American Nuclear Society ANNUAL MEETING
JUNE 24 - 28, 2007

IT'S ALL ABOUT THE PEOPLE • THE FUTURE OF NUCLEAR •

OFFICIAL PROGRAM

AMERICAN NUCLEAR SOCIETY
2007 Annual Meeting

"It's All About the People: The Future of Nuclear"

JUNE 24 - 28, 2007 • BOSTON, MASSACHUSETTS

Boston Marriott Copley Place Hotel

EMBEDDED TOPICAL MEETING:

Safety and Technology of Nuclear Hydrogen Production, Control and Management (ST-NH_2)

EMBEDDED TOPICAL MEETING:

Space Nuclear Conference 2007 (SNC '07)

PROFESSIONAL DEVELOPMENT WORKSHOP:

"Preparing for the Nuclear Engineering Professional Engineering Exam"

AMERICAN NUCLEAR SOCIETY A N S

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

2007 ANS Annual Meeting

"It's All About the People: The Future of Nuclear"

Embedded Topical Meeting:

Safety and Technology of Nuclear Hydrogen Production, Control and Management (ST-NH_2)

Embedded Topical Meeting:

Space Nuclear Conference 2007 (SNC '07)

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2007 ANS Annual Meeting

"It's All About the People: The Future of Nuclear"

Embedded Topical Meetings:

Safety and Technology of Nuclear Hydrogen Production, Control and Management (ST-NH_2)

Space Nuclear Conference 2007 (SNC '07)

June 24-28, 2007
Boston, Massachusetts
Boston Marriott Copley Place Hotel

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Updated: June 19, 2007

Please visit the ANS website
www.ans.org
for information on future meetings

Meeting Highlights

Saturday, June 23, 2007

8:00 a.m. – 5:00 p.m.	Teachers' Workshop
5:00 p.m. – 8:00 p.m.	Professional Divisions Workshop

Sunday, June 24, 2007

9:00 a.m. – 5:00 p.m.	Professional Development Workshop: "Preparing for the Nuclear Engineering Professional Engineering Exam"
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.	President's Reception

Monday, June 25, 2007

8:00 a.m. – 10:00 a.m.	Spouse/Guest Hospitality
8:00 a.m. – 11:30 a.m.	Plenary Session: "It's All About the People: The Future of Nuclear"
9:00 a.m. – 1:00 p.m.	Spouse/Guest Tour–Boston Duck Tour
11:30 a.m. – 1:00 p.m.	Operations and Power Division Luncheon *(at Legal Sea Foods Restaurant)*
11:30 a.m. – 1:00 p.m.	Embedded Topical Meeting ST-NH_2 Luncheon *(at Bello Mondo, located in the Boston Marriott Copley Hotel)*
1:00 p.m. – 2:30 p.m.	ANS President's Special Session: "India – U.S. Nuclear Cooperation"
2:30 p.m. – 4:00 p.m.	Plenary Session: Embedded Topical Meeting: ST-NH_2
2:30 p.m. – 4:00 p.m.	Plenary Session: Embedded Topical Meeting: SNC '07
2:30 p.m. – 4:15 p.m.	Technical Sessions – 2007 Annual Meeting
4:15 p.m. – 5:15 p.m.	ANS Business Meeting
4:15 p.m. – 6:15 p.m.	General Cochairs' Special Session: "Revitalizing the Supply Chain"
7:00 p.m. – 10:30 p.m.	Dinner and Tour at Fenway Park

Tuesday, June 26, 2007

8:00 a.m. – 10:00 a.m.	Spouse/Guest Hospitality
8:00 a.m. – 10:00 a.m.	Embedded Topical Meeting: SNC '07 – Plenary Session II
8:00 a.m. – 11:30 a.m.	Technical Sessions – Embedded Topical Meeting: ST-NH_2
8:30 a.m. – 11:30 a.m.	Technical Sessions – 2007 Annual Meeting
9:00 a.m. – 5:00 p.m.	Spouse/Guest Tour–Plimoth Plantation/Mayflower II
10:00 a.m. – 11:30 a.m.	Technical Sessions – Embedded Topical Meeting: SNC '07
11:30 a.m. – 1:00 p.m.	ANS Honors and Awards Luncheon
1:00 p.m. – 4:00 p.m.	Technical Sessions – 2007 Annual Meeting
1:00 p.m. – 4:00 p.m.	Technical Sessions – Embedded Topical Meeting: ST-NH_2
1:00 p.m. – 4:00 p.m.	Technical Sessions – Embedded Topical Meeting: SNC '07
4:00 p.m. – 6:00 p.m.	Honorary Chair's Special Session *(In Memory of Manson Benedict)*: "The Nuclear Fuel Cycle and its Waste Management: Innovation is the Future"
4:30 p.m. – 6:30 p.m.	Embedded Topical Meeting: SNC '07 Roundtable Discussion – Aerospace Nuclear Resources for Non-nuclear Aerospace Engineers

Wednesday, June 27, 2007

8:00 a.m. – 10:00 a.m.	Spouse/Guest Hospitality
8:00 a.m. – 10:00 a.m.	Embedded Topical Meeting: SNC '07 – Plenary III
8:30 a.m. – 11:30 a.m.	Technical Sessions – 2007 Annual Meeting
8:30 a.m. – 11:30 a.m.	Technical Sessions – Embedded Topical Meeting: ST-NH_2
10:00 a.m. – 11:30 a.m.	Technical Sessions – Embedded Topical Meeting: SNC '07
1:00 p.m. – 4:00 p.m.	Technical Sessions – 2007 Annual Meeting
1:00 p.m. – 4:00 p.m.	Technical Sessions – Embedded Topical Meeting: ST-NH_2
1:00 p.m. – 4:00 p.m.	Technical Sessions – Embedded Topical Meeting: SNC '07
4:00 p.m. – 6:00 p.m.	ANS Public Communications Workshop – "Focus on Communications: Speaking to the Public"
4:00 p.m. – 6:00 p.m.	Embedded Topical Meeting: SNC '07 – Closing Plenary Session
6:30 p.m. – 10:30 p.m.	Dinner at Museum of Science *(Includes the Theater of Energy)*

Thursday, June 28, 2007

8:30 a.m. – 11:30 a.m.	Technical Sessions – 2007 Annual Meeting
8:30 a.m. – 11:30 a.m.	Technical Sessions – Embedded Topical Meeting: ST-NH_2
1:00 p.m. – 4:00 p.m.	Technical Sessions – 2007 Annual Meeting
1:00 p.m. – 4:00 p.m.	Technical Sessions – Embedded Topical Meeting: ST-NH_2
1:00 p.m. – 5:30 p.m.	Technical Tour – Massachusetts Institute of Technology Nuclear Reactor Laboratory and the Nuclear Science and Engineering Department's Plasma Science and Fusion Center (PSFC)

Friday, June 29, 2007

8:00 a.m. – 12:00 p.m.	DOE Nuclear Criticality Safety Program

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Massachusetts Institute of Technology
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Argonne National Laboratory
ASSISTANT STUDENT PROGRAM CHAIR

"It's All About the People: The Future of Nuclear"

Featuring elegance and convenience, the Boston Marriott Copley Place is located in the heart of Back Bay, next to the Theater District and the Hynes Convention Center. More than 100 shops and restaurants adjoining in the Copley Mall.

The 2007 ANS Annual Meeting will be held June 24 - 28, 2007, in Boston, MA. There will be two embedded topical meetings held in conjunction with the 2007 ANS Annual Meeting: "Space Nuclear Conference 2007 (SNC '07)" and "Safety and Technology of Nuclear Hydrogen Production, Control, and Management (ST-NH_2)." There will be a Professional Development Workshop held in conjunction with the 2007 ANS Annual Meeting: "Preparing for the Nuclear Engineering Professional Engineering Exam".

Accommodations/Hotel Information

The Boston Marriott Copley Place Hotel will be the location for the 2007 ANS Annual Meeting, where all activities, technical sessions and governance committee meetings will take place.

ANS Registration

ANS Registration will be located in the 4th Floor Registration Area of the Boston Marriott Copley Place Hotel on Saturday, June 23, 2007, through Thursday, June 28, 2007. Meetings 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, JUNE 23, 2007
2:00 p.m. - 5:00 p.m.

SUNDAY, JUNE 24, 2007
7:30 a.m. - 9:30 a.m.*
*(*Registration for workshop participants only)*
11:00 a.m. - 7:00 p.m.

MONDAY, JUNE 25, 2007
7:30 a.m. - 5:00 p.m.

TUESDAY, JUNE 26, 2007
7:30 a.m. - 5:00 p.m.

WEDNESDAY, JUNE 27, 2007
7:30 a.m. - 5:00 p.m.

THURSDAY, JUNE 28, 2007
7:30 a.m. - 2:00 p.m.

Student Assistant Program

Attendance at the 2007 ANS Annual 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, June 24th, 4:00 p.m. - 5:00 p.m. in the Vineyard Room. Student assistants receive free meeting registration and a copy of the meeting TRANSACTIONS. All students are responsible for paying their own room, tax, and incidentals. ANS student members who register for the meeting and/or work as session chairs' assistants should pick up a travel assistance form which can be found in the student headquarters room. Student travel assistance is provided through contributions from the ANS professional divisions. The student headquarters room will be located in the Vineyard Room of the Boston Marriott Copley Place Hotel.

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.

The session will be held from 1:00 p.m. - 1:30 p.m. on Sunday, June 24, 2007, in Salon A of the Boston Marriott Copley Place Hotel.

Mentoring Program

A special mentoring program will be held from 5:00 p.m. - 6:00 p.m. on Sunday, June 24, 2007, in Salon A of the Boston Marriott Copley Place Hotel.

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

Notice for Speakers

All speakers and session chairs must sign in at the "Speakers' Desk," located in the 4th Floor Registration Area of the Boston Marriott Copley Place Hotel during registration hours.

A Speakers' Preview Room, the Yarmouth Room of the Boston Marriott Copley Place Hotel, will be available during the following hours:

SUNDAY, JUNE 24, 2007
7:30 a.m. - 3:00 p.m.

MONDAY, JUNE 25, 2007
7:00 a.m. - 4:00 p.m.

TUESDAY, JUNE 26, 2007
7:00 a.m. - 4:00 p.m.

WEDNESDAY, JUNE 27, 2007
7:00 a.m. - 4:00 p.m.

THURSDAY, JUNE 28, 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: Orleans Room of the Boston Marriott Copley Place Hotel

ANS Secretariat

LOCATION: Nantucket Room of the Boston Marriott Copley Place Hotel

ANS Media Center

MONDAY, JUNE, 25, 2007
7:45 a.m. - 4:00 p.m.

TUESDAY, JUNE, 26, 2007
8:00 a.m. - 4:00 p.m.

WEDNESDAY, JUNE, 27, 2007
8:00 a.m. - 4:00 p.m.

LOCATION: Northeastern Room of the Boston Marriott Copley Place Hotel

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 ANS Media Center, located in the Northeastern Room.

ANS Public Communications Workshop

"Focus on Communications: Speaking to the Public"
WEDNESDAY, JUNE 27, 2007
4:00pm - 6:00 pm
Location: Bello Mondo

The ANS Public Information Committee is pleased to offer a no-cost opportunity for ANS members to learn to make the most of their public communications opportunities. Join us for a relaxed workshop-style short course that will provide an introduction to sound public communications practices and some insights into the science of communications. Light refreshments will be provided.

Program

4:00 - 4:10 p.m.	Welcome and Introduction
4:10 - 4:30 p.m.	It Takes Two to Communicate - How to Prepare for YOUR Audience
4:30 - 5:00 p.m.	Don't Get Caught Speechless - How to Develop YOUR Message
5:00 - 5:30 p.m.	Special Delivery - How to Get YOUR Point Across
5:30 - 6:00 p.m.	Put It To The Test - Are YOU Ready?

Spouse/Guest Hospitality

Spouse/Guest hospitality breakfast will be served from 8:00 a.m. - 10:00 a.m., Monday, June 25, 2007, through Wednesday, June 27, 2007, in the Bello Mondo Room of the Boston Marriott Copley Place Hotel. Continental breakfast will be served each morning.

Spouse/guest registration is required for admittance to the spouse/guest hospitality breakfast. Spouse/guest registration includes one ticket to the ANS President's Reception and admittance to the spouse/guest breakfast only - it does not include technical sessions or other events. Spouse/guest tours are scheduled. Registration for the tours is separate from the spouse/guest meeting registration.

Attention Runners: ANS Fun Run

There will be a noncompetitive run on Tuesday, June 26, 2007, starting at 6:00 a.m. from the front entrance of the Boston Marriott Copley Place Hotel. We are looking forward to seeing you at the fun run in Boston, MA. 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.

Professional Development Workshop:
"Preparing for the Nuclear Engineering Professional Engineering Exam"
SUNDAY, JUNE 24, 2007
9:00 a.m. - 5:00 p.m.
LOCATION: Wellesley Room of the Boston Marriott Copley Place Hotel

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

DOE Nuclear Criticality Safety Program

FRIDAY, JUNE 29, 2007
8:00 a.m. - 12:00 p.m.
LOCATION: Wellesley Room of the Boston Marriott Copley Place Hotel

Please turn to page 38 for additional information.

Special Events

CONFERENCE LUNCHEONS

Operations and Power Division

MONDAY, JUNE 25, 2007
11:30 a.m. – 1:00 p.m.
Location: Legal Sea Foods Restaurant
100 Huntington Avenue
Boston, MA

Legal Sea Foods is conveniently located within walking distance of the Boston Marriott Copley Place Hotel. Transportation will not be provided.

Enjoy the unique experience of Private Dining in the Bay Back Room at the Copley Place Legal Sea Foods Restaurant. Coupled with the restaurant's unique interior architecture and the spectacular views through the expansive floor to ceiling windows overlooking the rooftops of the South End, this luncheon is sure to be a memorable and enjoyable experience. Honored at this year's OPD luncheon, will be Leonard Koch (retired-Argonne National Laboratory), the recipient of the Walter H. Zinn Award.

Tickets can be purchased at the ANS Registration Desk for $45.

Embedded Topical Meeting ST-NH2

Co-sponsored by Washington Safety Management Solutions

MONDAY, JUNE 25, 2007
11:30 a.m. – 1:00 p.m.
Location: Bello Mondo Room of the Boston Marriott Copley Place Hotel

Tickets can be purchased at the ANS Registration Desk for $30.

Honors and Awards Luncheon

TUESDAY, JUNE 26, 2007
11:30 a.m. – 1:00 p.m.
Location: Salon E of the Boston Marriott Copley Place Hotel

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 $55.

EVENING EVENTS

PLEASE NOTE:
You must be registered for the meeting to attend evening events.

The times listed are departure and return times to/from the Boston Marriott Copley Place Hotel. Busses will leave promptly from the Huntington Avenue entrance of the Boston Marriott Copley Place Hotel.

ANS President's Reception

SUNDAY, JUNE 24, 2007
6:00 p.m. – 7:30 p.m.
Location: Salon G-K of the Boston Marriott Copley Place Hotel.

The ANS President's Reception kicks off the meeting on Sunday, June 24, 2007. One ticket to the ANS President's Reception is included in the full meeting registration fee.

Additional tickets can be purchased at the ANS Registration Desk for $70.

Fenway Park — Home of the Boston Redsox

Dinner and Tour at Fenway Park

MONDAY, JUNE 25, 2007
7:00 p.m. – 10:30 p.m.

Those attending the Fenway Park Dinner and Tour will be amazed by how little this historic ballpark has changed since it first opened on April 20, 1912.

The home of the Boston Red Sox resounds with the echoes of great baseball players: Cy Young, Babe Ruth, Jimmy Collins, Duffy Lewis, Joe Cronin, Bobby Doerr, Johnny Pesky, Ted Williams, Jimmie Foxx, Carlton Fisk, Jim Rice and Carl Yastrzemski, to name just a few.

Fenway Park for the most part still looks and operates just as it did on opening day. With its manually operated scoreboard, its geometrically peculiar shape (including the only ladder in play in the majors) and the stories of the legends that have played there for more than eight decades, Fenway remains a link to the legends of baseball's past.

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

Dinner at Museum of Science

(Includes the Theater of Energy)

WEDNESDAY, JUNE 27, 2007
6:30 p.m. – 10:30 p.m.

Museum of Science –
One of America's largest museums for the study of science and technology is located along the banks of the Charles River in downtown Boston.

Dine in the dynamic atmosphere of the "Blue Wing" at the Museum that features a 45-foot long T.rex, optical illusions, a medical imaging technologies display, an Apollo module and many other informative exhibits. The "Theater of Electricity," where audiences learn about the connections between electric and magnetic forces and witness a demonstration of lightning created by the worlds largest air-insulated Van de Graaff generator will be a highlight of the event.

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

SPOUSE/GUEST TOURS

"Boston Duck Tour: The Ride of Your Life"

MONDAY, JUNE 25, 2007
9:00 a.m. - 1:00 p.m.

You'll cruise by all the places that make Boston the birthplace of freedom and a city of firsts, from the golden-domed State House to Bunker Hill and the Fleet Center, Boston Common and Copley Square to the Big Dig, Government Center to fashionable Newbury Street, Quincy Market to the Prudential Tower, and more. And, as the best of Boston unfolds before your eyes, your ConDUCKtor will be giving you lots of little known facts and interesting insights about our unique and wonderful city.

And just when you think you've seen it all, there's more. It's time for "Splashdown" as your ConDUCKtor splashes your DUCK right into the Charles River for a breathtaking view of the Boston and Cambridge skylines, the kind of view you just won't get anywhere else.

Tour departs from and returns to the Prudential Center located across the street from the Boston Marriott Copley Place Hotel.

Lunch is included.

PLEASE NOTE:
THIS TOUR IS SOLD OUT!

The Boston Duck Tour – See Boston on Land and Water!

"Thanksgiving Luncheon at Plimoth Plantation"

TUESDAY, JUNE 26, 2007
9:00 a.m. - 5:00 p.m.

Plimoth Plantation recreates the lives of the settlers who arrived here from England in the 1600's. In Plymouth Harbor you will have a photo stop at Plymouth Rock and then aboard the Mayflower II, a duplicate of the ship, which carried these hardy souls. Both on the ship and at the Plantation, actual residents are portrayed, dressed in authentic clothing and speaking with English accents. These "settlers" will relate their experiences and answer questions about their lives. You will enter their homes and explore the settlement on your own.

We will celebrate Thanksgiving as the Pilgrims did, as we enjoy a traditional Thanksgiving luncheon at Plimoth Plantation. Ticket price includes: motor coach transportation, admission and luncheon.

Tour will depart from the Huntington Avenue entrance of the Boston Marriott Copley Place Hotel.

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

TECHNICAL TOUR

"Technical Tour - MIT Facilities Tour"

THURSDAY, JUNE 28, 2007
1:00 p.m. - 5:30 p.m.

An optional tour of the MIT Nuclear Reactor Laboratory and MIT Plasma Science and Fusion Center (PSFC) will be held in conjunction with the ANS Annual Meeting in Boston. The MIT Nuclear Reactor Laboratory tour will consist of a short explanation of the experiments in progress at the 5 MW thermal reactor and a view of the heavy-water reflected, light water cooled and moderated plate-type fuel research reactor, MITR.

The tour of the PSFC will include a visit to Alcator C-Mod, a compact high magnetic field advanced Tokamak and the Levitated Dipole Experiment. Both facilities are located on the MIT Campus in Cambridge, MA.

The tour will last approximately 4 hours. Tour will depart from and return to the Huntington Ave. entrance of the Boston Marriott Copley Place Hotel.

Picture identification will be required.

PLEASE NOTE:
THIS TOUR IS SOLD OUT!

SESSIONS BY TRACK *(Asterisks indicate special sessions)*

Track 1: It's All About the People—The Future of Nuclear

*Opening Plenary: It's All About the People—The Future of Nuclear, Mon. a.m. (8:00-11:30 a.m.)

*ANS President's Special Session: India-U.S. Nuclear Cooperation, Mon. p.m. (1:00-2:30 p.m.)

*General Cochairs' Special Session: Revitalizing the Supply Chain, Mon. p.m. (4:15-6:15 p.m.)

*Honorary Chair's Special Session (In Memory of Manson Benedict): The Nuclear Fuel Cycle and Its Waste Management—Innovation Is the Future, Tues. p.m. (4:00-6:00 p.m.)

The Aging Plant/Aging-Changing Workforce—I, Wed. a.m.

The Aging Plant/Aging-Changing Workforce—II, Wed. p.m.

Bringing Value to the American Nuclear Society–Panel, Wed. p.m.

Track 2: Nuclear Power and New Construction of Nuclear Systems

Challenges for the Next Nuclear Power Plants, Mon. p.m.

Creating Certainty in New Nuclear Plant Construction–Paper/Panel, Tues. a.m.

Climate Change: What Part Does Nuclear Energy Play?–Panel, Tues. p.m.

Nuclear Power 2010 Update–Panel, Tues. p.m.

Innovations for the Next Generation of Nuclear Plants, Wed. a.m.

Gas Reactor Safety and Licensing–Panel, Wed. a.m.

Thermal Hydraulics of Steam Generators, Wed. a.m.

Environmental Aspects of New Site Selection–Papers/Panel, Wed. a.m.

Updating the New Reactor Licensing Infrastructure, Wed. p.m.

Human Factors Concepts and Considerations in New Plant Design, Wed. p.m.

Introduction to New Plant Licensing–Panel, Wed. p.m.

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

Decommissioning, Decontamination, and Reutilization Project Status–Panel, Mon. p.m.

Economics of Closed Nuclear Fuel Cycles, Tues. a.m.

The Glenn Seaborg Congressional Fellows–Panel, Tues. p.m.

Economic Analysis of Fast Reactors, Wed. a.m.

Fuel Cycle Deployment Strategies and Experience, Wed. p.m.

Improvements and Innovations in Spent-Fuel Storage, Wed. p.m.

Environmental Aspects of Fuel Cycle Technologies, Wed. p.m.

The Physics of Plutonium and MOX-Fueled Cores, Thurs. a.m.

Computational Methods for Fuel Cycle Simulations, Thurs. p.m.

Track 4: Nuclear Facility and Criticality Safety

Fire Protection in Nuclear Installations Safety Technology, Mon. p.m.

Probabilistic Safety Applications, Tues. a.m.

Generic Safety Issue 191: Update and Developments on Containment Sump Performance–Panel, Tues. p.m.

Nuclear Installations Safety: General, Tues. p.m.

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

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

Emerging Topics in Nuclear Installations Safety Technology, Thurs. a.m.

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

Reactor Safety: General, Thurs. p.m.

Track 6: Medical and Nonpower Applications of Radiation

Accelerator Applications: General, Mon. p.m.

Computational Challenges in Clinical Medical Physics, Tues. a.m.

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

Track 6: Medical and Nonpower Applications of Radiation (continued)

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

Isotopes and Radiation: General—II, Wed. a.m.

Computational Medical Physics Radiation Modeling, Wed. a.m.

Impact of INIE on University Research Reactors, Wed. p.m.

Track 7: Nuclear Science and Engineering

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

Current Topics for Reactor Engineers–Panel, Mon. p.m.

New Perspectives on Validation and Verification for Reactor Physics Analysis, Mon. p.m.

Uncertainty Treatment in Nuclear Science and Engineering, Mon. p.m.

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

Radiation Protection and Shielding—II: Detectors, Tues. p.m.

Transport Methods: General, Tues. a.m.

Nanofluids, Surfactants, and Particles in Thermal Hydraulics, Tues. a.m.

Reactor Analysis Methods, Tues. p.m.

Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—I, Tues. p.m.

Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—II, Wed. p.m.

General Thermal Hydraulics, Tues. p.m.

Computational Methods: General, Wed. a.m.

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

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

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

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

Reactor Physics: General, Wed. p.m.

Mathematical Modeling: General, Thurs. a.m.

Track 8: Advanced Energy Research and Emerging Technologies

Environmental Impacts and External Costs of Energy Technologies, Mon. p.m.

Materials Compatibility and Degradation in Advanced Nuclear Systems—I, Tues. a.m.

Materials Compatibility and Degradation in Advanced Nuclear Systems—II, Tues. p.m.

Recycling of Transuranics in Advanced Fuel Cycle Systems—I, Tues. a.m.

Recycling of Transuranics in Advanced Fuel Cycle Systems—II, Tues. p.m.

Recycling of Transuranics in Advanced Fuel Cycle Systems—III, Wed. a.m.

Fusion Energy: General, Wed. a.m.

Thermal Hydraulics of Generation IV Systems, Wed. p.m.

Development of Conversion Processes and Remote Fuel Fabrication Capabilities for Transmutation Fuels, Thurs. a.m.

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

Perspectives on Nuclear Engineering Education from Current Students and Recent Graduates, Tues. a.m.

Research by U.S. Department of Energy–Sponsored Students—I, Tues. a.m.

Research by U.S. Department of Energy–Sponsored Students—II, Tues. p.m.

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

Track 10: Nuclear Nonproliferation and Security

Safety and Security of Radiation Sources–Panel, Mon. p.m.

Detection Technologies for Homeland Security Applications, Tues. a.m.

Current Status on Nonproliferation Programs–Panel, Wed. p.m.

Track 11: Professional Development

Monte Carlo Burnup–Tutorial, Thurs. a.m.

Monte Carlo Tutorial, Thurs. p.m.

SESSIONS BY DIVISION

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

Special Sessions

*Opening Plenary: It's All About the People—The Future of Nuclear, Mon. a.m. (8:00-11:30 a.m.)

*ANS President's Special Session: India–U.S. Nuclear Cooperation, Mon. p.m. (1:00-2:30 p.m.)

*General Cochairs' Special Session: Revitalizing the Supply Chain, Mon. p.m. (4:15-6:15 p.m.)

*Honorary Chair's Special Session (In Memory of Manson Benedict): The Nuclear Fuel Cycle and Its Waste Management—Innovation Is the Future, Tues. p.m. (4:00-6:00 p.m.)

Accelerator Applications (AAD)

Accelerator Applications: General, Mon. p.m.

Biology and Medicine (BMD)

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

(Computational Medical Physics Radiation Modeling, Wed. a.m.)

Decommissioning, Decontamination, and Reutilization (DDRD)

Decommissioning, Decontamination and Reutilization Project Status–Panel, Mon. p.m.

Education and Training (ETD)

Perspectives on Nuclear Engineering Education from Current Students and Recent Graduates, Tues. a.m.

Research by U.S. Department of Energy–Sponsored Students—I, Tues. a.m.

Research by U.S. Department of Energy–Sponsored Students—II, Tues. p.m.

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

(The Aging Plant/Aging-Changing Workforce—I, Wed. a.m.)

(Monte Carlo Burnup—Tutorial, Thurs. a.m.)

(Monte Carlo Tutorial, Thurs. p.m.)

Environmental Sciences (ESD)

Environmental Impacts and External Costs of Energy Technologies, Mon. p.m.

(Economics of Closed Nuclear Fuel Cycles, Tues. a.m.)

Climate Change: What Part Does Nuclear Energy Play?–Panel, Tues. p.m.

