNL*), Soon Sam Kim (*INL*)

1:50 p.m.

Analysis of Uncertainties in the Neutronic Characteristics of a GT-MHR Type Reactor, N. G. Kodochigov, E. V. Marova, S. L. Osipov, Yu. P. Sukharev (*OKBM*), V. F. Boyarinov, V. I. Bryzgalov, E. S. Glushkov, E. A. Gomin, M. I. Gurevitch, V. D. Davidenko, V. A. Nevinita, P. A. Fomichenko, V. F. Tsybulsky, M. S. Yudkevitch (*Russian Research Center ‘Kurchatov Institute’*), E. F. Mitenkova, N. V. Novikov (*Nuclear Safety Inst of Russian Academy of Sciences*)

2:15 p.m.

Impact of Cell Friction Mitigation on Fuel Cycle and Core Design, Atul A. Karve, Lukas Trosman, Russ M. Fawcett (*GE-Hitachi Nuclear Energy/ Global Nuclear Fuel*)

2:40 p.m.

Sn-126 Transmutation in Spallation Target of ADS, Chi Young Han, Masaki Saito, Hiroshi Sagara (*Tokyo Inst of Technol*)

3:05 p.m.

GARDEL BWR On-line Monitoring Experience at Cooper and Monticello, Alejandro Noël, David W. Dean (*Studsvisk Scandpower*), Lorne J. Covington (*NPPD*), Daniel G. Wegener (*Nucl Mgt*)



# Technical Sessions by Day: Thursday

**General Two-Phase Flow**, sponsored by THD. *Session Organizers:* Joy Rempe (*INL*), Karen Vierow (*Texas A&M*). *Chair:* Jens Andersen (*GNF*) [Track 7]

## Cabinet Room

### 1:00 p.m.

Turbulent Velocity Measurements in Subcooled Boiling Flow Through a Rectangular Channel, C. E. Estrada-Perez, H. S. Ahn, E. E. Dominguez-Ontiveros, S. D. Fortenberry, Y. A. Hassan (*Texas A&M*)

### 1:25 p.m.

Measurement of Droplet Size with the Freezing Droplet Method for Annular Flow in a Horizontal Pipe, Eo Hwak Lee, Hee Cheon No (*KAIST*), Chul-Hwa Song (*KAERI*)

### 1:50 p.m.

A 3D, Parallel LBM to Simulate Gravity Driven Bubbly and Slug Flows, Prashant K. Jain, Rizwan-uddin (*Univ of Illinois*)

### 2:15 p.m.

Statistical Analysis of Sub-cooled Boiling Parameters in Nanofluid, E. E. Dominguez-Ontiveros, C. E. Estrada-Perez, S. D. Fortenberry, R. C. Jaschke, Y. A. Hassan (*Texas A&M*)

### 2:40 p.m.

Development and Optimization of a Novel Technique for the Measurement of Bubble Frequency, S. D. Fortenberry, E. E. Dominguez-Ontiveros, C. E. Estrada-Perez, N. Amini, Y. A. Hassan (*Texas A&M*)

### 3:05 p.m.

Void Fraction and Vapor Phase Dynamics Measurement in Turbulent Subcooled Boiling Flow, C. E. Estrada-Perez, H. S. Ahn, E. E. Dominguez-Ontiveros, S. D. Fortenberry, Y. A. Hassan (*Texas A&M*)

### 3:30 p.m.

Computational Fluid Dynamics (CFD) Simulations of Aerosol in a U-Shaped Steam Generator Tube, Pamela Longmire, Dana A. Powers (*SNL*), Yassin A. Hassan (*Texas A&M*)

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**Development of Radiological Standards**, sponsored by IRD. *Session Organizer:* Kenneth Inn (*NIST*). *Chair:* Kenneth Inn [Track 6]

## Forum Room

### 1:00 p.m.

National Standards for Radioactivity Measurements: Historical Overview and Current Status, R. Collé (*NIST*)

### 1:25 p.m.

Development of a Robust Radioxenon Calibration Technique, S. R. Biegalski, D. Haas, K. M. Foltz Biegalski (*Univ of Texas, Austin*)

### 1:50 p.m.

Primary Standardization of Radionuclides by Coincidence Methods, R. Fitzgerald (*NIST*)

### 2:15 p.m.

Measurement Infrastructure for Nuclear Decommissioning in the United Kingdom, Simon Jerome, Julian Dean, Arvic Harms (*Natl Physical Laboratory*)

### 2:40 p.m.

Anthropomorphic Voxel Phantom Effective Neutron Doses Outside a Linac Room, M. Hussien, A. K. Ma, N. M. Spyrou (*Univ of Surrey*)

### 3:05 p.m.

Radioactivity Standards for New Paradigms in Diagnostic and Therapeutic Nuclear Medicine, B. E. Zimmerman (*NIST*)

**Safety in Waste Burning and Fast Reactors**, sponsored by NISD. *Session Organizer:* Hartmut Wider (*JRC*). *Cochairs:* Hartmut Wider, John Petrykowski (*Univ of Dayton*) [Track 3]

## Congressional A

### 1:00 p.m.

Studies of Minor Actinides Transmutation Efficiency in Media with Strong Moderators, V. I. Matveev, E. V. Poplavskaya, A. M. Tsiboulia (*IPPE*)

### 1:25 p.m.

Minor Actinide Doppler Coefficient Measurement Assessment, Dwayne P. Blaylock, Nolan E. Hertel (*Georgia Tech*)

### 1:50 p.m.

Improving the Safety of Minor Actinide Burning in Fast Reactors, Kamil Tuček, Hartmut Wider (*JRC*)

### 2:15 p.m.

Safety Considerations for Minor-Actinide Burning Lead-Cooled Fast Reactors, J. Carlsson, K. Tuček, H. Wider (*JRC*)

