OFFICIAL PROGRAM

ANS Annual Meeting 2016

Nuclear Power: Leading the Supply of Clean, Carbon Free Energy

June 12-16, 2016
Hyatt Regency New Orleans
New Orleans, LA

ANS | Annual Meeting Sponsors

Nuclear Power: Leading the Supply of Clean, Carbon Free Energy

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PLENARY, SPECIAL SESSIONS & EVENTS

ANS ANNUAL 2016 TECHNICAL SESSIONS

EMBEDDED TOPICAL MEETINGS

ADDITIONAL

Meeting Officials

Nuclear Power: Leading the Supply of Clean, Carbon Free Energy

2016 ANS Annual Meeting

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Donna Jacobs
Entergy Corporation

ASSISTANT GENERAL CHAIR
& FINANCE CHAIR
Donald R. Hoffman
EXCEL Services Corporation

ASSISTANT GENERAL CHAIR
John Mahoney
High Expectations International, LLC

ASSISTANT GENERAL CHAIR
Timothy C. Trask
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TECHNICAL PROGRAM CHAIR
Dr. Guillermo (Bill) Daniel DelCul
Oak Ridge National Laboratory

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TECHNICAL TOUR CHAIR
Greg Lormand
BCP Engineers & Consultants

STUDENT PROGRAM CO-CHAIR
James Bunsen
Texas A&M University

STUDENT PROGRAM CO-CHAIR
Patrick Moo
University of Florida

Meeting Highlights

Saturday, June 11

2:00-5:00 pm	Registration

Sunday, June 12

7:00 am-7:00 pm	Registration
8:00-5:00 pm	Professional Development Workshop
1:00-1:30 pm	First-Time Attendee Orientation
4:00-5:00 pm	Student Program Q&A Meeting
6:00-8:00 pm	President's Opening Reception

Monday, June 13

7:00 am-5:00 pm	Registration
7:00-8:00 am	Attendee Breakfast *(sponsored by Duke Energy)*
8:00-11:30 am	Opening Plenary: Nuclear Power: Leading the Supply of Clean, Carbon Free Energy *(sponsored by Utilities Service Alliance)*
11:30 am-1:00 pm	ANS Poster Session & Attendee Luncheon
1:00-4:00 pm	ANS Technical Sessions
1:00-4:00 pm	ATH '16 Technical Sessions
1:30-5:00 pm	NFSM 2016 Technical Sessions
4:30-6:30 pm	President's Special Session
7:00 pm	OPD Honors and Awards Dinner

Tuesday, June 14

6:00 am	ANS Fun Run
7:00 am-5:00 pm	Registration
7:00-8:00 am	Attendee Breakfast *(sponsored by Sargent & Lundy)*
8:00-10:00 am	Technical Program Chair's Special Session
8:00 am-4:00 pm	ATH '16 Technical Sessions
8:20 am-5:00 pm	NFSM 2016 Technical Sessions
8:30 am-12:00 pm	ANS Technical Sessions
11:30 am-1:00 pm	ANS Poster Session & Attendee Luncheon
1:00-4:00 pm	ANS Technical Sessions
4:30-6:30 pm	General Chair's Special Session
5:30-7:30 pm	NFSM 2016 Poster Session & Reception *(sponsored by Westinghouse Electric)*
6:30-8:30 pm	Speakers Bureau Workshop

Wednesday, June 15

7:00 am-5:00 pm	Registration
7:00-8:00 am	Attendee Breakfast *(sponsored by ENERCON)*
8:00 am-4:00 pm	ANS Technical Sessions
8:00 am-6:00 pm	ATH '16 Technical Sessions
8:20-5:00 pm	NFSM 2016 Technical Sessions
11:30 am-1:00 pm	Lunch: Attendees on own
4:00-6:00 pm	Special Session: ANS Special Committee on Nuclear in the States
4:00-6:00 pm	Focus on Communication Workshop
5:45-7:00 pm	ANS Annual Business Meeting

Thursday, June 16

7:00 am-12:00 pm	Registration
7:00-8:00 am	Attendee Breakfast
8:00-11:30 am	ANS Technical Sessions
8:00-11:30 am	ATH '16 Technical Sessions
8:20 am-12:00 pm	NFSM 2016 Technical Sessions
8:30 am-2:00 pm	Technical Tour & Lunch

Committee/Division/Other Meetings Daily

Saturday, June 11

5:00-7:00 pm	Professional Division Committee Training Workshop	Strand 11AB
5:00-10:00 pm	PEEC Item Writers Group	Strand 7

Sunday, June 12

8:00-9:00 am	President's Meeting with Committee Chairs	Empire C
8:00 am-5:00 pm	Professional Development Workshop	Strand 8
9:00-10:00 am	President's Meeting Division Chairs	Empire C
9:00-10:00 am	Meetings, Proceedings & Transactions Committee	Strand 10AB
9:00 am-12:00 pm	Local Section Workshop Committee	Strand 13AB
9:00 am-12:00 pm	ANS-8.20	Strand 14
10:00-11:00 am	Reactor Physics/Honors & Awards	Strand 10AB
10:00 am-12:00 pm	Membership Committee	Bolden 5
10:00 am-12:00 pm	NPC Screening & International	Foster 1
10:30 am-12:00 pm	Education, Training & Workforce Development/Program	Foster 2
11:00 am-12:00 pm	Accreditation, Policies & Procedures	Bolden 4
11:00 am-12:30 pm	Book Publishing	Strand 11A
11:00 am-12:00 pm	Human Factors, Instrumentation, and Control/Program	Strand 12A
11:30 am-2:30 pm	International Committee	Strand 11B
12:00-2:30 pm	Human Factors, Instrumentation, and Controls/Executive	Strand 12A
12:00-1:00 pm	Fuel Cycle & Waste Management/Program	Empire D
12:00-4:00 pm	Robotics & Remote Systems/Executive	Bolden 2
12:30-2:30 pm	PEEC Single Reference Development	Bolden 3
1:00-2:00 pm	Mathematics & Computation/Program	Strand 7
1:00-2:00 pm	Alpha Nu Sigma Honor Society	Strand 14
1:00-2:00 pm	Reactor Physics/Goals & Planning	Strand 10AB
1:00-2:30 pm	Fuel Cycle & Waste Management/Executive	Empire D
1:00-2:00 pm	UWC Planning Committee	Foster 1
1:00-4:00 pm	Technical Journal Committee	Strand 11A
1:00-2:00 pm	Nuclear Criticality Safety/Education Meeting	Empire C
1:00-2:00 pm	Nuclear Nonproliferation Policy/Special Advisory Committee	Strand 12B
1:30-2:00 pm	University/Industry/Government Relations	Foster 2
1:30-2:30 pm	Isotopes & Radiation/Joint Program Committee-I&R/BM	Bolden 6
2:00-3:00 pm	Nuclear Criticality Safety/Program	Empire C
2:00-3:00 pm	Nuclear Nonproliferation Policy Program	Strand 12B
2:00-3:30 pm	Operations & Power/Program	Foster 1
2:00-4:00 pm	Education, Training & Workforce/Executive/Membership/Honors & Awards	Foster 2
2:00-4:00 pm	Reactor Physics/Program	Strand 10AB
2:00-4:00 pm	Planning Committee	Bolden 1
2:00-3:30 pm	Nuclear News Editorial Advisory	Strand 14
2:00-3:00 pm	Radiation Protection & Shielding/Program	Strand 13AB
2:00-4:00 pm	Mathematics & Computation/Executive	Strand 7
2:30-4:30 pm	Isotopes & Radiation/Executive	Bolden 6
2:30-4:30 pm	Thermal Hydraulics/Program	Strand 12A
3:00-4:00 pm	Radiation Protection & Shielding/Standards Committee	Strand 13AB
3:00-4:30 pm	Nuclear Criticality Safety/Executive	Empire C
3:00-4:30 pm	Nuclear Nonproliferation Policy/Executive	Strand 12B
3:30-4:30 pm	Decommissioning & Environment Sciences/Program	Bolden 3
3:30-6:00 pm	Operations & Power/Executive	Foster 1
4:00-5:00 pm	Radiation Protection & Shielding/Executive	Strand 13AB
4:00-5:30 pm	Biology & Medicine/Executive	Strand 14
4:00-5:30 pm	Bylaws & Rules Committee	Strand 7
4:00-5:30 pm	Nuclear Installations Safety/Program	Foster 2
4:00-6:00 pm	Reactor Physics/Executive	Strand 10AB
4:00-6:00 pm	Communications/Committee	Strand 11A
4:00-6:00 pm	PEEC Committee	Strand 9
4:00-6:00 pm	NEDHO	Bolden 4
4:30-5:00 pm	Nuclear Nonproliferation Policy/NNTG/IRD/FC&UM Integration Meeting	Strand 12B
4:30-5:30 pm	Decommissioning & Environment Sciences/Executive	Bolden 3

Committee/Division/Other Meetings Daily

Sunday, June 12

4:30-5:30 pm	Nuclear Technology Editorial Advisory Committee	Bolden 2
4:30-6:00 pm	Thermal Hydraulics/Executive	Strand 12A
7:30-9:30 pm	NEED Committee	Bolden 5
8:00 am to 3:30 pm	PEEC 2016 Exam Pre-Test	Strand 9

Monday, June 13

8:30-10:30 am	ANS-19 Reactor Physics	Strand 7
9:00-11:00 am	ANS-30.2	Strand 10B
10:00-11:00 am	Young Members Group/Program	Strand 12B
11:00 am-4:00 pm	ANS 30.2 (Continued)	Strand 8
11:30 am-1:00 pm	Young Members Group/Executive	Strand 12B
11:30 am-1:30 pm	FWDCC	Strand 10B
11:30 am-1:30 pm	Accelerator Application Division	Strand 9
12:00 am-1:00 pm	Scholarship Policy & Coordination Committee	Strand 11A
2:30-6:00 pm	RP3C	Strand 10B
3:00-5:00 pm	ANS-8-1	Bolden 1
3:00-5:00 pm	Professional Women in ANS	Strand 9
4:00-6:00 pm	Honors & Awards	Strand 11A
4:00-6:00 pm	Aerospace Nuclear Science & Technology	Strand 12B
4:30-6:30 pm	Publications Steering	Strand 7
5:00-7:00 pm	KNS - US Chapter Meeting	Bolden 2
5:00-7:00 pm	ANS-3.15	Strand 8
6:00-8:00 pm	Materials Science & Technology/Executive	Strand 11A
6:00-7:00 pm	Student Sections Committee, Executive	Empire B
7:00-8:00 pm	Student Sections Committee, Reports	Empire B
6:00-8:00 pm	Nuclear Installations Safety/Executive	Strand 10B
7:00-8:30 pm	CNF Meeting	Strand 7
7:00-9:00 pm	Nureth Planning Meeting	Bolden 3
7:30-8:30 pm	National University Censortium	Strand 9

Tuesday, June 14

8:30 am-6:00 pm	Standards Board Meeting	Strand 12B
10:00 am-4:00 pm	ANS-2.6	Strand 14
1:00 -3:00 pm	ANS-8.28	Strand 9
12:30-7:00 pm	Finance Committee	Strand 7
3:30-4:30 pm	Congressional Fellow Special Committee	Strand 8
4:00-5:30 pm	Professional Development Coordinaton Committee	Strand 11A
4:00-5:30 pm	Professional Divisions Committee Meeting	Empire B
6:00-8:00 pm	Fusion Energy/Executive	Strand 8

Wednesday, June 15

7:00-8:30 am	ANS-8.26	Strand 7
7:15-8:30 am	CNF Breakfast	Strand 11A
8:30-11:30 am	ANS-57.2/57.3	Strand 9
11:30 am-1:00 pm	NPC National Meeting Sub-Committee	Strand 14
11:30 am-1:30 pm	Public Policy Committee	Strand 7
4:00-5:30 pm	Professional Division Reports	Empire B
4:00-7:00 pm	NPC Program Committee to Board of Directors	Empire A
5:45-7:00 pm	ANS Annual Business Meeting	Strand 11A

Thursday, June 16

7:30 am-4:30 pm	ANS Board of Directors	Empire B

Daily Schedule

Saturday, June 11

2:00-5:00 pm	Registration

Sunday, June 12

7:00 am-7:00 pm	Registration
8:00-5:00 pm	Professional Development Workshop
1:00-1:30 pm	First-Time Attendee Orientation
4:00-5:00 pm	Student Program Q&A Meeting
6:00-8:00 pm	President's Opening Reception

Monday, June 13

7:00 am-5:00 pm	Registration
7:00-8:00 am	Attendee Breakfast *Sponsored by:* DUKE ENERGY.
8:00-11:30 am	Opening Plenary Session: *Nuclear Power: Leading the Supply of Clean, Carbon Free Energy* *Sponsored by:* USA UTILITIES SERVICE ALLIANCE "SIMPLE, COST-EFFECTIVE EXCELLENCE"
11:30 am-1:00 pm	ANS Technical Poster Session & Attendee Luncheon
1:00-4:00 pm	ANS Technical Sessions • Focus on Communications: Communication, the Challenges Facing Today's Operating Fleet • Focus on Communications: Creating New Nuclear Conversations • Radiation Protection and Shielding • Reactor Physics: General—I • Current Issues in Computational Methods–Roundtable • Aerospace Nuclear Science and Technology: General–Paper/Panel • Criticality for Spent Fuel Pools and Transport Casks • Tritium Management in Nuclear Fuel Cycle • Economics and Cost Analysis of Spent Fuel Cycle–Panel • Computational Thermal-Hydraulics—I • New Construction Around the World–Panel
1:00-4:00 pm	Embedded Topical ATH '16 • Code Development and Applications
1:30-3:00 pm	Embedded Topical NFSM 2016 • Opening Plenary Session
3:20-5:00 pm	Embedded Topical NFSM 2016 • Accident Tolerant Fuels
4:30-6:30 pm	President's Special Session
7:00 pm	OPD Honors and Awards Dinner

Daily Schedule

Tuesday, June 14

6:00 am	ANS Fun Run
7:00 am-5:00 pm	Registration
7:00-8:00 am	Attendee Breakfast *Sponsored by:* Sargent & Lundy LLC
8:00-10:00 am	Technical Program Chair's Special Session
8:30 am-12:00 pm	ANS Technical Sessions • Transport Methods • Radiation Protection and Shielding–Roundtable • Progress Status of Prototype Generation-IV Sodium-Cooled Fast Reactor • Radiation Transport Applications in Medicine • Data, Analysis and Operations in Nuclear Criticality Safety—I • Proposal Writing 101–Panel
8:00-11:30 am	Embedded Topical: ATH '16 • Opening Plenary: Five Years After the Fukushima Incident
8:20-10:00 am	Embedded Topical: NFSM 2016 • Advanced Fuels and Fuel Cycle—I
10:00-11:30 am	ANS Technical Session • Heat Storage and Hybrid Energy Systems
10:20 am-12:00 pm	Embedded Topical: NFSM 2016 • Light Water Fuels and Structural Materials
11:30 am-1:00 pm	ANS Poster Session & Attendee Lunch
1:00-4:00 pm	ANS Technical Sessions • Isotopes and Radiation: General • Computational Tools for Radiation Protection and Shielding • Reactor Analysis Methods—I • Nuclear Politics: Perspectives from Nuclear Advocates–Panel • Data, Analysis and Operations in Nuclear Criticality Safety—II • University Research in Fuel Cycle and Waste Management—I • Consolidated Storage of Commercial Used Fuel • General Thermal-Hydraulics • Advanced/Generation IV Reactors
1:00-4:00 pm	Embedded Topical: ATH '16 • Computational Methods, Modeling, Verification/Validation—I
1:30-3:10 pm	Embedded Topical: NFSM 2016 • Modeling and Simulation—I
3:30-5:00 pm	Embedded Topical: NFSM 2016 • Advanced Characterization
4:30-6:30 pm	General Chair's Special Session
5:30-7:30 pm	Embedded Topical: NFSM 2016 Poster Session & Reception *Sponsored by:* Westinghouse
6:30-8:30 pm	Speakers Bureau Workshop

Daily Schedule

Wednesday, June 15

7:00 am-5:00 pm	Registration
7:00-8:00 am	Attendee Breakfast *Sponsored by:* ENERCON Excellence—Every project. Every day.
8:00-11:30 am	ANS Technical Sessions • Mathematics and Computation: General • Reactor Physics: General—II • Education, Training, and Workforce Development: General • Data, Analysis and Operations in Nuclear Criticality Safety—III • University Research in Fuel Cycle and Waste Management—II • Advanced Fuel Cycle Technology • Nuclear Installations Safety: General—I • Hybrid Energy Systems–Panel
8:00-11:30 am	Embedded Topical: ATH '16 • Experimental Methods and Instrumentation • Nuclear Reactor Plant Thermal Hydraulics and Safety
8:20-10:00 am	Embedded Topical: NFSM 2016 • Advanced Structural Materials and Radiation Damage—I
10:20 am-12:00 pm	Embedded Topical: NFSM 2016 • Advanced Structural Materials and Radiation Damage—II
11:30 am-1:00 pm	Lunch: Attendees on own
1:00-4:00 pm	ANS Technical Sessions • Uncertainty Quantification and Sensitivity Analysis Methods • Human Factors, Instrumentation and Control: Software Dependability and Advanced Technologies • Reactor Analysis Methods—II • Sharing of Good Industry Practices in Criticality Safety–Panel • Recycle and Reuse of Used Nuclear Fuel Resources • Fuel Cycle Analysis • Nuclear Installations Safety: General—II
1:00-4:00 pm	Embedded Topical: ATH '16 • Two-Phase Flow and Heat Transfer Fundamentals—I • Best Estimate LOCA • Gas-Cooled Reactors
1:30-3:10 pm	Embedded Topical: NFSM 2016 • NSUF Special Session—I
2:00-4:00 pm	ANS Technical Sessions • Ask the Public Policy Committee Anything–Panel
3:30-5:00 pm	Embedded Topical: NFSM 2016 • NSUF Special Session—II
4:00-6:00 pm	ANS Technical Sessions • Computational Thermal-Hydraulics—II • Special Session: ANS Special Committee on Nuclear in the States

Daily Schedule

Wednesday, June 15

4:00-6:00 pm	Focus on Communication Workshop
4:00-6:00 pm	Embedded Topical: ATH '16 • Two-Phase Flow and Heat Transfer Fundamentals—II
5:45-7:00 pm	ANS Annual Business Meeting

Thursday, June 16

7:00 am-12:00 pm	Registration
7:00-8:00 am	Attendee Breakfast
8:00-11:30 am	ANS Technical Sessions • Reactor Physics Design, Validation and Operational Experience • Reactor Physics: General—III • ANS-8 Standards Forum • Fuel Cycle and Waste Management: General • Fusion Energy—Technology and Applications • Accelerator Applications: General • Knowledge Transfer and Retention–Panel
8:00-11:30 am	Embedded Topical: ATH '16 • Computational Methods, Modeling, Verification/Validation—II
8:20-10:00 am	Embedded Topical: NFSM 2016 • Modeling and Simulation—II
8:30 am-2:00 pm	Technical Tour & Lunch: Gulf Intracoastal Waterway West Closure Complex/Restaurant des Familles
10:20 am-12:00 pm	Embedded Topical: NFSM 2016 • Advanced Fuels and Fuel Cycle—II

General Information

MEETING INFORMATION

The 2016 ANS Annual Meeting includes four days of technical programming and events, two Embedded Topical Meetings; ATH'16 and NFSM '16, the Professional Development Workshop, and "Preparing for the Nuclear Engineering Professional Engineering Exam".