(Economic Analysis of Fast Reactors, Wed. a.m.)

Environmental Aspects of New Site Selection–Papers/Panel, Wed. a.m.

Environmental Aspects of Fuel Cycle Technologies, Wed. p.m.

Fuel Cycle and Waste Management (FCWMD)

Economics of Closed Nuclear Fuel Cycles, Tues. a.m.

(Recycling of Transuranics in Advanced Fuel Cycle Systems—I, Tues. a.m.)

(Recycling of Transuranics in Advanced Fuel Cycle Systems—II, Tues. p.m.)

(Recycling of Transuranics in Advanced Fuel Cycle Systems—III, Wed. a.m.)

Fuel Cycle and Waste Management (FCWMD) (continued)

The Glenn Seaborg Congressional Fellows–Panel, Tues. p.m.

Economic Analysis of Fast Reactors, Wed. a.m.

Fuel Cycle Deployment Strategies and Experience, Wed. p.m.

Current Status on Nonproliferation Programs–Panel [organized in collaboration with the Special Committee on Nuclear Nonproliferation (SCNN)], Wed. p.m.

Development of Conversion Processes and Remote Fuel Fabrication Capabilities for Transmutation Fuels, Thurs. a.m.

Fusion Energy (FED)

(Research by U.S. Department of Energy–Sponsored Students—I, Tues. a.m.)

(Research by U.S. Department of Energy–Sponsored Students—II, Tues. p.m.)

Fusion Energy: General, Wed. a.m.

Human Factors (HFD)

The Aging Plant/Aging-Changing Workforce—I, Wed. a.m.

The Aging Plant/Aging-Changing Workforce—II, Wed. p.m.

Human Factors Concepts and Considerations in New Plant Design, Wed. p.m.

Isotopes and Radiation (IRD)

(Safety and Security of Radiation Sources–Panel, Mon. p.m.)

(Detection Technologies for Homeland Security Applications, Tues. a.m.)

(Biology and Medicine: General, Tues. a.m.)

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

Isotopes and Radiation: General—II, Wed. a.m.

Impact of INIE on University Research Reactors, Wed. p.m.

Mathematics and Computation (MCD)

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

(Uncertainty Treatment in Nuclear Science and Engineering, Mon. p.m.)

Transport Methods: General, Tues. a.m.

Computational Challenges in Clinical Medical Physics, Tues. a.m.

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

Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—I, Tues. p.m.

Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—II, Wed. p.m.

Computational Methods: General, Wed. a.m.

(Computational Medical Physics Radiation Modeling, Wed. a.m.)

(Computational Thermal Hydraulics—I, Wed. a.m.)

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

(Computational Resources for Radiation Modeling, Wed. p.m.)

Mathematical Modeling: General, Thurs. a.m.

Computational Methods for Fuel Cycle Simulations, Thurs. p.m.

Materials Science and Technology (MSTD)

Materials Compatibility and Degradation in Advanced Nuclear Systems—I, Tues. a.m.

Materials Compatibility and Degradation in Advanced Nuclear Systems—II, Tues. p.m.

(Development of Conversion Processes and Remote Fuel Fabrication Capabilities for Transmutation Fuels, Thurs. a.m.)

Nuclear Criticality Safety (NCSD)

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

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

(Bringing Value to the American Nuclear Society–Panel, Wed. p.m.)

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

Nuclear Installations Safety (NISD)

(Safety and Security of Radiation Sources–Panel, Mon. p.m.)

Fire Protection in Nuclear Installations Safety Technology, Mon. p.m.

Probabilistic Safety Applications, Tues. a.m.

Nuclear Installations Safety: General, Tues. p.m.

Gas Reactor Safety and Licensing–Panel, Wed. a.m.

Updating the New Reactor Licensing Infrastructure, Wed. p.m.

Emerging Topics in Nuclear Installations Safety Technology, Thurs. a.m.

Reactor Safety: General, Thurs. p.m.

Operations and Power (OPD)

(Current Topics for Reactor Engineers–Panel, Mon. p.m.)

Challenges for the Next Nuclear Power Plants, Mon. p.m.

(Perspectives on Nuclear Engineering Education from Current Students and Recent Graduates, Tues. a.m.)

(Materials Compatibility and Degradation in Advanced Nuclear Systems—I, Tues. a.m.)

(Materials Compatibility and Degradation in Advanced Nuclear Systems—II, Tues. p.m.)

Creating Certainty in New Nuclear Plant Construction–Paper/Panel, Tues. a.m.

(Probabilistic Safety Applications, Tues. a.m.)

Generic Safety Issue 191: Update and Developments on Containment Sump Performance–Panel, Tues. p.m.

(Climate Change: What Part Does Nuclear Energy Play?–Panel, Tues. p.m.)

Nuclear Power 2010 Update–Panel, Tues. p.m.

Innovations for the Next Generation of Nuclear Plants, Wed. a.m.

(Gas Reactor Safety and Licensing–Panel, Wed. a.m.)

(Thermal Hydraulics of Steam Generators, Wed. a.m.)

(Environmental Aspects of New Site Selection–Papers/Panel, Wed. a.m.)

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

(The Aging Plant/Aging-Changing Workforce—I, Wed. a.m.)

(Updating the New Reactor Licensing Infrastructure, Wed. p.m.)

Operations and Power (OPD) (continued)

Improvements and Innovations in Spent-Fuel Storage, Wed. p.m.

(Human Factors Concepts and Considerations in New Plant Design, Wed. p.m.)

Introduction to New Plant Licensing–Panel, Wed. p.m.

(Reactor Safety: General, Thurs. p.m.)

Radiation Protection and Shielding (RPSD)

Safety and Security of Radiation Sources–Panel, Mon. p.m.

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

Radiation Protection and Shielding—II: Detectors, Tues. p.m.

Detection Technologies for Homeland Security Applications, Tues. a.m.

Computational Medical Physics Radiation Modeling [Computational Medical Physics Working Group (CMPWG)], Wed. a.m.

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

Monte Carlo Burnup–Tutorial, Thurs. a.m.

Monte Carlo Tutorial, Thurs. p.m.

Reactor Physics (RPD)

Current Topics for Reactor Engineers–Panel, Mon. p.m.

New Perspectives on Validation and Verification for Reactor Physics Analysis, Mon. p.m.

Recycling of Transuranics in Advanced Fuel Cycle Systems—I, Tues. a.m.

Recycling of Transuranics in Advanced Fuel Cycle Systems—II, Tues. p.m.

Recycling of Transuranics in Advanced Fuel Cycle Systems—III, Wed. a.m.

Reactor Analysis Methods, Tues. p.m.

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

Reactor Physics: General, Wed. p.m.

The Physics of Plutonium and MOX-Fueled Cores, Thurs. a.m.

Thermal Hydraulics (THD)

Uncertainty Treatment in Nuclear Science and Engineering, Mon. p.m.

Nanofluids, Surfactants, and Particles in Thermal Hydraulics, Tues. a.m.

General Thermal Hydraulics, Tues. p.m.

Thermal Hydraulics of Steam Generators, Wed. a.m.

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

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

Thermal Hydraulics of Generation IV Systems, Wed. p.m.

Young Members Group (YMG)

(Research by U.S. Department of Energy–Sponsored Students—I, Tues. a.m.)

(Research by U.S. Department of Energy–Sponsored Students—II, Tues. p.m.)

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

Bringing Value to the American Nuclear Society–Panel, Wed. p.m.

Condensed Meeting Schedule

ROOM	MONDAY, JUNE 25, '07				TUESDAY, JUNE 26, '07	
	8:00-11:30 A.M.	1:00-2:30 P.M.	2:30-4:15 P.M.	4:15-6:15 P.M.	8:30-11:30 A.M.	1:00-4:00 P.M.
Salon A			Environmental Impacts and External Costs of Energy Technologies		Perspectives on Nuclear Engineering Education from Current Students and Recent Graduates Research by U.S. Department of Energy-Sponsored Students—I	Research by U.S. Department of Energy-Sponsored Students—II
Salon B			Current Issues in Computational Methods–Roundtable		Radiation Protection and Shielding—I: General	Generic Safety Issue 191: Update and Developments on Containment Sump Performance–Panel
Salon C			Decommissioning, Decontamination, and Reutilization Project Status–Panel			Climate Change: What Part Does Nuclear Energy Play?–Panel
Salon D			Current Topics for Reactor Engineers–Panel		Materials Compatibility and Degradation in Advanced Nuclear Systems—I	Materials Compatibility and Degradation in Advanced Nuclear Systems—II
Salons E, F	Opening Plenary: It's All About the People—The Future of Nuclear	ANS President's Special Session: India–U.S. Nuclear Cooperation		General Cochairs' Special Session: Revitalizing the Supply Chain		**Salon F (only)** Reactor Analysis Methods
Salon G			Challenges for the Next Nuclear Power Plants		Creating Certainty in New Nuclear Plant Construction–Paper/Panel	Nuclear Power 2010 Update–Panel
Salon K			New Perspectives on Validation and Verification for Reactor Physics Analysis		Economics of Closed Nuclear Fuel Cycles	The Glenn Seaborg Congressional Fellows–Panel
Wellesley			Safety and Security of Radiation Sources–Panel		Detection Technologies for Homeland Security Applications	Radiation Protection and Shielding—II: Detectors
Tufts			Fire Protection in Nuclear Installations Safety Technology		Probabilistic Safety Applications	Nuclear Installations Safety: General
Boston University			Accelerator Applications: General		Biology and Medicine: General	Isotopes and Radiation: General–I
MIT			Uncertainty Treatment in Nuclear Science and Engineering		Nanofluids, Surfactants, and Particles in Thermal Hydraulics	General Thermal Hydraulics
Suffolk					Transport Methods: General Computational Challenges in Clinical Medical Physics	Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—I
Simmons					Recycling of Transuranics in Advanced Fuel Cycle Cycle Systems—I	Recycling of Transuranics in Advanced Fuel Cycle Systems—II

ROOM	TUESDAY, JUNE 26, '07	WEDNESDAY, JUNE 27, '07		THURSDAY, JUNE 28, '07	
	4:00-6:00 P.M.	8:30-11:30 A.M.	1:00-4:00 P.M.	8:30-11:30 A.M.	1:00-4:00 P.M.
Salon E	Honorary Chair's Special Session (In Memory of Manson Benedict): The Nuclear Fuel Cycle and Its Waste Management—Innovation is the Future				
Salon G		Innovations for the Next Generation of Nuclear Plants	Introduction to New Plant Licensing–Panel		
Salon K		Economic Analysis of Fast Reactors	Fuel Cycle Deployment Strategies and Experience		
Suffolk		Computational Methods: General	Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—II	Mathematical Modeling: General	Computational Methods for Fuel Cycle Simulations
Wellesley		Computational Medical Physics Radiation Modeling	Computational Resources for Radiation Modeling	Monte Carlo Burnup–Tutorial	Monte Carlo Tutorial
Tufts		Gas Reactor Safety and Licensing–Panel	Updating the New Reactor Licensing Infrastructure		
Regis				Emerging Topics in Nuclear Installations Safety Technology	Reactor Safety: General
Simmons		Recycling of Transuranics in Advanced Fuel Cycle Systems—III	Reactor Physics: General	The Physics of Plutonium and MOX-Fueled Cores	
Boston University		Isotopes and Radiation: General–II	Impact of INIE on University Research Reactors	Development of Conversion Processes and Remote Fuel Fabrication Capabilities for Transmutation Fuels	
MIT		Thermal Hydraulics of Steam Generators Computational Thermal Hydraulics—I	Thermal Hydraulics of Generation IV Systems	Computational Thermal Hydraulics—II	
Arlington		Environmental Aspects of New Site Selection–Papers/Panel	Bringing Value to the American Nuclear Society–Panel		
Berkeley		Data, Analysis, and Operations for Nuclear Criticality Safety—I	Data, Analysis, and Operations for Nuclear Criticality Safety—II		
Clarendon		Education and Training: General	Improvements and Innovations in Spent-Fuel Storage	Nuclear Criticality Safety Standards–Forum	
Dartmouth		Reactor Physics Design, Validation, and Operating Experience	Current Status on Nonproliferation Programs–Panel		
Exeter		Fusion Energy: General	Environmental Aspects of Fuel Cycle Technologies		
Fairfield		The Aging Plant/Aging-Changing Workforce—I	The Aging Plant/Aging-Changing Workforce—II–Panel Human Factors Concepts and Considerations in New Plant Design		

MONDAY • JUNE 25, 2007	
7:30 A.M. – 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 11:30 A.M.	**OPENING PLENARY** "It's All About the People: The Future of Nuclear"
9:00 A.M. – 1:00 P.M.	**SPOUSE/GUEST TOUR:** "Boston Duck Tour"
11:30 A.M. – 1:00 P.M.	**OPERATIONS AND POWER DIVISION LUNCHEON**
11:30 A.M. – 1:00 P.M.	**EMBEDDED TOPICAL MEETING ST-NH2 LUNCHEON**
1:00 P.M. – 2:30 P.M.	**ANS PRESIDENT'S SPECIAL SESSION** "India–U.S. Nuclear Cooperation"
2:30 P.M. – 4:30 P.M.	**ST-NH$_2$ OPENING PLENARY SESSION** *(see page 34)*
2:30 P.M. – 4:00 P.M.	**SNC '07 OPENING PLENARY SESSION** *(see page 29)*
2:30 P.M. – 4:15 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** • Environmental Impacts and External Costs of Energy Technologies • Current Issues in Computational Methods–Roundtable • Decommissioning, Decontamination, and Reutilization Project Status–Panel • Current Topics for Reactor Engineers–Panel • Challenges for the Next Nuclear Power Plants • New Perspectives on Validation and Verification for Reactor Physics Analysis • Safety and Security of Radiation Sources–Panel • Fire Protection in Nuclear Installations Safety Technology • Accelerator Applications: General • Uncertainty Treatment in Nuclear Science and Engineering
4:15 P.M. – 5:15 P.M.	**ANS BUSINESS MEETING**
4:15 P.M. – 6:15 P.M.	**GENERAL COCHAIRS' SPECIAL SESSION** "Revitalizing the Supply Chain"
7:00 P.M. – 10:30 P.M.	**DINNER AND TOUR AT FENWAY PARK**

MONDAY, JUNE 25, 2007 • 8:00 A.M.

Opening Plenary: It's All About the People—The Future of Nuclear. *Cochairs:* J. Art Stall *(FP&L)*, David P. Barry *(Shaw Group)* [Track 1]

Salons E, F
8:00 a.m.

SPEAKERS:

- Dana G. Mead *(Chairman, MIT Corporation)*
- John B. Ritch *(Director General, World Nuclear Association)*
- Edward C. Sullivan *(President, Building and Construction Trades, AFL-CIO)*
- Samuel W. Bodman *(Secretary of Energy, DOE)*

MONDAY, JUNE 25, 2007 • 1:00 P.M.

ANS President's Special Session: India-U.S. Nuclear Cooperation. *Chair:* Harold F. McFarlane *(President, American Nuclear Society)* [Track 1]

Salons E, F
1:00 p.m.

SPEAKERS:

- Srikumar Banerjee *(Director, Bhabha Atomic Research Centre)*
- V. Raghuraman *(Principal Advisor and Chief Coordinator, Energy, Environment and Natural Resources, Confederation of Indian Industry)*
- Jamie Estrada *(Acting Assistant Secretary, U.S. Department of Commerce)*

MONDAY, JUNE 25, 2007 • 2:30 P.M.

Environmental Impacts and External Costs of Energy Technologies, sponsored by ESD. *Chair:* Victoria Spring Cornelison *(Univ of Florida)* [Track 8]

Salon A
2:30 p.m.

A Nuclear-Fossil Combined-Cycle Power Plant for Base-Load and Peak Electricity, Charles W. Forsberg, James C. Conklin *(ORNL)*

2:55 p.m.

Accelerating the Substitution of Nuclear Electricity for Gasoline, Robert E. Uhrig *(Univ of Tennessee)*

3:20 p.m.

Nuclear Power: Applications of Industrial Ecology, Jennifer Morton, David Shropshire *(INL)*

3:45 p.m.

Simulation of Mix Electricity Scenarios: Sustainability and Security Supply Aspects, O. K. Bouhelal *(ENIM)*, P. Girard *(EDF)*

Current Issues in Computational Methods–Roundtable, sponsored by MCD. *Session Organizer:* Thomas M. Sutton *(KAPL)*. *Chair:* Thomas M. Sutton [Track 7]

Salon B
2:30 p.m.

Everyone is invited to give a short presentation on any M&C topic they want. Ten-minute time slots will be allotted on a first-come/first-served basis until the total time allotted to the session is exhausted. (Prior to June 21, inform Thomas Sutton of your desire to participate by contacting him at sutton@kapl.gov or at (518) 395-7047.) If time slots are still available, late additions to the agenda will be made just prior to the session. This is meant to be fast-paced, informal, and fun.

Decommissioning, Decontamination, and Reutilization Project Status–Panel, sponsored by DDRD. *Chair:* John Bowen *(Mega-Tech Services, LLC)* [Track 3]

Salon C
2:30 p.m.

PANELISTS:

- Myron M. Kaczmarsky *(Bartlett Holdings)*
- Larry M. Zull *(DNFSB)*
- Joseph E. Carignan *(TLG Svc)*
- Craig F. Grochmal *(Shaw Group)*

Current Topics for Reactor Engineers–Panel, sponsored by RPD; cosponsored by OPD. *Chair:* Robert St. Clair *(Duke Energy)* [Track 7]

Salon D
2:30 p.m.

This panel session will focus on current issues and problems in reactor physics associated with reactor engineering and core designs. Areas of focus will include planning power maneuvers, precluding fuel clad failures, and power suppression strategies. Introductory presentations will be followed by an open roundtable discussion. Attendees will be encouraged to relate their own experiences and identify issues or problems at their locations. Additional topics include optimization of fuel and core designs, generation and use of startup testing and operational data, reactor monitoring, and reactivity management. While this session is focused on utility issues/problems, all those with an interest are encouraged to attend and provide their perspective, input, and/or suggestions.

PANELISTS:

- Robb Borland *(FirstEnergy)*
- Moussa Mahgerefteh *(Exelon)*
- Fred Gershkoff *(SCE)*

Challenges for the Next Nuclear Power Plants, sponsored by OPD. *Cochairs:* Harold Stiles *(Progress Energy Carolinas)*, Leonard Koch *(Retired)* [Track 2]

Salon G
2:30 p.m.

ASME III Supply Chain: Lessons Learned, Challenges for the Future, Janis Bestul Ossmann, Glenn P. Milley *(Shaw Stone & Webster Nuclear Services Div)*

2:55 p.m.

Commercial Quality Control, Jim Carter, Laura Miller *(Navigant Consulting)*

3:20 p.m.

Challenges of 316(b) Cooling Water Regulations for New Nuclear Generation, John K. Downing *(Shaw Stone & Webster Nuclear)*

New Perspectives on Validation and Verification for Reactor Physics Analysis, sponsored by RPD. *Session Organizer:* Mark DeHart *(ORNL)*. *Chair:* Mark DeHart [Track 7]

Salon K
2:30 p.m.
The International Reactor Physics Experiment Evaluation Project (IRPhEP), J. Blair Briggs, David W. Nigg *(INL)*, Enrico Sartori *(OECD NEA)*, Lori Scott *(Cover to Cover)*

2:55 p.m.
Comparison of Results for the MCNP Criticality Validation Suite Using ENDF/B-VII.0 and Other Nuclear Data Libraries, Russell D. Mosteller *(LANL)*

3:20 p.m.
Comparison of SCALE and MCNP Results for Computational Pebble Bed Benchmarks, Seth R. Johnson *(Texas A&M)*, Kevin T. Clarno *(ORNL)*

3:45 p.m.
Validation of Within-Pin LWR Power Distributions from the DeCART MOC Neutronics Code, M. Hursin, B. Kochunas, T. Downar *(Univ of California, Berkeley)*, V. Seker, C. Glass *(Purdue Univ)*

Safety and Security of Radiation Sources–Panel, sponsored by RPSD; cosponsored by IRD, NISD. *Session Organizer:* Ahmed Badruzzaman *(Chevron)*. *Chair:* Ahmed Badruzzaman [Track 10]

Wellesley
2:30 p.m.
Radiation sources are used in a wide variety of industries, particularly food sterilization and oil-well logging. These sources are produced around the world and are shipped and exchanged globally. This session would be a panel of experts who explore both the safety aspects of these highly radioactive sources and their security, particularly from diversion to terrorist organizations.

PANELISTS:
- Vilmos Friedrich *(IAEA)*
- Ka-Ngo Leung *(LBNL)*
- Kate Roughan *(QSA Global)*
- Ahmed Badruzzaman *(Chevron)*

Fire Protection in Nuclear Installations Safety Technology, sponsored by NISD. *Session Organizer:* Raymond Gallucci *(NRC)*. *Chair:* Wade Larson *(EPM)* [Track 4]

Tufts
2:30 p.m.
Estimating a "Time Margin" for Post-Fire Operator Manual Actions, Raymond H. V. Gallucci *(NRC)*

2:55 p.m.
Verification and Validation of Fire Models for Application to the U.S. Nuclear Regulatory Commission's Fire Protection Program, Naeem Iqbal, Charles E. Moulton *(NRC)*

3:20 p.m.
Predicting Fire-Induced Cable Failure, Kevin McGrattan *(NIST)*

Accelerator Applications: General, sponsored by AAD. *Session Organizer:* Eric Pitcher *(LANL) Chair:* Eric Pitcher [Track 6]

Boston University
2:30 p.m.
An Externally-Driven Nuclear-Assembly Concept Using Z-Machine Neutrons (ZEDNA), Edward J. Parma, Curtis D. Peters, Daniel J. Dorsey *(SNL)*

2:55 p.m.
Preliminary Investigation—Design of a Bonner Sphere Extension (BSE) for High Energy Neutron Spectroscopy, Rebecca M. Howell *(Emory Univ)*, Eric Burgett, Michael Shannon, Nolan E. Hertel *(Georgia Tech)*

3:20 p.m.
The LANSCE Materials Test Station: Neutronic Modeling, Michael R. James, Eric J. Pitcher *(LANL)*

3:45 p.m.
Thin Metallic Crystals for Parametric X-Ray (PXR) Production, B. Sones *(U.S. Military Academy)*, Y. Danon *(RPI)*

Uncertainty Treatment in Nuclear Science and Engineering, sponsored by THD; cosponsored by MCD. *Session Organizers:* Robert P. Martin *(AREVA NP)*, Cetin Unal *(LANL)*, Kurshad Muftuoglu *(Westinghouse)*. *Cochairs:* Robert P. Martin *(AREVA NP)*, Cesare Frepoli *(Westinghouse)* [Track 7]

MIT
2:30 p.m.
Uncertainty Analysis Using Taguchi Methods with Virtual Experiments, Luv Sharma, Tunc Aldemir, Robert Parker *(Ohio State)*

2:55 p.m.
Towards Standardizing Uncertainty Estimations in Reactor Safety, C. Unal, B. Williams, D. Higdon, R. Nelson *(LANL)*

3:20 p.m.
Remarks on the Use of Non-parametric Order Statistics in Realistic LOCA Calculations, A. Kurshad Muftuoglu *(Westinghouse)*

3:45 p.m.
Applying Uncertainties to Reactor Set-Point and LOCA Analyses, L.E. Hochreiter *(Penn State)*

MONDAY, JUNE 25, 2007 • 4:15 P.M.

General Cochairs' Special Session: Revitalizing the Supply Chain. *Cochairs:* J. Art Stall *(FP&L)*, David P. Barry *(Shaw Group)* [Track 1]

Salons E, F
4:15 p.m.
SPEAKERS:
- Building U.S. Nuclear Supply Chain,
  John Kotek *(Executive Director, Council on Global Nuclear Competitiveness)*
- Meeting the Future Nuclear Supply Needs,
  Craig Hansen *(Vice-President, Babcock & Wilcox, Inc.)*
- Overview of the NEI Nuclear Manufacturer's Study,
  Carol Berrigan *(Director, Industry, Infrastructure NEI)*
- International Supply Chain Perspectives,
  Representative from Toshiba to be determined
- Readiness of Codes and Standards; Qualification of Nuclear Suppliers,
  Kevin Ennis *(Director, Codes and Standards—ASME)*
- Meeting the Future Nuclear Supply Needs,
  David Thibault *(Tyco Valves)*, invited
- Meeting the Future Nuclear Construction Needs,
  Bryan F. Pepin-Donat *(Lampson International LLC)*

TUESDAY • JUNE 26, 2007

7:30 A.M. - 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 10:00 A.M.	**SNC '07 TECHNICAL SESSIONS** *(see page 29)*
8:30 A.M. – 12:15 P.M.	**ST-NH$_2$ TECHNICAL SESSIONS** *(see page 34)*
8:30 A.M. – 11:30 A.M.	**2007 ANNUAL MEETING–TECHNICAL SESSIONS** • Perspectives on Nuclear Engineering Education from Current Students and Recent Graduates • Research by U.S. Department of Energy–Sponsored Students—I • Radiation Protection and Shielding—I: General • Materials Compatibility and Degradation in Advanced Nuclear Systems—I • Creating Certainty in New Nuclear Plant Construction–Paper/Panel • Economics of Closed Nuclear Fuel Cycles • Transport Methods: General • Computational Challenges in Clinical Medical Physics • Detection Technologies for Homeland Security Applications • Probabilistic Safety Applications • Recycling of Transuranics in Advanced Fuel Cycle Systems—I • Biology and Medicine: General • Nanofluids, Surfactants, and Particles in Thermal Hydraulics
9:00 A.M. – 5:00 P.M.	**SPOUSE/GUEST TOUR:** Plimoth Plantation/Mayflower II
10:00 A.M. – 11:30A.M.	**SNC '07 TECHNICAL SESSIONS** *(see page 29)*
11:30 A.M. – 1:00 P.M.	**ANS HONORS AND AWARDS LUNCHEON**
1:00 P.M. – 4:00 P.M.	**2007 ANNUAL MEETING–TECHNICAL SESSIONS** • Research by U.S. Department of Energy–Sponsored Students—II • Generic Safety Issue 191: Update and Developments on Containment Sump Performance–Panel • Climate Change: What Part Does Nuclear Energy Play?–Panel • Materials Compatibility and Degradation in Advanced Nuclear Systems—II • Reactor Analysis Methods • Nuclear Power 2010 Update–Panel • The Glenn Seaborg Congressional Fellows–Panel • Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—I • Radiation Protection and Shielding—II: Detectors • Nuclear Installations Safety: General • Recycling of Transuranics in Advanced Fuel Cycle Systems—II • Isotopes and Radiation: General—I • General Thermal Hydraulics
1:00 P.M. – 5:30 P.M.	**ST-NH$_2$ TECHNICAL SESSIONS** *(see page 34)*
1:00 P.M. – 4:00 P.M.	**SNC '07 TECHNICAL SESSIONS** *(see page 29)*
4:00 P.M. – 6:00 P.M.	**HONORARY CHAIR'S SPECIAL SESSION** "The Nuclear Fuel Cycle and its Waste Management: Innovation is the Future" *(In Memory of Manson Benedict)*
4:30 P.M. – 6:30 P.M.	**SNC '07 ROUNDTABLE DISCUSSION** *(see page 29)* Aerospace Nuclear Resources for Non-nuclear Aerospace Engineers

TUESDAY, JUNE 26, 2007 • 8:30 A.M.