### 2:40 p.m.

Evaluation of Safety Impact on TRU Addition to LMR Fuels, Jae-Yong Lim (*Kyung Hee Univ*), Yeong-Il Kim (*KAERI*), Myung-Hyun Kim (*Kyung Hee Univ*)

### 3:05 p.m.

Analysis of Axial Motion of UO<sub>2</sub> Vapor Bubbles in Sodium Cooled Fast Reactor Safety Experiments, J. C. Petrykowski (*Univ of Dayton*)

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**Monte Carlo MCNPX Tutorial**, sponsored by RPSD; cosponsored by YMG. *Session Organizer:* John Hendricks (*LANL*). *Chair:* John Hendricks [Track 11]

## Congressional B

### 1:00 p.m.

The Monte Carlo tutorial is a hands-on session where attendees will learn how and practice setting up and running simple Monte Carlo problems. It is designed for those who have never run a Monte Carlo calculation before. But even expert users will benefit by trying recent capabilities of the MCNP/MCNPX family of Monte Carlo codes. Participants contacting the organizer (jxh@lanl.gov) in advance may be able to have the code on their personal laptops. Additional laptops will be brought to the session so that everyone will be able to try what is being demonstrated. This tutorial was very popular at the RPSD2006 Topical and the Albuquerque (November 2006) and Boston (June 2007) ANS meetings. People who had never run a Monte Carlo problem before were now able to do simple problems.

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**Focus on Communications—III: Pronuclear Activism—Panel**, sponsored by ETD; cosponsored by YMG. *Session Organizer:* David Pointer (*ANL*). *Chair:* David Pointer [Track 9]

## Hampton Ballroom

### 1:00 p.m.

*Is All Fair in Love and War?*

Although the tactics used by activist organizations to attract attention to their cause vary widely, those working in the nuclear science and technology industries often express frustration that anti-nuclear organizations go too far in the use of emotional or sensationalist tactics rather than engaging in logical discussion. However, the American Nuclear Society's own tactics, most notably the coloring book "Let's Color and Do Activities with the Atoms Family," have not escaped criticism in discussions of environmental activism. This session provides a forum for the discussion of new tactics that pronuclear activists might employ in the ongoing public discussion of nuclear science and technology and explores the effectiveness of such tactics in competing for the attention of a public saturated in an ever-widening volume of information and pleas for attention for one cause or another.

# Technical Sessions by Day: Thursday

Panelists representing the activist community will propose ideas and tactics collected from across the industry for consideration by a panel of communications experts.

## PRONUCLEAR ACTIVISTS:

- W. David Pointer (*ANL*)
- Lisa Stiles (*Dominion*)
- Paul Wilson (*Univ of Wisconsin*)

## COMMUNICATIONS EXPERT:

Laura Hermann (*Potomac Communications Grp*)

**DOE University Research Program in Robotics (URPR)**, sponsored by RRSD. *Session Organizer:* Carl Crane (*Univ of Florida*). *Chair:* Carl Crane [Track 7]

## Calvert Room

**1:00 p.m.**

Nano-Scale 3D Metrology for Surface Characterization and Inspection of High-Precision Manufactured Components, W. Hao, S. Huq, D. Page, B. Abidi, A. Koschan, M. Abidi (*Univ of Tennessee*)

**1:25 p.m.**

Kinematic Analysis and Design of a Compliant Microplatform, Julio Correa, Carl Crane, Huikai Xie (*Univ of Florida*)

**1:50 p.m.**

Vibration-Free Transport of Non-Rigid Objects in DOE Settings, G. Starr, J. Wood, R. Lumia, D. Bowling (*Univ of New Mexico*)

**2:15 p.m.**

Video-Based Multi-Camera Automated Surveillance of High Value Assets in Nuclear Facilities, C.-H. Chen, Y. Yao, D. Page, B. Abidi, A. Koschan, M. Abidi (*Univ of Tennessee*)

**2:40 p.m.**

A Multi-Sensor Architecture for Condition-Based Maintenance in Intelligent Actuators, Ganesh Krishnamoorthy, Delbert Tesar, Mitch Pryor (*Univ of Texas, Austin*)

**Advanced/Gen-IV Reactors—II: Water**, sponsored by OPD. *Chair:* Sasan Etemadi (*SCE*) [Track 8]

## Capitol Room

**1:00 p.m.**

Flow in a HPLWR Fuel Assembly with Wire Wrap Spacers, Steffen Himmel, Andreas Class (*FZK*), Eckart Laurien (*Univ of Stuttgart*), Thomas Schulenberg (*FZK*)

**1:25 p.m.**

Density-Wave Oscillations in Coupled Parallel Channels Under Supercritical Pressure Conditions, T. Ortega Gómez (*IKET-FZK*), A. Class (*FZK*), R. T. Lahey, Jr. (*RPI Troy*), T. Schulenberg (*IKET-FZK*)

**1:50 p.m.**

Considerations for the Reactor Characteristics of Super Fast Reactor, Shoji Goto (*Tokyo Electric Power Co*), Yuki Ishiwatari, Yoshiaki Oka (*Univ of Tokyo*)

**2:15 p.m.**

Study on Heat Transfer Enhancement to Supercritical-Pressure Water, Yuichiro Chikusa, Yuki Ishiwatari, Satoshi Ikejiri, Yoshiaki Oka (*Univ of Tokyo*)

**2:40 p.m.**

Study on Breeding Ratio of a Supercritical-Pressure Water-Cooled Fast Reactor, Yohei Yasoda, Yuki Ishiwatari, Yoshiaki Oka (*Univ of Tokyo*)

**3:05 p.m.**

ATWS Analysis of a Supercritical Pressure Water-Cooled Fast Reactor, Mitsunori Kadowaki, Satoshi Ikejiri, Yuki Ishiwatari, Yoshiaki Oka (*Univ of Tokyo*)

**3:30 p.m.**

Safety Analysis of a Supercritical-Pressure Water-Cooled Fast Reactor, Satoshi Ikejiri, Yuki Ishiwatari, Yoshiaki Oka (*Univ of Tokyo*)

**Innovations in Nuclear Infrastructure and Education Review-Panel**, sponsored by OPD; cosponsored by ETD. *Session Organizer:* Sean O’Kelly (*Univ of Texas*). *Cochairs:* Sean O’Kelly, Robert Fjeld (*Clemson Univ*) [Track 9]

## Embassy Room

**1:00 p.m.**

The Department of Energy Office of Nuclear Energy requires an annual review of program activity for the university education support program called the Innovations in Nuclear Infrastructure and Education. This session is a panel format with at least 6 required presentations covering new research and distance learning programs within the university nuclear engineering and university research reactors.