REGISTRATION

Name badges must be worn during all technical sessions and events. Certain events require a ticket, and may entail an additional cost.

REGISTRATION HOURS

Saturday, June 11	2:00 pm-5:00 pm
Sunday, June 12	7:00 am-7:00 pm
Monday, June 13	7:00 am-5:00 pm
Tuesday, June 14	7:00 am-5:00 pm
Wednesday, June 15	7:00 am-5:00 pm
Thursday, June 16	7:00 am-12:00 pm

NOTICE FOR SPEAKERS

After printing your badge, all speakers and session chairs must sign in at the Speaker Desk located near the ANS Registration Desk.

ANS BOOK FAIR HOURS

Sunday, June 12	11:00 am-7:00 pm
Monday, June 13	7:00 am-5:00 pm
Tuesday, June 14	7:00 am-5:00 pm
Wednesday, June 15	7:00 am-3:00 pm

General Information

ATTENDEE MEAL FUNCTIONS

Continental Breakfast

Breakfast will be provided to all registered meeting attendees, Monday - Thursday.

Lunch

Lunch will be provided to all registered meeting attendees, Monday - Tuesday. On Wednesday, attendees will be on their own.
****Please note:** Lunch is a ticketed event. (1) Ticket for Monday, and (1) ticket for Tuesday are included with a full meeting registration, or a ticket for the corresponding day for a 1-day registration. Additional tickets are available for purchase at $45, each.

President's Opening Reception

This reception is a ticketed event. (2) Drink tickets are included with a full meeting registration. Additional tickets are available for purchase at the following cost: $65 (Adult) / $35 (Child, 16 and under)

ANS OFFICES

ANS Business Office

Location: Strand 2

Sunday, June 12 - Thursday, June 16

Sunday - Wednesday: 8:00 am-5:00 pm

Thursday - 8:00 am-12:00 pm

ANS Conference Office

Location: Strand 4

Sunday, June 12 - Thursday, June 16

Sunday - Wednesday: 8:00 am-5:00 pm

Thursday: 8:00 am-12:00 pm

ANS Media Center

Location: Strand 1

Monday, June 13 - Wednesday, June 15

Monday - Tuesday: 7:45 am-5:00 pm

Wednesday - 7:45 am-4:00 pm

ANS Student Headquarters

Location: Strand 3

Sunday, June 12 - Wednesday, June 15

Sunday - Wednesday: 8:00 am-5:00 pm

Thursday: 8:00 am-12:00 pm

General Information

ANS MOBILE APP

Download the 2016 ANS Annual Meeting mobile app, your "go-to" resource for the most up-to-date information while on site!

- Scan the QR Code or visit your app store and search for "2016 ANS Annual" to download.
- Start using schedules, maps, to-do lists and much more!

OTHER THINGS TO ATTEND

PROFESSIONAL DEVELOPMENT WORKSHOP

Location: Strand 8 | Sunday, June 12, 8:00 am-5:00 pm

Preparing for the Nuclear Engineering Professional Engineering Exam: 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. PLEASE NOTE: Registration for the workshop is separate from, and in addition to, the meeting registration fee.

FIRST-TIME ATTENDEE ORIENTATION

Location: Strand 13 AB | Sunday, June 12, 1:00-1:30 pm

The ANS Membership Committee will offer an orientation session for first-time ANS meeting attendees. Learn what goes on at national meetings, how the national organization works, and how to get involved at the national and local levels.

Whether you are a member or not, student or professional, if this is your first ANS national meeting, the Membership Committee invites you to attend this session, which will be held on Sunday, June 12, 1:00-1:30 p.m.

STUDENT PROGRAM Q&A MEETING

Location: Strand 11B | Sunday, June 12, 4:00 - 5:00 pm

Attendance at the 2016 ANS Annual Meeting is an exciting professional opportunity for college and graduate students. For information on the Student Program, see the Student Program instructions document on the Annual Meeting web page.

ATTENTION RUNNERS: ANS FUN RUN

Location: Hotel Lobby | Tuesday, June 14, 6:00 am

There will be a noncompetitive run starting at 6:00 am from the lobby entrance of the hotel. We hope you can join us. Bring shoes and a big smile!

General Information

ABOUT ANS

Mission

ANS provides its members with opportunities for professional development. It also serves the nuclear community by creating a forum for sharing information and advancements in technology, and by engaging the public and policymakers through communication outreach.

Code of Ethics

The Code of Ethics covers the ethical and professional conduct that ANS expects of all members. The Code of Ethics can be found at www.ans.org/about/coe.

Statement on Diversity

The American Nuclear Society (ANS) is committed, in principle and in practice, to creating a diverse and welcoming environment for everyone interested in nuclear science and technology. Diversity means creating an environment – both in ANS and in the profession – in which all members are valued equitably for their skills and abilities and respected equally for their unique perspectives and experiences. Diverse backgrounds foster unique contributions and capabilities, and so creation of an inclusive Society ultimately leads to a more creative, effective, and technically respected Society.

ANS believes that everyone deserves opportunities for learning, networking, leadership, training, recognition, volunteering in Society activities, and all the other benefits that involvement in the Society brings, regardless of age, color, creed, disability, ethnicity, gender identity and expression, marital status, military service status, national origin, parental status, physical appearance, race, religion, sex, or sexual orientation. The selection of a member to serve in ANS's volunteer leadership structure shall be based solely on the member's ability, interest and commitment to serve. In particular, ANS encourages members at each level of the Society and in each Professional Division and Technical Group to make special efforts to recruit underrepresented minorities and women to ensure that they are adequately represented in the Society.

Respectful Behavior Policy (Abbreviated)

The open exchange of ideas, freedom of thought and expression, and productive scientific debate are central to the mission of the American Nuclear Society (ANS). These require an open and diverse environment that is built on dignity and mutual respect for all participants and ANS staff members, and is free of bias and intimidation.

ANS is dedicated to providing a safe, welcoming, and productive experience for everyone participating in Society events and other Society activities regardless of age, color, creed, disability, ethnicity, gender identity and expression, marital status, military service status, national origin, parental status, physical appearance, race, religion, sex, or sexual orientation. Creation of a safe and welcoming environment is a shared responsibility held by all participants. Therefore, ANS will not tolerate harassment of or by participants (including ANS volunteer leaders and staff members) in any form. Disciplinary action for participants found to have violated this principle may include reprimand, expulsion from an event or activity with or without a refund, temporary or permanent exclusion from all ANS events and activities, suspension or expulsion from volunteer leadership positions or groups, and/or suspension or expulsion from Society membership, as appropriate.

If you or someone else experiences harassment, regardless of how you otherwise choose to initially handle the situation, you are encouraged to report the situation to ANS. It is possible that the behavior you experienced is part of a larger pattern of repeated harassment. Please alert ANS to behavior you feel to be harassment regardless of the offender's identity or standing in the Society.

The designated contact person for reports at the Annual Meeting is ANS Executive Director Robert C. Fine, JD, CAE who can be reached at 708-476-7096 or *rfine@ans.org* during the event. In addition, you may contact ANS President Eugene Grecheck during or after the event at *egrecheck@gmail.com*.

The complete Respectful Behavior Policy can be found at www.ans.org/about/rbp. If you have questions about the policy, please contact ANS Executive Director Robert C. Fine at 708-579-8200 or *rfine@ans.org*.

Plenary, Special Events and Sessions

SUNDAY, JUNE 12

PRESIDENT'S OPENING RECEPTION

Location: Empire CD
6:00-8:00 pm

Join us in kicking off the 2016 ANS Annual Meeting by attending the President's Opening Reception at the Hyatt Regency New Orleans. This reception is the perfect opportunity to make new connections with other attendees, and reconnect with colleagues. We look forward to seeing you there - Laissez les bon temps roulez!

TICKETED EVENT: This event is INCLUDED with an ANS Annual Meeting full meeting registration fee. Additional tickets for guests, 1-day attendees or committee members are available for purchase at the ANS Registration Desk. Reception includes: (2) drink tickets (over 21), complimentary soft drinks and heavy hor d'oeuvres.

$65 (Adult) / $35 (Child, 16 and under)

MONDAY, JUNE 13

OPENING PLENARY SESSION

"Nuclear Power: Leading the Supply of Clean, Carbon Free Energy"
Chair: Donna Jacobs (Entergy Corporation)
Location: Empire AB
8:00-11:30 am

Sponsored by: USA UTILITIES SERVICE ALLIANCE "SIMPLE, COST-EFFECTIVE EXCELLENCE"

Our existing nuclear fleet safely, reliably, and economically contributes almost 20% of electrical generation in the U.S., and remains the single largest contributor of non-greenhouse-gas-emitting power. Invited speakers will discuss the opportunities and challenges ahead to maintain nuclear's leadership role for the benefit of the nation's energy, economy, and environment.

SPEAKERS

- Christopher Bakken, III (Chief Nuclear Officer, Entergy Corporation)
- Sarah K. Mack, MSPH, PhD, CFM (President and CEO, Tierra Resources)

Other panelists to be announced.

MONDAY, JUNE 13 & TUESDAY, JUNE 14

ANS TECHNICAL POSTER SESSION: LEARN, LUNCH & NETWORK

Location: Empire Foyer (Seating is available in Empire C)
11:30 am-1:00 pm

Join us for lunch*, posters and networking! Technical posters will be on display Monday and Tuesday, during the lunch hour in the Empire Foyer. During this time, presenters will stand beside their posters to answer questions and informally discuss the topic of their poster.

**Please note:* *Lunch on Monday and Tuesday is a TICKETED EVENT. A ticket is INCLUDED with an ANS Annual Meeting full meeting registration fee, or a Monday or Tuesday registration. Additional tickets for guests or committee members are available for purchase at the ANS Registration Desk for $45, each.*

MONDAY, JUNE 13

PRESIDENT'S SPECIAL SESSION

"Beyond the Hype: What's Next for Advanced Reactors?"

Chair: Eugene S. Grecheck (ANS President)

Location: Empire A

4:30-6:30 pm

The buzz surrounding advanced reactors seemingly gets louder with each passing day. Nearly 50 North American companies are engaged in some form of advanced reactor R&D. There is strong bipartisan support for legislation in both the House and Senate, as well as significant interest from the venture capital community.

However, hard choices lie ahead on government funding and regulation. This session will explore the major policy decisions confronting Congress, the Administration, utilities, and the OEM/supplier community.

SPEAKERS

- Dr. John W. Herczeg (Deputy Assistant Secretary for Fuel Cycle Technologies, U.S. Department of Energy)
- Jeffrey S. Merrifield (Partner, Pillsbury Law Firm; NRC Commissioner ('98-'07); Chair, Nuclear Infrastructure Council Advanced Reactor Task Force)
- Dr. Kemal Pasamehmetoglu (Associate Director, Idaho National Laboratory; Director, GAIN)
- Andrew Sowder (Principal Technical Leader, Electric Power Research Institute)
- Ben Reinke (ANS Congressional Fellow, Senate Energy and Natural Resources Committee)

MONDAY, JUNE 13

OPD HONORS & AWARDS DINNER

7:00 pm

Venue: Borgne (On-site at the Hyatt Regency New Orleans)

Join the Operations and Power Division in celebrating the accomplishments of our colleagues and a successful year as a division.

This event is not included in your registration fee. The ticket price is $50.00. Tickets may be purchased online or at the Registration Desk, space is limited.

TUESDAY, JUNE 14

TECHNICAL PROGRAM CHAIR'S SPECIAL SESSION

"Developing a Policy for Used Nuclear Fuel that will Encourage an Expansion of Nuclear Energy as a Leading Supply of Clean Carbon Free Energy"

Moderator: Dr. Alan Icenhour (Associate Laboratory Director, Oak Ridge National Laboratory)

Location: Empire A

8:00-10:00 am

Public perception is becoming increasingly favorable toward an expanded role for nuclear energy as a large and economical source of clean energy, except for the unresolved problem of what to do with the used nuclear fuel stockpile accumulating at reactor sites; considered by some as a legacy of "nuclear waste" for future generations.

Long-term interim storage, as recommended by the Blue Ribbon Commission, is a necessary and beneficial component of a sensible policy for used nuclear fuel. Transitioning to a policy that allows and encourages the recycling of used nuclear fuel improves resource utilization, minimizes radioactive waste, and ensures that the United States can positively and effectively influence international fuel cycle decisions in the current era of expanded global nuclear power deployment.

This panel will explore alternatives for managing used nuclear fuel, noting that no matter what approach is taken, successful implementation will require many decades of focused and sustained efforts over multiple administrations. Desired results can only be achieved if the selected solution is guided by solid technical and economical bases that are widely supported.

SPEAKERS

- Andrew R. Griffith (Associate Deputy Assistant Secretary for Fuel Cycle Technologies, U.S. Department of Energy)
- Dr. Michael V. McMahon (Senior Vice-President, AREVA)
- Dr. William E. Burchill (Retired Department Head of Nuclear Engineering, Texas A&M University; ANS Past President)
- Dr. Everett L. Redmond II (Senior Director of Fuel Cycle and Technology Policy, Nuclear Energy Institute)
- Donald R. Hoffman (President and CEO, EXCEL Services Corporation; ANS Past President)

Plenary, Special Events and Sessions

TUESDAY, JUNE 14

GENERAL CHAIR'S SPECIAL SESSION

"Improving the Competitiveness of the Existing U.S. Commercial Nuclear Fleet—Sustaining a National Asset"

Chair: Donna Jacobs (Entergy Corporation)
Location: Empire A
4:30-6:30 pm

Many U.S. nuclear power plants currently operate in a world of uncertainty, challenged by low commodity prices and competitive market imbalances. Senior industry and government leaders will discuss the current issues challenging affecting the continued operation of the fleet and actions underway in market reform and optimization of operating costs.

SPEAKERS

- William Mohl (President, Entergy Wholesale Commodities)
- William Webster (Executive Vice President, Industry Strategy, Institute of Nuclear Power Operations)
- Dr. Peter B. Lyons (Former Assistant Secretary for Nuclear Energy, Former NRC Commissioner)
- Anthony Pietrangelo (Senior Vice President and CNO, Nuclear Energy Institute)

SPEAKERS BUREAU WORKSHOP

Location: Empire B
6:30-8:30 pm

New members are welcome to join this dynamic group of speakers to help students and the public learn the many benefits that nuclear science and technology brings to their lives. The workshop will prepare you to participate in outreach activities in your community. We'll review ANS messaging and outreach plans for the year ahead, and have exercises about how to frame your presentations for various audiences. It's a great chance for potential new Bureau members to learn more before applying to join the group. Light appetizers and soft drinks will be served.

WEDNESDAY, JUNE 15

SPECIAL SESSION: ANS SPECIAL COMMITTEE ON NUCLEAR IN THE STATES

CHAIR ORGANIZER: Donald R. Hoffman (President/CEO, EXCEL Services Corporation)
Location: Bolden 5
4:00-6:00 pm

Until 2013, the US had 104 operating reactors. In December of 2015, the US has 99 operating reactors and 1 in start-up (Watts Bar 2) for a total of 100. The Environmental Protection Agency (EPA) issued the final Clean Power Plan (CPP) in August, 2015. The CPP provides very little guidance on how to reduce carbon emissions. The American Nuclear Society (ANS) Special Committee on Nuclear in the States has been established to engage our members in state-by-state efforts to maintain the current nuclear fleet and support nuclear new builds, and to provide a consistent and standard approach for each of the states in valuing nuclear energy as an asset in their compliance with Section 111D of the Clean Power Plan.

This session will detail the present and future plans and actions to ensure:

1) That policy and law makers at the state and federal level appropriately value nuclear in their decision making
2) The energy market is structured as a level playing field for all non-carbon emitting sources of energy
3) The states and the nation come to understand the value of nuclear energy and its role in a sensible energy policy.