Perspectives on Nuclear Engineering Education from Current Students and Recent Graduates, sponsored by ETD; cosponsored by OPD. *Session Organizer:* Peter Caracappa *(RPI)*. *Chair:* Peter Caracappa [Track 9]

Salon A

8:30 a.m.
Perception of Undergraduate Nuclear Engineering Studies at Texas A&M University, Pamela Gondeck *(Texas A&M)*

8:55 a.m.
The Educational Value of Cooperative Education, Robert S. Brackmann *(Dominion)*

9:20 a.m.
Strengths and Areas for Improvement in Nuclear Engineering Education, Rachel Slaybaugh *(Univ of Wisconsin, Madison)*

9:45 a.m.
Styles of Nuclear Engineering Graduate Education, Peter F. Caracappa *(RPI)*

Research by U.S. Department of Energy–Sponsored Students—I, sponsored by ETD; cosponsored by YMG, FED. *Session Organizer:* Mike Robinson *(BAPL)*. *Chair:* Peter Caracappa [Track 9]

Salon A

10:15 a.m.
Development of an Autonomous Control Strategy for the SP-100 Space Reactor System, B. R. Upadhyaya, X. Xu, S. R. P. Perillo *(Univ of Tennessee)*

10:40 a.m.
Comparison Analysis of KENO.VI and MCNP-X Codes for Fast Reactor Assembly, José Maria Caro, Rizwan-uddin *(Univ of Illinois)*

11:05 a.m.
Neutronics Analysis of Pebble-Bed Cores with TRUs, Megan L. Pritchard, Pavel V. Tsvetkov, Ayodeji B. Alajo *(Texas A&M)*

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

Radiation Protection and Shielding—I: General, sponsored by RPSD. *Session Organizer:* John S. Hendricks *(LANL)*. *Chair:* Charlotta Sanders *(Bechtel SAIC)* [Track 7]

Salon B

8:30 a.m.
Radiation Shielding Curves as a Facility Design Tool, Darby S. Kimball *(Bechtel National)*, Charlotta E. Sanders *(Bechtel SAIC)*

8:55 a.m.
Modeling Radioactive Leakage from Atmospheric Tank Vents Following a LOCA, Joon Cho, Joseph Baron, Keith Ferguson *(Shaw Stone & Webster Nuclear)*

9:20 a.m.
Dose Equivalent Factor for Adjusting Dosimeter Readings in Vicinity of the Holtec MPC During Drying in the Plant Farley Unit I Spent Fuel Room, N. E. Hertel, E. A. Burgett, K. Burns, D. P. Blaylock *(Georgia Tech)*, B. P. Patton *(Farley Nuclear Plant)*, J. Kuryla *(Georgia Power Environmental Laboratory)*

9:45 a.m.
Evaluation of a Nanoparticle Material in Space Radiation Shielding, Michael Shannon, Eric Burgett, Nolan E. Hertel, Kimberly Burns, Dwayne Blaylock *(Georgia Tech)*, Courtney Harrison, Eric Grulke *(Univ of Kentucky)*

10:10 a.m.
Uncertainty Analysis in the Determination of a Site-Specific TLD Neutron Factor, Eric Burgett, Kimberly Burns, Nolan Hertel, Dwayne Blaylock *(Georgia Tech)*

10:35 a.m.
Preliminary External Dosimetry Data from a New Set of Mother and Fetus Models, Valery Taranenko, Juying Zhang, Di Zhang, X. George Xu *(RPI)*, Chengyu Shi *(Cancer Therapy and Research Center)*

11:00 a.m.
Concrete-Rubber Combination for Storage Cask Design, Zeev Shayer *(Univ of Denver)*

Materials Compatibility and Degradation in Advanced Nuclear Systems—I, sponsored by MSTD; cosponsored by OPD. *Session Organizer:* Kenneth Geelhood *(PNNL)*. *Chair:* Todd Allen *(Univ of Wisconsin, Madison)* [Track 8]

Salon D

8:30 a.m.
Fuel Element Concept for Small Reactor Design, Kenneth Geelhood, Dean Matson, David Senor, Chad Painter *(PNNL)*

8:55 a.m.
Nitride Nuclear Fuel Production Using Combustion Synthesis, C. Donohoue, M. Reigel *(Colorado School of Mines)*, D. Burkes *(INL)*, J. Moore *(Colorado School of Mines)*, J. R. Kennedy *(INL)*

9:20 a.m.
Proton Irradiation Induced Effects in Titanium Carbide and Titanium Nitride, C. A. Dickerson, T. R. Allen *(Univ of Wisconsin, Madison)*

9:45 a.m.
High Temperature Graphite Simulations Using Molecular Dynamics, B. D. Hehr, A. I. Hawari, V. H. Gillette *(NCSU)*

10:10 a.m.
Effect of Fast Neutron Damage in Linearity of a SiC Semiconductor Detector Monitoring System, Mehdi Reisi Fard, Thomas E. Blue, Don W. Miller *(Ohio State)*

10:35 a.m.
A Method to Estimate the Lifetime of SiC Semiconductor Detectors in Next Generation Reactors, Behrooz Khorsandi, Mehdi Reisi Fard, Thomas E. Blue, Don W. Miller *(Ohio State)*

11:00 a.m.
Theoretical and Experimental Analysis of Response of SiC in Thermal Neutron Environment, V. Krishnan, B. Khorsandi, J. Kulisek, D. Hawn, T. E. Blue, D. W. Miller *(Ohio State)*

Creating Certainty in New Nuclear Plant Construction–Paper/Panel, sponsored by OPD. *Session Organizer:* Edward Shyloski *(Shaw Stone & Webster Nuclear Svc)*. *Chair:* Edward Shyloski [Track 2]

Salon G
PAPER
8:30 a.m.
Creating Certainty in (FOAKE Gen III+)—New Nuclear Plant Construction, Edward Shyloski *(Shaw Stone & Webster Nuclear)*

PANEL DISCUSSION
8:55 a.m.
PANELISTS:
- Edward Shyloski *(Shaw Stone & Webster Nuclear)*
- Ron Affolter *(U.S. EPR Deployment/AREVA)*
- Dale M. Lloyd *(Southern Generation)*
- Jim Winters *(Westinghouse)*
- Randy Vigor *(Duke Energy)*
- Bob Taylor *(Kiewit)*
- Jim Moody *(General Dynamics Electric Boat)*

Economics of Closed Nuclear Fuel Cycles, sponsored by FCWMD; cosponsored by ESD. *Chair:* David Shropshire *(INL)* [Track 3]

Salon K
8:30 a.m.
An Econometric Model of the Uranium Market, Erich Schneider, Kelli Rankin *(Univ of Texas, Austin)*

8:55 a.m.
Economical Analysis of the Fuel Recycling Option, Gustavo Alonso, Jose R. Ramirez-Sanchez *(Instituto Nacional de Investigaciones Nucleares)*

9:20 a.m.
A Documented Resource for Nuclear Fuel Cycle Cost Information, David E. Shropshire *(INL)*

9:45 a.m.
Economics of Advanced Fuel Cycles, Evelyne Bertel *(OECD-NEA)*

10:10 a.m.
Fuel Cycle Economic Analysis Using an Excel Spreadsheet, K. A. Williams *(ORNL)*, D. E. Shropshire *(INL)*

10:35 a.m.
VISION.ECON: A Dynamic Model for Estimating Nuclear Fuel Cycle Costs, Ann Marie Phillips, Jake Jacobson, David Shropshire *(INL)*

11:00 a.m.
Nuclear Desalination Using the PBMR-DPP as Heat Source, J.van Ravenswaay, G. du Plessis *[M-Tech Industrial (Pty) Ltd]*, M. Correia, R. Greyvenstein *(PBMR Pty-South Africa)*

Transport Methods: General, sponsored by MCD. *Session Organizer:* Dmitriy Anistratov *(NCSU)*. *Chair:* William R. Martin *(Univ of Michigan)* [Track 7]

Suffolk
8:30 a.m.
Determination of Chord Length Distributions in Stochastic Media Composed of Dispersed Microspheres, Wei Ji, William R. Martin *(Univ of Michigan)*

8:55 a.m.
A Three-Dimensional Method of Characteristics on Unstructured Tetrahedral Meshes, C. Rabiti, M. A. Smith, G. Palmiotti *(ANL)*

9:20 a.m.
The Quasidiffusion Method for 2D Transport Problems on AMR Grids, William A. Wieselquist, Dmitriy Y. Anistratov *(NCSU)*

9:45 a.m.
Spherical Quadratures for the Discrete Ordinates Method, C. Rabiti *(ANL)*, E. Wolters *(Univ of Michigan)*, M. A. Smith, G. Palmiotti *(ANL)*

Computational Challenges in Clinical Medical Physics, sponsored by MCD. *Session Organizer:* Sukesh Aghara *(Prairie View A&M Univ)*. *Chair:* Sukesh Aghara [Track 6]

Suffolk
10:15 a.m.
Radiation Treatment Planning Using Discrete Ordinates Codes, R. N. Slaybaugh *(Univ of Wisconsin, Madison)*, M. L. Williams, D. Ilas, D. E. Peplow, B. L. Kirk *(ORNL)*, T. L. Nichols *(Univ of Tennessee)*, Y. Y. Azmy *(Penn State)*, M. P. Langer *(Indiana Univ)*

10:40 a.m.
Analysis of Pre and Post-treatment CT Images Using KT-1 and Fractal Dimension, Mayuri Razdan *(Rochester Inst Technol)*, Rajnish K. Jauhari, P. Munshi *(IIT, Kanpur)*

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

Detection Technologies for Homeland Security Applications, sponsored by RPSD; cosponsored by IRD. *Session Organizers:* Raymond Klann *(ANL)*, Timothy Brown *(SRNL)*. *Chair:* Sara Pozzi *(ORNL)* [Track 10]

Wellesley
8:30 a.m.
Neutron and Photon Multiplicities for Nuclear Material Detection and Identification, Sara A. Pozzi *(ORNL)*, Andreas Enqvist, Imre Pázsit *(Chalmers Univ of Technology)*

8:55 a.m.
Comparison of He-3 Neutron Detector Effectiveness Under Varying Gas Pressures, V. S. Cornelison, G. Sjoden, G. Ghita *(Univ of Florida)*

9:20 a.m.
Simulations for Active Interrogation of HEU in Cargo Containers, Sang-Yoon Lee, David H. Beddingfield, Jaeyoung Park *(LANL)*

9:45 a.m.
Evaluation of Thermal Signatures of Spent Fuel, J. J. Carbajo, C. Wang, G. L. Yoder *(ORNL)*

10:10 a.m.
Evaluation of Accidental Coincidences in Active Interrogation of Special Nuclear Material, Shaun Clarke *(Purdue Univ)*, Enrico Padovani *(Politecnico di Milano)*, Tom Downar *(Purdue Univ)*, Sara Pozzi *(ORNL)*

10:35 a.m.
PWR Depletion Studies in Support of Antineutrino Reactor Monitoring, A. Misner, T. Palmer *(Oregon State Univ)*, A. Bernstein *(LLNL)*

Probabilistic Safety Applications, sponsored by NISD; cosponsored by OPD. *Session Organizer:* Dana Powers *(SNL)*. *Cochairs:* Robert Budnitz *(LLNL)*, Stanley Levinson *(AREVA)* [Track 4]

Tufts
8:30 a.m.
Calculating the Unreliability of a Passive System, Francisco J. Mackay, George E. Apostolakis, Pavel Hejzlar *(MIT)*

8:55 a.m.
The CEA 2400 GFR Probabilistic Engineering Assessment, Paul Saignes, Christophe Bassi, Phillippe Azria, Nicolas Devictor *(CEA)*, Michel Balmain *(CEA/EdF)*

9:20 a.m.
Fault Tree–based Software Safety Analysis of Function Block Diagrams, Kwang Yong Koh, Poong Hyun Seong *(KAIST)*, Gee Yong Park, Kee-Choon Kwon *(KAERI)*

9:45 a.m.
Safety Activities on Safety-Critical Software for Reactor Protection System, Gee-Yong Park, Kee Choon Kwon *(KAERI)*, Eunkyoung Jee, Kwang Yong Koh, Poong Hyun Seong *(KAIST)*

10:10 a.m.
A Risk-Informed Approach to Reduce Conservative Burden Imposed on SSCs, Jun-Su Ha, Poong-Hyun Seong *(KAIST)*

10:35 a.m.
Failure Modes, Effects, and Criticality Analysis (FMECA) of B&W-Designed PWR Internals, Stanley H. Levinson *(AREVA NP)*

Recycling of Transuranics in Advanced Fuel Cycle Systems—I, sponsored by RPD; cosponsored by FCWMD. *Session Organizer:* Pavel Hejzlar *(MIT)*. *Chair:* Steven Piet *(INL)* [Track 8]

Simmons
8:30 a.m.
Partitioning and Interment of Selected High Level Wastes, C. G. Sizer, C. I. Hoag, S. Shaikh, M. J. Driscoll *(MIT)*

8:55 a.m.
How Quickly Can We Use Recycling to Reduce the Heat Commitment to Future Geologic Repositories?, Steven Piet *(INL)*, Robert Hill, Edward Hoffman, Roald Wigeland *(ANL)*

9:20 a.m.
The Impact of Introduction Date of Advanced Technologies on Demand for Uranium Resources, R. Busquim e Silva, M. S. Kazimi, P. Hejzlar *(MIT)*

9:45 a.m.
Interpolating Fuel Cycle Behavior for Scenario Analysis Codes: Thermal IMF Recycle, Tracy E. Radel, Kara Beharry *(Univ of Wisconsin, Madison)*, Taek K. Kim *(ANL)*

10:10 a.m.
Crafting a Flexible Path to a Sustainable Fuel Cycle, Gretchen Matthern, Steven Piet, Jacob Jacobson *(INL)*, Abdellatif Yacout *(ANL)*, Chris Laws *(INL)*

10:35 a.m.
Operational Approach for Scenario Studies with COSI Code, Jean-Paul Grouiller, Lionel Boucher, Dominique Warin *(CEA)*

11:00 a.m.
Transmutation in Nuclear Reactors: Scientific and Technical Feasibilities Aspect, Frédéric Varaine, Alain Zaetta *(CEA)*

Biology and Medicine: General, sponsored by BMD; cosponsored by IRD. *Chair:* Rolf Zeisler *(NIST)* [Track 6]

Boston University
8:30 a.m.
The Quest for Highest Accuracy in Instrumental Neutron Activation Analysis, Rolf Zeisler *(NIST)*

8:55 a.m.
Validation of the New Nanodosimetric Cell Survival Model Using the Heavy Ion Data, Yong Koo Kwon, C-K Chris Wang *(Georgia Tech)*

9:20 a.m.
Radiation Induced Bystander Studies in Human Prostate Tumor Cells, Vered Anzenberg, Jeffrey A. Coderre *(MIT)*

9:45 a.m.
BNCT of the Murine EMT-6 Mammary Carcinoma Using Boronated Liposomes, Yoonsun Chung, Thomas C. Harris *(MIT)*, M. Frederick Hawthorne *(Univ of Missouri, Columbia)*,Otto K. Harling, Jeffrey A. Coderre *(MIT)*

10:10 a.m.
Kharkov Electron Driven Subcritical Facility Utilization for Producing Medical Isotopes, Alberto Talamo, Yousry Gohar *(ANL)*

Nanofluids, Surfactants, and Particles in Thermal Hydraulics, sponsored by THD. *Cochairs:* Xiaodong Sun *(Ohio State)*, Fan-Bill Cheung *(Penn State)* [Track 7]

MIT
8:30 a.m.
Bubble Dynamics of Pool Boiling with Nanofluids, E. E. Dominguez-Ontiveros, S. D. Fortenberry, C. E. Estrada-Perez, Y. A. Hassan *(Texas A&M)*

8:55 a.m.
The Efficacy of Nanofluids as Single-Phase Convective Heat Transfer Enhancing Coolants for Nuclear Reactor Applications, Wesley C. Williams, Jacopo Buongiorno, Lin-Wen Hu *(MIT)*

9:20 a.m.
Nuclear Magnetic Resonance Measurement of Diffusion Coefficients in Alumina Nanofluids, C. Gerardi, D. Cory, J. Buongiorno, L. W. Hu *(MIT)*

9:45 a.m.
Investigation of Gamma Radiation Effect on Nanofluids for Nuclear Applications, Tim Lucas, Lin-wen Hu, Jacopo Buongiorno *(MIT)*

10:10 a.m.
Nano-particle Deposition and Wettability Change in Pool Boiling, Yong Hoon Jeong, Won Joon Chang, Soon Heung Chang *(KAIST)*

10:35 a.m.
Surfactant Effects on Critical Heat Flux During Flow Boiling Experiment, Mohammad Sohail Sarwar, Yong Hoon Jeong, Soon Heung Chang *(KAIST, Daejeon)*

11:00 a.m.
Behavior of High-Temperature Particles Penetrating Free Liquid Surface, Y. H. Yang, Z. H. Hu, M. H. Yuan *(Shanghai Jiao Tong Univ)*

TUESDAY, JUNE 26, 2007 • 1:00 P.M.

Research by U.S. Department of Energy–Sponsored Students—II, sponsored by ETD; cosponsored by YMG, FED. *Session Organizer:* Mike Robinson *(BAPL)*. *Chair:* Kent Hamlin *(INPO)* [Track 9]

Salon A
1:00 p.m.
PCCS Condenser Pool Water Level Transient Tests, Wenzhong Zhou, Haijing Gao, Shripad T. Revankar *(Purdue Univ)*

1:25 p.m.
Heat and Mass Analogy Model for PCCS Condensation Heat Transfer, Wenzhong Zhou, Haijing Gao, Shripad T. Revankar *(Purdue Univ)*

1:50 p.m.
Dislocation – Radiation Obstacle Interactions: Developing Improved Mechanical Property Constitutive Models, I. M. Robertson *(Univ of Illinois)*, B. D. Wirth *(Univ of California, Berkeley)*, M. Briceno, J. Fenske *(Univ of Illinois)*

2:15 p.m.
Boron IFBA Surface Treatment of Fuel Cladding Materials, Jesse A. Gudmundson, Kumar Sridharan, Todd R. Allen *(Univ of Wisconsin, Madison)*, Timothy J. Renk *(SNL)*, Edward J. Lahoda *(Westinghouse Science and Technology Department)*

2:40 p.m.
Improving Monte Carlo Source Convergence with the Functional Expansion Technique, Jesse Cheatham, James Paul Holloway, William R. Martin *(Univ of Michigan)*

Generic Safety Issue 191: Update and Developments on Containment Sump Performance–Panel, sponsored by OPD. *Session Organizer:* Keyes Neimer *(Shaw Stone & Webster Nuclear)*. *Chair:* Charles Zappile *(Shaw Stone & Webster)* [Track 4]

Salon B
1:00 p.m.
PWR licensees are required by 10 CFR 50.46 to ensure long-term cooling capability post-DBA. PWR ECCS pumps rely on taking suction from the containment sump during long-term recirculation. The potential for containment sump blockage has become a matter of intense interest for PWR utility owners of late. Debris generated in a given zone of destruction of a DBA LOCA, including insulation and both qualified and unqualified coatings, can be transported to the containment sump and result in blockage and clogging of ECCS sump strainers with potential for reduction and/or elimination of available ECCS pump margin. The NRC has created Generic Safety Issue 191 and issued Generic Letter 04-02 to address this issue. Research done at the National Laboratories continues to provide greater insight on this safety area, including impacts of chemical effects and downstream equipment evaluations and impacts. Several utilities have undertaken redesigns of containment sumps to address this matter.

This ANS session will be dedicated to presenting a current status and update of the GSI-191 issue from industry, utility and case study viewpoints. Topics will include recent understanding of chemical effects, transport mechanisms and modeling, utility implementation plans and lessons learned, vendor sump strainer designs and feedback, among other related topics.

PANELISTS:
- Case History, Deane Beck *(CCI Valve)*
- Industry Perspective, John Butler *(NEI)*
- Regulatory Perspective, Mike Scott *(NRC)*
- Downstream Analysis, Barbara Salter *(Shaw)*

Climate Change: What Part Does Nuclear Energy Play?–Panel, sponsored by ESD; cosponsored by OPD. *Session Organizer:* Sama Bilbao y Leon *(Dominion)*. *Chair:* Sama Bilbao y Leon [Track 2]

Salon C
1:00 p.m.
This session explores the scientific hypotheses and models supporting future predictions of climate change, as well as the policy, regulatory, and technical approaches proposed to mitigate its consequences. While there is no doubt within the nuclear community that nuclear technology has a key role to play to help counter the effects of climate change, this same belief is not shared by the bulk of the environmental groups and the policymakers. The goal of the session is to explore the kinds of things that the nuclear community should be looking into in order to determine what the role of nuclear is in the climate change process and to provide a broader perspective of the relevant issues involved in Climate Change policymaking.

PANELISTS:
- Joseph T. Fontaine *(State of New Hampshire)*
- Anthony C. Janetos *(PNNL/Univ of Maryland)*
- Mike Lawrence *(PNNL)*
- Lisa Moerner *(Dominion)*
- Paul Genoa *(NEI)*

Materials Compatibility and Degradation in Advanced Nuclear Systems—II, sponsored by MSTD; cosponsored by OPD. *Session Organizer:* Kenneth Geelhood *(PNNL)*. *Chair:* Kenneth Geelhood [Track 8]

Salon D
1:00 p.m.
U-Zr Constituent Redistribution, Gap Closure, and Axial Growth in Reduced-Power Fast Reactor Fuel Designs, Yeon Soo Kim, A. M. Yacout, G. L. Hofman *(ANL)*, H. J. Ryu *(KAERI)*

1:25 p.m.
Alloy Corrosion in Molten FLiNaK Salt, Luke C. Olson, James W. Ambrosek, Kumar Sridharan, Mark H. Anderson, Todd R. Allen *(Univ of Wisconsin, Madison)*

1:50 p.m.
Electrochemical Studies of Structural Materials Corrosion in a Molten Salt Environment, S. Delpech *(ENSCP)*, C. Cabet, A. Terlain *(CEA)*, G. S. Picard *(ENSCP)*

2:15 p.m.
Cladding Materials Performance and the Safety of HLM Cooled Systems, C. Fazio, G. Müller, D. Struwe, A. Weisenburger *(FZK–Germany)*

2:40 p.m.
Corrosion Experiments in Large Scale LBE Loop: HELIOS, Jun Lim, Hyo On Nam, Ju Dong Bae, Il Soon Hwang *(Seoul National Univ)*

3:05 p.m.
Creep Properties of Haynes 230 Alloy for NGNP Heat Exchangers, Katherine Gray *(Univ of Missouri, Columbia)*

3:30 p.m.
SEM and Infrared Spectroscopy Characterization of Cr Doped Natural Diamond Particles (Cr:NDP), Adrián E. Méndez, Mark A. Prelas, Tushar K. Ghosh, Louis M. Ross, Jr. *(Univ of Missouri, Columbia)*

Reactor Analysis Methods, sponsored by RPD; cosponsored by MCD. *Chair:* Kevin Clarno *(ORNL)* [Track 7]

Salon F
1:00 p.m.
Coarse Group Rebalance Acceleration of the AFEN Method Solutions in Cylindrical (r, **θ**, z) Geometry, Jaejun Lee, Nam Zin Cho *(KAIST)*

1:25 p.m.
Multi-Group Extension of Unified Nodal Method, Tae Young Han *(Seoul National Univ)*, Hyun Chul Lee *(KAERI)*, Han Gyu Joo, Chang Hyo Kim *(Seoul National Univ)*

1:50 p.m.
Delayed Neutron Group Parameter Influence on Reactivity Estimation, Benoît Geslot, Christian Jammes *(CEA)*

2:15 p.m.
Approximate Treatments of Anisotropic Scattering in LWR Analyses, Akio Yamamoto *(Nagoya Univ)*

2:40 p.m.
Treatment of Staggered Mesh in BWR Pin-by-pin Fine Mesh Core Analysis, Kenichi Tada, Akio Yamamoto *(Nagoya Univ)*, Masato Watanabe, Hiroshi Noda *(CHUBU Electric Power Co)*, Yasunori Kitamura, Yoshihiro Yamane *(Nagoya Univ)*

3:05 p.m.
Hopf Bifurcation and Limit Cycle Oscillations in the AHWR, S. Kovelamudi, M. S. Kalra *(IIT, Kanpur)*

3:30 p.m.
Reactivity-equivalent Physical Transformation for TRISO Fuel with a Diluted Kernel, Yonghee Kim *(KAERI)*

Nuclear Power 2010 Update–Panel, sponsored by OPD. *Cochairs:* Edward Quinn *(Consultant)*, Marilyn Kray *(Exelon)* [Track 2]

Salon G
1:00 p.m.
This session will focus on the current activities, challenges, and progress in the Nuclear Power 2010 Program. Panelists representing the broad spectrum of DOE, NRC, and industry will be included and presenting on the activities that are occurring in the New Plant Certification (DC), Early Site Permit (ESP), and Combined Operating License (COL) programs in 2007.

PANELISTS:
- Tom Miller *(DOE)*
- David Matthews *(NRC)*
- Adrian Heymer *(NEI)*
- Kyle Turner *(McCallum Turner)*
- Gene Grecheck *(Dominion)*
- Joseph Turnage *(Constellation)*
- Gregory Gibson *(STP)*
- Ann Bisconti *(Bisconti Rsch)*

The Glenn Seaborg Congressional Fellows–Panel, sponsored by FCWMD. *Session Organizer:* John Kotek *(Washington Policy and Analysis)*. *Chair:* Ruth Weiner *(SNL)* [Track 3]

Salon K
1:00 p.m.
The ANS Glenn T. Seaborg Science and Engineering Congressional Fellowship program is part of the Society's strategic plan initiative to enhance overall public policy efforts. It has proven to be effective at building a stronger bridge between the scientific community and policy makers, while providing unique policy leadership training for the selected Fellow. The panel session will be comprised of former ANS Congressional Fellows who will share their outlook for nuclear energy policy and provide advice on dealing effectively with Congress.