## PANELISTS:

- Jack Brenizer (*Penn State*)
- Steve Binney (*Oregon State Univ*)
- Ayman Hawari (*NCSU*)
- Wynn Volkert (*Univ of Missouri-Columbia*)
- Warren Reece (*Texas A&M*)
- John Bernard (*MIT*)

**U.S. Department of Energy Fuel Nuclear Energy Research Initiative Overviews-Panel**, sponsored by FCWMD. *Session Organizer:* Jon Carmack (*INL*). *Cochairs:* Kemal Pasamehmetoglu (*INL*), Jon Carmack [Track 3]

## Governor’s Boardroom

**1:00 p.m.**

The U.S. DOE NERI program has successfully funded outstanding research in the nuclear technology field, providing research opportunities for university researchers across the United States. This session provides an opportunity for the nuclear community to explore the diverse research being conducted in the area of nuclear fuels. Presentations will be made on a variety of nuclear fuel topics and research projects funded by the U.S. DOE NERI program.

## PANELISTS:

- Enhancements to High Temperature In-Pile Thermocouple Performance, John Crepeau (*Univ of Idaho*)
- On-Line Fuel Failure Monitor for Fuel Testing and Monitoring of Gas Cooled Very High Temperature Reactors, Ayman I. Hawari (*NCSU*)
- Ambient Laboratory Coater for Advanced Gas Reactor Fuel Development, Duane D. Bruns (*Univ of Tennessee*)
- Optimization of Oxide Compounds for Advanced Inert Matrix Materials, Juan C. Nino (*Univ of Florida*)
- Synthesis and Optimization of the Sintering Kinetics of Actinide Nitrides, Brian Jaques (*Boise State Univ*)
- The Development of Models to Optimize Selection of Nuclear Fuel Materials Through Atomic-Level Simulation, Simon R. Phillpot (*Univ of Florida*)
- Accelerator-Based Study of Irradiation Creep of Pyrolytic Carbon Used in TRISO Fuel Particles for the VHTR, Lumin Wang (*Univ of Michigan*)
- Radiation Stability of Candidate Materials for Advanced Fuel Cycles, Todd Allen (*Univ of Wisconsin*)
- Determination of Basic Structure-Property Relations for Processing and Modeling in Advanced Nuclear Fuels: Microstructure Evolution and Mechanical Properties, Pedro Peralta (*Arizona State Univ*)
- The Application of Self-Propagating-High-Temperature Synthesis (SHS) to the Fabrication of Actinide Bearing Nitride and Other Ceramic Nuclear Fuels, John J. Moore (*Colorado School of Mines*)

# 2007 ANS Young Professionals Workshop

**“Grow Strong Communities – Break Ground on Your Future”**

**Saturday, November 10, 2007 • 8:30 a.m. – 5:00 p.m. • Location: Congressional A**  
Co-organized by the ANS Young Members Group (ANS YMG) and the North American Young Generation in Nuclear (NA-YGN)

**Co-Chairs:** Nichole Ellis (ANS YMG) and Sarfraz Taj (NA-YGN)

In today's rapidly growing industry, our ability to create and maintain effective working relationships is paramount to success. Effective working relationships lead to a strong community of professionals, a community where information and ideas are shared towards a common goal. This full day Congress will explore emerging industry issues, and how, as young professionals, we can create effective relationships to address these emerging issues as a community, as well as an individual contributor. We will come together to learn more about knowledge conservation, employee retention, industry awareness, networking with peers, mentoring, and increasing access to leadership and career development opportunities. Please join the ANS Young Members Group and the North American Young Generation in Nuclear as they host the 2nd Young Professionals Congress!

## WORKSHOP OUTLINE

8:30 AM **BREAKFAST** (Sponsored by *Bechtel Power Corporation*)

9:00 AM **OPENING REMARKS**

**Nichole Ellis** (*Ellis Nuclear Engineering LLC*)  
*Workshop Co-Chair*

9:15 AM **GROWING STRONG YOUNG PROFESSIONAL COMMUNITIES**

9:15 **Introduction to ANS Young Members Group**  
**Kent Welter** (*U.S. Nuclear Regulatory Commission*)  
*Chair, Young Members Group*

9:30 **Introduction to North American Young Generation in Nuclear**  
**Amy Buu** (*Westinghouse*)  
*President, NA-YGN*

9:45 **Bringing Value to the American Nuclear Society**  
**Nichole Ellis**  
*Speaker and Organizer*

A highlight of relevant action items resulting from the panel session held at the ANS Annual Meeting 2007 in Boston that YMG is working on to improve your ANS!

9:50 AM **BREAK GROUND ON YOUR FUTURE**

**Nichole Ellis & Jenny Tobin** (*U.S. Nuclear Regulatory Commission*)  
*Speakers and Organizers*

What are your career goals and how can we help? This is a thought provoking and interactive session where we will discuss how to make an impact on our industry as individuals and as a group and will help shape the remainder of the day!