FOCUS ON COMMUNICATION WORKSHOP

"Making Advanced Nuclear Energy Technologies Accessible"

Location: Strand 12 AB
4:00-6:00 pm

Late last year, the Obama Administration announced a major nuclear energy research and development initiative called GAIN (Gateway for Accelerated Innovation in Nuclear), which will make U.S. Department of Energy's facilities, scientists, laboratories, and knowledge more accessible to entrepreneurs and scientists working to create the next generation of nuclear reactors. Kemal Pasamehmetoglu, Associate Lab Director at the Idaho National Laboratory, will discuss the strategy that GAIN is using to communicate with industry, scientists and the public. In addition, ANS Washington Rep Craig Piercy and Potomac Communications Group's Mimi Limbach will discuss the state-of-play in nuclear energy politics and communications.

WEDNESDAY, JUNE 15

ANS ANNUAL BUSINESS MEETING

Location: Strand 11A
5:45-7:00 pm

ANS encourages all members to attend the Annual Business Meeting. During the Business Meeting, members will have the opportunity to vote for officers and directors, receive reports from the President and other Society leaders, and ask questions and make comments on Society issues.

THURSDAY, JUNE 16

TECHNICAL TOUR & LUNCH:

Gulf Intracoastal Waterway West Closure Complex/Restaurant des Familles

Meet in the Hyatt Regency New Orleans hotel lobby at 8:30 am, shuttle departs at 8:45 am. Estimated to return to the hotel around 2:30 pm.

Tour: 10:00–11:30 am, Lunch 11:30 am–1:30 pm
Cost: $60, includes transportation to and from the venue and lunch.

The GIWW West Closure Complex is a $1 billion hurricane storm surge (flood) protection facility for the city of New Orleans and surrounding areas. The Gulf Intracoastal Waterway West Closure Complex is the world's largest pump project and is a part of the New Orleans Drainage System; it consists of a 225 ft. navigable floodgate, a pumping station, 4200 ft. concrete T-wall, 5 sluice gates, foreshore protection, and an earthen levee. The pump station also has 11 units and is capable of discharging storm water at a rate of 19,140 cubic feet per second. GIWW West Closure Complex has received numerous awards and recognition for its successes in safety and small business efforts. The project was named ENR's 2012 Best Civil Works/Infrastructure Project and Best Project of the Year for Texas and Louisiana.

Following the tour, group will be transported to Bayou des Familles located within the Jean Lafitte National Park. Here, a lazy waterway home to many alligators, turtles, egrets and other wildlife, takes center stage as the restaurant's design provides its diners with a natural picture show. The unique setting provides you southern Louisiana charm and culture in its finest form. It's an experience not to be soon forgotten!

Technical Sessions by Division

SPECIAL SESSIONS

Opening Plenary: Nuclear Power: Leading the Supply of Clean, Carbon Free Energy, Mon. am (8:00-11:30 am)

ANS President's Special Session: Beyond the Hype: What's Next for Advanced Reactors? Mon. pm (4:30-6:30 pm)

Technical Program Chair's Special Session: Developing a Policy for Used Nuclear Fuel that will Encourage an Expansion of Nuclear Energy as a Leading Supply of Clean Carbon Free Energy, Tues. am (8:00-10:00 am)

General Chair's Special Session: Improving the Competitiveness of the Existing U.S. Commercial Nuclear Fleet—Sustaining a National Asset, Tues. pm (4:30-6:30 pm)

Special Session: ANS Special Commitee on Nuclear in the States, Wed. pm (4:00-6:00 pm)

ACCELERATOR APPLICATIONS (AAD)

Accelerator Applications: General, Thurs. am.

AEROSPACE NUCLEAR SCIENCE AND TECHNOLOGY (ANST)

Aerospace Nuclear Science and Technology: General–Papers/Panel, Mon. pm
(Hybrid Energy Systems–Panel), Wed. am.

BIOLOGY AND MEDICINE (BMD)

Radiation Transport Applications in Medicine, Tues. am
(Isotopes and Radiation: General), Tues. pm

EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT (ETWDD)

Focus on Communications: Communication, the Challenges Facing Today's Operating Fleet, Mon. pm
Focus on Communications: Creating New Nuclear Conversations, Mon. pm
Education, Training, and Workforce Development: General, Wed. am

FUEL CYCLE AND WASTE MANAGEMENT (FCWMD)

Tritium Management in Nuclear Fuel Cycle, Mon. pm
Economics and Cost Analysis of Spent Fuel Cycle–Panel, Mon. pm
Heat Storage and Hybrid Energy Systems, Tues. am
University Research in Fuel Cycle and Waste Management—I, Tues pm
University Research in Fuel Cycle and Waste Management—II, Wed. am
Consolidated Storage of Commercial Used Fuel, Tues. pm
Advanced Fuel Cycle Technology, Wed. am
Recycle and Reuse of Used Nuclear Fuel Resources, Wed. pm
Fuel Cycle Analysis, Wed. pm
Fuel Cycle and Waste Management: General, Thurs. am

FUSION ENERGY (FED)

Fusion Energy—Technology and Applications, Thurs. am

HUMAN FACTORS, INSTRUMENTATION, AND CONTROLS (HFICD)

Human Factors, Instrumentation and Control: Software Dependability and Advanced Technologies, Wed. pm

ISOTOPES AND RADIATION (IRD)

Isotopes and Radiation: General, Tues. pm

MATHEMATICS AND COMPUTATION (MCD)

Current Issues in Computational Methods–Roundtable, Mon. pm
Transport Methods, Tues. am
Mathematics and Computation: General, Wed. am
Uncertainty Quantification and Sensitivity Analysis Methods, Wed. pm

NUCLEAR CRITICALITY SAFETY (NCSD)

Criticality for Spent Fuel Pools and Transport Casks, Mon. pm
Data, Analysis and Operations in Nuclear Criticality Safety—I, Tues. am
Data, Analysis and Operations in Nuclear Criticality Safety—II, Tues. pm
Data, Analysis and Operations in Nuclear Criticality Safety—III, Wed. am
Sharing of Good Industry Practices in Criticality Safety–Panel, Wed. pm
ANS-8 Standards Forum, Thurs. am

NUCLEAR INSTALLATIONS SAFETY (NISD)

Nuclear Installations Safety: General—I, Wed. am
Nuclear Installations Safety: General—II, Wed. pm

OPERATIONS AND POWER (OPD)

New Construction Around the World–Panel, Mon. pm
(Heat Storage and Hybrid Energy Systems), Tues. am
Advanced Generation IV Reactors, Tues. pm
Hybrid Energy Systems–Panel, Wed. am

RADIATION PROTECTION AND SHIELDING (RPSD)

Radiation Protection and Shielding, Mon. pm
Radiation Protection and Shielding–Roundtable, Tues. am
Computational Tools for Radiation Protection and Shielding, Tues. pm

REACTOR PHYSICS (RPD)

Reactor Physics: General—I, Mon. pm
Reactor Physics: General—II, Wed. am
Reactor Physics: General—III, Thurs. am
Progress Status of Prototype Generation-IV Sodium-Cooled Fast Reactor, Tues. am
Reactor Analysis Methods—I, Tues. pm
Reactor Analysis Methods—II, Wed. pm
Reactor Physics Design, Validation and Operational Experience, Thurs. am

THERMAL HYDRAULICS (THD)

Computational Thermal-Hydraulics—I, Mon. pm
Computational Thermal-Hydraulics—II, Wed. pm
General Thermal-Hydraulics, Tues. pm

YOUNG MEMBERS GROUP (YMG)

Proposal Writing 101–Panel, Tues. a.m.
Nuclear Politics: Perspectives from Nuclear Advocates–Panel, Tues. pm
(University Research in Fuel Cycle and Waste Management—I), Tues. pm
(University Research in Fuel Cycle and Waste Management—II), Wed. am
Ask the Public Policy Committee Anything–Panel, Wed. pm
Knowledge Transfer and Retention–Panel, Thurs. am

MONDAY, JUNE 13

POSTER SESSION - 11:30 AM

Location: Empire Foyer

1. Uncertainty Analysis in Critical Configurations of SORA Mockup, Xiaobo Liu (Inst of Nuclear Physics and Chemistry), Margaret Marshall, John Darrell Bess (INL)

2. Study on Gaseous and Liquid Radioactive Effluents in AP1000 Plants, Li Huaibin, Mao Lanfang (Shanghai Nuclear Engineering Research & Design Inst)

3. The MELCOR Analysis of Chinshan Nuclear Power Plant Spent Fuel Pool for Fukushima-Like Accident, Jong-Rong Wang, Yung-Shin Tseng (Tsing Hua Univ), Hao-Tzu Lin (INER), Ting-Yi Wang, Yu Chiang, Wen-Sheng Hsu (Tsing Hua Univ), Jyh-Tong Teng (Chung Yuan Christian Univ), Hsiung-Chih Chen, Shao-Wen Chen, Chunkuan Shih (Tsing Hua Univ)

4. Importance of Plutonium Turnings in Criticality Safety, Andrew R. Wysong (LANL), Chelsea L. Weaver (Univ of New Mexico)

5. Analysis of a Study to Develop a Viable Long Term UK Nuclear Power Scenario, Daniel Paul Mathers, Robert Gregg (NNL)

6. Uncertainty Quantification with MCMC Method and BFBT Data, Guojun Hu, Tomasz Kozlowski (Univ of Illinois)

7. Design of a Supercritical Carbon Dioxide Corrosion Test Rig for Tube-to-Tube Sheet Joint and High Temperature Insulation Testing, Brian R. He, Nils Haneklaus, Jeff E. Bickel, David L. Krumwiede, Peter Hosemann, Per F. Peterson (Univ of California, Berkeley)

8. Corrosion Testing of TiN on Steel Substrates for use in Waste Packages, John Russell Echols, Leigh Winfrey (Univ of Florida), Michael A. Fusco (NCSU), Abigail Casey (Univ of Florida)

9. A Dual ALPHA/GAMMA Imaging Tool to Manage Decommissioning Operations, Charly Mahe, Mehdi Ben Mosbah, Marie Cuozzo, Julien Venara (CEA)

10. Validation of an Analytical Model for Therapeutic and Stray Dose Calculations of 6 MV Photon Beams, Lydia J. Jagetic, Wayne D. Newhauser (Louisiana State Univ), Robert Carver (Mary Bird Perkins Cancer Center), Rui Zhang (Louisiana State Univ)

11. Initial Application of the Reactivity Method to Analyze KSU TRIGA Fuel, Saqr Alshogeathri, Jeffrey A. Geuther, Jeremy A. Roberts (Kansas State Univ)

12. Investigation of Portable Event-Based Monte Carlo Transport using the NVIDIA Thrust Library, Ryan Cory Bleile, Patrick S. Brantley, Shawn A. Dawson, Matthew J. O'Brien (LLNL), Hank Childs (Univ of Oregon)

13. McStas Analysis of Monoenergetic Thermal Neutron Beam Generation for Total Cross Section Measurements, N. C. Sorrell, Q. Cai, Ayman I. Hawari (NCSU)

14. CE TSUNAMI-3D Algorithm Improvements in SCALE 6.2, Christopher M. Perfetti, Bradley T. Rearden (ORNL)

15. Updating a PWR Simulator in Python, Richard L. Reed, Jacob W. Hayhurst, Shravan D. Gangadhara, Jeremy A. Roberts (Kansas State Univ)

16. Sensitivity Study of Void Coefficients in the SHEBA-II Critical Assembly using MCNP6, Megan R. Smith (NCSU), Adam Davis, Donald J. Dudziak (LANL)

17. Development of a Phoswich Neutron Detector with Energy Spectroscopy Capability, Jessica N. Hartman, Alexander Barzilov (UNLV)

18. Acceleration Techniques using ADVANTG for the MDF Design and Optimization, T. C. McClanahan (Univ of Tennessee), F. X. Gallmeier, E. B. Iverson (ORNL)

19. A Novel Method for Determination of Equivalence Factor of External Neutron Source to Fundamental-Mode Source, Lingli Song (CAE), Hui Gao (CAEP)

Technical Sessions: Monday June 13

MONDAY, JUNE 13
TECHNICAL SESSIONS - 1:00 PM

Focus on Communications: Communication, the Challenges Facing Today's Operating Fleet
Sponsored by: ETWDD
Session Organizer and Chair: Mimi M. Limbach (Potomac Communications Group)
Location: Strand 13 **Time:** 1:00-2:30 pm

Consumers in thirty states benefit directly from electricity generated from nuclear reactors operating in their states. Neighboring states benefit indirectly with nuclear on the grid. As the United States attempts to effectively manage dramatic supply shifts in energy markets, state and local communities must increasingly get smart about their generation options. Utilities, coalitions and policy organizations are helping state and municipal decision makers understand the long-term impact of investments in transmission and other infrastructure. This panel will explore what industry communicators are doing bring greater awareness to how nuclear contributes to reliability of electricity supply and its future role as more intermittent resources are added to regional electricity supplies.

Panelists
C. Brian Meadors (Southern Nuclear Operating Co.)
Craig Nesbit (Exelon Generation)
Kelle Barfield (Entergy)
Buddy Eller (STP Nuclear Operating Co.)

Focus on Communications: Creating New Nuclear Conversations
Sponsored by: ETWDD
Session Organizer and Chair: Laura Hermann (Potomac Communications Group)
Location: Strand 13 **Time:** 2:35-4:00 pm

The Nuclear for Climate campaign at the end of 2015 marked a new beginning of the industry's coordinated effort to advocate for nuclear as part of the solution to climate change. Since then, new attention has been drawn to the policy makers, media and civil society who have continued to challenge the conventional wisdom of who is for or against nuclear energy. This panel will explore how support for nuclear energy is taking shape among new audiences.

Panelists
Ryan Fitzpatrick (Third Way)
Irfan Ali (Energy Reform Project)
Dan Curtis (MIT)
Bryan Wilkes (CB&I Project Services Group)

Radiation Protection and Shielding
Sponsored by: RPSD
Session Organizer: Peter F. Caracappa (RPI) **Chair:** Sukesh K. Aghara (Univ of Massachusetts Lowell)
Location: Bolden 2 **Time:** 1:00-3:05 pm

1:00 pm
Comparing Thick Target Neutron Yield Calculations for Alphas on F-19 using MCNP6 1.1 Beta with TENDL 2012 Libraries, M. L. Fensin, G. E. McMath, M. L. Lockhart, K. A. Miller and M. T. Swinhoe (LANL)

1:25 pm
Development of in-Situation Radioactivity Inspection System for Food Materials, Sujung Min Haeyoung Ko, Unjang Lee (ORIONENC)

1:50 pm
NORM Concentration Determination in Common Materials in an Urban Environment, Mathew W. Swinney, Douglas E. Peplow, Andrew D. Nicholson, Bruce W. Patton (ORNL)

2:15 pm
Hardened Containment Vent System Dose Considerations for FLEX, Julie M. Jarvis, Sharad Jha, Matthew J. Brenner, Paul J. Babel (Bechtel)

2:40 pm
The New Modular High-Energy X-ray Source Facility Shielding Design, T. C. McClanahan, C. Crutcher, K. H. Darby, M. Megonigal, A. Moore, L. F. Miller (Univ of Tennessee)

MONDAY, JUNE 13
TECHNICAL SESSIONS - 1:00 PM

Reactor Physics: General—I
Sponsored by: RPD
Session Organizer and Chair: Cristian Rabiti (INL)
Location: Bolden 3 **Time:** 1:00-3:05 pm

1:00 pm
Feasibility Studies on a Hexagonal-Lattice Core for a World-Class Cold Neutron Source, Dylan M. Prevost (Texas A&M), Zeyun Wu, Robert E. Williams (NIST)

1:25 pm
Application of Neutron Detection Third Order Time Correlation, Philippe P. Humbert (CEA)

1:50 pm
Multi-Physics Simulation of the TRIGA Reactor, Romain Henry, Iztok Tiselj, Luka Snoj (Jozef Stefan Inst)

2:15 pm
Physics and Environmental Assessments for a Heavy-Water Moderated, Molten Uranium Reactor Concept, Neal L. Mann (Neal Mann & Assoc)

2:40 pm
MC^2-3/DIF3D Analysis of the ZPPR-15 Axial Expansion Experiments, M. A. Smith, R. M. Lell, C. H. Lee, R. N. Hill (ANL)

Current Issues in Computational Methods–Roundtable
Sponsored by: MCD
Session Organizer and Chair: Patrick S. Brantley (LLNL)
Location: Bolden 4 **Time:** 1:00-2:30 pm

Proxy Apps, Mini Apps, Research Apps: Progress and Lessons Learned

A current trend in the research and development of numerical algorithms for advanced exascale computing architectures involves the production of proxy-apps, mini-apps, and research apps. A major goal of these efforts is to provide open-source and distributable software applications that can be used by researchers and computer vendors to investigate algorithms suitable for advanced exascale architectures. This panel session will address questions such as: What are these various applications, and how are they being used? What are the costs of development of these apps? What is the optimal balance between size of proxy apps and flexibility for research investigations? What approaches can be used to assess whether these apps are representative of the actual applications? What are some success stories for which these apps have been beneficial? What are some lessons learned for the development of these apps in the future?