PANELISTS:
- John Kotek *(Washington Policy and Analysis)*
- Joseph Green *(Shaw Stone & Webster Nuclear Svc)*
- Timothy Valentine *(ORNL)*
- Eric Loewen *(General Electric)*
- Mario Robles *(USEC)*

Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—I, sponsored by MCD. *Session Organizer:* Hany S. Abdel-Khalik *(NCSU)*. *Chair:* Hany S. Abdel-Khalik [Track 7]

Suffolk
1:00 p.m.
Nuclear Data Validation and Fast Reactor Design Performances Uncertainty Reduction, M. Salvatores, G. Aliberti, G. Palmiotti *(ANL)*, invited

1:25 p.m.
Quantification of Back-End Fuel Cycle Metrics Uncertainties, Tracy E. Stover, Hany S. Abdel-Khalik, Paul J. Turinsky *(NCSU)*

1:50 p.m.
Randomized Quasi Monte Carlo Sampling Techniques in Nuclear Reactor Uncertainty Assessment, Mihai Anitescu, Paul Hovland, Giuseppe Palmiotti, Won Sik Yang *(ANL)*, invited

2:15 p.m.
Uncertainty Estimation of Delayed Neutron Parameters, Jinkai Wang, Warren D. Reece *(Texas A&M)*

2:40 p.m.
Uncertainty Analysis Methods for Equilibrium Fuel Cycles, L. F. Miller, J. Preston *(Univ of Tennessee)*, Brian Thomas *(SENES Oak Ridge)*, J. McConn, J. Hou, T. Anderson, M. Humberstone *(Univ of Tennessee)*

3:05 p.m.
Sensitivity Analysis for Coupled Neutron-Gamma Calculations, M. L. Williams, S. Goluoglu *(ORNL)*

3:30 p.m.
Overview of the SCALE TSUNAMI Sensitivity and Uncertainty Analysis Tools, Bradley T. Rearden, Mark L. Williams *(ORNL)*

3:55 p.m.
An Overview of Automatic Differentiation Tools and Techniques for Nuclear Reactor Applications, Mihai Anitescu, Paul Hovland, Giuseppe Palmiotti, Won Sik Yang *(ANL)*

Radiation Protection and Shielding—II: Detectors, sponsored by RPSD. *Session Organizer:* John S. Hendricks *(LANL)*. *Chair:* Nolan Hertel *(Georgia Tech)* [Track 7]

Wellesley
1:00 p.m.
Correcting for Room Return Neutrons Using an Empirical Relationship, Jesson Hutchinson, David Loaiza, Brian Rooney *(LANL)*

1:25 p.m.
Integral Thermal-to-Fast Neutron Detection Using the ATMFD, J. Lapinskas, Y. Xu, R. P. Taleyarkhan *(Purdue Univ)*

1:50 p.m.
Accurate Identification of Neutron Sources Using the Liquid Scintillator BC-501A, M. Flaska, S. A. Pozzi, Y. Xu, T. Downar *(ORNL)*

2:15 p.m.
Development of SiC Schottky Diode Detectors for Measurement of Actinide Concentrations in Molten Salt Electrolyte, V. Krishnan, T. E. Blue *(Ohio State)*

2:40 p.m.
Design and Performance of a Measuring System for Surface Dose Rate Following Concrete Cracking, Chang-Min Lee, YoonHee Lee, KunJai Lee *(KAIST)*, KyungHo Lee, SangJin Lee, Byung-Il Choi *(Nuclear Environment Technology Institute)*

3:05 p.m.
Development and Test of a GEM-Based TEPC as a Neutron Rem Meter, C-K Chris Wang, Marat Seidaliev *(Georgia Tech)*

Nuclear Installations Safety: General, sponsored by NISD. *Session Organizer:* Herbert Massie, Jr. *(DNFSB)*. *Cochairs:* Herbert Massie, Jr., Lawrence Zull *(DNFSB)* [Track 4]

Tufts
1:00 p.m.
Blind Benchmark of the NACOK Air Ingress Tests Using FLUENT, Marie-Anne V. Brudieu, Andrew C. Kadak *(MIT)*

1:25 p.m.
Program Development to Estimate Allowable Cumulative Time in Code Case N-499-1, Woo-Seok Choi, Keun-Bae Park, Won-Jae Lee *(KAERI)*

1:50 p.m.
Study on In-Vessel Retention Strategy in 300MW PWR of China, Tao Jun, Cao Xue-wu *(Shanghai Jiao Tong Univ)*

2:15 p.m.
Critical Heat Flux in Inclined Rectangular Long Channel with Narrow Gap, Sang W. Noh, Kune Y. Suh *(Seoul National Univ)*

2:40 p.m.
Experiences with Printed Circuit Board Test Data Management, John Beatty, W. Merle Horner, James Kisic *(Westinghouse)*

3:05 p.m.
NFCA with NFAC to Predict the Release of Radionuclides Following an Accident at a Reprocessing Facility, Robert Sanders *(ORNL)*

Recycling of Transuranics in Advanced Fuel Cycle Systems—II, sponsored by RPD; cosponsored by FCWMD. *Session Organizer:* Pavel Hejzlar *(MIT)*. *Chair:* Michael Driscoll *(MIT)* [Track 8]

Simmons
1:00 p.m.
Transuranics Burning in Multi-Tier Strategies with Advanced Burner Reactors, T. K. Kim, T. A. Taiwo, W. S. Yang *(ANL)*

1:25 p.m.
Advances in Fast Reactor Cycle Technology Development Project, Takamichi Iwamura *(Japan Atomic Energy Agency)*

1:50 p.m.
A PWR Self-Contained Actinide Transmutation System, Y. Shatilla, P. Hejzlar, M. S. Kazimi *(MIT)*

2:15 p.m.
BWR Fuel Design Using Minor Actinides as Burnable Absorber, J. L. François, R. Guzmán *(Universidad Nacional Autónoma de México)*

2:40 p.m.
PUMA—Plutonium and Minor Actinides Management in Thermal High-Temperature Reactors, J. C. Kuijper *(NRG)*

3:05 p.m.
CANDU-Based Advanced Burner Test Reactor, Youssef Shatilla *(King Abdulaziz Univ)*

Isotopes and Radiation: General—I, sponsored by IRD. *Chair:* Ned Wogman *(PNNL)* [Track 6]

Boston University
1:00 p.m.
Evaluation of Tellurium-125 Metastable Production Pathways, Henry A. Lovett, Travis W. Knight *(Univ of South Carolina)*, Marc A. Garland, Saed Mirzadeh *(ORNL)*

1:25 p.m.
Investigating TRISO Fuel Fission Gas Release Models Using Relative Release-to-Birth Indicators, J. M. Harp, A. I. Hawari *(NCSU)*

1:50 p.m.
Measurements of X-rays from Nanotubes and Nanorods, X. George Xu, J. Geuther, G. Baker, S. Pal, Y. Danon, T. M. Lu, P. Ajayan *(RPI)*

2:15 p.m.
An Analysis of Shadow Shield Materials for DT Fusion Neutrons, D. L. Chichester *(INL)*

2:40 p.m.
Irradiation Testing of BetaVoltaic Cell in PUR-1, J. Lapinskas, Y. Xu, R. P. Taleyarkhan *(Purdue Univ)*

General Thermal Hydraulics, sponsored by THD. *Session Organizers:* Joy Rempe *(INL)*, Xiaodong Sun *(Ohio State)*, Karen Vierow *(Texas A&M)*, Steve Arndt *(NRC)*. *Chair:* Kune Y. Suh *(Seoul National Univ)* [Track 7]

MIT
1:00 p.m.
Air Voids in Safety Related Systems at Three Mile Island Station, Zvi Eisenberg, Steve Queen *(Exelon)*

1:25 p.m.
Study on Thermal Fragmentation Mechanisms of Melt Droplets, Qian Lin, Xuewu Cao *(Shanghai Jiao Tong Univ)*

1:50 p.m.
Experimental Studies on Local Heat Transfer in Tight Rod Bundles, X. Cheng, X. J. Liu, Y. H. Yang *(Shanghai Jiao Tong Univ)*

2:15 p.m.
Numerical Simulation of Printed Circuit Heat Exchanger Design for a Molten Salt Reactor, Xia Wang, Richard N. Christensen, Thomas E. Blue, Xiaodong Sun *(Ohio State)*

2:40 p.m.
Supercritical CO_2 Critical Flow, Guillaume Mignot, Mark Anderson, Michael Corradini *(Univ of Wisconsin, Madison)*

3:05 p.m.
Measurement of Flow Phenomena in a VHTR Lower Plenum Model, Hugh M. McIlroy Jr., Donald M. McEligot, Robert J. Pink *(INL)*

TUESDAY, JUNE 26, 2007 • 4:00 P.M.

Honorary Chair's Special Session (In Memory of Manson Benedict): The Nuclear Fuel Cycle and Its Waste Management—Innovation Is the Future. *Chair:* Neil Todreas *(MIT)* [Track 1]

Salon E
4:00 p.m.
SPEAKERS:
- Remembering Manson Benedict, Neil Todreas *(MIT)*
- Alpha and Omega: Which Direction for the Fuel Cycle?, Charles Forsberg *(ORNL)*
- Reprocessing Technologies After 50 Years, Jim Laidler *(ANL)*
- Actinide Burning in Reactors: Options and Outcomes, Mujid Kazimi *(MIT)*
- Near-term Options for Treatment and Recycle, Alan Hanson *(AREVA)*

WEDNESDAY • JUNE 27, 2007

7:30 A.M. - 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 10:00 A.M.	**ST-NH$_2$ TECHNICAL SESSIONS** (see page 35)
8:00 A.M. – 10:00 A.M.	**SNC '07 TECHNICAL SESSIONS** (see page 31)
8:30 A.M. – 11:30 A.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** • Innovations for the Next Generation of Nuclear Plants • Economic Analysis of Fast Reactors • Computational Methods: General • Computational Medical Physics Radiation Modeling • Gas Reactor Safety and Licensing–Panel • Recycling of Transuranics in Advanced Fuel Cycle Systems—III • Isotopes and Radiation: General—II • Thermal Hydraulics of Steam Generators • Computational Thermal Hydraulics—I • Environmental Aspects of New Site Selection–Papers/Panel • Data, Analysis, and Operations for Nuclear Criticality Safety— I • Education and Training: General • Reactor Physics Design, Validation, and Operating Experience • Fusion Energy: General • The Aging Plant/Aging-Changing Workforce—I
10:00 A.M. – 11:30 A.M.	**SNC '07 TECHNICAL SESSIONS** (see page 31)
1:00 P.M. – 4:00 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** • Fuel Cycle Deployment Strategies and Experience • Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—II • Computational Resources for Radiation Modeling • Updating the New Reactor Licensing Infrastructure • Reactor Physics: General • Impact of INIE on University Research Reactors • Thermal Hydraulics of Generation IV Systems • Bringing Value to the American Nuclear Society–Panel • Data, Analysis, and Operations for Nuclear Criticality Safety—II • Improvements and Innovations in Spent-Fuel Storage • Current Status on Nonproliferation Programs–Panel • Environmental Aspects of Fuel Cycle Technologies • The Aging Plant/Aging-Changing Workforce—II–Panel • Human Factors Concepts and Considerations in New Plant Design • Introduction to New Plant Licensing–Panel
1:00 P.M. – 5:15 P.M.	**ST-NH$_2$ TECHNICAL SESSIONS** (see page 35)
1:00 P.M. – 4:00 P.M.	**SNC 07 TECHNICAL SESSIONS** (see page 31)
4:00 P.M. – 6:00 P.M.	**SNC '07 CLOSING PLENARY** (see page 31)
4:00 P.M. – 6:00 P.M.	**ANS PUBLIC COMMUNICATIONS WORKSHOP**
6:30 P.M. – 10:30 P.M.	**DINNER AT MUSEUM OF SCIENCE** *(Includes the Theater of Energy)*

WEDNESDAY, JUNE 27, 2007 • 8:30 A.M.

Innovations for the Next Generation of Nuclear Plants, sponsored by OPD. *Chair:* Thomas Remick *(SCE)* [Track 2]

Salon G
8:30 a.m.
Application of Electronic Content Management to New Licensing, J. Michael O'Connell, Wayne J. Merritt, John M. Oddo *(Shaw Stone & Webster Nuclear)*, Tom Kenslea *(PTC)*

8:55 a.m.
Integrate and Automate Configuration Management for New Plants, Kyung Sup Yoon *(KOPEC)*, J. Michael O'Connell, Wayne J. Merritt *(Shaw Stone & Webster Nuclear)*, Brad M. Williamson *(Interlogic)*

9:20 a.m.
A New Design for Configuration Management: Managing the Design Bases of Future Plants, J. Michael O'Connell, Wayne J. Merritt *(Shaw Stone & Webster Nuclear)*, Brad M. Williamson *(Interlogic)*

9:45 a.m.
Face to Face with Intervenors Over Thirty Years, Howard C. Shaffer *(NEI)*

10:10 a.m.
Defense-in-Depth for the Pebble Bed Modular Reactor (PBMR), Karl N. Fleming *(Technology Insights)*, Edward G. Wallace *(PBMR Pty)*, Fred A. Silady *(Technology Insights)*

10:35 a.m.
Conceptual Design of an Advanced Breeder Burner Reactor, Andrew C. Kadak, Bo Feng *(MIT)*

Economic Analysis of Fast Reactors, sponsored by FCWMD; cosponsored by ESD. *Chair:* William Rasin *(Consultant)* [Track 3]

Salon K
8:30 a.m.
Top-down and Bottom-up Approaches for Estimating the Costs of Gen IV Reactor Designs Application to Gas-cooled Reactors and to SFRs, P. Berbey *(EdF)*, G. M. Gautier *(CEA)*

8:55 a.m.
Generation IV Nuclear Energy System Cost Estimation Methodology, William H. Rasin *(Consultant)*

9:20 a.m.
The G4-ECONS Economic Evaluation Tool for Generation IV Reactor Systems, K. A. Williams *(ORNL)*

9:45 a.m.
JAEA Sodium Cooled Fast Reactor (JSFR) Total System Cost Analysis Using the G4-ECONS Code, Kiyoshi Ono, Kyoko Mukaida, Hiroki Shiotani, Kazunori Hirao *(Japan Atomic Energy Agency)*

10:10 a.m.
The Costs of Demonstrating and Commercializing the Advanced Burner Reactor, Geoffrey Rothwell *(Stanford)*, Kent Williams *(ORNL)*

10:35 a.m.
Economics of the Nth Advanced Burner Reactor, E. A. Hoffman *(ANL)*, J. D. Smith *(SNL)*

11:00 a.m.
Use of Liquid Salt Coolants to Improve Fast-Reactor Economics, Charles W. Forsberg *(ORNL)*

Computational Methods: General, sponsored by MCD. *Session Organizer:* Dmitriy Anistratov *(NCSU)*. *Chair:* Sudarshan K. Loyalka [Track 7]

Suffolk
8:30 a.m.
MCNP-5/ORIGEN-2.2/MCODE-2.2 versus CASMO-5 Depletion for a Heavily Gd-Poisoned BWR Fuel Assembly, Zhiwen Xu, Joel Rhodes III, Kord Smith, Nicholas Gheorghiu *(Studsvik Scandpower)*

8:55 a.m.
Improvement of Screening Efficiency in Loading Pattern Optimization by Simulated Annealing, Tong Kyu Park *(Seoul National Univ)*, Hyun Chul Lee, Hyung Kook Joo *(KAERI)*, Chang Hyo Kim *(Seoul National Univ)*

9:20 a.m.
Coupled Nuclear-Thermal-Hydraulics Analysis for VHTR, Gokhan Yesilyurt, Wei Ji, Shikha Prasad, William R. Martin, John C. Lee *(Univ of Michigan)*

9:45 a.m.
Error Propagation in Monte Carlo Depletion Analysis, Hyung Jin Shim *(KAERI)*, Ho Jin Park, Chang Hyo Kim *(Seoul National Univ)*

10:10 a.m.
DSMC Aerosol Dynamics: Coagulation and Condensation, Geethpriya Palaniswaamy, Sudarshan K. Loyalka *(Univ of Missouri, Columbia)*

10:35 a.m.
Coupled Neutronics/Thermofluid Calculations with Semi-Analytic Axial Power Distributions, J. W. Thomas *(ANL)*, T. J. Downar *(Univ of California, Berkeley)*

Computational Medical Physics Radiation Modeling, sponsored by RPSD/CMPWG; cosponsored by BMD, MCD. *Session Organizer:* George Xu *(RPI)*. *Cochairs:* George Xu, Glenn Sjoden *(Univ of Florida)*. All invited. [Track 6]

Wellesley
8:30 a.m.
Need for Benchmark Studies Related to Proton Therapy, Harald Paganetti, Christina Zacharatou-Jarlskog *(Massachusetts General Hospital)*

8:55 a.m.
Whole Body Dosimetry Simulations Using the PENTRAN-MP Sn Code System, A. Al-Basheer, M. Ghita, G. Sjoden, W. Bolch, C. Lee *(Univ of Florida)*

9:20 a.m.
The Need for Further Development of CAD/MCNP Interface Codes, Yican Wu *(Chinese Academy of Sciences)*, X. George Xu *(RPI)*

9:45 a.m.
The Need for Detailed Monte Carlo Studies of Medical Accelerators, Bryan Bednarz, X. George Xu *(RPI)*

10:10 a.m.
PIMAL: Computational Phantom with Moving Arms and Legs, Hatice Akkurt, Keith F. Eckerman, John C. Wagner *(ORNL)*, Sami Sherbini *(NRC)*

10:35 a.m.
The Need for 4D Monte Carlo Simulations for Radiation Treatment Planning, X. George Xu, Juying Zhang *(RPI)*, Chengyu Shi *(Cancer Therapy and Research Center)*

Gas Reactor Safety and Licensing–Panel, sponsored by NISD; cosponsored by OPD. *Session Organizer:* N. P. Kadambi *(NRC)*. *Chair:* N. P. Kadambi [Track 2]

Tufts
8:30 a.m.
This session will focus on the new proposed advanced gas reactor designs that have initiated discussion or have declared that they will seek a pre-application review from the NRC. The Nuclear Regulatory Commission has stated in its advanced reactor policy statement that all new advanced reactors should be as safe, or inherently safer, than the current generation of reactors. Therefore, this session will seek to explore the new inherent safety features incorporated into the proposed advanced gas reactor designs and to evaluate the safety information provided by the designers in light of safety analysis and licensing expectations.

PANELISTS:
- Edward Wallace *(PBMR)*
- Malcolm LaBar *(General Atomic)*
- Farshid Shahrokhi *(AREVA)*
- N. P. Kadambi *(NRC)*
- Mark Holbrooke *(DOE)*

Recycling of Transuranics in Advanced Fuel Cycle Systems—III, sponsored by RPD; cosponsored by FCWMD. *Session Organizer:* Pavel Hejzlar *(MIT)*. *Cochairs:* Pavel Hejzlar, Edward Hoffman *(ANL)* [Track 8]

Simmons
8:30 a.m.
Enhancing PWR High Burnup Proliferation Resistance Fuel with Minor Actinides, G. S. Chang *(INL)*

8:55 a.m.
Development of Methodology for Plutonium Categorization—The Challenge of Attractiveness, Masaki Saito *(Tokyo Inst Technol)*, Vladimir Artisyuk *(Obninsk State Technical Univ for Nuclear Power Eng)*, Alexey Ezoubtchenko, Hiroshi Sagara *(Tokyo Inst Technol)*

9:20 a.m.
Design, Development and Qualification of Advanced Fuels for Accelerator Driven Systems, Fabienne Delage *(CEA, Cadarache)*

9:45 a.m.
A Study on Variable Conversion Ratio for Fast Burner Reactor, E. A. Hoffman, W. S. Yang, R. N. Hill *(ANL)*

10:10 a.m.
Utilization of TRUs as a Fuel for VHTRs: Compositions, Neutronics Impact and Safety, Pavel V. Tsvetkov, David E. Ames II, Megan L. Pritchard *(Texas A&M)*

10:35 a.m.
Application of Simulated Annealing Optimization to Recycle Minor Actinides in a BWR Lattice, Hermilo Hernandez, G. Ivan Maldonado *(Univ of Cincinnati)*

Isotopes and Radiation: General—II, sponsored by IRD. *Chair:* Richard Lindstrom *(NIST)* [Track 6]

Boston University
8:30 a.m.
Radiochemical Neutron Activation Analysis for Determination of Nitrogen in Steels, Rick L. Paul *(NIST)*

8:55 a.m.
A New Rabbit for the NIST Reactor, Richard M. Lindstrom, Nathan A. Bickford, Paul J. Liposky, Elizabeth A. Mackey, Robert E. Williams, Rolf Zeisler *(NIST)*

9:20 a.m.
Bulk Analysis of IAEA Environmental Samples in Support of International Safeguards, N. A. Wogman, K. B. Olsen, O. T. Farmer III *(PNNL)*

9:45 a.m.
Plutonium Processing Optimization in Support of the MOX Fuel Program, David A. Costa, Devin W. Gray *(LANL)*

10:10 a.m.
The High-Energy Neutron Response of Silicon Carbide Semiconductor Neutron Detectors, Frank H. Ruddy, John G. Seidel, Fausto Franceschini *(Westinghouse)*

10:35 a.m.
Methodology to Unfold Fast Neutron Energy Spectra for Silicon Carbide Detectors, Fausto Franceschini, Frank H. Ruddy, Bojan Petrović *(Westinghouse)*

Thermal Hydraulics of Steam Generators, sponsored by THD; cosponsored by OPD. *Session Organizers:* Brian Woods, Jose Reyes *(Oregon State Univ)*. *Chair:* Brian Woods [Track 2]

MIT
8:30 a.m.
Examination of Steam Condensation Rates in Steam Generator U-Tubes at the Oregon State University Advanced Plant Experiment (APEX) Experimental Test Facility, Brian Collins, Brian G. Woods, John Groome *(Oregon State Univ)*

8:55 a.m.
TRACE Assessment with APEX Steam Generator U-Tube Condensation Tests, J. Lim, M. Ishii, L. Cheng, S. W. Choi, D. Y. Lee, Y.-J. Yoo *(Purdue Univ)*

9:20 a.m.
Numerical Study of the Jet Impingement Flow Due to a Steam Generator Tube Leak, Steven Arndt *(NRC)*, Ugo Piomelli *(Univ of Maryland)*

Computational Thermal Hydraulics—I, sponsored by THD; cosponsored by MCD. *Session Organizers:* Yassin Hassan, Karen Vierow *(Texas A&M)*, Donna P. Guillen *(INL)*. *Chair:* Kurshad Muftuoglu *(Westinghouse)* [Track 7]

MIT
9:50 a.m.
Preliminary Results of Implementation of Interfacial Area Transport Equation, Xia Wang, Xiaodong Sun *(Ohio State)*

10:15 a.m.
Fission Product Removal without Containment Sprays, Joseph Baron, Keith Ferguson, Joon Cho *(Shaw Stone & Webster Nuclear)*

10:40 a.m.
Lattice Boltzmann Method (LBM) for Nuclear Engineering Applications, Prashant Jain, Rizwan-uddin *(Univ of Illinois)*

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

Environmental Aspects of New Site Selection–Papers/Panel, sponsored by ESD; cosponsored by OPD. *Session Organizers:* Carl Mazzola, Kevin Bryson *(Shaw Environmental & Infrastructure)*. *Chair:* Kevin Bryson [Track 2]

Arlington
PAPERS
8:30 a.m.
ANSI/ANS Meteorological Standards to Meet 10 CFR 52 Requirements, Carl Mazzola, Kevin Bryson *(Shaw Environmental & Infrastructure)*

8:55 a.m.
Selection of Worst Case Meteorological Conditions for Ultimate Heat Sink Basin Sizing, Julie M. Jarvis, Allen T. Vieira, Dong Zheng *(Bechtel Pwr)*

9:20 a.m.
Resolving NEPA's Cumulative Impact Paradox, Charles H. Eccleston *(Enercon Services)*

9:45 a.m.
Environmental Screening and Early Site Permitting for New Nuclear Power Stations in South Africa: Prerogatives and Perspectives from an Emerging Economy, Brent D. Johnson *(Council for Scientific & Industrial Research–South Africa)*

PANEL DISCUSSION
10:10 a.m.
PANELISTS:
- Eddie Grant *(Excel Svc)*
- Peter Hastings *(Duke Energy)*
- John Downing *(Shaw Stone & Webster Nuclear)*

Data, Analysis, and Operations for Nuclear Criticality Safety—I, sponsored by NCSD; cosponsored by YMG. *Session Organizer:* Lane Paschal *(Paschal Solutions)*. *Chair:* Randy Shackelford *(Nucl Fuel Svc)* [Track 4]

Berkeley
8:30 a.m.
Analysis of Fundamental NIST Sphere Experiments Related to Criticality Safety, Soon S. Kim, Robert W. Schaefer *(INL)*

8:55 a.m.
Physical Enhancements to Vacuum Producing Systems as a Consequence of Enriched Uranium Accumulations, J. J. Lichtenwalter, J. L. Byrd, T. G. Cornell *(Y-12 NSC)*, S. L. Larson *(Nuclear Safety Assoc)*

9:20 a.m.
Use of Dry Fissile Metal Mass Limits for a Water-Filled Single Unit or Submerged Pieces, J. J. Lichtenwalter, P. D. Glenn *(Y-12 NSC)*

9:45 a.m.
USLSA—A Statistical Tool for Criticality Analysis Code Validation, Qi Ao *(GE)*

10:10 a.m.
Critical and Near-Critical Graphite-Moderated Arrays of U(93.2) Cylinders Revisited, A. W. Krass *(ORNL)*

10:35 a.m.
Optimization of Water-to-Fuel (W/F) Ratios in Cladded Cylinder Arrays, Jason E. Huffer *(WSMS)*

11:00 a.m.
Core Refueling Deviation Criticality Safety Analysis, Michael G. Anness, Vefa N. Kucukboyaci, Susan M. King *(Westinghouse)*

Education and Training: General, sponsored by ETD. *Session Organizer:* Mike Robinson *(BAPL)*. *Chair:* Richard Coe *(South Carolina State University)* [Track 9]

Clarendon
8:30 a.m.
Teaching Reactor Physics Using a Dual-Delivery Approach, Eleodor Nichita *(Univ of Ontario Inst Technol)*, Benjamin Rouben *(Consultant)*

8:55 a.m.
Development of a Web-Accessible Fully-Interactive Laboratory Experiment, Eleodor Nichita, Amin Patel *(Univ of Ontario Inst Technol)*

9:20 a.m.
Knowledge Capture and Dissemination Using a Collaborative 'Wiki' Environment, Paul Hulse, Dominic D. Winstanley, Andrew J. Cooper *(BNG Sellafield Ltd)*

9:45 a.m.
ENEN-II—Consolidation, Extension and Expansion of European Nuclear Education, Training and Knowledge Management, P. A. Beeley, J. Safieh, P. De Regge *[European Nuclear Education Network (ENEN) Assoc]*

10:10 a.m.
Who, from Where, and When? Strategic Thinking about the Next Nuclear Workforce, Richard Holman, Ray Grosshans, Roger Mayes *(INL)*

10:35 a.m.
The Harnessed Atom Program at the MIT Nuclear Reactor Laboratory, J. Maro, L. W. Hu *(MIT)*

11:00 a.m.
Bridging the Quarter System/Semester System Divide Using Distance Learning and Computer Managed Instruction for Multi-Point Delivery, Brian K. Hajek *(Ohio State)*, John Christenson *(Univ of Cincinnati)*