10:15 AM **GROW YOUR NETWORK**

**Rachel Slaybaugh**  
*Speaker and Organizer*

A networking game organized by the Professional Women of the American Nuclear Society. The first ten participates to turn in their completed activity get a prize!

10:30 AM **COFFEE BREAK** (Sponsored by *Omaha Public Power District*)

11:00 AM **COMMUNICATIONS:**

**THE IMPORTANCE OF COMMUNICATIONS TODAY**  
**Commissioner Peter Lyons** (*U.S. Nuclear Regulatory Commission*)  
*Keynote Speaker*

**Jenny Tobin**  
*Organizer*

11:40 AM **OVERVIEW: AFTERNOON BLUEPRINT**

**Dena Belschner** (*Bechtel*)  
*Speaker and Organizer*

Overview of the afternoon sessions and instructions for lunch activity.

12:00 PM **LUNCH** (Sponsored by *General Electric*)

1:00 PM **INDUSTRY AWARENESS: MYTHS AND TRUTHS OF THE GLOBAL NUCLEAR ENERGY PARTNERSHIP**

**Marvin Fertel** (*Chief Nuclear Officer, Nuclear Energy Institute*)  
*Speaker*

**Dave Pointer** (*Argonne National Laboratory*)  
*Organizer*

With the wealth of new ideas being explored as part of the Nuclear Renaissance, how can the industry ensure that the influx of new talent maintains an awareness of the activities of the industry as a whole? In an overwhelming sea of information at our fingertips through television, radio, the print media and the internet, how do we separate fact from fiction, myths from truths, or sound science from

1:00 PM **INDUSTRY AWARENESS: MYTHS AND TRUTHS... (continued)**

good marketing? The public and industry awareness of the Global Nuclear Energy Partnership will be discussed as a vehicle to explore avenues for the next generation of nuclear professionals to develop and maintain an awareness of the industry's broad, but closely interconnected, scope of activities.

1:30 PM **KNOWLEDGE TRANSFER: THINKING WITH THE NEXT GENERATION**

**James Newman** (*Dominion*)  
*Speaker and Organizer*

This half-hour session will reflect data collected in recent months of research from different types of nuclear facilities including samplings from research labs, power plants, military installations, and engineering firms. We are focusing on knowledge collection and how it's shared internally and externally as appropriate.

2:00 PM **NETWORK WITH TOMORROW'S LEADERS TODAY: BENEFITS OF PEER NETWORKING**

**David Czufin** (*Director of Work Control, Exelon*)  
*Speaker*

**Sarfraz Taj** (*Exelon*)  
*Organizer*

Many young professionals focus on networking with executives and industry leaders and overlook their most important networking opportunity – their peers, the necessary roots of all successful networks. Networking with peers offers a unique opportunity to build trust, develop strong relationships, display talents and learn from one another. It's the opportunity to network with tomorrow's leaders today! The Nuclear Renaissance elevates the need for strong, diverse, talented, and trusting networks – those built on a strong foundation of peers. This session will explore the importance of networking with peers and how to successfully build peer relationships that will benefit our future in the nuclear industry.

2:30 PM **COFFEE BREAK** (Sponsored by *Omaha Public Power District*)

3:00 PM **STAYING ON BOARD:**

**EMPLOYEE RETENTION IN THE NUCLEAR INDUSTRY**  
**Matthew Cameron** (*Duke Energy*)  
*Speaker*

**Janelle Penisten** (*University of Michigan*)  
*Organizer*

As today's young professionals, we are not looking for a job right out of college that we intend to keep until retirement. Our search for dynamic and engaging employment opportunities presents a unique challenge to the industry's retention efforts. This session will examine retention trends in the industry, the needs of young professionals, and how companies are combating attrition.

3:30 PM **LEADERSHIP: INFLUENCING OTHERS**

**Elizabeth McAndrew-Benavidis** (*UniStar Nuclear*)  
*Speaker and Organizer*

Has a young professional you know ever wished they knew what to tell a stranger in an elevator about why they support nuclear energy? Have they ever wished that a boss would listen to their ideas about how to improve a company process? Developing an Elevator Speech is the way to prepare for these types of instances. Young Professionals will be treated to an interactive learning session where they will be given the tools to develop Elevator Speeches for issues they face on a daily basis in the nuclear industry.

4:00 PM **PRIZES** (Sponsored by *Exelon*)

4:15 PM **CLOSING REMARKS**

**Sarfraz Taj**  
*Workshop Co-Chair*

6:30 PM **RECEPTION**

# Professional Development Workshop

## TMI-2: A Textbook in Severe Accident Management (A Severe Accident Primer for Young Engineers)

**Sunday, November 11, 2007**

**9:00 a.m. – 5:00 p.m.**

**Location: Capitol Room**

*NISD Professional Development Course*

### Scope of the Topic

This Professional Development Course for NISD will focus on the specific aspects that led to the accident at the Three Mile Island-2 plant, the behaviors during the severe accident as well as those actions and phenomena that stabilized the accident condition enabling the molten core material to be quenched. In describing the major elements of the accident progression, the specific features addressed cover almost the entire spectrum of issues to be considered when evaluating severe accidents for any design. In particular these include:

- the conditions leading to uncovering of the reactor core,
- overheating of the reactor fuel and hydrogen generation,
- natural circulation flows of high temperature gases between the core and RPV upper plenum,
- core damage and relocation of molten core materials,
- densification of the core and reduced coolability due to of core melt relocation,
- reflooding of an overheated degraded core configuration,
- melt relocation from the core into the RPV lower plenum,
- thermal interaction between the relocating core material and water in the RPV lower plenum,
- thermal challenges to the RPV lower head as a result of core melt relocation,
- fission product release into the containment,
- hydrogen release into the container atmosphere,
- burning of hydrogen in the containment atmosphere,
- pressurization of containment building throughout the accident progression,
- ultimate distribution of core materials within the RPV and long term cooling, as well as decay heat removal from the core material.