Panelists
Steven Hamilton (ORNL)
Adam Kunen (LLNL)
Paul Romano (ANL)
Joseph Zerr (LANL)

Technical Sessions: Monday June 13

MONDAY, JUNE 13
TECHNICAL SESSIONS - 1:00 PM

Aerospace Nuclear Science and Technology: General–Paper/Panel

Sponsored by: ANSTD
Session Organizer: Robert C. O'Brien (INL) **Chair:** John Bess (INL)
Location: Bolden 4 **Time:** 2:35-4:00 pm

2:35 pm
Preliminary Neutronic, Thermal and Mechanical Design for Pu-238 Advanced Test Reactor Targets, Jorge Navarro, Craig S. Biebel, Paul E. Murray, Carla C. Dwight (INL)

3:00 pm
Role of Core Exit Axial Reflectors for NTP Full Submersion Criticality Accident Mitigation, Paolo F. Venneri, Yonghee Kim (KAIST)

3:25 pm
Panel Discussion
Benchmarking and Validation of Space Reactor Designs, John Bess (INL)
Transient Reactor Experiments for Space Reactor Systems, Robert O'Brien (INL)
Submersion Criticality Analyses and significance for Space Reactor Design, Jeff King (INL)

Criticality for Spent Fuel Pools and Transport Casks

Sponsored by: NCSD
Session Organizer: Dale B. Lancaster (NuclearConsultants.com) **Chair:** William Marshall (ORNL)
Location: Bolden 5 **Time:** 1:00-3:05 pm

1:00 pm
Solving the Interface Problem in Criticality Analysis, Charles Rombough (CTR Technical Services, Inc.), Dale Lancaster (NuclearConsultants.com), Robert Hall (Dominion)

1:25 pm
New Approach to Eccentric Positioning of Fuel Assemblies in a Spent Fuel Pool, Dale Lancaster (NuclearConsultants.com), Bob Hall (Dominion), Charles Rombough (CTR Technical Services, Inc.)

1:50 pm
Fission Gases in Spent Fuel Pool Criticality Analysis, Dale Lancaster (NuclearConsultants.com), Bob Hall (Dominion), Matthew Harris (Curtiss-Wright), Charles Rombough (CTR Technical Services, Inc.)

2:15 pm
Impact of Concrete Composition on Criticality at Nuclear Power Plants, Dale Lancaster (NuclearConsultants.com), Bob Hall (Dominion), Matthew Harris (Curtiss-Wright), Charles Rombough (CTR Technical Services, Inc.)

2:40 pm
Apparent Monte Carlo Source Convergence Problem with BWR Fuel Depleted with Partial Control Blade Insertion, W. J. Marshall, B. J. Ade, S. M. Bowman (ORNL)

MONDAY, JUNE 13
TECHNICAL SESSIONS - 1:00 PM

Tritium Management in the Nuclear Fuel Cycle
Sponsored by: FCWMD
Session Organizer and Chair: Robert T. Jubin (ORNL)
Location: Foster 1 **Time:** 1:00-3:30 pm

1:00 pm
Tritium Content in and Release from Pressurized-Water-Reactor Fuel Cladding, Sharon Robinson, Marc Chattin, Joseph M. Giaquinto, Robert T. Jubin (ORNL)

1:25 pm
Tritium Distribution and Capture Requirements for UNF Reprocessing, Robert T. Jubin, Barry B. Spencer (ORNL)

1:50 pm
Hydrogen Isotope Separation from Aqueous Streams using Zeolite Membranes, Yeon Hye Kwon (Georgia Tech), Daejin Kim, Michelle Kidder, Barry Spencer, Robert Jubin, Ramesh Bhave (ORNL), Sankar Nair (Georgia Tech)

2:15 pm
Adsorption of Iodine and Tritium from UNF Reprocessing Off-Gas Streams, B. B. Spencer, S. H. Bruffey, J. F. Walker, R. T. Jubin (ORNL)

2:40 pm
Dry Pretreatment of Used Nuclear Fuel for Tritium Removal: A Review, G. D. DelCul (ORNL), J. A. Johnson (ORNL UT-Battelle), B. B. Spencer, R. D. Hunt, R. T. Jubin (ORNL)

3:05 pm
Methods to Capture the Tritium Released by Recovery/Recycle of Zirconium from Used Fuel Cladding: A Review, B. B. Spencer, G. D. DelCul (ORNL)

Economics and Cost Analysis of Spent Fuel Cycle–Panel
Sponsored by: FCWMD
Session Organizer and Chair: Sven O. Bader (AREVA)
Location: Foster 2 **Time:** 1:00-4:00 pm

With the recent release of the updated ANS position statement on Nuclear Fuel Recycling (PS 45), this panel delves into one of the two concerns identified as most frequently raised about nuclear fuel recycling: cost. This panel examines the costs and (often uncredited) benefits associated with recycling in relationship to the life-cycle of nuclear energy from both national and international viewpoints. This panel will provide a forum for the discussion of the bases of the economics statements made in PS 45 (and its supporting bases) and what are the (potential) paths forward domestically and internationally.

Panelists
Tim Rogers (Duke Energy)
Cécile Evans (AREVA)
Erich Schneider (Univ of Texas)
Roald Wigeland (INL)

Technical Sessions: Monday June 13

MONDAY, JUNE 13
TECHNICAL SESSIONS - 1:00 PM

Computational Thermal-Hydraulics—I

Sponsored by: THD

Session Organizer: Shripad T. Revankar (Purdue Univ) **Cochairs:** Igor A. Bolotnov (NCSU), Ling Zou (INL)

Location: Strand 10B **Time:** 1:00-3:30 pm

1:00 pm
Solving Drift-Flux Model Using High-Resolution Spatial Discretization Scheme, Ling Zou, Haihua Zhao, Hongbin Zhang (INL)

1:25 pm
Assessment of Macroscopic k-e Model of CUPID for a Subchannel Analysis, Seung-Jun Lee, Han Young Yoon (KAERI), Seok Jong Yoon, Hyoung Kyu Cho (Seoul Natl Univ)

1:50 pm
Modeling the Effect of Evaporative Flux and Colloidal Aggregation on Crud Deposition, Smreeti Dahariya, Hitesh Bindra (Kansas State Univ)

2:15 pm
Code Validation of a SBLOCA Test in SMART Integral Test Loop, Byong Guk Jeon (KAERI), Yeon-Sik Cho (System Engineering and Technology Co.), Hwang Bae, Sung-Uk Ryu, Yeon-Sik Kim, Sung-Jae Yi, Hyun-Sik Park (KAERI)

2:40 pm
Analysis of Reverse Flow Restriction Device to Prevent Dryout Fuel Damage during BWR Instability, Travis Mui, Majdi Ibrahim Radaideh, Tomasz Kozlowski (Univ of Illinois), Yousef M. Farawila (Farawila et al., Inc.)

3:05 pm
Comparison of Calculated and Experimental Results for a Boiling/Condensing Experimental Facility, Juan J. Carbajo, Joel L. McDuffee, David K. Felde (ORNL)

MONDAY, JUNE 13
TECHNICAL SESSIONS - 1:00 PM

New Construction Around the World–Panel
Sponsored by: OPD
Session Organizer: Edward L. Quinn (Technology Resources)
Cochairs: Edward L. Quinn (Technology Resources), Corey K. McDaniel (INL)
Location: Strand 12A **Time:** 1:00-4:00 pm

This session will include speakers from the U.S. Department of Energy, U.S. Nuclear Regulatory Commission, the Nuclear Energy Institute and Institute of Nuclear Power Operations to address their views on the growth of nuclear energy around the world.

Panelists
Frank Akstulewicz (NRC)
Everett Redmond (NEI)
Tom O'Connor (DOE)
Ann Winters (INPO, retired)

Technical Sessions: Tuesday June 14

TUESDAY, JUNE 14
TECHNICAL SESSIONS - 8:30 AM

Transport Methods
Sponsored by: MCD
Session Organizer: Ryan G. McClarren (Texas A&M) **Chair:** Christopher M. Perfetti (ORNL)
Location: Strand 13 **Time:** 8:30-11:50 am

8:30 am
Radiation Transport in Random Media with Large Fluctuations, Aaron J. Olson, Anil K. Prinja (Univ of New Mexico), Brian C. Franke (SNL)

8:55 am
Nonclassical Particle Transport in the 1-D Diffusive Limit, Richard Vasques, Rachel N. Slaybaugh (Univ of California, Berkeley), Kai Krycki (Aachen Inst for Nuclear Training GmbH)

9:20 am
An Atomic Mix Closure for Stochastic Media Transport Problems, Shawn D. Pautz, Brian C. Franke (SNL)

9:45 am
Modified Closures in Monte Carlo Algorithms for Diffusive Binary Stochastic Media Transport Problems, Patrick S. Brantley (LLNL)

10:10 am
The Improved Simple Corner Balance Method and Efforts to Enhance its Computational Performance, Peter G. Maginot, Peter N. Brown, Adam J. Kunen, Teresa S. Bailey (LLNL)

10:35 am
High Order Finite Elements S_N Transport in X-Y Geometry on Meshes with Curved Surfaces, Douglas N. Woods (Oregon State Univ), Thomas A. Brunner (LLNL), Todd S. Palmer (Oregon State Univ)

11:00 am
On the Degradation of the Effectiveness of Nonlinear Diffusion Acceleration with Parallel Block Jacobi Splitting, Sebastian Schunert, Yaqi Wang, Javier Ortensi, Frederick Gleicher, Benjamin Baker, Mark DeHart, Richard Martineau (INL)

11:25 am
Accelerated Monte Carlo Fission Source Convergence with Fission Matrix and Kernel Density Estimators, Steven P. Hamilton, Gregory G. Davidson, Thomas M. Evans Kaushik Banerjee (ORNL)

TUESDAY, JUNE 14
TECHNICAL SESSIONS - 8:30 AM

Radiation Protection and Shielding Roundtable
Sponsored by: RPSD
Session Organizer: Peter F. Caracappa (RPI) **Chair:** Blair Bromley (Canadian Nuclear Laboratories)
Location: Bolden 2 **Time:** 8:30-11:30 am

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

Progress Status of Prototype Generation-IV Sodium-Cooled Fast Reactor
Sponsored by: RPD
Session Organize and Chair: Yoon I. Chang (ANL), All invited
Location: Bolden 3 **Time:** 8:30 am-12:15 pm

8:30 am
Overview of PGSFR Project, Tae-Wan Kim, Kyu-Suk Ahn, Jong-Hyuk Baek, Young-Gyun Kim, Won-Seok Park (KAERI)

8:55 am
Overall Reactor System Description of Prototype Gen-IV Sodium Cooled Fast Reactor, Jaewoon Yoo, Jinwook Chang, Hyung-Koo Joo (KAERI)

9:20 am
PGSFR General Arrangement, Soonki So, Heecheon Chu, Hyun-Kyu Lee, Hae-Gyu Lee (KEPCO E&C)

9:45 am
PGSFR Core Design and Performance Characteristics, Jae-Yong Lim, Sun Rock Choi, Sang Ji Kim (KAERI)

10:10 am
Shielding Design for Prototype Generation-IV Sodium-Cooled Fast Reactor, T. Fei, T. K. Kim, (ANL), S. Yun, S. J. Kim (KAERI)

10:35 am
Safety Analyses of Design Basis and Design Extended Condition Events for the PGSFR, Seok Hun Kang, Kwi-Lim Lee, Chi-Woong Choi, Jae-Ho Jeong, Tae-Kyoung Jeong, Kwi-Seok Ha (KAERI)

11:00 am
Metal Fuel Implications on Severe Accident Scenarios, Yoon I. Chang, Mitchell T. Farmer, Adrian Tentner, Arthur E. Wright (ANL)

11:25 am
Plant Operation and Control Strategy for the PGSFR, Richard B. Vilim, Taeseung Lee (ANL)

11:50 am
Computer Codes V&V Tests with a Large-Scale Sodium Thermal-Hydraulic Test Facility (STELLA), Jaehyuk Eoh, Jonggan Hong, SujinYeom, Jewhan Lee, Ji-Young Jeong (KAERI)

Technical Sessions: Tuesday June 14

TUESDAY, JUNE 14

TECHNICAL SESSIONS - 8:30 AM

Radiation Transport Applications in Medicine

Sponsored by: BMD
Session Organizer and Chair: Bryan P. Bednarz (Univ of Wisconsin, Madison)
Location: Bolden 4 **Time:** 8:30-11:00 am

8:30 am
Analytical Stopping Power and Range Parameterization for Therapeutic Energy Intervals, William P. Donahue, Wayne D. Newhauser (Louisiana State Univ), James F. Ziegler (United States Naval Academy)

8:55 am
Comparison of Proton Energy Deposition from Monte Carlo Simulations and Measurement Results, H. Chen, Z. Xia, L. Derenchuk (ProNova Solutions, LLC), N. Schreuder (Provision Center for Proton Therapy), M. Hansen, R. Moore, Z. Nevitt, J. Volk (ProNova Solutions, LLC)

9:20 am
Broadly Applicable Dose Model for Radiotherapy Beams from 6-25 MV, Christopher Schneider, Wayne D. Newhauser (Louisiana State Univ)

9:45 am
Investigation of the Attila Deterministic Solver for Out-of-Field Organ Dose Calculations for Radiotherapy Patients, Matthew M. Mille (National Cancer Inst, NIH), Choonsik Lee (National Cancer Inst)

10:10 am
The Current State of Radiation Dosimetry in Radionuclide Therapy, Bryan P. Bednarz, Abigail E. Besemer, Ian R. Marsh (Univ of Wisconsin, Madison)

10:35 am
iOS Heartrate Monitor, Abdullah Weiss, Raymond Ayala, Samantha-Lee Villarreal, Xue Yang (Texas A&M Univ)

Data, Analysis and Operations in Nuclear Criticality Safety—I

Sponsored by: NCSD
Session Organizer: Deborah Ann Hill (NNL) **Chair:** Theresa E. Cutler (LANL)
Location: Bolden 5 **Time:** 8:30-11:00 am

8:30 am
Validation of MCNP5 for use in Calculating Temperature Coefficients of Reactivity for the SHINE System, Tracy E. Radel, Eric N. Van Abel (Shine Medical Technologies)

8:55 am
Validation of KENO Thermal Moderator Doppler Broadening Method in SCALE 6.2 Beta5 Using Continuous-Energy B-VII.1 Library, T. A. Eckleberry (Univ of Tennessee), W. J. Marshall (ORNL), E. L. Jones, G. I. Maldonado (Univ of Tennessee)

9:20 am
A Solid of Revolution Time Study using COG11.1 and MCNP6.1, William J. Zywiec, David P. Heinrichs (LLNL)

9:45 am
An Investigation of MCNP6.1 Beryllium Oxide S(α, β) Cross Sections, Raymond F. Sartor, Natasha N. Glazener (LANL)

10:10 am
Benchmarking of the Updated Resolved Resonance Region Evaluations of Copper, Vladimir Sobes (ORNL), Luiz C. Leal (IRSN, Inst of Radiation Protection), Dennis E. Mennerdahl (E Mennerdahl Systems)

10:35 am
NJOY21: A Successor to the NJOY Nuclear Data Processing System, Austin McCartney, Jeremy Loyd Conlin, Daniel Rehn (LANL)

TUESDAY, JUNE 14
TECHNICAL SESSIONS - 8:30 AM

Proposal Writing 101–Panel

Sponsored by: YMG
Session Organizer: Brett D. Rampal (NuScale Power, LLC) **Chair:** Holly Coghill (Coghill Communications)
Location: Foster 2 **Time:** 8:30-11:30 am

Laying a holistic foundation is critical to writing a winning proposal. This session offers an overview of a typical proposal process. It equips attendees with critical tools to position them for the next generation of proposals including storyboards, compliance matrices, and templates. In addition, we present the overall proposal process, laying a holistic foundation for writing winning proposals. Specifically, we will present the process for developing integrated compliant outlines, teaching several techniques that results in a higher scored proposal. Attendees actively participate in RFP analysis workshops and compliance outlining exercises to ensure complete understanding of this critical element.

Upon completion of a winning compliance matrix, developing a compelling storyline and defining the supporting approaches is one of the most important elements to writing a winning proposal. Attendees will learn how to leverage core competencies to demonstrate integrated approaches for performing contract work, including exercises for addressing those challenging scope of work areas.

Now that you have that great approach, how do you convey it in a compelling way to your customer? The next step is to write the overall storyline using headlines and message boxes that grab the readers' attention. Included are methods for gaining consensus on overarching themes that underpin the contract win strategy and workshops for developing theme imagery, pictos, and icons.

In this session, attendees learn the process for defining graphics that directly satisfy the requirements of the RFP instructions, enhance readability, and optimize graphic formats and structures for conveying information. We include exercises for sketching illustrations for scope of work approaches, timelines, processes, data sets, hierarchical structures, and schedules— graphics that are included in all types of winning scientific and engineering proposals.