Reactor Physics Design, Validation, and Operating Experience, sponsored by RPD; cosponsored by OPD. *Chair:* Pavel Tsvetkov *(Texas A&M)* [Track 7]

Dartmouth
8:30 a.m.
Sensitivity Studies of Experimental Configurations Representative of Gas-Cooled Fast Reactors, G. Aliberti, G. Palmiotti, T. Taiwo, H. Khalil *(ANL)*, J. Tommasi, R. Jacqmin *(CEA, Cadarache)*

8:55 a.m.
Development of a Parallelized Incore Optimization Tool Utilizing Multiobjective Genetic Algorithms and a Licensed Nodal Reactor Simulator, Paul M. Keller *(NCSU)*, Ken R. Rempe, Gerd Anton *(Studsvik Scandpower)*, James L. Eller, Larry C. James *(Duke Energy)*

9:20 a.m.
Neutronics Feasibility Study for Conversion of the High Flux Isotope Reactor with LEU U-7Mo Dispersion Fuel, Ronald J. Ellis, Jess C. Gehin, Germina Ilas, R. T. Primm, III *(ORNL)*

9:45 a.m.
A Post-Processing Method for Control Rod Worth Measurements at Oconee Nuclear Station, Janelle J. Penisten, J. Mark Sanders *(Duke Energy)*

10:10 a.m.
Verification of Real-time Subcriticality Measurement Based on Rossi-alpha Method Using Detection-time Acquisition System, Shinobu Tsubota, Yoshihiro Yamane, Akio Yamamoto, Yasunori Kitamura *(Nagoya Univ)*

10:35 a.m.
SIMULATE-3K Explicit Fuel Pin Modeling in RIAs, Gerardo M. Grandi, Kord S. Smith *(Studsvik Scandpower)*

Fusion Energy: General, sponsored by FED. *Session Organizer:* James Blanchard *(Univ of Wisconsin, Madison)*. *Chair:* James Blanchard [Track 8]

Exeter
8:30 a.m.
Supercritical CO_2 Power Conversion System for Fusion Reactors, M. J. Driscoll, Adi Al Hajj-Ahmad *(MIT)*

8:55 a.m.
Parametric Study to Minimize Radiation Damage to Reactor Components in a Pulsed Subcritical Fusion-Fission Hybrid System, A. Bingham, P. Tsvetkov *(Texas A&M)*, B. Cipiti *(SNL)*

9:20 a.m.
Radiation Damage Study for Various Materials at the First Wall of an IFE Type Fusion Reactor Using Thorium Molten Salt, Mustafa Übeyli, Teyfik Demir *(TOBB Univ of Economics and Technology)*

9:45 a.m.
Conceptual Design Study of Exchange the In-vessel Components by Remote Handling System for JT-60SA, T. Hayashi, S. Sakurai, K. Masaki, H. Tamai, K. Yoshida, M. Matsukawa *(Japan Atomic Energy Agency)*

10:10 a.m.
Tomographic Measurement of Radial Distribution of Emissivity in Optically Thin Plasmas, Nitin Jain, P. Munshi *(IIT, Kanpur)*, C. V. S. Rao *(Inst for Plasma Research)*

The Aging Plant/Aging-Changing Workforce—I, sponsored by HFD; cosponsored by ETD, OPD. *Session Organizer:* Tyrone Tonkinson *(Simple Approach)*. *Chair:* Tyrone Tonkinson [Track 1]

Fairfield
8:30 a.m.
Solving the Aging Plant and Workforce Puzzle, Tyrone S. Tonkinson *(Simple Approach)*

8:55 a.m.
Constructive Culture—If You Build It, They Will Come (and Stay)!, Tyrone S. Tonkinson *(Simple Approach)*

9:20 a.m.
Human Capital Investment Planning, Edward Wick *(Shaw, Stone and Webster)*

9:45 a.m.
Collaborative New Engineer Production, Robert D. Holland *(Shaw Stone & Webster Nuclear)*, Gilbert J. Brown *(Univ of Massachusetts Lowell)*

10:10 a.m.
Recruitment, Development, and Retention in the Nuclear Industry: A Survey of Young Professionals, Janelle J. Penisten *(Duke Energy)*, Elizabeth L. McAndrew-Benavides *(Constellation Energy)*, Sarah L. Chisholm, Adam W. Strange *(Duke Energy)*

10:35 a.m.
Nuclear Control Room Design—Insight from a Similar Project, Mark E. Watson *(Engineered Solutions)*

11:00 a.m.
Sustaining Our Current Nuclear Assets, Ken Huffman *(EPRI)*

WEDNESDAY, JUNE 27, 2007 • 1:00 P.M.

Fuel Cycle Deployment Strategies and Experience, sponsored by FCWMD. *Chair:* Michael Norato *(SRNL)* [Track 3]

Salon K

1:00 p.m.
AREVA Used Fuel Recycling Experience and Innovations, Jean-Pierre Bariteau, Dominique Favet, Dorothy Davidson, Richard Vinoche *(AREVA)*

1:25 p.m.
Identifying the Potential of GNEP Technologies and Strategies for Market Deployment, Vatsal Bhatt *(BNL)*, Jennifer Morton *(INL)*, Ann Reisman, John Lee *(BNL)*

1:50 p.m.
Cost and Market Structures of Strategic Sectors in the International Nuclear Fuel Cycle, Geoffrey Rothwell, Chaim Braun *(Stanford)*

2:15 p.m.
Current Comparison of Advanced Nuclear Fuel Cycles, Steven Piet, Trond Bjornard, Brent Dixon *(INL)*, Robert Hill *(ANL)*, Gretchen Matthern, David Shropshire *(INL)*

2:40 p.m.
Transparency vs. Remote Monitoring, Virginia Cleary, Gary Rochau, David York *(SNL)*

3:05 p.m.
Designing in Transparency, Gary Rochau, Virginia Cleary, David York *(SNL)*

Sensitivity, Uncertainty, and Parameter Estimation Methodologies in Nuclear System Modeling—II, sponsored by MCD. *Session Organizer:* Hany S. Abdel-Khalik *(NCSU)*. *Chair:* Hany S. Abdel-Khalik [Track 7]

Suffolk

1:00 p.m.
Improved Convergence of a Filter for Degraded State Estimation Using Multiple Data Sources, Bulent Alpay, James Paul Holloway *(Univ of Michigan)*

1:25 p.m.
Material Identification in Finite Cylindrical Geometries Using the Schwinger Inverse Method, Keith C. Bledsoe *(Ohio State)*, Jeffrey A. Favorite *(LANL)*, Tunc Aldemir *(Ohio State)*, invited

1:50 p.m.
Subspace Methods for Multi-Scale/Multi-Physics Calculations, Part I: Theory, Hany S. Abdel-Khalik, Paul J. Turinsky *(NCSU)*

2:15 p.m.
Subspace Methods for Multi-Scale/Multi-Physics Calculations, Part II: Numerical Experiments, Matthew A. Jessee, Hany S. Abdel-Khalik, Paul J. Turinsky *(NCSU)*

2:40 p.m.
Data Analysis: Uncertainty, Sensitivity, Consistency and Adjustment, J. J. Wagschal, Y. Yeivin *(Hebrew Univ of Jerusalem)*

Computational Resources for Radiation Modeling, sponsored by RPSD; cosponsored by MCD. *Session Organizer:* John S. Hendricks *(LANL)*. *Chair:* Andrew Hodgdon *(AREVA)* [Track 7]

Wellesley

1:00 p.m.
Use of MCNPX for Alpha Spectrometry Simulations of a Continuous Air Monitor, Robert B. Hayes, Craig M. Marianno *(National Security Technol)*

1:25 p.m.
Using Monte Carlo Methods to Generate Simulated Nuclear Wireline and LWD Logs to Improve the Interpretation of Well Log Data, Donald C. McKeon *(Petrophysics Simulation Laboratory)*, James J. Zafarana, Keith A. Fish, Mark Ewers *(Hewlett-Packard)*

1:50 p.m.
The Use of Mesh Tallies as an Aid for Management Decisions, John Garcia, Arthur Crawford, Mathew Griffin, R. T. Perry *(LANL)*

2:15 p.m.
Spherical Mesh Weight Windows, John S. Hendricks, Gregg W. McKinney *(LANL)*

2:40 p.m.
A GUI for Computational Phantom with Freely Moving Arms and Legs, Hatice Akkurt, Dorothea Wiarda *(ORNL)*, Aaron Fleckenstein *(Oak Ridge Inst for Science and Education)*, Keith Eckerman *(ORNL)*

3:05 p.m.
VOXMAT: Hybrid Computational Phantom for Dose Assessment, Hatice Akkurt, Keith Eckerman *(ORNL)*

Updating the New Reactor Licensing Infrastructure, sponsored by NISD; cosponsored by OPD. *Session Organizer:* David Diamond *(BNL)*. *Cochairs:* David Diamond, James Higgins III *(BNL)* [Track 2]

Tufts

1:00 p.m.
Update to the NRC Standard Review Plan, Stephen S. Koenick *(NRC)*

1:25 p.m.
Updating the Standard Review Plan—An ORNL Perspective, Bruce Bevard, Gary Mays, Randal Belles, Don Copinger, Barry Oland, Jy-An Wang *(ORNL)*

1:50 p.m.
Development of HFE Sections of DG-1145, James C. Higgins, John M. O'Hara *(BNL)*, James Bongarra *(NRC)*

2:15 p.m.
Updating the NRC Standard Review Plan—Chapter 8—Electrical Systems, Kenneth Sullivan *(BNL)*

2:40 p.m.
Updates to NUREG-0800, Sections 2.4, 4.2 and 4.6, Alvin Ankrum *(PNNL)*

3:05 p.m.
Reactor Design Certification under Proposed Amendments to 10 C.F.R. Part 52, Matias F. Travieso-Diaz *(Pillsbury Winthrop Shaw Pittman)*

Reactor Physics: General, sponsored by RPD. *Chair:* Albert Gu *(AREVA NP)* [Track 7]

Simmons

1:00 p.m.
Modeling of ANL Small Modular Fast Reactor, Jianwei Hu, Rizwan-uddin *(Univ of Illinois)*

1:25 p.m.
Preliminary Neutronics Design Study of the Molten Salt Breeder Reactor Concept with MCNP5, Ryanne Kennedy, Kyle Metzroth, Thomas Blue, Tunc Aldemir *(Ohio State)*

1:50 p.m.
Improved Load Follow in IRIS through MSHIM, Fausto Franceschini, Bojan Petrovic *(Westinghouse)*

2:15 p.m.
Comparison of Tube-in-Duct and Pin Fuel for S-CO_2 Cooled Fast Reactor Applications, C. S. Handwerk, M. J. Driscoll, P. Hejzlar *(MIT)*

2:40 p.m.
Improved Temperature-Dependent Resonance Treatment in HELIOS-1.9, C. A. Wemple, R. J. J. Stamm'ler *(Studsvik Scandpower)*, A. A. Ferri *(Nuclear Fuel Cycle Consulting GmbH)*

3:05 p.m.
Graphite Thermal Neutron Scattering Cross Section Calculations Including Coherent 1-Phonon Effects, I. I. Al-Qasir, A. I. Hawari *(NCSU)*

3:30 p.m.
Systematic Method of Neutron Energy Group Structure Selection for HTR Analysis, P. Mkhabela *(Penn State)*, A. Ougouag *(INL)*, K. Ivanov *(Penn State)*, H. Gougar *(INL)*

Impact of INIE on University Research Reactors, sponsored by IRD. *Session Organizer:* Kenan Ünlü *(Penn State) Chair:* Kenan Ünlü [Track 6]

Boston University
1:00 p.m.
Impact of INIE on the Oregon State TRIGA Reactor, Michael R. Hartman, Steven R. Reese, Stephen E. Binney *(Oregon State Univ)*

1:25 p.m.
Progress Toward Deployment of a Web-Enabled Neutron Spectrometer, G. Kohse, T. Lucas, J. Cohen, J. Maro, L. W. Hu *(MIT)*

1:50 p.m.
Development of a Gamma Dosimeter for Mixed-Field Radiation Using Radiolysis, Timothy Setter, Mark Anderson, Paul Wilson *(Univ of Wisconsin, Madison)*, David Bartels *(Univ of Notre Dame)*

2:15 p.m.
MUTR Fuel Bundle Reactivity Worth, Eric Burgett, Dwayne Blaylock, Nolan Hertel *(Georgia Tech)*, Ian Gifford, Ali Mohamed, Vince Adams, Mohamad Al-Sheikhly *(Univ of Maryland)*

Thermal Hydraulics of Generation IV Systems, sponsored by THD. *Session Organizers:* Fan-Bill Cheung *(Penn State)*, Shripad Revenkar *(Purdue Univ)*, Donald Todd *(AREVA)*. *Chair:* Chang Oh *(INL)* [Track 8]

MIT
1:00 p.m.
Comparison of Experimental Depressurization Data to RELAP5 Results, J. I. Lee, P. Hejzlar, M. J. Driscoll *(MIT)*

1:25 p.m.
Advanced MED Using Waste Heat from Closed Gas Brayton Cycles, Haihua Zhao *(INL)*, Per F. Peterson *(Univ of California, Berkeley)*

1:50 p.m.
Plant Layout for a 1200 MWe Direct Brayton Cycle GFR, J. P. Gibbs, P. Hejzlar, Y. Gong, M. J. Driscoll *(MIT)*

2:15 p.m.
Lumped Parameter Model of the Advanced High-Temperature Reactor (AHTR), Juan J. Carbajo, Grady L. Yoder, Charles W. Forsberg *(ORNL)*

2:40 p.m.
RELAP5-3D Model of the Advanced High-Temperature Reactor (AHTR), Juan J. Carbajo, Grady L. Yoder, Charles W. Forsberg *(ORNL)*

3:05 p.m.
Inventory Control for the S-CO_2 Recompression Cycle, N. A. Carstens, P. Hejzlar *(MIT)*, R. B. Vilim *(ANL)*, M. J. Driscoll *(MIT)*

3:30 p.m.
Alternate Intermediate Heat Exchanger Design for Nuclear Hydrogen Production, Piyush Sabharwall, Steven Sherman *(INL)*, Vivek Utgikar, Fred Gunnerson *(Univ of Idaho)*

3:55 p.m.
Power Conversion System for Lead-Cooled Battery-Type Integral Fast Reactor System BORIS, T. W. Kim, N. H. Kim, K. Y. Suh *(Seoul National Univ)*

Bringing Value to the American Nuclear Society–Panel, sponsored by YMG; cosponsored by NCSD. *Session Organizer:* A. Nichole Ellis *(Ellis Nuclear Eng)*. *Chair:* Dena Belschner *(Bechtel Pwr)* [Track 1]

Arlington
1:00 p.m.
In order to retain student members as professional members after graduation, attract new young professional members, and encourage active participation in its activities, the American Nuclear Society and its constituent groups must provide clearly valuable services to those members. This session will develop a detailed list of services and actions to be proposed to the American Nuclear Society to better meet the needs of young nuclear science and technology professionals and their employers.

PANELISTS:
- Dena Belschner *(Bechtel Pwr)*
- Larry Campbell *(NRC)*
- A. Nichole Ellis *(Ellis Nuclear Eng LLC)*
- Jim Felty *(SAIC)*
- Robert Frost *(Nuclear Safety Assoc)*
- Garry Harris *(HTS Enterprise)*
- Donald R. Hoffman *(EXCEL)*
- Michael G. Houts *(NASA)*
- Kathryn McCarthy *(INL)*
- Keith Oliver *(INL)*
- Mary Jane Ross-Lee *(NRC)*
- E. Fitz Trumble *(WSMS)*
- Art Wharton *(Westinghouse)*
- Ralph J. Winiarski *(Westinghouse)*

Data, Analysis, and Operations for Nuclear Criticality Safety—II, sponsored by NCSD. *Session Organizer:* Lane Paschal *(Paschal Solutions)*. *Chair:* Brenda Hawks *(DOE)* [Track 4]

Berkeley
1:00 p.m.
Probabilistic Assessment of a Criticality in a Waste Container at SRS, Davoud A. Eghbali, M. Wesley Waddell *(Washington SMS)*

1:25 p.m.
Application of Non-Spherical Fissile Configuration in Waste Containers at SRS, Davoud A. Eghbali, L. Michelle Abney *(Washington SMS)*

1:50 p.m.
A Novel Methodology for Establishing Zones of Acceptable CAAS Coverage Utilizing MCNP5 in Adjoint, Zia A. Tompkins *(Univ of Tennessee)*, Peter L. Angelo *(Y-12 NSC)*, Ronald E. Pevey *(Univ of Tennessee)*

2:15 p.m.
Development of an Immediate Evacuation Zone Removing Reliance on 12-rad-in-air, Peter L. Angelo, Pran K. Paul, David W. Sheffey, Kevin J. Carroll *(Y-12 NSC)*

2:40 p.m.
Challenges Associated with the Implementation of 10 CFR 70, Subpart H Requirements, Nicholas W. Brown, Robert S. Maurer, Randy Shackelford *(Nuclear Fuel Services)*

3:05 p.m.
Practical Application of the Single-Parameter Subcritical Mass Limit for Plutonium Metal, Mark V. Mitchell *(LANL)*

Improvements and Innovations in Spent-Fuel Storage, sponsored by OPD. *Chair:* Alan Latti *(Shaw Stone & Webster)* [Track 3]

Clarendon

1:00 p.m.
Criticality-Control Application of Neutron-Absorbing Amorphous Metal Coatings for Spent-Fuel Containers, Jor-Shan Choi, Chuck Lee, Joseph Farmer *(LLNL)*, Moe Boussoufi, Ben Liu, Hal Egbert *(McClellan Nuclear Radiation Center)*

1:25 p.m.
Effects of Non-uniform Loading of Spent Fuels on the Capacity of Yucca Mountain Repository, Jun Li, Man-Sung Yim *(NCSU)*, David N. McNelis *(Univ of North Carolina at Chapel Hill)*

1:50 p.m.
Overview of a Welding Development Program for a Ni-Cr-Mo-Gd Alloy, W. L. Hurt, D. E. Clark, R. E. Mizia *(INL)*, C. V. Robino *(SNL)*

2:15 p.m.
MCNP Simulation of Neutron Energy Spectra, Sylena E. Smith *(Ohio State)*, Alan Ford *(Dominion)*, Audeen W. Fentiman *(Purdue Univ)*, Xiaodong Sun *(Ohio State)*

2:40 p.m.
Thermal Analysis on Passive Dry Spent Fuel Storage for ABTR, Yoshitaka Chikazawa, Christopher Grandy *(ANL)*

Current Status on Nonproliferation Programs–Panel, sponsored by FCWMD (organized in collaboration with SCNN). *Session Organizer:* Steve Mladineo *(PNNL)*. *Chair:* Steve Mladineo [Track 10]

Dartmouth
1:00 p.m.
This session will include presentations concerning four programs of the U.S. National Nuclear Security Administration Office of Defense Nuclear Nonproliferation. These include the nonproliferation aspects of GNEP, Trigger List and Export Control awareness, the international program on Elimination of Weapons Grade Plutonium Production, and the Sustainability of the Material Protection, Control, and Accounting program in Russia.

PANELISTS:
- Sustainability of MPC&A Programs, Charles Bolton *(NNSA)*
- Trigger List/Additional Protocol Export Controls, Todd Perry *(NNSA)*
- Nonproliferation Aspects of GNEP, Mark Goodman *(NNSA)*
- Elimination of Weapon Grade Plutonium Production, Lowell Ely *(NNSA)*

Environmental Aspects of Fuel Cycle Technologies, sponsored by ESD. *Chair:* Eric Loewen *(GE Infra, Energy)* [Track 3]

Exeter
1:00 p.m.
Burnup Effects on the Environmental Impact from Vitrified HLW, Erwan Bouvier, Joonhong Ahn *(Univ of California, Berkeley)*

1:25 p.m.
Environmental Impact of Yucca Mountain Repository After UREX+ Separation, Denia Djokic, Joonhong Ahn *(Univ of California, Berkeley)*

1:50 p.m.
The Collection and Utilization of Radionuclide Data at the Waste Isolation Pilot Plant, Sheila Lott, Beverly Crawford, William McInroy, Gregory Van Soest *(LANL)*, Russell Patterson *(DOE)*

2:15 p.m.
Flowsheet Testing of the Fission Product Extraction Process as Part of Advanced Aqueous Reprocessing, Jack D. Law, David A. Meikrantz, Dean R. Peterman, Catherine L. Riddle, Terry A. Todd *(INL)*

2:40 p.m.
Absence of Pollucite in Alumino-Silicates Containing Cesium and Strontium, Michael D. Kaminski, Carol J. Mertz *(ANL)*

3:05 p.m.
Synthesis of Uranium Oxide Nanoparticles in Aqueous Solutions, Shameem Hasan, Tushar K. Ghosh, Dabir S. Viswanath, Sudarshan K. Loyalka, Baolin Deng *(Univ of Missouri, Columbia)*

3:30 p.m.
Diffusion of Metals and Other Impurities in Diamond Powders of 30-40 Micron Size, Adrián E. Méndez, Mark A. Prelas, Tushar K. Ghosh, Louis M. Ross, Jr. *(Univ of Missouri, Columbia)*

The Aging Plant/Aging-Changing Workforce—II–Panel, sponsored by HFD. *Session Organizer:* Tyrone Tonkinson *(Simple Approach)*. *Chair:* Tyrone Tonkinson [Track 1]

Fairfield
1:00 p.m.
An open forum discussion with the morning presenters about stimulated topics or specific current challenges being faced by the session attendees. It is your chance to seek advice for your issues!

PANELISTS:
- Tyrone S. Tonkinson *(Simple Approach)*
- Edward Wick *(Shaw Stone & Webster)*
- Robert D. Holland *(Shaw Stone & Webster Nuclear)*
- Janelle J. Penisten *(Duke Energy)*
- Mark E. Watson *(Engineered Solutions)*
- Kenneth L. Huffman *(EPRI)*

Human Factors Concepts and Considerations in New Plant Design, sponsored by HFD; cosponsored by OPD. *Chair:* Poong Hyun Seong *(KAIST)* [Track 2]

Fairfield
2:30 p.m.
Human Factors Concerns for the Control Room Design of Lungmen Advanced Boiling Water Reactors, C. F. Chuang, H. P. Chou *(National Tsing Hua Univ)*, H. Shiao *(Atomic Energy Council, Taiwan)*

2:55 p.m.
The Fault Tolerance Design of Digital Control System in Korea, Seung-Hyun Park, Geug-Sin Bang, Hwan-Yong Jung, Choong-Yeol Yang *(KOPEC)*

3:20 p.m.
Strategy to Develop a New System to Assist BWR's Operations, Juan M. Bravo-Sánchez *(NCSU)*, Juan Lartigue-Gordillo *(Universidad Nacional Autónoma de México)*, Rogelio Castillo-Durán *(Instituto Nacional de Investigaciones Nucleares)*, Raymundo A. Gómez-Herrera *(Laguna Verde Nuclear Power Station, CFE)*

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

Introduction to New Plant Licensing–Panel, sponsored by OPD. *Session Organizer:* Sandra M. Sloan *(AREVA NP)*. *Chair:* Sandra M. Sloan [Track 2]

Salon G
1:00 p.m.
This is an educational panel session to describe the regulatory processes being used by U.S. vendors and utilities to license new plants. The session is intended to introduce and to complement a series of sessions related to new plant activities. The processes to be addressed include those provided in 10 CFR Part 52: design certification, early site permit, and combined license. Panelists will include representatives of vendors, utilities, and the NRC.

PANELISTS:
- Early Site Permit, Eddie Grant *(Excel/NuStart)*
- Nuclear Plant Development, Peter Hastings *(Duke Energy)*
- Regulatory History, David B. Matthews *(NRC)*
- Design Certification, Sandra M. Sloan *(AREVA NP)*

THURSDAY • JUNE 28, 2007	
7:30 A.M. - 2:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 12:00 P.M..	**ST-NH$_2$ TECHNICAL SESSIONS** (see page 37)
8:30 A.M. – 11:30 A.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** • Mathematical Modeling: General • Monte Carlo Burnup–Tutorial • Emerging Topics in Nuclear Installations Safety Technology • The Physics of Plutonium and MOX-Fueled Cores • Development of Conversion Processes and Remote Fuel Fabrication Capabilities for Transmutation Fuels • Computational Thermal Hydraulics—II • Nuclear Criticality Safety Standards—Forum
1:00 P.M. – 4:00 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** • Computational Methods for Fuel Cycle Simulations • Monte Carlo Tutorial • Reactor Safety: General
1:00 P.M. – 4:00 P.M.	**ST-NH$_2$ TECHNICAL SESSIONS** (see page 37)
1:00 P.M. – 5:30 P.M.	**TECHNICAL TOUR:** Massachusetts Institute of Technology

THURSDAY, JUNE 28, 2007 • 8:30 A.M.

Mathematical Modeling: General, sponsored by MCD. *Session Organizer:* Dmitriy Anistratov *(NCSU)*. *Chair:* Paul Wilson *(Univ of Wisconsin, Madison)* [Track 7]

Suffolk

8:30 a.m.
A Spectral Unfolding Method, Benoit Forget *(INL)*, Farzad Rahnema *(Georgia Tech)*

8:55 a.m.
New Expansion Functions for Calculation of Coarse Mesh Response Functions, Dingkang Zhang, Farzad Rahnema *(Georgia Tech)*, Abderrafi M. Ougouag *(INL)*

9:20 a.m.
An Improved Modal-Local Method for ADS Transient Analysis, Yan Cao, John C. Lee *(Univ of Michigan)*

9:45 a.m.
Multiscale Modeling of Damage in SiC Detectors in GT-MHR Central Reflector, B. Khorsandi, J. Chenkovich, T. E. Blue, W. Windl, J. Kulisek, D. Miller *(Ohio State)*

Monte Carlo Burnup–Tutorial, sponsored by RPSD; cosponsored by ETD. *Session Organizer:* Michael Fensin *(UFL/LANL)*. *Co-chairs:* Michael Fensin, Samim Anghaie *(Univ of Florida)* [Track 11]

Wellesley

8:30 a.m.
The Monte Carlo Burnup/Transmutation Tutorial is a hands-on session where attendees will learn how and practice setting up and running simple Monte Carlo burnup/depletion/transmutation problems. It is designed for those who are familiar with the MCNP(X) family of Monte Carlo codes.

Those attending this session will be shown how to set up and run simple calculations. Participants contacting the organizer (jxh@lanl.gov) in advance may be able to have the code on their personal laptop. Additional laptops will be brought to the session so that small groups of participants will be able to try what is being demonstrated.