Each item on this list will be discussed in terms of the observed behavior at TMI-2, the role that operator actions may have played in these phenomena as well as any additional technical basis resulting from large scale experiments performed by the nuclear industry. As a result of reviewing the above specific items, the participants in this course will have been exposed to virtually all of the major items related to severe accident behavior regarding challenges to the reactor core and the reactor pressure vessel.

### Who Should Attend

The course is structured to provide insights into severe accidents, as well as the extensive technical basis for decision making in severe accident evaluations. Thus, the course is organized for engineers at all levels who are involved in evaluating both current and new reactor designs. In particular, this course has been developed to help young engineers develop a perspective of severe accident phenomena in a relatively short time. Specifically, this will expose the participants to an extensive list of technical bases in addition to the information that has been developed from the TMI-2 accident.

### Presenter

The presenter for this course will be Dr. Robert E. Henry from Fauske & Associates. Dr. Henry was a temporary member of the NSAC staff (on loan from Argonne National Laboratory) immediately following the accident at Three Mile Island. In this regard he was deeply involved in performing analyses to understand the progression of the accident and in particular those actions which enabled the accident to be terminated. He also initiated and managed the development of the Modular Accident Analysis Program (MAAP) that has been used in the United States, Canada, Europe, the Far East and Africa to evaluate severe accident behavior. Dr. Henry has over 100 publications in the area of severe accident phenomena, and is well qualified to give this course.



# Nuclear Technology Expo

## ANS NUCLEAR TECHNOLOGY EXPO

### Sunday, November 11

6:00 p.m. – 7:30 p.m.

(ANS President's Reception)

### Monday, November 12

11:30 a.m. – 6:00 p.m.

(Luncheon • Caricaturist • Prizes • Welcome Reception)

### Tuesday, November 13

10:00 a.m. – 2:00 p.m.

(Concession Lunch • Caricaturist • Prizes)

The ANS Nuclear Technology Expo will be held November 11-13 in the Lower Level Exhibit Hall of the Omni Shoreham Hotel.

The Expo will open Sunday from 6:00 p.m. – 7:30 p.m. for the ANS President's Reception. Many other special events will take place in the Hall on Monday and Tuesday. (Most events require tickets.)

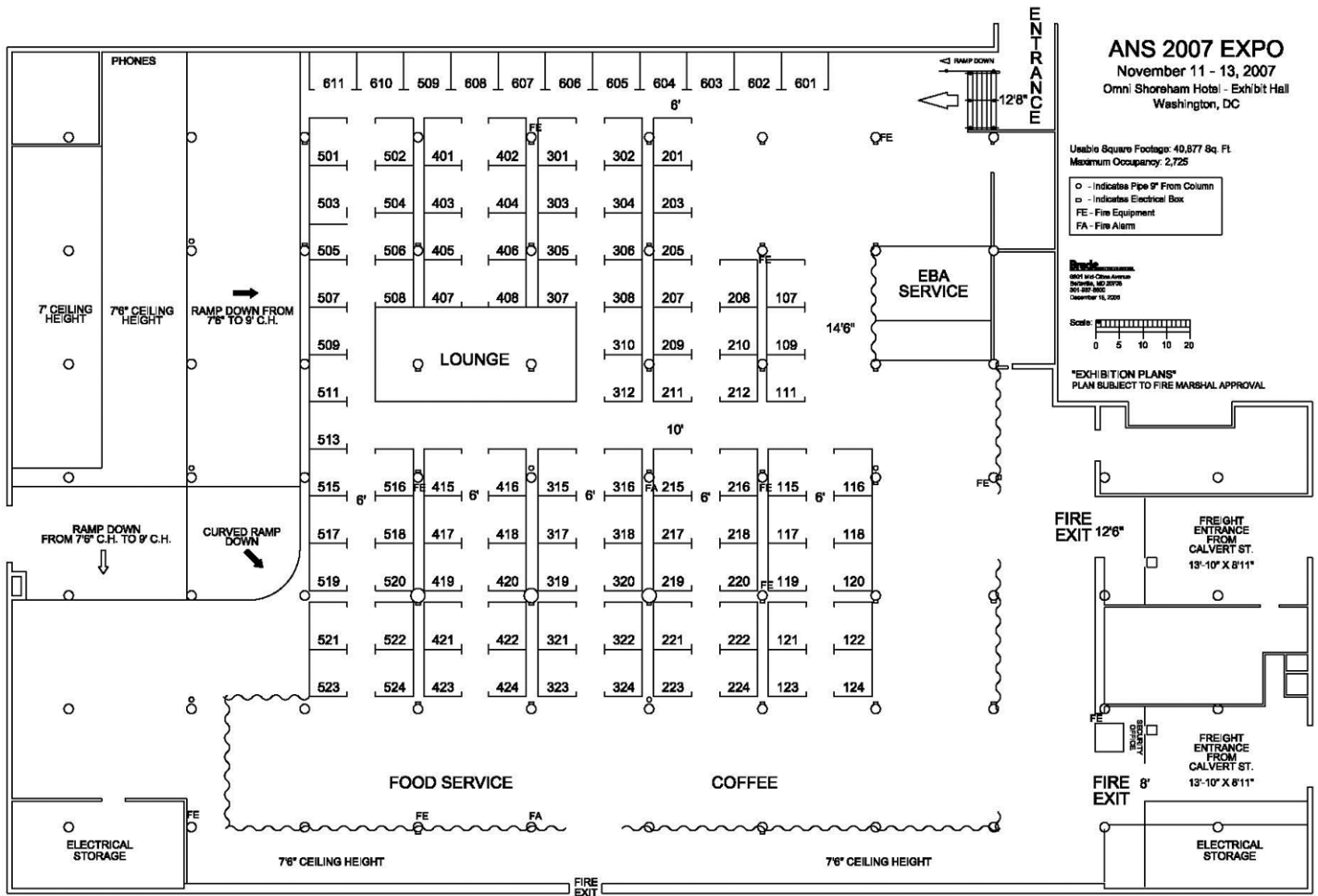
Representatives from leading organizations will be available to answer your questions about their innovative products and services. A list of exhibitors follows.