Panelists:
Holly Coghill (Coghill Communications)
Anita Magriplis (Coghill Communications)

Technical Sessions: Tuesday June 14

TUESDAY, JUNE 14
TECHNICAL SESSIONS - 10:00 AM

Heat Storage and Hybrid Energy Systems

Sponsored by: FCWM; **Co-Sponsored by:** OPD
Session Organizer and Chair: Charles W. Forsberg (MIT)
Location: Foster 1 **Time:** 10:00 am-12:05 pm

10:00 am
Implications of Zero-Carbon Nuclear Renewable Economy: Equity, Economics, and Social Costs, Charles W. Forsberg (MIT)

10:25 am
Revenue Opportunities through Ancillary Services for Nuclear Power Plants with Integrated Firebrick Resistance-Heated Energy Storage (FIRES), Daniel J. Curtis, Charles W. Forsberg (MIT)

10:50 am
Optimizing Short-Term Operation of a FIRES-Like Industrial Heat Supply Thermal Energy Storage System, Daniel J. Curtis, Nestor Sepulveda, Charles W. Forsberg (MIT)

11:15 am
Design of a Thermal Energy Storage System for SMR's, Konor Frick, J. Michael Doster (NCSU)

11:40 am
Synthetic Heat Transfer Fluids as Thermal Energy Storage Media for Existing NPPs, Daniel Franken, Jacob Edwards, Hitesh Bindra (Kansas State Univ), Piyush Sabharwall (INL)

POSTER SESSION - 11:30 AM

Location: Empire Foyer

1. Uncertainty Analysis in Critical Configurations of SORA Mockup, Xiaobo Liu (Inst of Nuclear Physics and Chemistry), Margaret Marshall, John Darrell Bess (INL)

2. Study on Gaseous and Liquid Radioactive Effluents in AP1000 Plants, Li Huaibin, Mao Lanfang (Shanghai Nuclear Engineering Research & Design Inst)

3. The MELCOR Analysis of Chinshan Nuclear Power Plant Spent Fuel Pool for Fukushima-Like Accident, Jong-Rong Wang (Nuclear and New Energy Education and Research Foundation), Yu Chiang (Natl Tsing Hua Univ), Yung-Shin Tseng (Nuclear Science and Technology Development Center), Hao-Tzu Lin (INER), Shao-Wen Chen (Natl Tsing Hua Univ), Wen-Sheng Hsu (Nuclear Science and Technology Development Center), Jyh-Tong Teng (Chung Yuan Christian Univ), Chunkuan Shih (Nuclear and New Energy Education and Research Foundation)

4. Importance of Plutonium Turnings in Criticality Safety, Andrew R. Wysong (LANL), Chelsea L. Weaver (Univ of New Mexico)

5. Analysis of a Study to Develop a Viable Long Term UK Nuclear Power Scenario, Daniel Paul Mathers, Robert Gregg (NNL)

6. Uncertainty Quantification with MCMC Method and BFBT Data, Guojun Hu, Tomasz Kozlowski (Univ of Illinois)

7. Design of a Supercritical Carbon Dioxide Corrosion Test Rig for Tube-to-Tube Sheet Joint and High Temperature Insulation Testing, B. R. He, N. H. Haneklaus, J. E. Bickel, D. Krumwiede, P. Hosemann, P. F. Peterson (Univ of California, Berkeley)

8. Corrosion Testing of TiN on Steel Substrates for use in Waste Packages, John Russell Echols, Leigh Winfrey (Univ of Florida), Michael A. Fusco (NCSU), Abigail Casey (Univ of Florida)

9. A Dual ALPHA/GAMMA Imaging Tool to Manage Decommissioning Operations, Charly Mahe, Mehdi Ben Mosbah, Julien Venara, Marie Cuozzo (CEA)

TUESDAY, JUNE 14
POSTER SESSION - 11:30 AM

Location: Empire Foyer

10. Validation of an Analytical Model for Therapeutic and Stray Dose Calculations of 6 MV Photon Beams, Lydia J. Jagetic, Wayne D. Newhauser (Louisiana State Univ), Robert Carver (Mary Bird Perkins Cancer Center), Rui Zhang (Louisiana State Univ)

11. Initial Application of the Reactivity Method to Analyze KSU TRIGA Fuel, Saqr Alshogeathri, Jeffrey A. Geuther, Jeremy A. Roberts (Kansas State Univ)

12. Investigation of Portable Event-Based Monte Carlo Transport Using the NVIDIA Thrust Library, Ryan Cory Bleile, Patrick S. Brantley, Shawn A. Dawson, Matthew J. O'Brien (LLNL), Hank Childs (Univ of Oregon)

13. McStas Analysis of Monoenergetic Thermal Neutron Beam Generation for Total Cross Section Measurements, N. C. Sorrell, Q. Cai, Ayman I. Hawari (NCSU)

14. CE TSUNAMI-3D Algorithm Improvements in SCALE 6.2, Christopher M. Perfetti, Bradley T. Rearden (ORNL)

15. Updating a PWR Simulator in Python, Richard L. Reed, Jacob W. Hayhurst, Shravan D. Gangadhara, Jeremy A. Roberts (Kansas State Univ)

16. Sensitivity Study of Void Coefficients in the SHEBA-II Critical Assembly using MCNP6, Megan R. Smith (NCSU), Adam Davis, Donald J. Dudziak (LANL)

17. Development of a Phoswich Neutron Detector with Energy Spectroscopy Capability, Jessica N. Hartman, Alexander Barzilov (UNLV)

18. Acceleration Techniques using ADVANTG for the MDF Design and Optimization, T. C. McClanahan (Univ of Tennessee), Franz X. Gallmeier, E. B. Iverson (ORNL)

19. A Novel Method for Determination of Equivalence Factor of External Neutron Source to Fundamental-Mode Source, Lingli Song (CAE), Hui Gao (CAEP)

Technical Sessions: Tuesday June 14

TUESDAY, JUNE 14

TECHNICAL SESSIONS - 1:00 PM

Isotopes and Radiation: General

Sponsored by: IRD; **Co-Sponsored by:** BMD
Session Organizer: Igor Jovanovic (Univ of Michigan) **Chair:** Kenan Unlu (Penn State)
Location: Strand 13 **Time:** 1:00-3:55 pm

1:00 pm
The Role of the Nuclear Science User Facilities in Nuclear Energy Research and Development, Brenden J. Heidrich (INL)

1:25 pm
MCNP 6.2.0 Delayed-Particle Production Improvements, J. R. Tutt, G. W. McKinney, T. A. Wilcox, G. E. McMath (LANL)

1:50 pm
Computed Tomography by Combining Transmission and Scatter Radiography Methods, Michael Liesenfelt, James Baciak, Edward Dugan (Univ of Florida), Greg Grissom (Georgetown Railroad Equipment Co.)

2:15 pm
Thermal Flux Maximization from a DD Neutron Generator, Walid A. Metwally, Mohammed Ballaith (Univ of Sharjah), Allan X. Chen (Adelphi Technology)

2:40 pm
Flux Estimation of a PuBe Source using Delayed Gamma Neutron Activation Analysis, Akanchha Fnu, Shivam Singh (IIT), Matthew Barrett (Texas A&M), Shikha Prasad (IIT)

3:05 pm
Investigation of Energy Selective Neutron Imaging at the PULSTAR Reactor, A. S. Alomari, A. I. Hawari (NCSU)

3:30 pm
Response of Ferroelectric Polyvinylidene Fluoride under Pulsed Fast Neutron Irradiation, Wenfeng Liang, Jian Wu, Yi Lu (CAEP)

Computational Tools for Radiation Protection and Shielding

Sponsored by: RPSD
Session Organizer: Peter F. Caracappa (RPI) **Chair:** Garrett McMath (LANL)
Location: Bolden 2 **Time:** 1:00-2:40 pm

1:00 pm
Energetic Light Fragment Production Capability in MCNP6, Leslie M. Kerby (Univ of Idaho), Stepan G. Mashnik (LANL), Konstantin K. Gudima (Inst of Applied Physics, Academy of Science of Moldova), Arnold J. Sierk, Jeffrey S. Bull, Michael R. James (LANL)

1:25 pm
The Solid Angle for a Spherical Surface Source and a Detector with an Arbitrary Aperture: An Elegant Proof, Jeffrey A. Favorite (LANL)

1:50 pm
MCNP6 Study of Spatial Fidelity Required for ROC Curve Convergence, G. E. McMath, G. W. McKinney (LANL)

2:15 pm
Predicting Future Solar Modulation and Implementation in MCNP6, L. R. Liegey, J. R. Tutt, T. A. Wilcox, G. W. McKinney (LANL)

TUESDAY, JUNE 14
TECHNICAL SESSIONS - 1:00 PM

Reactor Analysis Methods—I
Sponsored by: RPD
Session Organizer: Alexander Stanculescu (INL) **Cochairs:** Zeyun Wu (NIST), Cristian Rabiti (INL)
Location: Bolden 3 **Time:** 1:00-3:05 pm

1:00 pm
The Engineering of Reactor Physics: Balancing Physics Insights and Mathematical Rigor, Kord S. Smith (MIT), invited, Wigner Award

1:25 pm
Dimensionality Reduction Algorithms for Big Nuclear Data Streams with Application to SCALE Cross Sections, Siqi Zhang, Yeni Li (Purdue Univ), Ugur Mertyurek (ORNL), Hany S. Abdel-Khalik (Purdue Univ)

1:50 pm
RISMC Industry Application #1 (ECCS/LOCA) Core Characterization Automation: Lattice Codes Interface for PHISICS/RELAP5-3D, Aaron Simon Epiney, Carlo Parisi, Hongbin Zhang, Ronaldo H. Szilard (INL)

2:15 pm
Adaptive Sparse-Grid Collocation Uncertainty Quantification Convergence for Multigroup Diffusion, Paul W. Talbot (Univ of New Mexico), Anil K. Prinja (Univ of New Mexico) Cristian Rabiti (INL)

2:40 pm
Initial Validation of the Neutron Physics Codes in COSINE using the MIT BEAVRS Benchmark, Lei Shi, Zhanquan Liu, Guoping Quan, Hui Yu, Yixue Chen (SNPSDC)

Nuclear Politics: Perspectives from Nuclear Advocates–Panel
Sponsored by: YMG
Session Organizer and Chair: Harsh S. Desai (Department of Defense)
Location: Bolden 4 **Time:** 1:00-4:00 pm

The objective of this session is to discuss nuclear advocacy from experienced experts. Panelists will discuss the need for public policy engagement on nuclear issues as well as highlighting career development opportunities in public policy as it relates to the nuclear industry. The panel members will discuss and interact with the audience on their involvement in the nuclear policy efforts, their experience working with policy makers, and future efforts to advocate for the nuclear industry.

Panelists:
Harsh Desai (Department of Defense)
Brett Rampal (NuScale)
Art Wharton (Westinghouse)
Nick Thompson (RPI)
Craig Piercy (ANS Washington Representative)
Paul Dickman (ANL)

Technical Sessions: Tuesday June 14

TUESDAY, JUNE 14

TECHNICAL SESSIONS - 1:00 PM

Data, Analysis and Operations in Nuclear Criticality Safety—II

Sponsored by: NCSD
Session Organizer: Deborah Ann Hill (NNL) **Chair:** Alexander Mausolff (Univ of Florida)
Location: Bolden 5 **Time:** 1:00-3:05 pm

1:00 pm
A Chemistry Based Criticality Safety Evaluation of the HM-Process Mixer Settlers, Tracy Stover, Stephen Kessler (SRNS)

1:25 pm
Incredibility of a Postulated Criticality Event for Enriched Uranyl Nitrate Storage, Tracy Stover, Stephen Kessler (SRNS)

1:50 pm
C-400 and C-409 Criticality Incredible Road Map, Tom Hines (DOE), Matthew Wilson (Paschal Solutions Inc.)

2:15 pm
UPF Data Book: A Resource for Standard Data, Dimensions, Equations and Practices Used at UPF for Nuclear Criticality Safety Analyses, Barbara I. Krogfuss (Consolidated Nuclear Security, LLC), Daniel F. Hollenbach, Richard G. Taylor (C. S. Engineering, Inc.)

2:40 pm
Limiting Surface Density Method Application to Large Arrays of Highly Heterogeneous Shipping Packages, Tracy E. Stover, James S. Baker, Michael Ratliff, (SRNS)

University Research in Fuel Cycle and Waste Management—I

Sponsored by: FCWMD; **Co-Sponsored by:** YMG
Session Organizer: Jack D. Law (INL) **Chair:** Andrew R. Griffith (DOE)
Location: Foster 1 **Time:** 1:00-3:55 pm

1:00 pm
Insights and Trends from a Literature Assessment of the Thorium Fuel Cycle, Timothy M. Ault, Steven L. Krahn (Vanderbilt Univ), Andrew Worrall (ORNL), Bethany L. Burkhardt, Colin Caldwell, Allen G. Croff (Vanderbilt Univ)

1:25 pm
Complexation and Solvent Extraction Studies of High Valency Actinides by Hard/Soft Donor Schiff Base Ligands, Christian Bustillos, Mikael Nilsson (Univ of California, Irvine)

1:50 pm
Aggregation and Synergism in Solvent Extraction Processes for Used Nuclear Fuel, A. Jackson, M. Nilsson (Univ of California, Irvine)

2:15 pm
Trisulfonamide Ligands for F-Metal Complexation and Extraction from Alkaline Solutions, Evgen V. Govor, Raphael G. Raptis, Konstantinos Kavallieratos (Florida International Univ)

2:40 pm
Re-Evaluation of the Gamma Radiolysis Radiation Chemistry of Neptunium, G. P. Horne, S. P. Mezyk (California State Univ, Long Beach)

3:05 pm
Determination of Activity of Neodymium(III) in Molten Eutectic LiCl-KCl using Electrochemical Methods, Prashant Bagri, Michael Simpson (Univ of Utah)

3:30 pm
Development and Optimization of Normal Pulse Voltammetry for Real Time Analysis of Electrorefiner Salt with High Concentrations of $MgCl_2$ and UCl_3, Chao Zhang, Michael Simpson (Univ of Utah)

TUESDAY, JUNE 14
TECHNICAL SESSIONS - 1:00 PM

Consolidated Storage of Commercial Used Fuel

Sponsored by: FCWMD

Session Organizer: Steven P. Nesbit (Duke Energy) **Cochairs:** Steven P. Nesbit (Duke Energy), Dan Stout (TVA)
Location: Foster 2 **Time:** 1:00-4:20 pm

1:00 pm
Overview of the U.S. Department of Energy, Office of Nuclear Energy's Nuclear Fuel Storage and Transportation Planning Project, W. Mark Nutt (ANL), Robert L. Howard, Matthew R. Feldman, Joshua J. Jarrell (ORNL), Joe T. Carter (SNL)

1:25 pm
U.S. Department of Energy, Office of Nuclear Energy, Nuclear Fuel Storage and Transportation Planning Project Modeling Tools, Joshua J. Jarrell (ORNL), Mark D. Abkowitz (Vanderbilt Univ), Robert Joseph (ORNL), Michael Samsa, Natalia Saraeva (ANL), John M. Scaglione (ORNL), Jim St. Aubin, Casey Trail (ANL)

1:50 pm
Summary of Industry Task Orders Completed by the U.S. Department of Energy, Office of Nuclear Energy's Nuclear Fuel Storage and Transportation Planning Project, Robert L. Howard (ORNL), Joshua J. Jarrell, Matthew R. Feldman, Joe T. Carter (SRNL)

2:15 pm
Cataloguing Past Incidents in Transporting Spent Nuclear Fuel, Kevin J. Connolly (ORNL), Ronald B. Pope (ANL)

2:40 pm
Risk-Informed Maritime Spent Fuel Transportation, Robby Christian, Hyun Gook Kang (KAIST)

3:05 pm
Cosmic Ray Muon Radiography of Spent Fuel in Dry Storage Casks, J. Matthew Durham, Elena Guardincerri, Chris Morris, Daniel Poulson, Jeffrey Bacon (LANL), David Chichester (INL), Joseph Fabritius, Shelby Fellows, Kenie Plaud-Ramos, Deborah Morley (LANL), Philip Winston (INL)

3:30 pm
Investigation of Imaging Spent Nuclear Fuel Dry Casks using Cosmic Ray Muons, S. Chatzidakis, C. Choi, L. Tsoukalas (Purdue Univ)

3:55 pm
Proposed Muon Radiography Method for Spent Fuel Cask Interrogation, Daniel Poulson, Matt Durham, Elena Guardincerri (LANL), Adam Hecht (Univ of New Mexico), Christopher Morris (LANL)

Technical Sessions: Tuesday June 14

TUESDAY, JUNE 14

TECHNICAL SESSIONS - 1:00 PM

General Thermal-Hydraulics

Sponsored by: THD
Session Organizer: Huajian Chang (State Nuclear Power Technology R&D Ctr)
Cochairs: John C. Luxat (McMaster Univ), Rui Hu (ANL)
Location: Strand 10B **Time:** 1:00-3:55 pm

1:00 pm
Scaling and Design Analysis of a Sub-Scale, Reduced Temperature Stratified Flow Separate Effects Test Facility for the Experimental Investigation of Air Ingress in a High Temperature Reactor System, Joshua Graves, Andrew Klein, Ian White (Oregon State Univ)

1:25 pm
Advanced Test Reactor Mini-Plate Hydraulic Testing, G. D. Latimer, W. R. Marcum (Oregon State Univ), W. F. Jones (INL)

1:50 pm
Scaling Analysis of Vortex Shedding between Inline Plates, T. K. Howard, W. R. Marcum (Oregon State Univ), W. F. Jones (INL)

2:15 pm
Convective Heat Transfer in Decay Heat Exchanger of Sodium-Cooled Fast Reactor, Jonggan Hong, Jaehyuk Eoh, Sujin Yeom, Ji-Young Jeong, Tae-Ho Lee (KAERI)

2:40 pm
APR1400 In-Core Instrumentation Penetration Failure by Zirconia Melt, Sang Mo An, Jaehoon Jung, Hwan Yeol Kim (KAERI)

3:05 pm
Experimental Data and Analysis for a New Irradiation Facility, Joel L. McDuffee (UT-Battelle), Juan J. Carbajo, David Felde (ORNL)

3:30 pm
Measurement of Void Fraction Distribution in Steam—Water Two-Phase Flow in a 4×4 Bundle at 2 MPa, Wei Liu, Taku Nagatake, Mizuhiko Shibata, Kazuyuki Takase, Hiroyuki Yoshida (JAEA)

Advanced/ Generation IV Reactors

Sponsored by: OPD
Session Organizer and Chair: Piyush Sabharwall (INL)
Location: Strand 12A **Time:** 1:00-3:05 pm

1:00 pm
Techno-Economic Assessment of the Factory Production of Small Modular Reactors, Benjamin Vegel, Jason C. Quinn (Utah State Univ)

1:25 pm
All Nuclear Hybrid Superheater Design Method, Paul J. Marotta, Basil Antar (Univ of Tennessee), Steve Krahn (Vanderbilt Univ)

1:50 pm
Heat Transfer in a Molten Natural Uranium Nuclear Reactor with Thermal Storage, Neal L. Mann (Neal Mann & Assoc)