Emerging Topics in Nuclear Installations Safety Technology, sponsored by NISD. *Session Organizer:* Stephen Schultz *(Duke Energy)*. *Cochairs:* Stephen Schultz, Charles Martin *(DNFSB)* [Track 4]

Regis

8:30 a.m.
A Risk-Informed Approach in the Design of a Molten Salt Reactor, Diego Mandelli, Peilai Zhang, Tunc Aldemir, Richard Denning *(Ohio State)*

8:55 a.m.
Accident Criticality Safety for Fast-Spectrum Molten Salt Reactors, Charles W. Forsberg *(ORNL)*

9:20 a.m.
A Conceptual Nanofluid Injection System Design for In-Vessel Retention Enhancement, R. Hannink, J. Buongiorno, L. W. Hu, G. E. Apostolakis *(MIT)*

9:45 a.m.
Novel Approaches to the Post Irradiation Examination of TPBARs, Clark Carlson, David Blanchard, Samuel Bryan, Brian Oliver *(PNNL)*

10:10 a.m.
Challenges of Creating and Maintaining a Proactive Safety Culture within a Highly Regulated Environment, Sonja B. Haber, Deborah A. Shurberg *(Human Performance Analysis)*

10:35 a.m.
Addressing Safety Culture Improvement within Self-Regulated Government Agencies, Douglas M. Minnema *(DNFSB)*

The Physics of Plutonium and MOX-Fueled Cores, sponsored by RPD. *Session Organizer:* Paul Edelmann *(LANL)*. *Chair:* Paul Edelmann [Track 3]

Simmons

8:30 a.m.
Potential Plutonium Utilisation in UK PWRs Using MOX and IMF: AP1000, A. Worrall, G. M. Thomas *[Nexia Solutions (part of BNFL Group)]*

8:55 a.m.
Potential Plutonium Utilisation in UK PWRs Using MOX and IMF; Sizewell 'B,' G. M. Thomas, A. Worrall *[Nexia Solutions (part of BNFL Group)]*

9:20 a.m.
Evaluation of Melting Temperature in $(Pu_{0.43}Am_{0.03}U_{0.54})O_{2.00}$, Shinya Nakamichi, Masato Kato, Kyoichi Morimoto *(Japan Atomic Energy Agency)*, Hiromasa Sugata *(Inspection Development Co)*, Motoaki Kashimura, Tomoyuki Abe *(Japan Atomic Energy Agency)*

9:45 a.m.
The Effect of O/M Ratio on the Melting of Plutonium and Uranium Mixed Oxides, Masato Kato, Kyoichi Morimoto *(Japan Atomic Energy Agency)*, Hiromasa Sugata *(Inspection Development Co)*, Kenji Konashi *(Tohoku Univ)*, Motoaki Kashimura, Tomoyuki Abe *(Japan Atomic Energy Agency)*

10:10 a.m.
Transient Analysis of MOX-Fueled Cores Based on Microscopic Reactor Physics, Toshikazu Takeda *(Osaka Univ)*

Development of Conversion Processes and Remote Fuel Fabrication Capabilities for Transmutation Fuels, sponsored by FCWMD; cosponsored by MSTD. *Chair:* Guillermo Del Cul *(ORNL)* [Track 8]

Boston University

8:30 a.m.
Preparation of Silicon Carbide and Uranium Oxide/Carbide Based Composite Fuels Using Polymer Infiltration and Pyrolysis, Abhishek K. Singh, Suraj C. Zunjarrao, Raman P. Singh *(Oklahoma State Univ)*

8:55 a.m.
More Sources and Review of Design for Radioisotope Energy Conversion Systems, E. V. Steinfelds *(Medical College of Wisconsin)*, M. A. Prelas *(Univ of Missouri)*

Computational Thermal Hydraulics—II, sponsored by THD; cosponsored by MCD. *Session Organizers:* Yassin Hassan, Karen Vierow *(Texas A&M)*, Donna P. Guillen *(INL)*. *Chair:* Steven A. Arndt *(NRC)* [Track 7]

MIT
8:30 a.m.
Primary Study on Mixture Freezing Phenomena for Fast Reactor Analysis by Simulation of THEFIS Experiment, Z. Wang, X. W. Cao *(Shanghai Jiao Tong Univ)*

8:55 a.m.
Application of an Iterative Scheme to the MARS Code for a Performance Enhancement, K. D. Kim, B. D. Chung *(KAERI)*

9:20 a.m.
Three-Dimensional Heat Transfer and Fluid Flow for Pebble Bed Reactor Applications, Volkan Seker, Thomas J. Downar *(Purdue Univ)*

9:45 a.m.
Heat Transfer Predictions of RANS Turbulence Models in Buoyant Flows, Constantine P. Tzanos *(ANL)*

10:10 a.m.
CFD Simulation of Steam Discharge Test at a Low Mass Flux Condition in a Subcooled Water, H. S. Kang, C. H. Song *(KAERI)*

Nuclear Criticality Safety Standards–Forum, sponsored by NCSD. *Session Organizer:* Thomas P. McLaughlin *(LANL)*. *Chair:* Thomas P. McLaughlin [Track 4]

Clarendon
8:30 a.m.

THURSDAY, JUNE 28, 2007 • 1:00 P.M.

Computational Methods for Fuel Cycle Simulations, sponsored by MCD. *Session Organizer:* Mary Lou Dunzik-Gougar *(ISU/INL)*. *Chair:* Mary Lou Dunzik-Gougar [Track 3]

Suffolk
1:00 p.m.
VISION 2: Enhanced Simulation Model of the Next Generation Nuclear Fuel Cycle, Jacob Jacobson *(INL)*, Abdellatif Yacout *(ANL)*, Gretchen Matthern, Steven Piet, David Shropshire, Chris Laws *(INL)*

1:25 p.m.
Determination of Repository Loading Values in Fuel Cycle Scenario Analysis Codes, Tracy E. Radel, Paul P. H. Wilson *(Univ of Wisconsin, Madison)*

1:50 p.m.
Improvement of OCEON-P Optimization Capabilities, Kenneth A. Anderson, Paul J. Turinsky, Paul M. Keller *(NCSU)*

2:15 p.m.
OCEON-P Linkage with SIMULATE3, Kenneth A. Anderson *(GE, Wilmington)*, Scott B. Thomas, Robert C. Harvey, Shawn K. Gibby, John R. Bartels *(Duke Energy)*

2:40 p.m.
Why Must Closed Fuel Cycles Tolerate Variable Fuel Compositions?, Gretchen Matthern, Steven Piet, Jacob Jacobson *(INL)*, Abdellatif Yacout *(ANL)*, Chris Laws *(INL)*

3:05 p.m.
Optimization of the Deployment of Recycling Facilities under Capacity Factor Constraints, N. Bonnet, M. S. Kazimi, P. Hejzlar *(MIT)*

3:30 p.m.
Status on Developments and Applications of the Integrated Nuclear Energy System Code DANESS, L. G. G. Van Den Durpel, A. M. Yacout, D. C. Wade *(ANL)*

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

Wellesley
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.

Those attending this session will be shown how to set up and run the simple 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 laptop. Additional laptops will be brought to the session so that everyone will be able to try what is being demonstrated. At the ANS Winter Meeting in Albuquerque, New Mexico (November, 2006) and the topical meeting of the Radiation Protection and Shielding Division in Carlsbad, New Mexico (April, 2006) this session was a great success. Participants who had never run a Monte Carlo problem before became able to do simple problems.

Reactor Safety: General, sponsored by NISD; cosponsored by OPD. *Session Organizer:* Lawrence Zull *(DNFSB)*. *Cochairs:* Lawrence Zull, Herbert Massie, Jr. *(DNFSB)* [Track 4]

Regis
1:00 p.m.
Evaluation of In-Vessel Severe Accident Management Strategies by Using SCDAP/RELAP5, Rae-Joon Park, Seong-Wan Hong, Sang-Baik Kim, Hee-Dong Kim *(KAERI)*

1:25 p.m.
Analysis of Two-Phase Natural Circulation Flow by Using RELAP5/MOD3, Rae-Joon Park, Kwang-Soon Ha, Sang-Baik Kim *(KAERI)*

1:50 p.m.
Analysis of Intentional Primary Depressurization Strategy in LOFW Accident, Zhang Kun, Cao Xue-Wu *(Shanghai Jiao Tong Univ)*

2:15 p.m.
Parametric Analysis of Fuel Cooling in LOCA with ECCS Impairments in CANDU Reactors, D. L. Luxat *(AECL)*, J. C. Luxat *(McMaster Univ)*

2:40 p.m.
Impact of Parallel HEPA Bank Operation on Filter Performance, Joseph Baron, Peter Wells *(Shaw Stone & Webster Nuclear)*

3:05 p.m.
Preliminary Analysis of Hydrogen Ignition during a Small-break LOCA Severe Accident, Deng Jian, X. W. Cao *(Shanghai Jiao Tong Univ)*

DATE	TIME	ROOM Salon F	Salon H-J	Salon H	Salon I	Salon J
Monday, June 25th	**2:30-4:30 PM**		Opening Plenary: Space Nuclear Power and Propulsion			
Tuesday, June 26th	**8:00-10:00 AM**	Plenary 2: Radioisotope Power Sources				
	10:00-11:30 AM			Mission Design for Manned and Unmanned Space Exploration	Concepts for Advanced Space Systems—I	Power Conversion Design
	1:00-2:30 PM			Student Opportunities and Knowledge Preservation in Space Nuclear Technology–Panel	Concepts for Advanced Space Systems—II	Spacecraft Power Strategies
	2:30-4:30 PM			Radiation Shielding and Protection—I: Materials Assessments	Nuclear Fuels Development—I	Planetary Surface Power Strategy and Design
	4:30-6:30 PM			Aerospace Nuclear Resources for Non-nuclear Aerospace Engineers–Roundtable Discussion		
Wednesday, June 27th	**8:00-10:00 AM**	Plenary 3: Space Nuclear Systems, Fuels and Materials Research in Russia and USA				
	10:00-11:30 AM			Nuclear Fuels Development—II	Dynamics, Instrumentation and Control, and Systems Engineering	Space Nuclear Power Safety
	1:00-2:30 PM			Radiation Shielding and Protection—II: Benchmarking Calculations	Ground Testing of Space Reactor Systems—I	Materials Assessments
	2:30-4:00 PM			Systems Modeling and Simulation	Ground Testing of Space Reactor Systems—II: Component Development	
	4:00-6:00 PM	Closing Plenary: Key Challenges and Future Opportunities				

EMBEDDED TOPICAL MEETING:
Space Nuclear Conference 2007 (SNC '07)

SNC '07 MEETING OFFICIALS

John J. Grossenbacher
Idaho National Laboratory
GENERAL CO-CHAIR

Robert M. Lightfoot, Jr.
NASA Marshall Space Flight Center
GENERAL CO-CHAIR

Shannon Bragg-Sitton
Los Alamos National Laboratory
TECHNICAL PROGRAM CO-CHAIR

Steven D. Howe
INL Center for Space Nuclear Research
TECHNICAL PROGRAM CO-CHAIR

MONDAY • JUNE 25, 2007

7:30 A.M. – 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 11:30 A.M.	**OPENING PLENARY** *(see page 12)* "It's All About the People: The Future of Nuclear"
9:00 A.M. – 1:00 P.M.	**SPOUSE/GUEST TOUR:** "Boston Duck Tour"
11:30 A.M. – 1:00 P.M.	**OPERATIONS AND POWER DIVISION LUNCHEON**
11:30 A.M. – 1:00 P.M.	**EMBEDDED TOPICAL MEETING *ST-NH2* LUNCHEON**
1:00 P.M. – 2:30 P.M.	**ANS PRESIDENT'S SPECIAL SESSION** *(see page 12)* "India – U.S. Nuclear Cooperation"
2:30 P.M. – 4:30 P.M.	**ST-NH_2 OPENING PLENARY SESSION** *(see page 34)*
2:30 P.M. – 4:00 P.M.	**SNC '07 – OPENING PLENARY:** Space Nuclear Power & Propulsion
2:30 P.M. – 4:15 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 12)*
4:15 P.M. – 5:15 P.M.	**ANS BUSINESS MEETING**
4:15 P.M. – 6:15 P.M.	**GENERAL CO-CHAIRS' SPECIAL SESSION** *(see page 12)* "Revitalizing the Supply Chain"
7:00 P.M. – 10:30 P.M.	**DINNER AND TOUR AT FENWAY PARK**

MONDAY, JUNE 25, 2007 • 2:30 P.M. - 4:30 P.M.

Opening Plenary: Space Nuclear Power & Propulsion

Session Chairs: Robert M. Lightfoot, Jr. *(Center Deputy Director, NASA MSFC)*, Vice Admiral John J. Grossenbacher (Ret.) *(Laboratory Director, INL)*

Salon H-J

SPEAKERS:

- Representative Robert E. Cramer *(D, AL, Member, House Appropriations Committee, U.S. House of Representatives)*, invited
- David Southwood *(Science Director, European Space Agency)*
- Douglas Cooke *(Deputy Associate Administrator, Exploration Systems Mission Directorate, NASA HQ)*
- Vice Admiral John J. Grossenbacher *(Ret.) (Laboratory Director, INL)*

TUESDAY • JUNE 26, 2007

7:30 A.M. - 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 10:00 A.M.	**SNC '07 – PLENARY II** Radioisotope Power Sources
8:30 A.M. – 11:30 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 14)*
8:30 A.M. – 12:15 P.M.	**ST-NH_2 TECHNICAL SESSIONS** *(see page 34)*
9:00 A.M. – 5:00 P.M.	**SPOUSE/GUEST TOUR:** Plimoth Plantation/Mayflower II
10:00 A.M. – 11:30A.M.	**SNC '07 TECHNICAL SESSIONS** • Mission Design for Manned and Unmanned Space Exploration • Concepts for Advanced Space Systems—I • Power Conversion Design
11:30 A.M. – 1:00 P.M.	**ANS HONORS AND AWARDS LUNCHEON**
1:00 P.M. – 2:30 P.M.	**SNC '07 TECHNICAL SESSIONS** • Concepts for Advanced Space Systems-II • Spacecraft Power Strategies • Student Opportunities and Knowledge Preservation in Space Nuclear Technology
1:00 P.M. – 4:00 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 14)*
1:00 P.M. – 5:30 P.M.	**ST-NH_2 – TECHNICAL SESSIONS** *(see page 34)*
2:30 P.M. – 4:00 P.M.	**SNC '07 TECHNICAL SESSIONS** • Planetary Surface Power Strategy and Design • Nuclear Fuels Development—I • Radiation Shielding and Protection—I: Materials Assessments
4:00 P.M. – 6:00 P.M.	**HONORARY CHAIR'S SPECIAL SESSION:** "The Nuclear Fuel Cycle and its Waste Management: Innovation is the Future" *(In Memory of Manson Benedict)*
4:30 P.M. – 6:30 P.M.	**SNC '07 – ROUNDTABLE DISCUSSION** Aerospace Nuclear Resources for Non-nuclear Aerospace Engineers

TUESDAY, JUNE 26, 2007 • 8:00 A.M.-10:00 A.M.

Plenary 2: Radioisotope Power Sources

Session Chairs: Dale Rogers *(United Technologies)*, Steven Howe *(Center for Space Nuclear Research, INL)*

Salon F

SPEAKERS:

- Robert Lange *(Director, Office of Space and Defense, U.S. Department of Energy)*
- Scott Vogt *(Manager, Multi-Mission RTG Program, United Technologies)*
- Alan Harmon *(Acting Program Executive, Science Mission Directorate, NASA HQ)*

TUESDAY, JUNE 26, 2007 • 10:00 A.M. - 11:30 A.M.

Mission Design for Manned and Unmanned Space Exploration

Session Chairs: Ralph L. McNutt, Jr., *(Johns Hopkins Univ Applied Physics Laboratory)*, Len Dudzinski *(NASA HQ)*

Salon H

10:00 a.m.

Interplanetary Mission Systems Engineering: A Retrospective of Fission Power Systems Concept Development, M.J. Forsbacka *(NASA)*

10:25 a.m.

A New Mission for the International Space Station (ISS) Enabled by Nuclear Thermal Propulsion - Cyclic Transport of Personnel and Supplies between Earth and Moon, J. Paniagua, J. Powell, G. Maise *(Plus Ultra Technologies)*

10:50 a.m.

Using a Nuclear Rocket to Support a Lunar Outpost: Is It Cost Effective, S.D. Howe *(Center for Space Nuclear Research)*, N. Barra *(Univ of California-Los Angeles)*, J. Bess *(Univ of Utah)*, E. Colvin *(Georgia Institute of Technology)*, P. Cummings *(Embry Riddle Aeronautical Univ)*, B. Cunningham *(Univ of Florida)*, M. Ghrist *(Texas A&M Univ)*, R. Johnson *(Boise State Univ)*, R. O'Brien *(Univ of Leicester-UK)*, J. Perkins *(Colorado School of Mines)*, K. Supak *(Texas A&M Univ)*, M. Yano *(Georgia Institute of Technology)*

11:15 a.m.
Nuclear Thermal Propulsion Mars Mission Systems Analysis and Requirements Definition, J. Mulqueen *(NASA-MSFC)*, R.C. Chiroux *(SAIC)*, D. Thomas *(NASA-MSFC)*, T. Crane *(Qualis Inc.)*

Concepts for Advanced Space Systems-I
Session Chairs: Mike Zerkle *(Bettis Atomic Power Laboratory)*, Mike Houts *(NASA-MSFC)*

Salon I
10:00 a.m.
3D Analysis of an Open Cycle Gas Core Nuclear Rocket, J.P. Barnett, R.F. Tuttle *(Air Force Institute of Technology)*

10:25 a.m.
Passively Safe Space Reactor Concept Using Lithium Capillary Flow, C.G. Miller, T.F. Lin, T.G. Hughes *(The Pennsylvania State Univ)*

10:50 a.m.
Dynamic Characteristics of Compact, Fast-Spectrum Reactors, D.I. Poston, T.F. Marcille, D.D. Dixon, B.W. Amiri *(LANL)*

11:15 a.m.
The Nuclear Power Demand and Limitations for Deep Space Exploration, L. Popa-Simil *(Consultant)*

Power Conversion Design
Session Chairs: Paul Gill *(United Technologies)*, Robert S. Reid *(LANL)*

Salon J
10:00 a.m.
Initial Test Results of a Dual Closed-Brayton-Cycle Power Conversion System, P.K. Johnson *(Analex Corp)*, L.S. Mason *(NASA Glenn Research Center)*

10:25 a.m.
A Historical Review of Brayton and Stirling Power Conversion Technology for Space Applications, L.S. Mason, J.G. Schreiber *(NASA Glenn Research Center)*

10:50 a.m.
Reduced Gravity Rankine Cycle System Simulation and Design with Passive Vortex Phase Separation, K. Supak, C. Kurwitz, R. Oinuma, F. Best *(Texas A&M Univ)*

TUESDAY, JUNE 26, 2007 • 1:00 P.M. - 2:30 P.M.

Concepts for Advanced Space Systems—II
Session Chairs: Ivana Hrbud *(Purdue Univ)*, Norbert Frischauf *(QASAR-The Netherlands)*

Salon I
1:00 p.m.
The MOA Thruster: Using Alfvén Waves for Nuclear Electric and Thermal Propulsion, N. Frischauf, T. Bartusch, A. Grassauer, M. Hettmer *(QASAR Technologie(s)-Austria)*, O. Koudelka *(Graz Univ of Technology-Austria)*

1:25 p.m.
Magnetically-Channeled IEC Trap Array Fusion Device for Interplanetary Missions, G.H. Miley, L. Wu *(Univ of Illinois)*

1:50 p.m.
Magnetic-Nuclear Propulsion/Power System (MAGNUS) - Control and Heat Removal Options, P.V. Tsvetkov *(Texas A&M Univ)*

Spacecraft Power Strategies
Session Chairs: Lee Mason *(NASA GRC)*, Thomas K. Larson *(INL)*

Salon J
1:00 p.m.
Direct Nuclear Power Conversion into Electricity, L. Popa-Simil *(Consultant)*

1:25 p.m.
Optimization Modeling of Multiple Spectral Control Components for High Thermophotovoltaic (TPV) Efficiency, T.D. Rahmlow, J.E. Lazo-Wasem *(Rugate Technologies, Inc.)*, D.L. Chubb *(NASA Glenn Research Center)*

1:50 p.m.
Conceptual Designs for Small Radioisotope Power Sources, B. Heshmatpour, A. Lieberman, M. McAlonan, A. Leanna *(Teledyne Energy Systems, Inc.)*

Student Opportunities and Knowledge Preservation in Space Nuclear Technology–Panel
Session Chairs: Eric Alderson *(Univ of Wisconsin)*, Shannon Bragg-Sitton *(LANL)*

Salon H
1:00 p.m.
Center for Space Nuclear Research, J. Werner *(INL)*

1:25 p.m.
Capturing and Maintaining Legacy Nuclear Knowledge, T.E. Meehan, R.M. Hust *(NeoKinetics)*, R.L. Ferguson *(Columbia Nuclear International)*

1:50 p.m.
Panel Discussion: Student Opportunities in Space Nuclear Technology, Steve Howe *(Centers for Space Nuclear Research)*, Boise Pearson *(NASA MSFC)*, John Bess *(Univ of Utah)*, Brandon Cunningham *(Univ of Florida)*, Andy Klein *(INL)*

TUESDAY, JUNE 26, 2007 • 2:30 P.M. - 4:30 P.M.

Planetary Surface Power Strategy and Design *(end session at 5:00 p.m.)*
Session Chairs: Jim Werner *(INL)*, Wendell Mendell *(NASA JSC)*

Salon J
2:30 p.m.
Empowering the New Jamestown, J. Graham *(4Frontiers Corp.)*

2:55 p.m.
Startup Sequence of RAPID-L Fast Reactor for Lunar Base Power System, M. Kambe *(CRIEPI-Japan)*, O. Sato *(Mitsubishi Research Institute-Japan)*, H. Tsunoda *(Mitsubishi Research Associates-Japan)*

3:20 p.m.
Conceptual Design of a Lunar Regolith Clustered-Reactor System, J.D. Bess *(Univ of Utah)*

3:45 p.m.
Multi-MICE: A Network of Interactive Nuclear Cryoprobes to Explore the Ice Sheets on Mars, J. Powell, G. Maise, J. Paniagua, H. Ludewig *(Plus Ultra Technologies, Inc.)*

4:10 p.m.
System Modeling of Lunar Oxygen Production: Mass and Power Requirements, C.J. Steffen Jr, J.E. Freeh, D.L. Linne, E.W. Faykus, C.A. Gallo, R.D. Green *(NASA-Glenn Research Center)*

4:35 p.m.
ALPH: A Robotic Nuclear Powered Factory System to Manufacture Propellants and Supplies for Manned Basas on Moon and Mars, J. Powell, G. Maise, J. Paniagua, H. Ludewig *(Plus Ultra Technologies, Inc.)*

Nuclear Fuels Development—I
Session Chairs: Jeff Hallfinger *(BWXT)* Jon Carmack *(INL)*

Salon I
2:30 p.m.
Uranium Carbonitride Compounds - Fuel for Promising Compact Nuclear Reactors, E. D'yakov, V. Blank *(LUTCH-Russia)*

2:55 p.m.
Nitride Fuel Development Using Cryo-process Technique, B.M. O'Brien, W.E. Windes, A.E. Erickson *(INL)*

3:20 p.m.
Nitride Fuel Development at the INL, W.E. Windes, D.S. Wendt, R.L. Bewley, B.M. O'Brien *(INL)*

3:45 p.m.
The Advantages of the Poisons Free Fuels, L. Popa-Simil *(Consultant)*

Radiation Shielding and Protection—I: Materials Assessments

Session Chairs: Lou Qualls *(ORNL)*, J. Boise Pearson *(NASA-MSFC)*

Salon H
2:30 p.m.
A Parametric Study of Dosimetry and Shielding Requirements for a Reactor-Powered Lunar Surface Mission, A.F. Barghouty *(NASA-MSFC)*

2:55 p.m.
Fragmentation Calculations for Energetic Ions in Candidate Space Radiation Shielding Materials, L.K. Mansur *(ORNL)*, Y.M. Charara *(Univ of Tennessee)*, S.B. Guetersloh *(Lawrence Berkeley National Laboratory)*, I. Remec *(ORNL)*, L.W. Townsend *(Univ of Tennessee)*

3:20 p.m.
Recent Lithium-Hydride Casting Experience for Space Neutron Shields, G.A. Johnson *(Hamilton Sundstrand, Space, Land & Sea – Rocketdyne)*

3:45 p.m.
Conceptual Design of Multifunctional Material for Space Radiation Applications, Z. Shayer *(Univ of Denver)*

TUESDAY, JUNE 26, 2007 • 4:30 P.M. - 6:30 P.M.

Aerospace Nuclear Resources for Non-nuclear Aerospace Engineers–Roundtable Discussion

Session Chairs: Eric Alderson *(Univ of Wisconsin)*, Shannon Bragg-Sitton *(LANL)*

Salon H
4:30 p.m.
Roundtable Discussion: by Frederick Best, Pavel Tsvetkov *(Texas A&M Univ)*, Ray Sedwick *(MIT)*

WEDNESDAY • JUNE 27, 2007	
7:30 A.M. - 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 10:00 A.M.	**SNC '07 – PLENARY III:** Space Nuclear Systems, Fuels and Materials Research in Russia and USA
8:30 A.M. – 11:30 A.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 19)*
8:00 A.M. – 11:50 A.M.	**ST-NH$_2$ TECHNICAL SESSIONS** *(see page 35)*
10:00 A.M. – 11:30 A.M.	**SNC '07 TECHNICAL SESSIONS** • Nuclear Fuels Development-II: Cermet Fuels • Dynamics, Instrumentation & Control, and Systems Engineering • Space Nuclear Power Safety
1:00 P.M. – 2:30 P.M.	**SNC '07 TECHNICAL SESSIONS** • Materials Assessments • Radiation Shielding and Protection—II: Benchmarking Calculations • Ground Testing of Space Reactor Systems—I
1:00 P.M. – 4:00 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 19)*
1:00 P.M. – 5:15 P.M.	**ST-NH$_2$ TECHNICAL SESSIONS** *(see page 35*
2:30 P.M. – 4:00 P.M.	**SNC '07 TECHNICAL SESSIONS** • Ground Testing of Space Reactor Systems—II: Component Development • Systems Modeling and Simulation
4:00 P.M. – 6:00 P.M.	**SNC '07 CLOSING PLENARY:** Key Challenges and Future Opportunities
4:00 P.M. – 6:00 P.M.	**ANS PUBLIC COMMUNICATIONS WORKSHOP**
6:30 P.M. – 10:30 P.M.	**DINNER AT MUSEUM OF SCIENCE** *(Includes the Theater of Energy)*

WEDNESDAY, JUNE 27, 2007 • 8:00 A.M. - 10:00 A.M.

Plenary 3: Space Nuclear Systems, Fuels and Materials Research in Russia and USA

Session Chair: Nils J. Diaz *(Univ of Florida)*

Salon F
Development of Nuclear Power and Propulsion Systems of the First Generation, Nikolay N. Ponomarev-Stepnoy *(Kurchatov Institute-Russia)*

Mixed Carbide and Carbonitride Fuels Development and Testing, Eugeniy D'yakov *(LUTCH-Russia)*

Hyper Quality Synthetic Diamond, Non-carbon, Nano-diamond, Vladimir Blank *(TISNCM-Russia)*

Space Reactor Fuel Development in USA, Samim Anghaie *(Univ of Florida)*

WEDNESDAY, JUNE 27, 2007 • 10:00 A.M. - 11:30 A.M.