Aerofin Corporation	219
Alaron Corporation	416
American Crane & Equipment Corporation	317
American Nuclear Society	609, 610
AREVA	201, 203
Barnhart Nuclear Services	209
Bechtel Nuclear Power	310, 312
Bigge Power Constructors	318
Black & Veatch	210
Burns and Roe	419
BWX Technologies, Inc.	211
Ceradyne, Inc.	605
Ceradyne, Inc. Boron Products	415
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DELTA M Corporation	608
EXCEL Services Corporation	509, 511, 513

French Nuclear Industry Association	107, 109
GE-Hitachi Nuclear Energy	301, 303, 305 402, 404, 406
General Atomics	319
Hamilton Sundstrand Space, Land & Sea - Rocketdyne	505, 507
Howden Buffalo Inc.	116
Hukari Technical Services, Inc.	208
IAEA Careers – Argonne/Brookhaven Labs	417
INL Idaho National Laboratory	401, 403, 405, 407
International Nuclear Services	603, 604
International Science & Technology Center	424
Joseph Oat Corporation	502
Kinectrics Inc.	607
Lockheed Martin – KAPL, Inc.	119
LND, Inc.	207
Lytron, Inc.	606
Major Tool & Machine, Inc.	215
Mega-Tech Services, Inc.	316
Mitsubishi Nuclear Energy Systems, Inc.	501, 503
MPR Associates, Inc.	521
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Rigging International	418
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Stäubli Corporation	516
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WSMS/Washington Group International	420
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Western Services Corporation	504, 506
Westinghouse	523

# Floor Plan

## Lower Level Exhibit Hall – Omni Shoreham Hotel



**We thank the following companies for their generous support of the ANS Expo Special Events:**

**ANSALDO Camozzi**  
(Welcome Reception)

**Bechtel Nuclear Power**  
(Attendee Prizes)

**EXCEL Services Corporation**  
(Grand Prizes)

**Hukari Technical Services, Inc.**  
(Welcome Reception)

**Mitsubishi Nuclear Energy Systems, Inc.**  
(Welcome Reception)

**Nuclear Plant Journal**  
(Welcome Reception)

**Private Fuel Storage LLC**  
(Caricature Artist)

**ANS Nuclear Technology Expo, November 9-11, 2008, Reno, NV**

*For information, contact Sharon Boblander, Exhibit Manager at  
800-250-3678 x227 or visit [www.earlbeckwith.com](http://www.earlbeckwith.com)  
<<http://www.earlbeckwith.com/>>*

# Committee Meetings

## NATIONAL COMMITTEES

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### Accreditation Policies and Procedures

SUNDAY, 5:00 P.M. – 7:00 P.M.

LOCATION: Parlor # 368

### Board of Directors

#### *Professional Division Reports*

WEDNESDAY, 4:00 P.M. – 5:30 P.M.

LOCATION: Regency Ballroom

#### *Board of Directors*

THURSDAY, 8:00 A.M. – 5:00 P.M.

LOCATION: Regency Ballroom

### Bylaws & Rules

SUNDAY, 1:30 P.M. – 4:00 P.M.

LOCATION: Embassy Room

### Finance

TUESDAY, 4:00 P.M. – 7:00 P.M.

LOCATION: Chairman's Boardroom

### Honors and Awards

MONDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Parlor # 357

### International

SUNDAY, 11:30 A.M. – 2:30 P.M.

LOCATION: Hampton Ballroom

### Local Sections/Workshop

SUNDAY, 8:00 A.M. – 12:00 P.M.

LOCATION: Calvert Room

### Membership

SUNDAY, 11:00 A.M. – 1:00 P.M.

LOCATION: Parlor # 257

### National Program Committee (NPC)

#### *Program*

WEDNESDAY, 4:00 P.M. – 7:00 P.M.

LOCATION: Palladian Ballroom

#### *Screening & International*

MONDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Palladian Ballroom

### NEED

SUNDAY, 7:30 P.M. – 9:30 P.M.

LOCATION: Chairman's Boardroom

### Planning

SUNDAY, 2:00 P.M. – 6:00 P.M.

LOCATION: Senate Room

### President's Meetings

#### *with Committee Chairs*

SUNDAY, 9:00 A.M. – 10:30 A.M.

LOCATION: Hampton Ballroom

### President's Meetings

#### *with Division Chairs*

SUNDAY, 10:30 A.M. – 11:30 A.M.

LOCATION: Hampton Ballroom

### Professional Development Workshop

TUESDAY, 7:30 A.M. – 8:30 A.M.

LOCATION: Parlor # 257

### Professional Divisions

TUESDAY, 4:00 P.M. – 6:30 P.M.

LOCATION: Blue Room

### Professional Engineering Exam

SUNDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Parlor # 557

### Professional Women in ANS

MONDAY, 11:30 A.M. – 1:00 P.M.

LOCATION: Parlor # 257

### Public Information

SUNDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Parlor # 257

### Public Policy

WEDNESDAY, 11:30 A.M. – 1:30 P.M.

LOCATION: Parlor # 257

### Publications Steering

#### *Book Publishing*

SUNDAY, 11:00 A.M. – 12:00 P.M.

LOCATION: Chairman's Boardroom

#### *Meetings, Proceedings and Transactions*

MONDAY, 7:30 A.M. – 8:30 A.M.

LOCATION: Chairman's Boardroom

#### *Nuclear News Editorial Advisory*

SUNDAY, 4:00 P.M. – 5:30 P.M.