2:15 pm
Variable Nuclear Electricity with Base-Load Reactor, Closed Brayton Power Cycle and Firebrick Resistance-Heated Energy Storage (FIRES), Charles W. Forsberg (MIT), Patrick J. McDaniel (Univ of New Mexico)

2:40 pm
Nitride Fuel Potential for Power-Uprates, Guillaume Giudicelli, Koroush Shirvan (MIT)

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 8:00 AM

Mathematics and Computation: General
Sponsored by: MCD
Session Organizer: Ryan G. McClarren (Texas A&M) **Chair:** Sebastian Schunert (INL)
Location: Strand 13 **Time:** 8:00-10:55 am

8:00 am
Interactive Visualization of Multi-Group Cross Sections on High-Fidelity Spatial Meshes, Logan Abel, William Boyd, Benoit Forget, Kord Smith (MIT)

8:25 am
Group Structure Optimization using the PyGroup Code, Ce Yi (Georgia Tech), Glenn E. Sjoden, Christopher Edgar (Georgia Tech)

8:50 am
A Backward Euler Doubling Feasibility Study Based on Thorium Series Cascade, K. Huang, Y. Li (Jiaotong Univ), B. Ganapol (Univ of Arizona))

9:15 am
Pin-by-Pin Core Calculation with an NEM-Based Two-Level Hybrid CMFD Algorithm, Seongho Song, HwanYeal Yu, Yonghee Kim (KAIST)

9:40 am
Error Propagation for Response Matrix Methods in the Many Node Limit, Kyle Remley, Gabriel Kooreman, Farzad Rahnema (Georgia Tech)

10:05 am
Implementation of Material and Geometry Criticality Search in RMC Code, Gang Wang, Ganglin Yu, Kan Wang (Tsinghua Univ)

10:30 am
Multi-Node and Multi-Core Performance Studies of a Monte Carlo Code RMC, Feng Yang, Ganglin Yu, Jin Gang Liang, Kan Wang (Tsinghua Univ)

Technical Sessions: Wednesday June 15

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 8:00 AM

Reactor Physics: General—II
Sponsored by: RPD
Session Organizer: Cristian Rabiti (INL) **Cochairs:** Aaron Simon Epiney (INL), Zeyun Wu (NIST)
Location: Bolden 3 **Time:** 8:00-10:30 am

8:00 am
NECP-Cypress: Development and Validation of a 3D PWR Core Analysis Code, Yunzhao Li, Wen Yang, Hongchun Wu, Liangzhi Cao (Xi'an Jiaotong Univ)

8:25 am
Neutron Number Probability Distributions in a Subcritical System using the Forward Master Equation, Patrick F. O'Rourke, Anil K. Prinja (Univ of New Mexico), Erin D. Fichtl (LANL)

8:50 am
Photo-Transmutation of ^{100}Mo to ^{99m}Tc with Laser-Compton Scattering Gamma-Ray, Jiyoung Lee, Haseebur Rehman, Yonghee Kim (KAIST)

9:15 am
A Space-Dependent Wielandt Shift for Multigroup Diffusion Eigenvalue Problems, Ben C. Yee, Edward W. Larsen, Brendan M. Kochunas, Yunlin Xu (Univ of Michigan)

9:40 am
Multi-Physics Surrogate Modeling with Dimensionality Reduction, Dongli Huang, Hany S. Abdel-Khalik (Purdue Univ), Cristian Rabiti, Frederick N. Gleicher (INL)

10:05 am
Position-Dependency of Fuel Assembly Homogenization in a Pressurized Water Reactor, Woong Heo, Yonghee Kim (KAIST)

Education, Training, and Workforce Development: General
Sponsored by: ETWDD
Session Organizer: Lisa M. Marshall (NCSU) **Chair:** Marsha J. Bala (INL)
Location: Bolden 4 **Time:** 8:00-9:40 am

8:00 am
Enhancement of Nuclear Engineering Technology Degree with a Web Based PWR Simulator, Michael C. Johnson, Jane Weyers, Scott Dolan (Excelsior Coll)

8:25 am
Ensuring Workforce Readiness for the Energy Industry through 3D Simulations, Michael C. Johnson, Randy Holt, Scott Dolan (Excelsior Coll)

8:50 am
Development of a Course in Gamma-Ray Spectrometry, S. Landsberger, M. Yoho, E. Zumalt, M. Pitsch (Univ of Texas, Austin)

9:15 am
"Fission", A Board Game for Social Awareness of Nuclear Power, Akansha Kumar (Texas A&M), Kevin J. Schillo (Univ of Alabama, Huntsville)

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 8:00 AM

Data, Analysis and Operations in Nuclear Criticality Safety—III

Sponsored by: NCSD
Session Organizer: Deborah Ann Hill (NNL) **Chair:** John A. Miller (SNL)
Location: Bolden 5 **Time:** 8:00-10:05 am

8:00 am
Subcritical Copper-Reflected Alpha-Phase Plutonium (SCRaP) Integral Experiment Design, R. Bahran, J. Hutchinson (LANL)

8:25 am
Preliminary Flattop-25 Reevaluation Results, Jeffrey A. Favorite (LANL)

8:50 am
Artificial Neural Network Representation of Dynamic Criticality Excursion Experiment Data, Peter L. Angelo (Y-12 NSC)

9:15 am
Uncertainty as a Function of Time for Subcritical Experiment Parameters Using the Hage-Cifarelli Formalism, J. Hutchinson, T. Grove, M. Smith-Nelson (LANL)

9:40 am
Measurements of Neutron Importance Distribution in ^{235}U Fast Critical Reactor, Lingli Song, Yanpeng Yin, Haojun Zhou (CAEP)

University Research in Fuel Cycle and Waste Management —II

Sponsored by: FCWMD; **Co-Sponsored by:** YMG
Session Organizer: Jack D. Law (INL) **Chair:** Andrew R. Griffith (DOE)
Location: Foster 1 **Time:** 8:00-10:30 am

8:00 am
Uranium from Seawater Cost Analysis: Recent Updates, Margaret Flicker Byers, Erich. Schneider (Univ of Texas, Austin)

8:25 am
Co-Adsorption of I_2 and H_2O on Ag°Z and Kinetics of Iodine Silver Reaction, Yue Nan (Syracuse Univ), Austin P. Ladshaw, Sotira Yiacoumi (Georgia Tech), Costas Tsouris, David DePaoli (ORNL), Lawrence L. Tavlarides (Syracuse Univ)

8:50 am
Capacity of ETS-10 Supported Carbon Nanosorbent for Removal of Multicomponent from Off-Gas Stream, Kai M. Coldsnow, Sachin U. Nandanwar, Austin Porter, Vivek P. Utgikar (Univ of Idaho), Piyush Sabharwall (INL), D. Eric Aston (Univ of Idaho)

9:15 am
Adsorption Modeling at the Front and Back Ends of the Nuclear Fuel Cycle, Austin Ladshaw (Georgia Tech), Yue Nan, Lawrence L. Tavlarides (Syracuse Univ), David DePaoli, Costas Tsouris (ORNL), Sotira Yiacoumi (Georgia Tech)

9:40 am
Simulated Gamma Doses to Coating Materials for use in High Level Waste Packages, Abigail H. M. Casey, Lucienne Behar, Sean P. Kerrigan, A. Leigh Winfrey (Unv of Florida)

10:05 am
Charge Carrier Diffusion Length Determination in 4H-SiC Schottky Alpha Detectors, Joshua T. Jarell, Benjamin Reinke, Max Chaiken, Brandon Wilson, Wolfgang Windl, Brian Esser, Lei Cao, Thomas Blue (Ohio State)

Technical Sessions: Wednesday June 15

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 8:00 AM

Advanced Fuel Cycle Technology
Sponsored by: FCWMD
Session Organizer and Chair: Jinsuo Zhang (Ohio State)
Location: Foster 2 **Time:** 8:00-10:55 am

8:00 am
Thermodynamic Assessment of LiCl-KCl-$PuCl_3$ Ternary System, Wentao Zhou, Jinsuo Zhang (Ohio State)

8:25 am
Investigation on Reaction Probabilities for Cyclic Voltammetry of Zirconium in LiCl-KCl Eutectic Molten Salt via Reverse-Engineering Method, Samaneh Rakhshan Pouri (MNE), Supathorn Phongikaroon (Virginia Commonwealth Univ)

8:50 am
An Initial Study of Uranium Morphology in Fused LiCl-KCl, Ken C. Marsden (INL), Supathorn Phongikaroon (Virginia Commonwealth Univ)

9:15 am
Electrodeposition of Actinides on a Semiconductor Detector for Concentration Monitoring, Milan Stika (Univ of Utah), Max Chaiken, Joshua Jarrell, Thomas Blue, Lei R. Cao (Ohio State), Michael Simpson (Univ of Utah)

9:40 am
Metal Oxide Electrolytic Reduction using Glassy Carbon as Anode, Haiyan Zhao (Univ of Idaho), Shelly X. Li (INL), Eric Song (Univ of Idaho)

10:05 am
Comparison of Advanced Processing of Irradiated UO_2 Fuels and NpO_2 Targets, E. D. Collins, D. E. Benker, D. W. DePaoli, L. H. Delmau, R. M. Wham (ORNL)

10:30 am
Activity Coefficient of Rare Earth Elements in Eutectic LiCl-KCl, Jinsuo Zhang, Yarei Wang, Wentao Zhou (Ohio State)

Nuclear Installations Safety: General—I
Sponsored by: NISD
Session Organizer: Virginia D. Cleary-Ivanoff (LANL)
Chair: Charles R. Martin (National Security Technologies, LLC)
Location: Strand 10B **Time:** 8:00-10:05 am

8:00 am
Thermal-Hydraulic Design of a Fluoride High-Temperature Demonstration Reactor, Juan J. Carbajo, Lou Qualls, Nicholas R. Brown (ORNL)

8:25 am
Moving Beyond Traditional Tornado Missile Impact Analysis, Derrick Watkins, John Svet (Tobolski Watkins Engineering, Inc.)

8:50 am
Advanced Computational Accident Scenario Modeling for Safety Margin Economic Analysis, Thomas Riley, John Jordahl, Andrew Klein (Oregon State Univ)

9:15 am
Performance Analyses of Passive Containment Cooling System for a Concrete Type Containment, Pyeong-Mo Jeong, Dong-Wook Jerng, (Chung-Ang Univ), Han Gon Kim (Central Research Inst, Korea Hydro & Nuclear Power Co.)

9:40 am
External Events Analysis for LWRS/RISMC Project: Methodology Development and Early Demonstration, Carlo Parisi, Steven Prescott, Richard Yorg, Justin Coleman, Ronaldo H. Szilard (INL)

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 8:00 AM

Hybrid Energy Systems–Panel
Sponsored by: OPD; **Co-Sponsored by:** ANSTD
Session Organizer: Shannon M. Bragg-Sitton (INL) **Chair:** Piyush Sabharwall (INL)
Location: Strand 12A **Time:** 8:00-11:30 am

Reduction in greenhouse gas could be achieved by non-emitting variable renewable resources. However, among other impacts, increased use of variable renewable can result in a requirement for baseload generators to operate in a load-following mode. Integration of nuclear and renewable generators in a hybrid energy system (N-R HES) is being considered as an option to meet both electrical and thermal energy needs. The conceptual N-R HES share many of the same requirements as observed for space power systems, likely to also be designed for multi-purpose application. Panelists will discuss the technical merits, foreseen challenges, lesson learned (derived from testing program for space nuclear surface power systems) and the path forward for the development of N-R HES.

Panelists:
Introduction to the Panel and the Need for Flexible Operation, Shannon Bragg-Sitton (INL)
Need for Flexibility in Energy Generation with Increasing Renewables, Andrew Sowder (EPRI)
Cost of Volatility in the Electricity Markets, Marco Cometto (OECD NEA)
Example Hybrid System Option: Coordination of SMR and Wind Energy, Chris Colbert, (NuScale Power)
Discussion and Questions

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 1:00 PM

Uncertainty Quantification and Sensitivity Analysis Methods

Sponsored by: MCD

Session Organizer: Ryan G. McClarren (Texas A&M) **Chair:** Richard Vasques (Univ of California, Berkeley)

Location: Strand 13 **Time:** 1:00-4:45 pm

1:00 pm
The Uncertainty Due to Correlated Mass, Volume, and Density When Mass and Density are Measured, Jeffrey A. Favorite (LANL), Zoltan Perko (Massachusetts General Hospital)

1:25 pm
Nuclear Data Uncertainty Quantification for Adjoint–Weighted Quantities via XGPT, Manuele Aufiero, Michael Martin, Massimiliano Fratoni (Univ of California, Berkeley)

1:50 pm
Inverse Uncertainty Quantification of Reactor Simulation with Polynomial Chaos Surrogate Model, Xu Wu, Tomasz Kozlowski (Univ of Illinois)

2:15 pm
TRACE Code Validation of BWR SVEA Fuel Assembly Spray Cooling, Travis Mui, Tomasz Kozlowski (Univ of Illinois)

2:40 pm
A New CE TSUNAMI-3D Capability for Calculating Undersampling Metrics and Biases, Christopher Perfetti, Bradley Rearden (ORNL)

3:05 pm
An Efficient Sampling-Based Method for Sensitivity and Uncertainty Analysis Through RAVEN, C. Wang, P. W. Talbot, C. Rabiti, A. Alfonsi, D. Mandelli, J. Cogliati (INL)

3:30 pm
Further Investigation of Employing Binomial Small-Sample Estimator in MLROM, Mohammad G. Abdo (NCSU), Hany S. Abdel-Khalik (Purdue Univ)

3:55 pm
Estimation of Uncertainties of Wall Temperature Accomplished by Model Calibration Technique Using Small to Large Scale Reflooding Test Data, Jaeseok Heo, Seung-Wook Lee, Kyung Doo Kim (KAERI)

4:20 pm
Particle-Image Velocimetry Sensitivity through Automatic Differentiation, Rodolfo Varela, Kyle Horne (Univ of North Texas)

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 1:00 PM

Human Factors, Instrumentation and Controls: Software Dependability and Advanced Technologies

Sponsored by: HFICD

Session Organizer and Chair: Edward L. Quinn (Technology Resources)

Location: Bolden 2 **Time:** 1:00-3:55 pm

1:00 pm
Importance Ranking of Software Dependability Attributes in the Nuclear Industry, Boyuan Li, Fuqun Huang (Ohio State), Ted L. Quinn (Technology Resources), Carol S. Smidts (Ohio State)

1:25 pm
Development of an Automated Software Reliability Tester for Digital I&C, Brent D. Shumaker, Gregory W. Morton (AMS)

1:50 pm
Software Dependability, George Hughes (Schneider-Electric)

2:15 pm
Software Dependability for Digital Instrumentation and Control Systems in Nuclear Power Plants—Lessons Learnt from a DOE Sponsored Project, Carol S. Smidts, Fuqun Huang, Boyuan Li (Ohio State), Ted L. Quinn (Technology Resources)

2:40 pm
Dependability Assessment of Software for Safety Instrumentation and Control Systems, Richard T. Wood (Univ of Tennessee), Robin E. Bloomfield (Adelard LLP), Nguyen Thuy (EdF R&D)

3:05 pm
Development of Criteria for Hardware Descripted Language Programmed-Devices for Safety Systems in Nuclear Power Plants in the U.S., Steven A. Arndt, Rossnyev Alvardo, Bernard Dittman, Michael Waterman (NRC)

3:30 pm
Automated Work Package: Initial Wireless Communication Platform Design, Development, and Evaluation, Ahmad Al Rashdan, Vivek Agarwal (INL)

Reactor Analysis Methods—II

Sponsored by: RPD

Session Organizer: Cristian Rabiti (INL) **Chair:** G. Ivan Maldonado (Univ of Tennessee)

Location: Bolden 3 **Time:** 1:00-3:30 pm

1:00 pm
Finite Volume Method Based Neutronic Solvers for Steady and Transient Analysis of Molten Salt Reactors, Liangzhi Cao, Tianliang Hu, Hongchun Wu (Xi'an Jiaotong Univ)

1:25 pm
A Variational Nodal Approach to 2D/1D Pin Resolved Neutron Transport: I Diffusion Theory, Tengfei Zhang (Xi'an Jiaotong Univ), E. E. Lewis (Northwestern Univ), M. A. Smith (ANL), W. S. Yang (Purdue Univ)

1:50 pm
A Variational Nodal Approach to 2D/1D Pin Resolved Neutron Transport: II Spherical Harmonics, Tengfei Zhang (Xi'an Jiaotong Univ), E. E. Lewis (Northwestern Univ), M. A. Smith (ANL), W. S. Yang (Purdue Univ)

2:15 pm
Application of SPH Factors to PHWR Lattice Homogenization, Eleodor M. Nichita, Subhramanyu Mohapatra (Univ of Ontario Inst of Tech)

2:40 pm
On-The-Fly Treatment of Temperature Dependent Cross Sections in the Unresolved Resonance Regions in RMC Code, Shichang Liu, Jiankai Yu, Kan Wang (Tsinghua Univ)

3:05 pm
Implementation and Comparison of Different Algorithms for on the Fly Doppler Broadening in RMC Code, Yuan Yuan, Shichang Liu, Kan Wang (Tsinghua Univ)

Technical Sessions: Wednesday June 15

WEDNESDAY, JUNE 15

TECHNICAL SESSIONS - 1:00 PM

Sharing of Good Industry Practices in Criticality Safety–Panel

Sponsored by: NCSD
Session Organizer and Chair: Deborah Ann Hill (NNL)
Location: Bolden 5 **Time:** 1:00-4:00 pm

Fundamental to the successful operation of any nuclear site is a first class safety culture which strives to continually improve in response to operating experience feedback and good industry practices. Speakers will provide an example of a specific good practice at their site, following which an audience discussion will be initiated on alternative good practices in these areas.