Nuclear Fuels Development—II: Cermet Fuels

Session Chairs: Pablo Rubiolo *(Westinghouse)*, Paul Edelmann *(LANL)*

Salon H
10:00 a.m.
A Spouted Bed Reactor Monitoring System for Particulate Nuclear Fuel, D.S. Wendt, W.E. Windes, R.L. Bewley *(INL)*

10:25 a.m.
An Overview of Current and Past W-UO2 CERMET Fuel Fabrication Technology, D.E. Burkes, D.M. Wachs, J.E. Werner, S.D. Howe *(INL)*

10:50 a.m.
Tungsten Cermet Fabrication by a Joule Heating Process, B.W. Cunningham, D.E. Burkes, R.S. Fielding, W.E. Windes, S.D. Howe *(Centers for Space Nuclear Research)*

Dynamics, Instrumentation & Control, and Systems Engineering

Session Chairs: Steven A. Wright *(Sandia)*, David Poston *(LANL)*

Salon I
10:00 a.m.
Testing in Support of Space Fission System Development and Qualification, Mike Houts *(NASA-MSFC)*

10:25 a.m.
Control and Protection System Implementation Strategies for Lunar Fission Power Systems, A.L. Qualls, D.A. Clayton, D.E. Holcomb, R.T. Wood *(ORNL)*

10:50 a.m.
Application of a Reconfigurable Controller to the SP-100 Space Reactor System, B.R. Upadhyaya, X. Xu *(Univ of Tennessee)*

11:15 a.m.
Investigation of Autonomous Control for the Jupiter Icy Moons Orbiter, R.T. Wood *(ORNL)*

Space Nuclear Power Safety

Session Chairs: Martin B. Sattison, Heather MacLean *(INL)*

Salon J
10:00 a.m.
Impact Analysis for Candidate Space Reactor Core Concept Designs for Potential Criticality Study, S.H. Kim, G.F. Flanagan *(ORNL)*

10:25 a.m.
Safety Analysis for a Radioisotope Stirling Generator, W.D. Richins, J.M. Lacy, S.R. Novascone, B.H. Dolphin *(INL)*

10:50 a.m.
Defensive Strategies against Common-Cause Failure: Prioritization Based on Analytic Hierarchy Process, M.C. Kim *(KINS-Korea)*, I.S. Kim *(Information Systems Laboratories)*

WEDNESDAY, JUNE 27, 2007 • 1:00 P.M. - 2:30 P.M.

Materials Assessment

Session Chairs: Dion Sunderland *(ANATECH Corp)*, Cheryl Bowman *(NASA GRC)*, Steve Zinkle *(ORNL)*

Salon J
1:00 p.m.
Materials-of-Construction Radiation Sensitivity for a Fission Surface Power Converter, C.L. Bowman, S.M. Geng, J.M. Niedra, A. Sayir, E.E. Shin, J.K. Sutter, L.G. Thieme *(NASA Glenn Research Center)*

1:25 p.m.
Promises and Pitfalls of Austenitic Stainless Steels for Space Surface Nuclear Power Applications, S.J. Zinkle, J.T. Busby, P.J. Maziasz, S.J. Pawel *(ORNL)*

1:50 p.m.
Aging Effects on Microstructural and Mechanical Properties of Nb-base FS-85 and Nb-1Zr Alloys for Space Reactor Applications, K.J. Leonard, J.T. Busby, S.J. Zinkle *(ORNL)*

2:15 p.m.
Impact of Irradiation on Nb-base Alloys for Space Reactor Applications, J.T. Busby, K.J. Leonard, S.J. Zinkle *(ORNL)*

2:40 p.m.
Thermal Stability and Radiation Resistance of Sm-Co Based Permanent Magnets, J. Liu, P. Vora, P. Dent, M. Walmer *(Electron Energy Corp.)*, C. Chen *(Univ of Dayton Research Institute)*, J. Talnagi *(Ohio State Univ)*, S. Wu, M. Hammer *(Lehigh Univ)*

Radiation Shielding and Protection—II: Benchmarking Calculations

Session Chairs: Nasser Barghouty *(NASA MSFC)*, Robert C. Singleterry *(NASA-LARC)*

Salon H
1:00 p.m.
Comparison of Total Reaction and Charge-changing Cross Section Models with Measurements, C. La Tessa *(Chalmers Univ of Technology-Sweden)*, L. Sihver *(Chalmers Univ of Technology-Sweden, Roanoke College-USA)*, D. Mancusi *(Chalmers Univ of Technology-Sweden)*

1:25 p.m.
Bench marking of calculated projectile fragmentation cross sections using the 3-D, MC codes PHITS, FLUKA, HETC-HEDS, and MCNPX, L. Sihver *(Chalmers Univ of Technology-Sweden, Roanoke College)*, D. Mancusi *(Chalmers Univ of Technology-Sweden)*, K. Niita *(RIST-Japan)*, T. Sato *(JAEA-Japan)*, L. Townsend, C. Farmer *(The Univ of Tennessee)*, L. Pinsky *(Univ of Houston)*, I. Gomez *(I.C. Gomes Consulting & Investment Inc.)*

1:50 p.m.
Can the Equivalent Sphere Model Approximate Organ Doses in Space Radiation Environments?, Z.-W. Lin *(NSSTC)*

Ground Testing of Space Reactor Systems—I

Session Chairs: Tom Hill *(INL)*, Bill Otting *(United Technologies)*

Salon I
1:00 p.m.
Dismantlement of the TSF-SNAP Reactor Assembly, F.J. Peretz *(ORNL)*

1:25 p.m.
Upgrade of the IVG.1M Reactor for Testing of NPP and BNTP Components, V.P. Smetannikov, Yu.S. Cherepnin, Ye.L. Romadova *(N.A. Dollezhal Research and Development Institute of Power Engineering-Russia)*, A.A. Kolodeshnikov, Yu.S. Vasilyev *(National Nuclear Center-Kazakhstan)*

1:50 p.m.
High Fidelity Thermal Simulators for Non-Nuclear Testing: Analysis and Initial Test Results, S.M. Bragg-Sitton, R. Dickens *(NASA-MSFC)*, D. Dixon *(North Carolina State Univ)*

WEDNESDAY, JUNE 27, 2007 • 2:30 P.M. - 4:00 P.M.

Ground Testing of Space Reactor Systems—II: Component Development

Session Chairs: Dan Wachs *(INL)*, Frederick Best *(Texas A&M Univ)*

Salon I
2:30 p.m.
FTL-1 Feasibility Test Loop Design and Construction, T.J. Godfroy, J.B. Pearson, K.A. Polzin, R.S. Reid, K.L. Webster *(NASA-MSFC)*

2:55 p.m.
Capabilities and Testing of the Fission Surface Power Primary Test Circuit (FSP-PTC), A.E. Garber *(NASA-MSFC)*

3:20 p.m.
Liquid Metal Pump Technologies for Nuclear Surface Power, K.A. Polzin *(NASA-MSFC)*

Systems Modeling and Simulation

Session Chairs: Paul Johnson *(NASA GRC)*, Shannon Bragg-Sitton *(LANL)*

Salon H
2:30 p.m.
An Integral PWR for Space Applications: Dynamic Analysis, E. Finzi *(Politecnico di Milano-Italy)*, L. Summerer *(ESA-The Netherlands)*

2:55 p.m.
Cosmic Ray Telescope for the Effects of Radiation (CRaTER): Comparison between Experiment and Computer Simulation, Y.M. Charara, L.W. Townsend *(Univ of Tennessee)*, H.E. Spence *(Boston Univ)*, J.B. Blake *(The Aerospace Corp.)*, M.J. Golightly *(Air Force Research Lab)*, E.L. Kepko *(MIT)*, J.C. Kasper *(Boston Univ, MIT)*, M.D. Looper, J.E. Mazur *(The Aerospace Corp.)*, C. Farmer *(Univ of Tennessee)*

3:20 p.m.
Stirling System Modeling for Space Nuclear Power Systems, E.J. Lewandowski *(Sest, Inc.)*, P.K. Johnson *(Analex Corp.)*

WEDNESDAY, JUNE 27, 2007 • 4:00 P.M. - 6:00 P.M.

Closing Plenary: Key Challenges and Future Opportunities

Session Chairs: Shannon Bragg-Sitton *(LANL)*, Mike Houts *(NASA MSFC)*

Salon F

SPEAKERS:

- Tore Straume *(Chief Life Scientist, NASA-Ames Research Center)*
- Frank von Hippel *(Professor of Public and International Affairs, Program on Science and Global Security, Princeton Univ)*
- Speaker TBA

DATE	TIME	ROOM Simmons	Harvard	Regis
MONDAY, JUNE 25, 2007	**2:30 PM**	Opening Plenary Session: 2007 ANS Embedded Topical Meeting on the Safety and Technology of Nuclear Hydrogen Production, Control, and Management		
TUESDAY, JUNE 26, 2007	**8:30 AM**		An International Overview of Nuclear Hydrogen Programs–Panel/Papers	
	10:45 AM		Socioeconomic Perspectives and Technology Integration	
	1:00 PM		Nuclear Technology Development: High-Temperature Electrolysis	Hydrogen Control in LWRs: Current Plant Status and Future Directions–Panel/Papers
	3:30 PM			Nuclear Techology Development: Hybrid Sulfur and Alternate Thermal Cycles
WEDNESDAY, JUNE 27, 2007	**8:00 AM**		Nuclear Techology Development: Sulfur Iodine Cycle Experimentation and Modeling	Hydrogen Control and Management in the DOE Complex: Current Issues and the Path Toward Resolution–Panel/Papers
	1:00 PM		Material Issues and Test Facilities	Software Development and Model Simulation for Safety and Process Optimization
	4:00 PM			Environmental Aspects of Nuclear Production of Hydrogen
THURSDAY, JUNE 28, 2007	**8:00 AM**		Safety Aspects of Nuclear Production of Hydrogen	
	1:00 PM		Nuclear Hydrogen System Analysis and Conceptual Design	

EMBEDDED TOPICAL MEETING: Safety and Technology of Nuclear Hydrogen Production, Control, and Management (ST-NH_2)

ST-NH_2 Embedded Topical Meeting Luncheon Sponsor: Washington Safety Management Solutions, LLC

ST-NH_2 MEETING OFFICIALS

Paul Kruger
Emeritus
HONORARY PROGRAM CHAIR

Carl J. Sink
U.S. Department of Energy, NE 20
GENERAL CHAIR

Kevin R. O'Kula
Washington Safety Management Solutions, LLC
TECHNICAL PROGRAM CHAIR

Jeff Hudson
Washington Safety Management Solutions, LLC
ASSISTANT TECHNICAL PROGRAM CHAIR

MONDAY • JUNE 25, 2007

7:30 A.M. – 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 11:30 A.M.	**OPENING PLENARY** *(see page 12)* "It's All About the People: The Future of Nuclear"
9:00 A.M. – 1:00 P.M.	**SPOUSE/GUEST TOUR:** "Boston Duck Tour"
11:30 A.M. – 1:00 P.M.	**OPERATIONS AND POWER DIVISION LUNCHEON**
11:30 A.M. – 1:00 P.M.	**EMBEDDED TOPICAL MEETING ST-NH_2 LUNCHEON**
1:00 P.M. – 2:30 P.M.	**ANS PRESIDENT'S SPECIAL SESSION** *(see page 12)* "India – U.S. Nuclear Cooperation"
2:30 P.M. – 4:30 P.M.	**ST-NH_2 OPENING PLENARY SESSION**
2:30 P.M. – 4:00 P.M.	**SNC '07 – OPENING PLENARY:** *(see page 29)* Space Nuclear Power & Propulsion
2:30 P.M. – 4:15 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 12)*
4:15 P.M. – 5:15 P.M.	**ANS BUSINESS MEETING**
4:15 P.M. – 6:15 P.M.	**GENERAL CO-CHAIRS' SPECIAL SESSION** *(see page 12)* "Revitalizing the Supply Chain"
7:00 P.M. – 10:30 P.M.	**DINNER AND TOUR AT FENWAY PARK**

MONDAY, JUNE 25, 2007 • 2:30 P.M.

Opening Plenary Session: 2007 ANS Embedded Topical Meeting on the Safety and Technology of Nuclear Hydrogen Production, Control, and Management. All invited, *Chair:* Kenneth Schultz *(General Atomics)*

Simmons
2:30 p.m.

- Keynote Speaker: Hydrogen, For All the Right Reasons, Jeff Serfass *(National Hydrogen Association)*
- Nuclear Production of Hydrogen as an Appropriate Technology, Paul Kruger *(Stanford University)*
- Research and Development of Hydrogen Production Using Nuclear Energy, Carl Sink *(DOE Nuclear Hydrogen Initiative)*
- Nuclear Plant/Hydrogen Plant Safety: Issues and Approaches, Steven R. Sherman *(INL)*
- Is Hydrogen the Future of Nuclear Energy?, Charles W. Forsberg *(ORNL)*

TUESDAY • JUNE 26, 2007

7:30 A.M. - 5:00 P.M.	**MEETING REGISTRATION**
8:00 A.M. – 10:00 A.M.	**SPOUSE/GUEST HOSPITALITY**
8:00 A.M. – 10:00 A.M.	**SNC '07 – PLENARY II** *(see page 29)* Radioisotope Power Sources
8:30 A.M. – 11:30 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 14)*
8:30 A.M. – 12:15 P.M.	**ST-NH_2 TECHNICAL SESSIONS** • An International Overview of Nuclear Hydrogen Programs–Papers/Panel • Socioeconomic Perspectives and Technology Integration
9:00 A.M. – 5:00 P.M.	**SPOUSE/GUEST TOUR:** Plimoth Plantation/Mayflower II
10:00 A.M. – 11:30A.M.	**SNC '07 TECHNICAL SESSIONS** *(see page 29)*
11:30 A.M. – 1:00 P.M.	**ANS HONORS AND AWARDS LUNCHEON**
1:00 P.M. – 2:30 P.M.	**SNC '07 TECHNICAL SESSIONS** *(see page 29)*
1:00 P.M. – 4:00 P.M.	**2007 ANNUAL MEETING TECHNICAL SESSIONS** *(see page 14)*
1:00 P.M. – 5:10 P.M.	**ST-NH_2 – TECHNICAL SESSIONS** • Nuclear Technology Development: High-Temperature Electrolysis • Hydrogen Control in LWRs: Current Plant Status and Future Directions–Panel/Paper • Nuclear Technology Development: Hybrid Sulfur and Alternate Thermal Cycles
2:30 P.M. – 4:00 P.M.	**SNC '07 TECHNICAL SESSIONS** *(see page 29)*
4:00 P.M. – 6:00 P.M.	**HONORARY CHAIR'S SPECIAL SESSION:** "The Nuclear Fuel Cycle and its Waste Management: Innovation is the Future" *(In Memory of Manson Benedict)*
4:30 P.M. – 6:30 P.M.	**SNC '07 – ROUNDTABLE DISCUSSION** *(see page 29)* Aerospace Nuclear Resources for Non-nuclear Aerospace Engineers

TUESDAY, JUNE 26, 2007 • 8:30 A.M.

An International Overview of Nuclear Hydrogen Programs–Panel/Papers. *Session Organizer:* Gail H. Marcus *(NEA OECD)*, *Chair:* Gail H. Marcus

Harvard
8:30 a.m.

This panel session will highlight some of the major work on hydrogen production around the world. The goals of the panel are to share information on recent developments and plans in hydrogen production programs throughout the world.

An Overview of Global Activities on Nuclear Hydrogen Production and Technologies, Ibrahim Khamis *(IAEA)*

The Status of the Japanese Nuclear Hydrogen Program, Shusaku Shiozawa *(JAEA)*

Status of Nuclear Hydrogen Project in Korea, Won Jae Lee, Jonghwa Chang *(KAERI)*, invited

The French Program for Nuclear Hydrogen Production: Good and Bad Fortune of Thermochemical Cycles in France, Pascal Anzieu *(CEA)*

Current Status and Plan of Chinese Nuclear Hydrogen Production Program, Ping Zhang *(Tsinghua Univ)*

Concept and Status of Efforts to Create Nuclear Hydrogen in Russia, Anatoly Stolyarevskiy *(Centre Cortes, Russia)*

South Africa's Commitment to Nuclear Process Heat and Focus on Hydrogen, Willem Kriel, Regis Matzie *(Westinghouse)*

Socioeconomic Perspectives and Technology Integration. *Chair:* Mel Buckner *(SRNL/Univ of South Carolina)*

Harvard
10:45 a.m.

DOE NHI: Progress in Nuclear Connection Technologies, Steven R. Sherman *(INL)*

11:15 a.m.
Economics of Meeting Peak Electrical Demand Using Nuclear Hydrogen and Oxygen, Charles W. Forsberg *(ORNL)*

11:45 a.m.
Synthesis of Hydrocarbon Fuels Using Renewable and Nuclear Energy, Ken Schultz *(General Atomics)*, S. Locke Bogart *(General Atomics Consultant)*, Richard P. Noceli *(NETL/LTI Assoc)*

TUESDAY, JUNE 26, 2007 • 1:00 P.M.

Nuclear Technology Development: High-Temperature Electrolysis. *Chair:* J. Stephen Herring *(INL)*

Harvard
1:00 p.m.
Overview of High-Temperature Electrolysis for Hydrogen Production, J. Stephen Herring, James E. O'Brien, Carl Marcel Stoots *(INL)*, Joseph Hartvigsen *(Ceramatec)*, Mark C. Petri, J. David Carter *(ANL)*, Brian L. Bischoff *(ORNL)*

1:25 p.m.
High-Temperature Co-Electrolysis of Carbon Dioxide and Steam for the Production of Syngas; Equilibrium Model and Single-Cell Tests, James E. O'Brien, Carl Stoots, Grant L. Hawkes, J. Stephen Herring *(INL)*, Joseph Hartvigsen *(Ceramatec)*

1:50 p.m.
Test Results of High Temperature Steam/CO_2 Coelectrolysis in a 10-Cell Stack, Carl M. Stoots, James E. O'Brien *(INL)*, Joseph J. Hartvigsen *(Ceramatec)*

2:15 p.m.
Post-Test Evaluation of a Solid Oxide Electrolysis Stack, J. David Carter, Ann Call, Magali Ferrandon, A. Jeremy Kropf, Victor A. Maroni, Jennifer Mawdsley, Deborah J. Myers, Bilge Yildiz *(ANL)*

2:40 p.m.
Pre-ILS Demonstration of Planar Solid Oxide Fuel Cell Technology Readiness for Application in Nuclear Hydrogen Production, Joseph J. Hartvigsen, S. Elangovan *(Ceramatec)*, Carl M. Stoots, James E. O'Brien, J. S. Herring *(INL)*

3:05 p.m.
The Effect of Electrolysis Temperature on Hydrogen Production Efficiency, Christopher J. Steffen, Jr. *(NASA Glenn Rsch Ctr)*, Michael G. McKellar, Edwin A. Harvego, James E. O'Brien *(INL)*

3:30 p.m.
3D CFD Model of High Temperature H_2O/CO_2 Co-Electrolysis, Grant Hawkes, James O'Brien, Carl Stoots, Stephen Herring *(INL)*, Russell Jones *(Idaho State Univ)*

3:55 p.m.
Modeling and Performance Study of Planar Solid Oxide Electrolysis Cells, Bilge Yildiz, Tanju Sofu *(ANL)*

4:20 p.m.
Design of an Integrated Laboratory Scale Test for Hydrogen Production Via High Temperature Electrolysis, G. K. Housley, K. G. Condie, J. E. O'Brien, C. M. Stoots *(INL)*

Hydrogen Control in LWRs: Current Plant Status and Future Directions–Panel/Paper. *Session Organizer:* Kevin O'Kula *(WSMS)*; *Chair:* Dana Powers *(SNL)*

Regis
1:00 p.m.
The purpose of this session is to discuss the improvements in the current fleet of light-water reactors from the perspective of hydrogen control and management since the Three Mile Island (TMI) accident. The panel will cover operational experience and lessons learned in both PWRs and BWRs and the anticipated future efforts to prevent or mitigate accident events due to accumulation of hydrogen. The panel will include U.S. and international, national laboratory and U. S. Nuclear Regulatory Commission representatives.

PANEL DISCUSSION

PANELISTS:

- John Lehner *(BNL)*
- Charles Tinkler *(Office of Nuclear Regulatory Research, USNRC)*
- Mike Snodderly *(Office of New Reactors, USNRC)*
- Harmut Wider *(Joint Research Centre of the European Commission, Holland)*

PAPER

2:45 p.m.
Hydrogen Distribution and Management During Postulated Severe Accident in TAPP # 3&4 540 MWe Containment, Sanjeev Kumar Sharma, Manoj Kansal *(Nuclear Power Corp of India)*

Nuclear Technology Development: Hybrid Sulfur and Alternate Thermal Cycles. *Chair:* Ed Lahoda *(Westinghouse Electric Corporation)*

Regis
3:30 p.m.
Overview of the Hybrid Sulfur Thermochemical Hydrogen Production Process, William A. Summers *(SRTC)*, Maximilian Gorensek, John Steimke *(SRNL)*, Timothy Steeper *(SRTC)*, David Hobbs, Hector Colon-Mercardo *(SRNL)*

3:55 p.m.
Hybrid Sulfur Cycle Process Alternatives, Maximilian B. Gorensek, William Summers *(SRNL)*, John W. Weidner *(Univ of South Carolina)*, David F. McLaughlin, Edward J. Lahoda *(Westinghouse)*

4:20 p.m.
Modeling of the Sulfuric Acid Decomposition Reactor, Sarah Connolly, David F. McLaughlin, Edward J. Lahoda, Willem Kriel *(Westinghouse)*

4:45 p.m.
Studies of Performance of Brown-Type Stack for Electrolytic Cell Production of Hydrogen, George H. Miley, Grant Kopec, Hugo Leon *(Univ. of Illinois)*, Gabriella Draney *(Southern Methodist Univ)*

WEDNESDAY • JUNE 27, 2007	
7:30 A.M. - 5:00 P.M.	MEETING REGISTRATION
8:00 A.M. – 10:00 A.M.	SPOUSE/GUEST HOSPITALITY
8:00 A.M. – 10:00 A.M.	SNC '07 – PLENARY III *(see page 31)* Key Issues and Challenges
8:00 A.M. – 11:10 A.M.	ST-NH_2 TECHNICAL SESSIONS • Nuclear Technology Development: Sulfur Iodine Cycle Experimentation and Modeling • Hydrogen Control and Management in the DOE Complex: Current Issues and the Path Toward Resolution–Panel/Papers
8:30 A.M. – 11:30 A.M.	2007 ANNUAL MEETING TECHNICAL SESSIONS *(see page 19)*
10:00 A.M. – 11:30 A.M.	SNC '07 TECHNICAL SESSIONS *(see page 31)*
1:00 P.M. – 2:30 P.M.	SNC '07 TECHNICAL SESSIONS *(see page 31)*
1:00 P.M. – 4:00 P.M.	2007 ANNUAL MEETING TECHNICAL SESSIONS *(see page 19)*
1:00 P.M. – 5:00 P.M.	ST-NH_2 TECHNICAL SESSIONS • Material Issues and Test Facilities • Software Development and Model Simulation for Safety and Process Optimization • Environmental Aspects of Nuclear Production of Hydrogen
2:30 P.M. – 4:00 P.M.	SNC '07 TECHNICAL SESSIONS *(see page 31)*
4:00 P.M. – 6:00 P.M.	SNC '07 CLOSING PLENARY: Future Opportunities *(see page 31)*
4:00 P.M. – 6:00 P.M.	ANS PUBLIC COMMUNICATIONS WORKSHOP
6:30 P.M. – 10:30 P.M.	DINNER AT MUSEUM OF SCIENCE *(Includes the Theater of Energy)*

WEDNESDAY, JUNE 27, 2007 • 8:00 A.M.

Nuclear Technology Development: Sulfur Iodine Cycle Experimentation and Modeling. *Chair:* Carl Stoots *(INL)*

Harvard
8:00 a.m.
MELCOR-H2 Transient Analysis of Sulfur-Iodine Cycle Experiments, Sal Rodriguez *(SNL)*, David Louie *(Omicron)*, Randall Gauntt *(SNL)*, Shripad T. Revankar, Karen Vierow *(Texas A&M)*

8:30 a.m.
Improvement of Neumann's Model for Binary & Ternary Mixtures in the HI Section of SI Thermo-Chemical Cycle, Seung Jun Kim, Hee Cheon No, Byung Jin Lee, Ho Joon Yoon, Eung Soo Kim *(KAIST)*

9:00 a.m.
Modeling the Sulfuric Acid Decomposition Section for Hydrogen Production, Edward Parma *(SNL)*

9:30 a.m.
A Laboratory-Scale Sulfuric Acid Decomposition Apparatus for Use in Hydrogen Production Cycles, Robert Moore, Edward Parma *(SNL)*

10:00 a.m.
Sulfuric Acid Decomposition Experiments for Thermochemical Hydrogen Production from Nuclear Power, Fred Gelbard *(SNL)*

Hydrogen Control and Management in the DOE Complex: Current Issues and the Path Toward Resolution–Panel/Papers.

Chair: Herbert Massie *(DNFSB)*

Regis
8:00 a.m.
The objective of this panel session is to discuss hydrogen control and management issues throughout the Department of Energy Complex, in waste processing, storage, and decontamination and decommissioning activities. Operational events, the lessons learned, and implementation of safety improvements will be covered. Current challenges and the planning toward resolving these issues will be highlighted.

PANEL DISCUSSION — Panelists to be determined.

PAPERS
9:30 a.m.
Gas Generation and Hold-Up in Hanford Waste Treatment Plant Process Streams Containing Anti-Foam Agent (AFA), S. T. Arm, A.P. Poloski, C.W. Stewart, P.A. Meyer, D.E. Kurath *(PNNL)*

9:55 a.m.
Hydrogen Issues with ETR Vessel Disposal, Patrice McEahern *(CWI, INL)*

10:20 a.m.
Flammability and Consequence Analysis for MCU Waste Tanks, M. Ray Yeung, Edwin Sum, J. K. Knight, Mukesh Gupta *(Washington SMS)*

10:45 a.m.
Modeling Atmospheric Releases of Tritium from Nuclear Installations (U), Kevin R. O'Kula, David C. Thoman *(WSMS)*

WEDNESDAY, JUNE 27, 2007 • 1:00 P.M.

Material Issues and Test Facilities.