LOCATION: Parlor # 357

#### *Nuclear Technology (NT)*

##### *Editorial Advisory*

SUNDAY, 10:00 A.M. – 11:00 A.M.

Location: Chairman's Boardroom

#### *Publications Steering*

MONDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Senate Room

#### *Technical Journals*

SUNDAY, 1:00 P.M. – 3:30 P.M.

LOCATION: Parlor # 357

### Scholarship Policy & Coordination

TUESDAY, 4:00 P.M. – 5:00 P.M.

LOCATION: Parlor # 257

## Student Sections

### *Executive*

MONDAY, 6:00 P.M. – 7:00 P.M.

LOCATION: Senate Room

### *Reports/Roundtable*

MONDAY, 7:00 P.M. – 8:00 P.M.

LOCATION: Senate Room

## SPECIAL COMMITTEES

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### Development

TUESDAY, 1:30 P.M. – 3:00 P.M.

LOCATION: Parlor # 257

### Nuclear Nonproliferation

SUNDAY, 2:00 P.M. – 4:00 P.M.

LOCATION: Parlor # 557

## OTHER COMMITTEES

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### 16TH PBNC Organizing Committee

MONDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Parlor # 368

### CNF

MONDAY, 7:30 P.M. – 10:00 P.M.

LOCATION: Parlor # 257

### Eagle Alliance Board of Directors

SUNDAY, 1:00 P.M. – 3:30 P.M.

LOCATION: Parlor # 257

### INSC

SUNDAY, 3:00 P.M. – 6:00 P.M.

LOCATION: Hampton Ballroom

### Mathematics & Computation/ Reactor Physics/ Radiation Protection & Shielding Joint Benchmark Meeting

SUNDAY, 11:00 A.M. – 1:00 P.M.

LOCATION: Parlor # 300

### NEDHO

MONDAY, 4:30 P.M. – 6:00 P.M.

LOCATION: Cabinet Room

### PNC

SATURDAY, 8:00 A.M. – 5:00 P.M.

LOCATION: Cabinet Room

### UWC 2008 Planning Committee

SUNDAY, 12:00 P.M. – 12:30 P.M.