Panelists:
Deborah Hill (NNL)
Catherine Percher (LLNL)
Tom Hines (DOE)
Chris Haught (Y-12 National Security Complex)

Recycle and Reuse of Used Nuclear Fuel Resources

Sponsored by: FCWMD
Session Organizer: Guillermo Daniel DelCul (ORNL) **Chair:** Jared A. Johnson (ORNL UT-Battelle)
Location: Foster 1 **Time:** 1:00-3:55 pm

1:00 pm
Investigations into the Gas Phase Reactions of Zirconium Tetrachloride (ZrCl4) from UNF Cladding, Craig Barnes, Michael Kandziolka, Michael Ortiz, Eric McAnly (Univ of Tennessee), Guillermo Danie DelCul (ORNL), David F. McLaughlin (Westinghouse)

1:25 pm
Separation of Zirconium from Zircaloy-2 for Spent Nuclear Fuel Cladding Applications using a Chloride Volatility Process, Rosendo Borjas Nevarez (UNLV)

1:50 pm
First-Principles Study of Mechanical Properties of Zirconium Alloys and Hydrides, Eunja Kim (UNLV), Philippe F. Weck, Veena Tikare (SNL), Frederic Poineau, Ken Czerwinski (UNLV), John A. Mitchell (SNL)

2:15 pm
Phase Equilibria in Systems Relevant to Pyroprocessing, A. L. Hames (Oregon State Univ), A. Paulenova, M. A. Williamson (ANL)

2:40 pm
Mass Inventory Balance and Fuel Breeding Analysis on Transuranic Recycling Option of FBR, Sidik Permana (Bandung Inst of Technology), Mitsutoshi Suzuki (JAEA), Zaki Suud, Abdul Waris (Bandung Inst of Technology), Masaki Saito (Tokyo Inst Technology)

3:05 pm
Adsorption and Transport Properties of Zeolite SAPO-34 for Krypton/Xenon Separations, Yeon Hye Kwon, Emily Benjamin, Vivek Pisharodi, Junyoung Hwang (Georgia Tech), Ramesh Bhave (ORNL), Sankar Nair (Georgia Tech)

3:30 pm
XAFS Investigation of Uranium Binding by Seawater-Contacted Amidoxime Adsorbents, Carter W. Abney (ORNL), Wenbin Lin (The Univ of Chicago)

WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 1:00 PM

Fuel Cycle Analysis
Sponsored by: FCWMD
Session Organizer and Chair: Kathryn D. Huff (Univ of California, Berkeley)
Location: Foster 2 **Time:** 1:00-3:55 pm

1:00 pm
Impacts of Recycling Time on Fuel Cycle Transition, B. Feng, T. Fei, F. Heidet, E. Hoffman (ANL)

1:25 pm
Transition Benefits of using Low Enriched Uranium Fuel in Fast Reactors, E. Hoffman, B. Feng, T. Fei (ANL), A. Worrall (ORNL)

1:50 pm
Analysis of Synergistic Fuel Cycle Options with Thorium and Heavy Water Reactors, Timothy M. Ault, Steven L. Krahn (Vanderbilt Univ), Andrew Worrall (ORNL), Allen G. Croff (Vanderbilt Univ)

2:15 pm
Value of Information in Fuel Cycle Decision-Making, Urairisa B. Phathanapirom, Erich A. Schneider (Univ of Texas, Austin)

2:40 pm
An Iterative Optimization Strategy for Nuclear Reactor Design, Akansha Kumar, Pavel V. Tsvetkov (Texas A&M)

3:05 pm
Predicting Fueled Experiment Swelling and Thermal Expansion Using STAR-CCM+, Justin W. Herter (Univ of Michigan)

3:30 pm
Developing Soret Transport Coefficients for Lanthanides from Experimental Results, C. W. Arnold, C. Unal (LANL)

Nuclear Installations Safety: General—II
Sponsored by: NISD
Session Organizer: Virginia D. Cleary-Ivanoff (LANL) **Chair:** Bill Horak (BNL)
Location: Strand 10B **Time:** 1:00-3:05 pm

1:00 pm
Development of F&B Operation Strategy with LPSI and H-SIT, In Seop Jeon, Hyun Gook Kang (KAIST)

1:25 pm
Reliability Assessment of Safety-Critical Network Communication in a Digitalized Nuclear Power Plant, Sang Hun Lee, Hyun Gook Kang (KAIST)

1:50 pm
Zinc Corrosion in Borated, Buffered Post-LOCA Solutions, Janet Leavitt (AlionSciTechnol), Shaoqiang Guo, Yakun Zhu, Jinsuo Zhang (Ohio State), Jainisha Shah, Bruce Letellier (AlionSciTechnol)

2:15 pm
Corrosion of Aluminum in the Chemical Environment after a Loss of Coolant Accident (LOCA), Shaoqiang Guo (Ohio State), Janet J. Leavitt (AlionSciTechnol), Jinsuo Zhang (Ohio State)

2:40 pm
The DOE Unreviewed Safety Question Process, Addressing New Information for Credible Nuclear Accidents, Donald Owen, John Abrefah (DNFSB)

WEDNESDAY, JUNE 15

TECHNICAL SESSIONS - 2:00 PM

Ask the Public Policy Committee Anything–Panel

Sponsored by: YMG
Session Organizer and Chair: Jitesh A. Kuntawala (Duke Energy)
Location: Strand 11A **Time:** 2:00-4:30 pm

This panel is the first in a series of sessions hosted by the Young Members Group to introduce ANS members to the variety of ANS National Committees. The Public Policy Committee (PPC) facilitates and develops statements of the Society's position on public issues involving various aspects of nuclear science and technology. This panel will offer ANS members an opportunity to listen to key members of the PPC discuss their roles, responsibilities, and backgrounds. ANS members will be given the chance to pick the brains of those who craft the position statements of the Society, and discover how they can get involved with the committee.

Panelists:
Steve Nesbit (Duke Energy, Chair of the PPC)
Craig Piercy (Washington Representative - ANS)
Daniel Curtis (Graduate Student, MIT, Young Member)
Nicholas Thompson (Graduate Student, MIT, Young Member)

TECHNICAL SESSIONS - 4:00 PM

Computational Thermal-Hydraulics—II

Sponsored by: THD
Session Organizer: Jovica R. Riznic (Canadian Nucl Safety Comm)
Cochairs: Bao-Wen Yang (Xi'an Jiao Tong Univ), Haihua Zhao (INL)
Location: Strand 10B **Time:** 4:00-6:05 pm

4:00 pm
On the Modeling of Wall Heat Flux Partitioning in Subcooled Flow Boiling, Zeyong Wang (RPI), Dillon R. Shaver (ANL), Michael Z. Podowski (RPI)

4:25 pm
Description of a Dry Cask Simulator for Measuring Internal and External Thermal-Hydraulic Performance, S. G. Durbin, E. R. Lindgren (SNL), A. Zigh (NRC)

4:50 pm
Wire-Wrapped Fuel Pin Effect of Bundle Size on Temperature Distribution for Uniform Heat Flux, L. Brockmeyer, L. Carasik (Texas A&M), E. Merzari (ANL), Y. Hassan (Texas A&M)

5:15 pm
Turbulence Model Study for Pressure and Velocity Distributions for Molten Salts in a Crossflow Tube Bundle, L. B. Carasik (Texas A&M), D. R. Shaver (ANL), Y. A. Hassan (Texas A&M)

5:40 pm
Multiple RANS Scheme for the CFD Simulation of PWR, Guangliang Chen, Zhijian Zhang, Zhaofei Tian (Harbin Engineering Univ)

THURSDAY, JUNE 16
TECHNICAL SESSIONS - 8:00 AM

Reactor Physics Design, Validation and Operational Experience

Sponsored by: RPD
Session Organizer: Cristian Rabiti (INL) **Chair:** Liangzhi Cao (X'ian Jiatong Univ)
Location: Bolden 2 **Time:** 8:00-9:40 pm

8:00 am
Model Calibration vs. Physics Guided Coverage Mapping: Case Study—Pressure Drop Calculations, Jia Zhou, Hany S. Abdel-Khalik (Purdue Univ), Nam T. Dinh (NCSU)

8:25 am
Evaluation of B&W UO_2/ThO_2 VIII Experimental Core: Criticality and Thermal Disadvantage Factor Analysis, Carlo Parisi (INL), Emanuele Negrenti (ENEA)

8:50 am
Design of a Commercial Scale Accelerator Driven Subcritical Aqueous Assembly, Eric N. Van Abel, Gregory R. Piefer, Tracy E. Radel (Shine Medical Technologies)

9:15 am
Characterizing the Thermal Column Beam in the University of Massachusetts Lowell Research Reactor, C. Johnson, S. K. Aghara, O. Dim (Univ of Massachusetts Lowell)

Reactor Physics: General— III

Sponsored by: RPD
Session Organizer: Cristian Rabiti (INL) **Chair:** Andrea Alfonsi (INL)
Location: Bolden 3 **Time:** 8:00-10:30 am

8:00 am
A Comparison of Modeling Strategies for Additively Manufactured HFIR Control Elements, J. R. Burns (Georgia Tech), D. Chandler (ORNL), B. Petrovic (Georgia Tech), K. A. Terrani (ORNL)

8:25 am
Reactivity Coefficient Calculation for a Low-Power LEU Research Reactor, Zeyun Wu, Robert E. Williams, Thomas H. Newton (NIST)

8:50 am
Coupling CTF to MPACT for Improved Thermal-Hydraulic Feedback for Transients, Andrew R. Gerlach, John C. Lee (Univ of Michigan)

9:15 am
EBR-II Static Neutronic Calculations by PHISICS/MCNP6 Codes, Paolo Balestra (ENEA), Carlo Parisi (INL)

9:40 am
Selected Profiles of Burnup and Isotopic Concentrations in Pebble Bed High Temperature Reactor Fuel, Hans D. Gougar (INL)

10:05 am
Enhanced Shuffling and Fuel Management Capability in PHISICS Code, Andrea Alfonsi (INL), Angelo Zoino (Univ of Rome "La Sapienza"), Cristian Rabiti (INL), Fabio Giannetti, Gianfranco Caruso (Univ of Rome "La Sapienza")

THURSDAY, JUNE 16
TECHNICAL SESSIONS - 8:00 AM

ANS-8 Standards Forum
Sponsored by: NCSD
Session Organizer: Brian O. Kidd (Paschal Solutions, Inc.) **Chair:** Douglas G. Bowen (ORNL)
Location: Bolden 5 **Time:** 8:00-11:30 am

Panelists to be determined.

Fuel Cycle and Waste Management: General
Sponsored by: FCWMD
Session Organizer and Chair: Jared A. Johnson (ORNL UT-Battelle)
Location: Foster 1 **Time:** 8:00-10:05 am

8:00 am
TREAT Transient Test Reactor Restart Status, John D. Bumgardner (INL/TREAT Restart Program)

8:25 am
Nuclear Forensics for Irradiated Materials using Kernel Regression Models, Kyung ho Jin (Kyung Hee Univ), Jae kwang Kim, Seung Min Lee (Korea Inst of Nuclear Nonproliferation and Control), Gyun young Heo (Kyung Hee Univ)

8:50 am
The Safe Guards Analysis Toolbox for Non-Proliferation Modeling, Nicolas Shugart, Jeffrey King (CSM)

9:15 am
Radiological Consequences of Hydrogen Explosions in Vessels and Piping at the WTP, Roger Lanning, Richard I. Smith (Bechtel National)

9:40 am
A Comparison of the U.S. Nuclear Regulatory Commission Technical Evaluation for the Zion and La Crosse License Termination Plans with a Focus on Release Criteria, Leah Parks, John B. Hickman, Marlayna Vaaler (NRC)

THURSDAY, JUNE 16
TECHNICAL SESSIONS - 8:00 AM

Fusion Energy—Technology and Applications

Sponsored by: FED
Session Organizer: Arnold Lumsdaine (ORNL) **Chair:** Susana Reyes (LLNL)
Location: Foster 2 **Time:** 8:00-10:30 am

8:00 am
ITER Port Interspace Pressure Calculations, Juan J. Carbajo, Walter Van Hove (ORNL)

8:25 am
Experimental Activities with the IELLLO Lithium-Lead Facility, Andrea Gabriele (DENERG - Politecnico di Torino), Marco Utili (ENEA)), Luigi Candido (DENERG - Politecnico di Torino), Alessandro Venturini (Pisa Univ), Massimo Zucchetti (Politecnico di Torino)

8:50 am
Neutronics of Advanced-Fuel Fusion Experiments with DT Triggering, Massimo Zucchetti (Politecnico di Torino), Marco Riva (UCLA)

9:15 am
Investigation of the Effects of Hydrogen Atoms Concentration on the Tungsten Sigma 5 (310) Symmetric Tilt Grain Boundary Strength, Kabiru Atiku, Xue Yang (Texas A&M)

9:40 am
Kinetic Monte Carlo Simulation of Hydrogen Diffusion in Tungsten, Xue Yang, Wasiu O. Oyeniyi (Texas A&M)

10:05 am
Theoretical Calculation and Simulation Studies of Axisymmetric Plasma and Halo Current Analysis in EAST, Shahab Uddin Khan (Inst of Plasma Physics), Salah Ud-Din Khan (King Saud Univ), Yuntao Song (Inst of Plasma Physics)

THURSDAY, JUNE 16
TECHNICAL SESSIONS - 8:00 AM

Accelerator Applications: General
Sponsored by: AAD
Session Organizer and Chair: Erich A. Schneider (Univ of Texas Austin)
Location: Strand 10B **Time:** 8:00-9:15 am

8:00 am
Recent Progress on the PNL Accelerator-Based Intense Fusion Neutron Source, Ross F. Radel, Evan Sengbusch, Greg Piefer (Phoenix Nuclear Labs)

8:25 am
Control and Service Life Extension of Accelerator's Anode Voltage Regulator, Robby Christian, Hyun Gook Kang (KAIST)

8:50 am
^{99}Mo Production at KIPT Neutron Source Facility, A. Talamo, Y. Gohar (ANL)

Knowledge Transfer and Retention–Panel
Sponsored by: YMG
Session Organizer and Chair: Alyse M. Scurlock (Duke Energy Corp.)
Location: Strand 12AB **Time:** 8:00-11:30 am

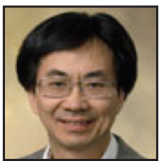
Knowledge transfer and retention (KT&R) is a key industry initiative. This panel will feature speakers who work in the industry who have knowledge and experience implementing or participating in various KT&R methods. A question and answer session will allow attendees to exchange KT&R ideas and applications.

Panelists:
Melissa Moran (Duke Energy)
Charmaine Davis (EPRI)
Matthew Smith (Exelon)
Alyse Scurlock (NAYGN)
David Neal (Westinghouse)

Embedded Topicals 2016

Embedded Topical: Advances in Thermal Hydraulics 2016 (ATH '16)

Meeting Officials



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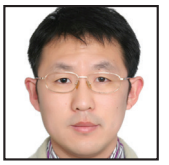


ASSISTANT PROGRAM CHAIR
Prof. Xiaojing Liu
Shanghai Jiao Tong University

Embedded Topical: Advances in Thermal Hydraulics 2016 (ATH '16)

Sessions at a glance

MONDAY, JUNE 13

1:00-4:00 pm
Code Development and Applications

TUESDAY, JUNE 14

8:00-11:30 am
Opening Plenary: Five Years After the Fukushima Incident

1:00-4:00 pm
Computational Methods, Modeling, Verification/Validation— I

WEDNESDAY, JUNE 15

8:00-11:30 am
Experimental Methods and Instrumentation
Nuclear Reactor Plant Thermal Hydraulics and Safety

1:00-4:00 pm
Two-Phase Flow and Heat Transfer Fundamentals—I
Best Estimate LOCA
Gas-Cooled Reactors

4:00-6:00 pm
Two-Phase Flow and Heat Transfer Fundamentals—II

THURSDAY, JUNE 16

8:00-11:30 am
Computational Methods, Modeling, Verification/Validation—II

EMBEDDED TOPICAL: ATH '16 | MONDAY, JUNE 13

TECHNICAL SESSION - 1:00 PM

Code Development and Applications

Session Organizer: David L. Aumiller (BMPC- Bettis)
Cochairs: Cesare Frepoli (FPoliSolutions LLC), Alessandro Petruzzi (NINE)
Location: Strand 10A **Time:** 1:00-3:05 pm

1:00 pm
Investigations on RELAP5-3D to RELAP5-3D Coupling Methodology by PVMEXEC, Valeria Parrinello, Marco Cherubini, Alessandro Petruzzi, (NINE), Marco Lanfredini (Univ of Pisa)

1:25 pm
Implementation and Validation of a Fully Implicit Accumulator Model in RELAP-7, Haihua Zhao, Ling Zou, Hongbin Zhang, Richard Martineau (INL)

1:50 pm
Investigation on Numerical Method of One-Dimensional Drift Flux Model for Boiling Two-Phase Flow, Lian Hu, Deqi Chen, Lin Wang (Chongqing Univ), Xiang Zhang (SNPTC)

2:15 pm
Results from the Assessment of COBRA-IE Multidimensional Flow Capability with Selected Canonical Problems, C. Frepoli, J. P. Yurko (FPoliSolutions LLC), F. Buschman, David L. Aumiller (BAPL)

2:40 pm
Application of Perturbations to a RELAP5 Hydraulic Simulation to Determine System Frequency Response, Miguel Cecenas-Falcon, Ricardo Jimenez-Sanchez, Rosember Ovando-Castelar (IIE)