Chair: James O'Brien *(INL)*

Harvard
1:00 p.m.
Introduction to the High-Temperature Materials and Process (HTMP) Laboratory at the High-Temperature Teaching and Test Reactor (HT3R) at the University of Texas of the Permian Basin, James F. Wright, Stephen O. Nelson *(Univ of Texas of the Permian Basin)*, John Koltick *(O'Donnell Consulting Engineers)*, Malcolm LaBar, John Bolin *(General Atomics)*, Steven Biegalski, John R. Howell *(Univ of Texas, Austin)*, invited

1:25 p.m.
Sulfuric Acid Decomposer Materials Study for the Thermochemical Hydrogen Cycle, Michael S. Peck, Jessica Allen, Adrian Mendez, Dabir Viswanath, Ghosh Tushar, Mark Prelas *(Univ of Missouri)*

1:50 p.m.
Materials Degradation Studies for High Temperature Steam Electrolysis Systems, Paul Demkowicz, Pavel Medvedev, Kevin DeWall, Paul Lessing *(INL)*

2:15 p.m.
Thermal Sizing of a Lab-Scale SO_3 Decomposer for Nuclear Hydrogen Generation, Chan Soo Kim, Sung Deok Hong, Yongwan Kim, Jong-Ho Kim, Won-Jae Lee, Jonghwa Chang *(KAERI)*

2:40 p.m.
Development of a Compact Nuclear Hydrogen Coupled Components (CNHCC) Test Loop, SungDeok Hong, JongHo Kim, ChanSoo Kim, YongWan Kim, WonJae Lee, JongHwa Chang *(KAERI)*

3:05 p.m.
Process Heat Exchanger for SO_3 Decomposer Fabricated with Ni-Based Alloys Surface-Modified by SiC Film Deposition and N Ion Beam Bombardment, Jaewon Park, Yongwan Kim, Hyungjin Kim *(KAERI)*

3:30 p.m.
A Short Review and a Small Question on a Seismic Analysis of Graphite Blocks, Dong-Ok Kim, Keun-Bae Park, Won Jae Lee *(KAERI)*

3:55 p.m.
Experimental Evaluation of the Bypass Flow in the VHTR Core, Su-Jong Yoon *(Seoul Natl Univ)*, Ahn-Tae Cho, Kwang-Yong Kim *(Inha Univ)*, Won-Jae Lee *(KAERI)*, Goon-Cherl Park *(Seoul Natl Univ)*

Software Development and Model Simulation for Safety and Process Optimization.

Chair: Sal Rodriguez *(SNL)*, Chang Oh *(INL)*

Regis
1:00 p.m.
Generation of High-Level PIRTs for VHTR High and Low-Pressure Conduction Cooling Events, Won Jae Lee, Hong Sik Lim, Seung Wook Lee *(KAERI)*, Thomas Y. C. Wei, Richard B. Vilim *(ANL)*, Richard R. Schultz *(INL)*

1:25 p.m.
A CFD Analysis of a Preliminary Cooled-Vessel Concept in a VHTR, Min-Hwan Kim, Hong-Sik Lim, Won-Jae Lee *(KAERI)*

1:50 p.m.
An Overview of the HyPEP Models and Solution Techniques, Jee-Won Park, Jin Lee *(KAERI)*

2:15 p.m.
Development of Simulation Method for Thermo-Fluid-Electrochemical Coupled Phenomena Related to Hydrogen Production Technology Using Nuclear Energy, Eiji Hoashi, Takashi Ogawa, Kentaro Matsunaga, Kotaro Nakada, Seiji Fujiwara, Hiroyuki Yamauchi, Shigeo Kasai, Kazuya Yamada *(Toshiba Corp)*

2:40 p.m.
Dynamic Behavior of the VHTR/HTE Plant from Time Constants and Energy Capacitances, Richard B. Vilim *(ANL)*

3:05 p.m.
Development of GAMMA Code and Evaluation for a Very High Temperature Gas-Cooled Reactor, C. Oh *(INL)*, H. C. No *(KAIST)*, H. S. Lim *(KAERI)*, E. S. Kim *(INL)*, J. H. Kim *(KAIST)*

Environmental Aspects of Nuclear Production of Hydrogen.

Chair: Carl Mazzola *(Shaw Environmental)*

Regis
4:00 p.m.
Nuclear Hydrogen and Captured Carbon Dioxide for Alternative Liquid Fuels, B. D. Middleton, Mujid S. Kazimi *(MIT)*

4:30 p.m.
Economic, Energy and Environmental Assessment of Hydrogen Production and Delivery Systems, Jerry Gillette *(ANL)*, Amgad Elgowainy *(Purdue Univ)*, Marianne Mintz *(ANL)*

THURSDAY • JUNE 28, 2007	
7:30 A.M. - 2:00 P.M.	MEETING REGISTRATION
8:00 A.M. – 11:00 A.M.	ST-NH_2 TECHNICAL SESSION Safety Aspects of Nuclear Production of Hydrogen
8:30 A.M. – 11:30 A.M.	2007 ANNUAL MEETING TECHNICAL SESSIONS *(see page 26)*
1:00 P.M. – 4:00 P.M.	2007 ANNUAL MEETING TECHNICAL SESSIONS *(see page 26)*
1:00 P.M. – 4:00 P.M.	ST-NH_2 TECHNICAL SESSION Nuclear Hydrogen System Analysis and Conceptual Design
1:00 P.M. – 5:30 P.M.	TECHNICAL TOUR: Massachusetts Institute of Technology

THURSDAY, JUNE 28, 2007 • 8:00 A.M.

Safety Aspects of Nuclear Production of Hydrogen.

Chair: Steven Sherman *(INL)*

Harvard

8:00 a.m.
CFD Simulation of JAEA Gas Explosion Tests in the Open Space with Complex Geometries, Hyung Seok Kang *(KAERI)*, Hee Chun No *(KAIST)*

8:30 a.m.
Steam Generator Component Model in a Combined Cycle of Power Conversion Unit for Very High Temperature Gas-Cooled Reactor, Chang Oh *(INL)*, James Han *(Penn State)*

9:00 a.m.
Ensuring Adequate Safety When Using Hydrogen as a Fuel, D. Allan Coutts *(Washington Group Intl)*

9:30 a.m.
Hydrogen and Oxygen Gas Monitoring System Design and Operation, Lee C. Cadwallader, Kevin G. DeWall, J. Stephen Herring *(INL)*

10:00 a.m.
Hydrogen and Gaseous Fuel Safety and Toxicity, Lee Cadwallader, J. Stephen Herring *(INL)*

10:30 a.m.
Coupling of Purdue Hydrogen Production Cycle Models to THERMIX-DIREKT Code, Nicholas R. Brown, Volkan Seker, Shripad T. Revankar, Thomas J. Downar *(Purdue Univ)*

THURSDAY, JUNE 28, 2007 • 1:00 P.M.

Nuclear Hydrogen System Analysis and Conceptual Design.

Chair: Shripad Revankar *(Purdue Univ)*

Harvard

1:00 p.m.
Analysis Model for SI (Sulfur Iodine) and HyS (Hybrid Sulfur) Thermo-Chemical Cycle Coupled to High Temperature Gas Cooled Reactor, Shripad T. Revankar, Nicholas R. Brown, Seungmin Oh *(Purdue Univ)*

1:30 p.m.
Feasibility of Hydrogen Production Using Laser Inertial Fusion Energy as the Primary Energy Source, Maximilian B. Gorensek *(SRNL)*

2:00 p.m.
Development Strategy for Non-Nuclear Grade Hydrogen Production System Coupled with the Japan's HTTR, Nariaki Sakaba, Hiroyuki Sato, Hirofumi Ohashi, Tetsuo Nishihara, Kazuhiko Kunitomi, Shusaku Shiozawa *(JAEA)*

2:30 p.m.
The Value of Product Flexibility in Nuclear Hydrogen Technologies, Audun Botterud, Bilge Yildiz, Guenter Conzelmann, Mark C. Petri *(ANL)*

3:00 p.m.
Interim Markets for Nuclear Hydrogen in a Global Hydrogen Economy, Jan P. van Ravenswaay *(M-Tech Industrial Pty)*, Renee Greyvenstein, Michael Correia *(PBMR Pty)*

3:30 p.m.
Direct Production of Hydrogen Gas Using a Nuclear Solution Reactor, David K. Hayes, Robert Kimpland, William L. Myers, Rene G. Sanchez *(LANL)*

Professional Development Workshop

PROFESSIONAL DEVELOPMENT WORKSHOP:
"Preparing for the Nuclear Engineering Professional Engineering Exam"

Sunday, June 24, 2007 • 9:00 a.m. - 5:00 p.m. • Location: Wellesley Room

Workshop Organizer:
Dr. Robert D. Busch, PE, Director, Nuclear Engineering Laboratory, University of New Mexico

Workshop Instructors:
Dr. Robert D. Busch, PE, Director, Nuclear Engineering Laboratory, University of New Mexico • Gerald A. Loignon, Jr., PE, V.C. Summer Nuclear Station

Purpose of Workshop:
This course is designed for individuals who have passed the Fundamentals of Engineering Exam (formerly the EIT exam) and who are preparing for the Professional Engineering Exam (PE exam) in Nuclear Engineering. Instructors will provide details on registration and how it differs from state to state, plus an overview of the examination formats. The six basic skill areas; neutronics, instrumentation and measurements, nuclear power shielding, nuclear materials and fuels, and radioactive waste, will be discussed in detail. For each skill area, the instructor will describe the topics and the skills to be tested within each.

Examples of questions will be presented in depth, after which students will work other typical questions on their own. Instructors will provide assistance, then review solutions with the group. Students will be provided a sample exam and list of recommended resources for continued study.

Workshop Outline:

Time	Topic	Instructor
9:00 a.m. - 9:15 a.m.	Introduction and PE Exam Overview	Busch
9:15 a.m. - 10:30 a.m.	Shielding and Neutronics	Busch
10:30 a.m. - 12:00 p.m.	Nuclear Power Skills and PRA	Loignon
12:00 p.m. - 1:30 p.m.	LUNCH (on your own)	
1:30 p.m. - 2:30 p.m.	PRA and Nuclear Fuel Cycle	Loignon
2:30 p.m. - 3:45 p.m.	Radioactive Waste, Instrumentation	Busch
3:45 p.m. - 4:00 p.m.	Wrap-up	Busch

DOE Nuclear Criticality Safety Program

ENDUSERS FOCUS-GROUP WORKSHOP: "Nuclear Criticality Safety Program: 2030 Complex of the Future"

Friday, June 29, 2007 • 8:00 a.m. to 12:00 p.m. • Location: Wellesley Room (Boston Marriott Copley Place Hotel)

Sponsored by the Nuclear Criticality Safety Division • Supported by the Nuclear Criticality Safety Program (NCSP)

Purpose:
The NCSP is a comprehensive, crosscutting program that integrates the need to maintain the US criticality safety infrastructure with effective support for criticality safety programs throughout the DOE complex. This workshop, while not part of the official ANS program, has been arranged through the courtesy of the ANS Headquarters staff. The presentations are based on the DOE NCS Program, but because of the global application of the work supported by the DOE NCSP, feedback is encouraged from anyone interested in the needs of a diverse, well-organized criticality safety program in support of operations. Extensive audience participation is encouraged and anticipated.

Scope:
For this workshop, NCSP has two main objectives. The first objective is to discuss the recent 3-day meeting where the Nuclear Criticality Safety Program (NCSP) Manager, Jerry McKamy, conducted the first meeting of the Critical-subcritical Experiments Design Team (CedT) with the purpose of 1) identifying the first critical experiment benchmark campaign important to National Nuclear Safety Administration (NNSA) to perform after the Critical Experiment Facility (CEF) startup and, 2) laying out the plan for designing and approving the experiment(s) using all the capabilities available to the NCSP to develop an experiment proposal/design/planning/ approval/analysis process. The second objective is to communicate important issues and ideas among the Endusers group, including an update on where the Endusers group currently stands. The NCSP Manager will kick off the meeting by providing valuable new information to the Criticality Safety community and then turn the meeting over to the Endusers Chairman, Todd Taylor, for the remainder of the workshop.

Program:

8:00 am	Welcome and Expectations for the Workshop
8:10 am	Use of the NCSP Website to communicate all things NCSP to the Community
8:20 am	Report on the First CedT Meeting in Las Vegas
8:40 am	Overview of process for Endusers proposing new Crit experiments and of CedT process
9:10 am	BREAK
9:20 am	NCSP Website Demonstration Including Crit Experiment Request Form
9:50 am	Approach for documenting sprinkler data/impacts
10:20 am	BREAK
10:30 am	Overview of the Y-12 visit to AWE Aldermaston
11:00 am	Fire-fighting/first responder criticality safety training
11:30 am	Endusers business and update
12:00 pm	Adjorn

Contacts:
Dr. Jerry N. McKamy, NCSP Manager • Todd Taylor, End-User Chair • A. Nichole Ellis, NCSP Liaison

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 meeting.

NATIONAL COMMITTEES

Accreditation Policies and Procedures
SUNDAY, 5:00 P.M. – 7:00 P.M.
LOCATION: Provincetown

ANS Business Meeting
MONDAY, 4:15 P.M. - 5:15 P.M.
LOCATION: Wellesley

Board of Directors
Professional Division Reports
WEDNESDAY, 4:00 P.M. – 5:30 P.M.
LOCATION: Arlington
Board of Directors
THURSDAY, 8:00 A.M. – 5:00 P.M.
LOCATION: Arlington/Berkeley

Bylaws & Rules
SUNDAY, 1:30 P.M. – 4:00 P.M.
LOCATION: Provincetown

Executive Conference Review
SUNDAY, 10:30 A.M. – 12:00 P.M.
LOCATION: Hyannis

Finance
TUESDAY, 4:00 P.M. – 7:00 P.M.
LOCATION: Provincetown

Honors and Awards
MONDAY, 4:00 P.M. – 7:00 P.M.
LOCATION: Provincetown

International
SUNDAY, 11:30 A.M. – 2:30 P.M.
LOCATION: Suffolk

Local Sections/Workshop
SUNDAY, 8:00 A.M. – 12:00 P.M.
LOCATION: Simmons

Membership
SUNDAY, 11:00 A.M. – 1:00 P.M.
LOCATION: Salon A

National Program Committee (NPC)
Program
WEDNESDAY, 4:00 P.M. – 7:00 P.M.
LOCATION: Salon G
Screening & International
MONDAY, 4:00 P.M. – 6:00 P.M.
LOCATION: Bello Mondo

NEED
SUNDAY, 7:30 P.M. – 9:30 P.M.
LOCATION: Provincetown

Planning
SUNDAY, 2:00 P.M. – 6:00 P.M.
LOCATION: Salon C

President's Meetings
with Committee Chairs
SUNDAY, 9:00 A.M. – 10:30 A.M.
LOCATION: Salon C
with Division Chairs
SUNDAY, 10:30 A.M. – 11:30 A.M.
LOCATION: Salon C

Professional Development Workshop
TUESDAY, 7:30 A.M. – 8:30 A.M.
LOCATION: Brandeis

Professional Divisions
TUESDAY, 4:00 P.M. – 6:30 P.M.
LOCATION: Bello Mondo

Professional Engineering Exam
SUNDAY, 4:00 P.M. – 6:00 P.M.
LOCATION: Harvard

Professional Women in ANS
MONDAY, 11:30 A.M. – 1:00 P.M.
LOCATION: Falmouth

Public Information
SUNDAY, 4:00 P.M. – 6:00 P.M.
LOCATION: Boston University

Public Policy
WEDNESDAY, 11:30 A.M. – 1:30 P.M.
LOCATION: Falmouth

Publications Steering
Book Publishing
SUNDAY, 11:00 A.M. – 12:00 P.M.
LOCATION: Salon D
Meetings, Proceedings and Transactions
MONDAY, 7:30 A.M. – 8:30 A.M.
LOCATION: Falmouth
Nuclear News Editorial Advisory
SUNDAY, 4:00 P.M. – 5:30 P.M.
LOCATION: Salon D
Publications Steering
MONDAY, 4:00 P.M. – 6:00 P.M.
LOCATION: Brandeis
Technical Journals
SUNDAY, 1:00 P.M. – 3:30 P.M.
LOCATION: Salon D

Scholarship Policy & Coordination
TUESDAY, 4:00 P.M. – 5:00 P.M.
LOCATION: Falmouth

Student Sections
Executive
MONDAY, 6:00 P.M. – 7:00 P.M.
LOCATION: Suffolk
Reports/Roundtable
MONDAY, 7:00 P.M. – 8:00 P.M.
LOCATION: Suffolk

SPECIAL COMMITTEES

Development
TUESDAY, 1:30 P.M. – 3:00 P.M.
LOCATION: Falmouth

Government Relations
TUESDAY, 1:30 P.M. – 3:30 P.M.
LOCATION: Hyannis

Nuclear Nonproliferation
SUNDAY, 2:00 P.M. – 4:00 P.M.
LOCATION: Hyannis

SCNN – PROGRAM COMMITTEE
SUNDAY, 11:30 A.M. – 1:00 P.M.
LOCATION: Boston University

OTHER COMMITTEES

CNF
MONDAY, 7:30 P.M. – 10:00 P.M.
LOCATION: Provincetown

Eagle Alliance Board of Directors
SUNDAY, 1:00 P.M. – 3:30 P.M.
LOCATION: Brandeis

ICAPP '08 Planning Committee
MONDAY, 4:30 P.M. – 6:00 P.M.
LOCATION: MIT

INSC
SUNDAY, 7:30 A.M. – 11:15 A.M.
LOCATION: Provincetown

Mathematics & Computation/ Reactor Physics/Radiation Protection & Shielding Joint Benchmark Meeting
SUNDAY, 11:00 A.M. – 1:00 P.M.
LOCATION: Brandeis

NEDHO
MONDAY, 4:30 P.M. – 6:00 P.M.
LOCATION: Falmouth

PNC
SATURDAY, 8:00 A.M. – 5:00 P.M.
LOCATION: Provincetown

UWC 2007 Planning Committee
SUNDAY, 12:00 P.M. – 12:30 P.M.
LOCATION: Hyannis

DIVISION COMMITTEES

Accelerator Applications
Executive
MONDAY, 11:30 A.M. – 1:00 P.M.
LOCATION: Brandeis

Aerospace Nuclear Science and Technologies
SUNDAY, 12:00 P.M. – 2:00 P.M.
LOCATION: Tufts

Biology & Medicine
Committee of the Whole
SUNDAY, 4:00 P.M. – 5:30 P.M.
LOCATION: Hyannis
Computational Medical Physics Working Group
SUNDAY, 12:30 P.M. – 2:00 P.M.
LOCATION: Salon C

Education & Training
Alpha Nu Sigma
SUNDAY, 1:00 P.M. – 2:00 P.M.
LOCATION: Northeastern
Executive/Membership/Honors & Awards
SUNDAY, 1:30 P.M. – 4:00 P.M.
LOCATION: Salon A
Nuclear Workforce Working Group
SUNDAY, 12:00 P.M. – 1:00 P.M.
LOCATION: Northeastern
Program
SUNDAY, 10:30 A.M. – 12:00 P.M.
LOCATION: Northeastern

Education & Training (continued)
University/Industry/Government Relations
SUNDAY, 9:30 A.M. – 10:30 A.M.
LOCATION: Northeastern

Environmental Sciences
Program
SUNDAY, 8:30 A.M. – 10:00 A.M.
LOCATION: MIT
Executive
SUNDAY, 10:00 A.M. – 12:00 P.M.
LOCATION: MIT
Nuclear Production of Hydrogen Working Group Membership/Executive
SUNDAY, 12:00 P.M. – 2:00 P.M.
LOCATION: MIT

Fuel Cycle & Waste Management
Executive
SUNDAY, 1:30 P.M. – 3:00 P.M.
LOCATION: Regis
Program
SUNDAY, 12:30 P.M. – 1:30 P.M.
LOCATION: Regis
Technical Operating Committee
SUNDAY, 12:00 P.M. – 12:30 P.M.
LOCATION: Regis

Fusion Energy
Executive
SUNDAY, 3:00 P.M. – 5:00 P.M.
LOCATION: Northeastern

Human Factors
Executive/Program
WEDNESDAY, 5:30 P.M. – 7:00 P.M.
LOCATION: Falmouth

Isotopes & Radiation
Executive
SUNDAY, 2:30 P.M. – 4:00 P.M.
LOCATION: Harvard
Joint Program Committee – I&R & B&M
SUNDAY, 1:30 P.M. – 2:30 P.M.
LOCATION: Harvard

Materials Science & Technology
Executive
MONDAY, 7:00 P.M. – 9:00 P.M.
LOCATION: Falmouth

Mathematics & Computation
Executive
SUNDAY, 2:00 P.M. – 4:00 P.M.
LOCATION: Boston University
Program
SUNDAY, 1:00 P.M. – 2:00 P.M.
LOCATION: Boston University

Nuclear Criticality Safety
Education Meeting
SUNDAY, 1:00 P.M. – 1:30 P.M.
LOCATION: Simmons

Nuclear Criticality Safety (continued)
Executive
SUNDAY, 2:30 P.M. – 4:00 P.M.
LOCATION: Simmons
Program
SUNDAY, 1:30 P.M. – 2:30 P.M.
LOCATION: Simmons

Nuclear Installation Safety
Executive
MONDAY, 5:00 P.M. – 8:00 P.M.
LOCATION: Salon G
Program
SUNDAY, 7:30 P.M. – 11:00 P.M.
LOCATION: Simmons

Operations & Power
Executive
SUNDAY, 4:00 P.M. – 6:00 P.M.
LOCATION: Salon B
Nuclear Construction Working Group
SUNDAY, 2:30 P.M. – 4:00 P.M.
LOCATION: Salon B
Program
SUNDAY, 12:30 P.M. – 2:30 P.M.
LOCATION: Salon B

Radiation Protection & Shielding
Executive
MONDAY, 5:00 P.M. – 6:30 P.M.
LOCATION: Hyannis
Program
MONDAY, 4:00 P.M. – 5:00 P.M.
LOCATION: Hyannis

Reactor Physics
Executive
SUNDAY, 4:00 P.M. – 6:00 P.M.
LOCATION: Tufts
Program
SUNDAY, 2:00 P.M. – 4:00 P.M.
LOCATION: Tufts

Robotics & Remote Systems
Executive
SUNDAY, 12:00 P.M. – 4:00 P.M.
LOCATION: Falmouth
Program
SUNDAY, 9:00 A.M. – 11:00 A.M.
LOCATION: Falmouth

Thermal Hydraulics
Executive
SUNDAY, 5:00 P.M. – 7:00 P.M.
LOCATION: MIT
Program
SUNDAY, 3:00 P.M. – 5:00 P.M.
LOCATION: MIT

Young Member Group
Executive Committee
SUNDAY, 7:00 A.M. – 8:30 A.M.
LOCATION: Salon A

STANDARDS COMMITTEES

ANS Standards Board
TUESDAY, 9:00 A.M. – 5:00 P.M.
LOCATION: Brandeis

ANS-6.1.1
WEDNESDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Falmouth

ANS-8.1
TUESDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Provincetown

ANS-8.12
TUESDAY, 3:30 P.M. - 6:30 P.M.
LOCATION: Hyannis

ANS-8.20
THURSDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Provincetown

ANS-8.21
TUESDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Hyannis
THURSDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Hyannis

ANS-8.26
WEDNESDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Brandeis

ANS-10.4/10.7 Working Group
THURSDAY, 7:00 A.M. - 8:30 A.M.
LOCATION: Falmouth

ANS-19
MONDAY, 8:30 A.M. - 10:30 A.M.
LOCATION: MIT

ANS-19.3
MONDAY, 10:30 A.M. - 12:30 P.M.
LOCATION: MIT

ANS-28/53.1
THURSDAY, 9:00 A.M. - 5:00 P.M.
LOCATION: Falmouth

ANS-29: "Reprocessing Technical Standards Committee"
SUNDAY, 10:30 A.M. - 12:00 P.M.
LOCATION: Bello Mondo

ANS-58.14
TUESDAY, 8:30 A.M. - 12:30 P.M.
LOCATION: Provincetown

ANS-58.24
TUESDAY, 4:00 P.M. - 6:00 P.M.
LOCATION: Suffolk

N16 Consensus Committee
MONDAY, 1:00 P.M. - 5:00 P.M.
LOCATION: Suffolk

NFSC
MONDAY, 8:30 A.M. – 5:00 P.M.
LOCATION: Massachusetts Institute of Technology, Room 56-114

RISC
WEDNESDAY, 8:30 A.M. - 5:00 P.M.
LOCATION: Hyannis

ANS Organization Members

Aare-Tessin Ltd. for Electricity (Atel)
AECL
Alaron Corporation
Ameren-UE
American Electric Power Service Corp.
American Tank & Fabricating
ANATECH Corporation
AREVA NC
AREVA NP
Arizona Public Service Co.
Assurx, Inc.
The Atlantic Group

Battelle Memorial Institute
Bechtel Power Corp.
Bigge Crane and Rigging Co.
BKW FMB Energie Ltd.
Black & Veatch
R. Brooks Associates, Inc.
Burns & Roe Enterprises, Inc.
BWX Technologies, Inc.

Central Research Laboratories
Constellation Energy Group
CP&L and Florida Power-Progress Energy Companies

Dade Moeller & Associates
Defense Threat Reduction Agency
Delta M. Corporation
Detroit Edison Company
Dominion Generation
DuBose National Energy Service
Duke Energy Corporation

Eagle-Picher Technologies, LLC
EDO Defense Systems
EnergySolutions
Entergy Operations Inc.
EPRI
EXCEL Services Corporation
Exelon Nuclear Co.

Federation of Electric Power Companies of Japan
FENOC
Florida Power & Light

General Atomics
GE Energy
GeoEngineers

Hans Walischmiller GMBH

Indiana Michigan Power Co./ D.C. Cook Nuclear Power Plant
Institute of Nuclear Safety Systems, Inc.

Kernkraftwerk Leibstadt AG
Kinemetrics Inc.
Kinetrics Inc.
Korea Atomic Industrial Forum, Inc.
Krsko Nuclear Power Plant

Lawrence Livermore National Laboratory
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L-3 Communications MAPPS Inc.

Major Tool & Machine, Inc.
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Mega-Tech Services, LLC
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Nebraska Public Power District
NEI
Nexus Technical Services Corporation
Nordostschweizerische Kraftwerke AG
Nuclear Management Co., LLC

Omaha Public Power District
Overly Manufacturing Company

Pacific Gas & Electric Co.
Pakistan Atomic Energy Commission
PaR Nuclear, Inc.
PaR Systems, Inc.
PPL Susquehanna, LLC
Private Fuel Storage, LLC

Reef Industries, Inc.
Rigging International
ROS, Inc. (Remote Ocean Systems, Inc.)

SAIC
Sandia National Laboratories
Sargent & Lundy
Soltec Corporation
Southern California Edison
Southern Nuclear Operating Co.
Stone & Webster Engineering Inc./ The Shaw Group
Super Radiator Coils

Technical Associates
Tennessee Valley Authority
Thermo Electron Corporation
TXU Power

University of Missouri – Columbia Research Reactor (MURR)
USEC Inc.

Visual Editor Consultants

Washington Group International
Westinghouse Electric Corp.
Wyle Laboratories

About the American Nuclear Society

The American Nuclear Society (ANS) is an international, not-for-profit, scientific and educational organization consisting of about 11,000 individual members, more than 1,600 organizations, 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.