LOCATION: Parlor # 357

# Committee Meetings

## DIVISION COMMITTEES

### Accelerator Applications

#### *Executive*

MONDAY, 11:30 A.M. – 1:00 P.M.  
LOCATION: Chairman's Boardroom

### Aerospace Nuclear Science and Technologies

SUNDAY, 12:00 P.M. – 2:00 P.M.  
LOCATION: Parlor # 315

### Biology & Medicine

#### *Committee of the Whole*

SUNDAY, 4:00 P.M. – 5:30 P.M.  
LOCATION: Parlor # 300

#### *Computational Medical Physics Working Group*

SUNDAY, 4:15 P.M. – 5:45 P.M.  
LOCATION: Governor's Boardroom

### Decommissioning, Decontamination and Reutilization

#### *Committee Meeting*

SUNDAY, 1:00 P.M. – 5:00 P.M.  
LOCATION: Parlor # 368

### Education & Training

#### *Alpha Nu Sigma*

SUNDAY, 1:00 P.M. – 2:00 P.M.  
LOCATION: Senate Room

#### *Executive/Membership/Honors & Awards*

SUNDAY, 1:30 P.M. – 4:00 P.M.  
LOCATION: Congressional B

#### *Nuclear Workforce Working Group*

SUNDAY, 12:00 P.M. – 1:00 P.M.  
LOCATION: Senate Room

#### *Program*

SUNDAY, 10:30 A.M. – 12:00 P.M.  
LOCATION: Senate Room

#### *University/Industry/Government Relations*

SUNDAY, 9:30 A.M. – 10:30 A.M.  
LOCATION: Senate Room

### Environmental Sciences

#### *ESD Special Committee on Climate Change*

SUNDAY, 1:00 P.M. – 2:00 P.M.  
LOCATION: Council Room

#### *Executive*

SUNDAY, 10:00 A.M. – 12:00 P.M.  
LOCATION: Council Room

#### *Nuclear Production of Hydrogen Working Group*

SUNDAY, 12:00 P.M. – 1:00 P.M.  
LOCATION: Council Room

#### *Program*

SUNDAY, 8:30 A.M. – 10:00 A.M.  
LOCATION: Council Room

### Fuel Cycle & Waste Management

#### *Executive*

SUNDAY, 1:00 P.M. – 2:30 P.M.  
LOCATION: Calvert Room

#### *Program*

SUNDAY, 12:00 P.M. – 1:00 P.M.  
LOCATION: Calvert Room

#### *Technical Operating & Standards Committee*

SUNDAY, 2:30 P.M. – 3:30 P.M.  
LOCATION: Calvert Room

### Fusion Energy

#### *Executive*

SUNDAY, 3:00 P.M. – 5:00 P.M.  
LOCATION: Calvert Room

### Human Factors

#### *Executive/Program*

WEDNESDAY, 5:30 P.M. – 7:00 P.M.  
LOCATION: Parlor # 315

### Isotopes & Radiation

#### *Executive*

SUNDAY, 2:30 P.M. – 4:00 P.M.  
LOCATION: Cabinet Room

#### *Joint Program Committee – I&R & B&M*

SUNDAY, 1:30 P.M. – 2:30 P.M.  
LOCATION: Cabinet Room

### Materials Science & Technology

#### *Executive*

MONDAY, 7:00 P.M. – 9:00 P.M.  
LOCATION: Parlor # 315

### Mathematics & Computation

#### *Executive*

SUNDAY, 2:00 P.M. – 4:00 P.M.  
LOCATION: Parlor # 300

#### *Program*

SUNDAY, 1:00 P.M. – 2:00 P.M.  
LOCATION: Parlor # 300

### Nuclear Criticality Safety

#### *Education Meeting*

SUNDAY, 1:00 P.M. – 1:30 P.M.  
LOCATION: Governor's Boardroom

#### *Executive*

SUNDAY, 2:30 P.M. – 4:00 P.M.  
LOCATION: Governor's Boardroom

#### *Program*

SUNDAY, 1:30 P.M. – 2:30 P.M.  
LOCATION: Governor's Boardroom

### Nuclear Installation Safety

#### *Executive*

MONDAY, 5:00 P.M. – 8:00 P.M.  
LOCATION: Parlor # 300

#### *Program*

SUNDAY, 7:30 P.M. – 11:00 P.M.  
LOCATION: Parlor # 257

### Operations & Power

#### *Executive*

SUNDAY, 4:00 P.M. – 6:00 P.M.  
LOCATION: Forum Room

#### *Nuclear Construction Working Group*

SUNDAY, 2:30 P.M. – 4:00 P.M.  
LOCATION: Forum Room

#### *Program*

SUNDAY, 12:30 P.M. – 2:30 P.M.  
LOCATION: Forum Room

### Radiation Protection & Shielding

#### *Executive*

MONDAY, 5:00 P.M. – 6:30 P.M.  
LOCATION: Chairman's Boardroom

#### *Program*

MONDAY, 4:00 P.M. – 5:00 P.M.  
LOCATION: Chairman's Boardroom

### Reactor Physics

#### *Executive*

SUNDAY, 4:00 P.M. – 6:00 P.M.  
LOCATION: Parlor # 315

#### *Program*

SUNDAY, 2:00 P.M. – 4:00 P.M.  
LOCATION: Parlor # 315

### Robotics & Remote Systems

#### *Executive*

SUNDAY, 12:00 P.M. – 4:00 P.M.  
LOCATION: Chairman's Boardroom

### Thermal Hydraulics

#### *Executive*

SUNDAY, 5:00 P.M. – 7:00 P.M.  
LOCATION: Parlor # 500

#### *Program*

SUNDAY, 3:00 P.M. – 5:00 P.M.  
LOCATION: Parlor # 500

### Young Member Group

#### *Executive Committee*

SUNDAY, 7:00 A.M. – 8:30 A.M.  
LOCATION: Chairman's Boardroom



# Committee Meetings

## STANDARDS COMMITTEES

### ANS Standards Board

TUESDAY, 9:00 A.M. – 5:00 P.M.

LOCATION: Senate Room

### ANS-8.1

TUESDAY, 7:00 A.M. – 8:30 A.M.

LOCATION: Parlor # 300

### ANS-8.12

TUESDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Parlor # 315

### ANS-8.20

SUNDAY, 9:00 A.M. – 12:00 P.M.

LOCATION: Parlor # 357

### ANS-8.21

TUESDAY, 7:00 A.M. – 8:30 A.M.

LOCATION: Parlor # 315

THURSDAY, 7:00 A.M. – 8:30 A.M.

LOCATION: Parlor # 315

### ANS-10.7

WEDNESDAY, 7:00 A.M. – 8:30 A.M.

LOCATION: Parlor # 300

### ANS-19

MONDAY, 8:30 A.M. – 10:30 A.M.

LOCATION: Chairman's Boardroom

### ANS-19.3

SUNDAY, 1:00 P.M. – 2:00 P.M.

LOCATION: Parlor # 557

### ANS-21

TUESDAY, 4:00 P.M. – 6:00 P.M.

LOCATION: Parlor # 357

### ANS-28/ANS-53.1

THURSDAY, 8:30 A.M. – 5:00 P.M.

LOCATION: General Atomics' (Washington DC Office)

FRIDAY, 8:30 A.M. – 12:00 P.M.

LOCATION: General Atomics' (Washington DC Office)

### ANS-58.2

TUESDAY, 9:00 A.M. – 12:00 P.M.

LOCATION: Parlor # 257

### ANS-58.14

TUESDAY, 8:00 A.M. – 5:00 P.M.

LOCATION: Parlor # 500

### Level 3 PRA/ANS-58.25

WEDNESDAY, 8:00 A.M. – 5:00 P.M.

LOCATION: Parlor # 500

### N16

MONDAY, 1:00 P.M. – 5:00 P.M.

LOCATION: Parlor # 500

### N17

WEDNESDAY, 10:00 A.M. – 12:00 P.M.

LOCATION: Parlor # 300

### NFSC

MONDAY, 8:30 A.M. – 6:00 P.M.

LOCATION: Council Room

### NFSC Workshop on Standards Program Issues

SUNDAY, 7:30 P.M. – 10:00 P.M.

LOCATION: Parlor # 315

### RISC

WEDNESDAY, 8:00 A.M. – 5:00 P.M.

LOCATION: Chairman's Boardroom

*PLEASE NOTE: Some afternoon committee meetings will be held in rooms that follow a technical session. The technical sessions must be allowed to finish prior to entering the room to begin the committee meetings.*

## Mark Your Calendars!

June 8-12, 2008 • Anaheim, California • Disneyland Hotel

## American Nuclear Society: 2008 ANNUAL MEETING

“Nuclear Science and Technology: Now Arriving on Main Street”



### EMBEDDED TOPICAL MEETINGS:

- 2008 International Congress on Advances in Nuclear Power Plants (ICAPP'08)
- Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors (NFSM)
- Isotopes for Medicine and Industry

Call for Papers online [www.ans.org](http://www.ans.org)

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ANATECH Corporation  
AREVA NC  
AREVA NP  
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**R**eef Industries, Inc.  
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Sargent & Lundy  
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Southern California Edison  
Southern Nuclear Operating Co.  
Stone & Webster Engineering Inc./  
The Shaw Group  
Super Radiator Coils

**T**echnical Associates  
Tennessee Valley Authority  
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## 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, 70 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.