TUESDAY, JUNE 14

OPENING PLENARY - 8:00 AM

Five Years After the Fukushima Incident

Session Organizer: Fan-Bill Cheung (Penn State)
Cochairs: Fan-Bill Cheung (Penn State), Michio Murase (INSS)
Location: Strand 10A **Time:** 8:00-11:30 am

Speakers:
Reactor Safety for Beyond Design, Michael Corradini (Univ of Wisconsin, Madison)
Knowledges and Insights Obtained from the Fukushima Daiichi Accident, Yasunori Yamanaka, Shinya Mizokami (TEPCO)
Assessment of Core Status of Fukushima Daiichi Nuclear Power Plant, Masanori Naitoh (IAE)
Post-Fukushima Safety Enhancement Acitivities in Canada, John Luxat (McMaster Univ)
Severe Accident Research Directions after Fukushima, Randall Gauntt (SNL)

EMBEDDED TOPICAL: ATH '16 | TUESDAY, JUNE 15

TECHNICAL SESSIONS - 1:00 PM

Computational Methods, Modeling, Verification/Validation— I

Session Organizer: Seungjin Kim (Penn State)
Cochairs: Elia Merzari (ANL), W. David Pointer (ORNL)
Location: Strand 10A **Time:** 1:00-3:05 pm

1:00 pm
Evolution and Velocity Fields for a Buoyant Jet in a Stratified Environment, Amy B. McCleney, Simon Clement, Philippe M. Bardet (The George Washington Univ)

1:25 pm
Development and Validation of a Model for Predicting Direct Heat Transfer from the Fuel to Droplets in the Post Dryout Regime, Arnab Dasgupta, D. K. Chandraker, A. K. Nayak, P. K. Vijayan, A. Rama Rao (BARC), S. P. Walker (Imperial College London)

1:50 pm
A Spectral Cascade-Transport Turbulence Model for Wall-Bounded Flows, C. S. Brown (NCSU), D. R. Shaver (ANL), I. A. Bolotnov (NCSU)

2:15 pm
High-Fidelity Simulation-Driven Model Development for Coarse-Grained Computational Fluid Dynamics, Botros N. Hanna, Nam T. Dinh, Igor A. Bolotnov (NCSU)

2:40 pm
Numerical Simulation on Pressure Propagation in Fuel-Coolant Interaction with MCBA-SIMPLE Algorithm, Mingjun Zhong, Xiumei Zhao, Meng Lin, Jinbiao Xiong, Yanhua Yang (Shanghai Jiao Tong Univ)

EMBEDDED TOPICAL: ATH '16 | WEDNESDAY, JUNE 15

TECHNICAL SESSIONS - 8:00 AM

Experimental Methods and Instrumentation

Session Organizer: Philippe M. Bardet (George Washington Univ)
Cochairs: Seungjin Kim (Penn State), Philippe M. Bardet (George Washington Univ)
Location: Strand 10A **Time:** 8:00-10:30 am

8:00 am
Surrogate Materials Options for Single Phase Conjugate Heat Transfer Scaled Experiments of Light Water Reactors at Prototypical Conditions, Simon A. Clément, Philippe M. Bardet (George Washington Univ)

8:25 am
Thermal-Hydraulic Validation Tests using the SMART-ITL Test Facility with a Single Train Passive Safety Injection System for the SMART Design, Hyun Sik Park, Hwang Bae, Sung Uk Ryu, Byong-Guk Jeon, Sung-Jae Yi (KAERI)

8:50 am
A Scaling-Based Applicability Assessment of the CAER Integrated Systems Test Facility, R. P. Martin, J. K. Miller (BWX mPower), James E. O'Brien (INL)

9:15 am
Time-Resolved Measurement of Subchannel Void Distribution for Two-Phase Flow in 5x5 Rod Bundle at High-Pressure and High-Temperature, Takahiro Arai, Masahiro Furuya, Kenetsu Shirakawa, Yoshihisa Nishi (CRIEPI)

9:40 am
Direct Contact Condensation Experiments for Clarification of S/C Temperature Evolution During Long Term Steam Discharge, M. Pellegrini, M. Naitoh (IAE), L. Araneo, F. Cozzi, M. Ricotti, H. Ninokata (Politecnico di Milano), D. Yamauchi, S. Mizokami (TEPCO)

10:05 am
Accelerometers in Flow Fields: A Structural Analysis of the Chopped Dummy In-Pile Tube, T. K. Howard, W. R. Marcum, G. D. Latimer, A. Weiss (Oregon State Univ), W. F. Jones, A. M. Phillips, N. Woolstenhulme, K. Holdaway, J. Campbell (INL)

EMBEDDED TOPICAL: ATH '16 | WEDNESDAY, JUNE 15

TECHNICAL SESSIONS - 8:00 AM

Nuclear Reactor Plant Thermal Hydraulics and Safety

Session Organizer: Fan-Bill Cheung (Penn State)
Cochairs: Stephen M. Bajorek (NRC), Kyung Jun Kang (KAERI)
Location: Strand 10B **Time:** 8:00-10:05 am

8:00 am
Experimental Validation on the Operational and Cooling Performance of the Passive Safety System with ATLAS, Kyoung-Ho Kang, Byoung-Uhn Bae, Yu-sun Park, Seok Kim, Nam-Hyun Choi, Ki-Yong Choi (KAERI)

8:25 am
Experimental Study on the Guillotine Break Accident of the Main Steam Line with ATLAS, Kyoung-Ho Kang, Byoung-Uhn Bae, Yu-Sun Park, Jong-Rok Kim, Nam-Hyun H. Choi, Ki-Yong Choi (KAERI)

8:50 am
Two-Phase Pressure Drop Due to a Spacer Grid in a Heated Rod Bundle, Faith R. Beck, Lokanath Mohanta, Fan-Bill Cheung (Penn State), Stephen M. Bajorek, Kirk Tien, Chris L. Hoxie (NRC)

9:15 am
Assessment of Boric Acid Accumulation in a Reactor Core Blocked by Debris, T. Zaki, J. S. Kaizer, S. M. Bajorek, (NRC)

9:40 am
Effects of Liquid Subcooling and Initial Rod Temperature on the Minimum Film Boiling Temperature, S. A. Ebrahim, V. Fudurich, F. R. Beck, F. B. Cheung (Penn State), S. M. Bajorek, K. Tien, C. L. Hoxie (NRC)

TECHNICAL SESSIONS - 1:00 PM

Two-Phase Flow and Heat Transfer Fundamentals—I

Session Organizer: Simon P. Walker (Imperial College London)
Cochairs: Karen Vierow (Texas A&M), Annalisa Manera (Univ of Michigan)
Location: Strand 10A **Time:** 1:00-3:30 pm

1:00 pm
Effects of 90 Vertical Elbows on Two-Phase Flow Parameters, S. Qiao, D. Mena, S. Kim (Penn State)

1:25 pm
A New Model for Active Nucleation Site Density in Boiling Systems, Quan Li (Tsinghua Univ/Nuclear Power Inst of China/NCSU), M. Avramova (NCSU), Junchong Yu (Tsinghua Univ/Nuclear Power Inst of China), Yongjun Jiao (Nuclear Power Inst of China), Jason Hou (NCSU)

1:50 pm
The Hydrodynamics of the Formation of Microlayers Beneath Vapour Bubbles Growing on a Heated Substrate, Susann Hänsch, Simon Walker (Imperial College London)

2:15 pm
Evaporative Thermal Resistance and Its Influence on Microlayer Evaporation, Giovanni Giustini, Simon P. Walker (Imperial College London)

2:40 pm
Evaluating Performance of Two-Group Interfacial Area Transport Equation for Vertical Small and Large Diameter Pipes, A. Dave, A. Manera (Univ of Michigan), M. Beyer, D. Lucas (Helmholtz Zentrum Dresden–Rossendorf)

3:05 pm
Evaluation of Bubble-Induced Turbulence using Direct Numerical Simulation, Jinyong Feng, Igor A. Bolotnov (NCSU)

Embedded Topical: ATH '16 Technical Sessions

EMBEDDED TOPICAL: ATH '16 | WEDNESDAY, JUNE 15

TECHNICAL SESSIONS - 1:00 PM

Best Estimate LOCA

Session Organizer: Xiaojing Liu (Shanghai Jiao Tong Univ)
Cochairs: Xiaodong Sun (Ohio State), Hongbin Zhang (INL)
Location: Strand 10B **Time:** 1:00-2:40 pm

1:00 pm
Limiting Rods Selection in Large Break Loca Analysis with the RELAP5-3D Code, Hongbin Zhang, Paul D. Bayless, Ling Zou, Haihua Zhao, Ronaldo Szilard (INL)

1:25 pm
The Casualidad Method for Uncertainty Evaluation of Best-Estimate System Thermal-Hydraulics Calculations, A. Petruzzi (NINE)

1:50 pm
Investigation of Methodology for Uncertainty Quantification of Model Parameters, Dong Li, Xiaojing Liu, Yanhua Yang (Shanghai Jiao Tong Univ)

2:15 pm
Investigation of Similarity Metrics for Simulation Based Scaling Analysis, Paridhi Athe, Nam Dinh (NCSU), Hany Abdel-Khalik (Purdue Univ)

Gas-Cooled Reactors

Session Organizer: Xiaodong Sun (Ohio State)
Cochairs: Xiaodong Sun (Ohio State), Hongbin Zhang (INL)
Location: Strand 10B **Time:** 2:45-3:35 pm

2:45 pm
Design and Dynamic Modeling of a Printed Circuit Heat Exchanger for the Next Generation Nuclear Plant, Minghui Chen, Shanbin Shi, Xiaodong Sun, Richard N. Christensen (Ohio State), Isaac Skavdahl, Vivek Utgikar (Univ of Idaho), Piyush Sabharwall (INL)

3:10 pm
Multi-Objective Optimization of a PCHE-Type Intermediate Heat Exchanger Using Generic Algorithms, Xiaoqin Zhang, Xiaodong Sun, Richard N. Christensen (Ohio State), Mark Anderson (Univ of Wisconsin, Madison), Matthew Carlson (SNL)

EMBEDDED TOPICAL: ATH '16 | WEDNESDAY, JUNE 15
TECHNICAL SESSIONS - 4:00 PM

Two-Phase Flow and Heat Transfer Fundamentals—II
Session Organizer: Seungjin Kim (Penn State)
Cochairs: Simon P. Walker (Imperial College London), Maria N. Avramova (NSCU)
Location: Strand 10A **Time:** 4:00-6:05 pm

4:00 pm
Evaluation of Interfacial Area Transport Models for Horizontal Bubbly Flow, Ran Kong, Seungjin Kim (Penn State), Stephen Bajorek, Kirk Tien, Chris Hoxie (NRC)

4:25 pm
Improving Performance of Two-Group Interfacial Area Transport Equation Models using Genetic Algorithms and High Resolution Experimental Data, A. Dave, A. Manera (Univ of Michigan), M. Beyer, D. Lucas (Helmholtz-Zentrum Dresden– Rossendorf)

4:50 pm
Air-Water and Steam-Water Onset of Flooding Data at Variable Pressure in a Large Diameter Tube, N. Wynne, M. Garza, K. Vierow (Texas A&M), D. Aumiller, M. Kyle (BAPL)

5:15 pm
Prediction of Countercurrent Flow Limitation and its Uncertainty in a PWR Hot Leg, Michio Murase, Takayoshi Kusunoki (Inst of Nuclear Safety System, Inc.), Akio Tomiyama (Kobe Univ)

5:40 pm
On the Lift Force Modeling for Single Bubble in Water, Zhongchun Li (Tsinghua Univ/Nuclear Power Inst of China), Xiaoming Song (Nuclear Power Inst of China), Shengyao Jiang (Tsinghua Univ), Mamuro Ishii (Purdue Univ)

THURSDAY, JUNE 16
TECHNICAL SESSIONS - 8:00 AM

Computational Methods, Modeling, Verification/Validation—II
Session Organizer: Si Young Lee (SRNL)
Cochairs: Si Young Lee (SRNL), Alexander Abboud (INL)
Location: Strand 10A **Time:** 8:00-10:05 am

8:00 am
Computational Fluid Dynamics Modeling of Bubbling in a Viscous Fluid for Validation of Waste Glass Melter Modeling, Alexander W. Abboud, Donna Post Guillen (INL)

8:25 am
Hydraulic and Mixing Evaluations for SRS Miscible Liquid Solutions, Si Young Lee (SRNL), Oliver L. Barnes (SRNS)

8:50 am
RANS Simulation of Natural Convection in an Enclosure with Curved Surface Heating from Below, Xiang Chai (Shanghai Jiao Tong Univ), Bin Chen (Nuclear Power Inst of China), Xu Cheng (KIT)

9:15 am
Water-Cooled Reactor Cavity Cooling System Flow Analysis, Casey Tompkins, Michael Corradini (Univ of Wisconsin, Madison)

9:40 am
CFD Predictions of Severe Accident Natural Circulation Flows in a Combustion Engineering PWR, Christopher Boyd (NRC)

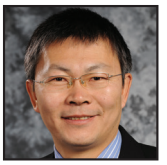
Embedded Topicals 2016

Embedded Topical: Nuclear Fuels and Structural Materials 2016 (NFSM 2016)

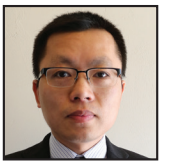
Meeting Officials

GENERAL CHAIR
Dr. Heather J. MacLean Chichester
Idaho National Laboratory

GENERAL CHAIR
Dr. Kurt A. Terrani
Oak Ridge National Laboratory



PROGRAM CHAIR
Dr. Xianming Bai
Idaho National Laboratory



PROGRAM CHAIR
Dr. Yong Yang
University of Florida

Embedded Topical: Nuclear Fuels and Structural Materials 2016 (NFSM 2016)

Sessions at a glance

MONDAY, JUNE 13

1:30-3:00 pm
Opening Plenary

3:20-5:00 pm
Accident Tolerant Fuels

TUESDAY, JUNE 14

8:20-10:00 am
Advanced Fuels and Fuel Cycle—I

10:20 am-12:00 pm
Light Water Fuels and Structural Materials

1:30-3:10 pm
Modeling and Simulation—I

3:30-5:00 pm
Advanced Characterization

5:30-7:30 pm
Poster Session & Reception

WEDNESDAY, JUNE 15

8:20-10:00 am
Advanced Structural Materials and Radiation Damage—I

10:20 am-12:00 pm
Advanced Structrual Materials and Radiation Damage—II

1:30-3:10 pm
NSUF Special Session—I

3:30-5:10 pm
NSUF Special Session—II

THURSDAY, JUNE 16

8:20-10:00 am
Modeling and Simulation—II

10:20 am-12:00 pm
Advanced Fuels and Fuel Cycle—II

EMBEDDED TOPICAL: NFSM 2016 | MONDAY, JUNE 13

PLENARY SESSION - 1:30 PM

Session Organizers and Cochairs: Heather J. Maclean Chichester (INL), Kurt Terrani (ORNL)
Location: Empire D **Time:** 1:30-3:00 pm

Speakers:
Dr. John Herczeg (DOE)
Professor Brian Wirth (Univ of Tennessee, Knoxville)
Additional speaker to be announced.

BREAK: 3:00-3:20 PM

TECHNICAL SESSION - 3:20 PM

Accident Tolerant Fuels

Session Organizer: Yong Yang (Univ of Florida) **Chair:** Robert Oelrich (Westinghouse), All invited
Location: Empire D **Time:** 3:20-5:00 pm

3:20 pm
Advanced Nuclear Fuels and Materials Development and Philosophy of the DOE Advanced Fuels Campaign, Jon Carmack, Shannon M. Bragg-Sitton (INL)

3:40 pm
Overview of LWR Accident Tolerant Fuel Development in the U.S., Shannon M. Bragg-Sitton, Jon Carmack (INL)

4:00 pm
Advancements in FeCrAl Alloys for Enhanced Accident Tolerant Fuel Cladding for Light Water Reactors, Kevin G. Field, Yukinori Yamamoto (ORNL), Samuel A. Briggs (Univ of Wisconsin, Madison), Maxim N. Gussev, Kinga A. Unocic, Bruce A. Pint (ORNL), Raul B. Rebak (GE Global Research Center), Lance L. Snead, Kurt A. Terrani (ORNL)

4:20 pm
Westinghouse Accident Tolerant Fuel Program, E. Lahoda, S. Ray, P. Xu, F. Boylan (Westinghouse)

4:40 pm
Development of SiC-Based Cladding for Accident Tolerant Fuels, Yutai Katoh, Caen Ang, Takaaki Koyanagi, Gyanender Singh, Kurt Terrani (ORNL)

EMBEDDED TOPICAL: NFSM 2016 | TUESDAY, JUNE 14

TECHNICAL SESSION - 8:20 AM

Advanced Fuels and Fuel Cycle—I

Session Organizer: Xianming Bai (INL) **Chair:** Jon Carmack (INL), All invited
Location: Empire D **Time:** 8:20-10:00 am

8:20 am
Transmutation Fuels Development in the Advanced Fuels Campaign, Steven L. Hayes, Heather J. M. Chichester, Randall S. Fielding, Michael T. Benson, W. Jon Carmack (INL)

8:40 am
The Research of MOX Fuels in Japan, Masato Kato (JAEA)

9:00 am
Fuels and Materials Challenges for the Very High Temperature Reactor, David A. Petti, Richard Wright, Will Windes, Paul A. Demkowicz (INL)

9:20 am
Monolithic U-10Mo Fuel Development for U.S. High Performance Research Reactors, James I. Cole, Barry H. Rabin, Barry H. Rabin, Irina Glagolenko, Nicolas Eric Woolstenhulme, Adam B. Robinson, Dennis D. Keiser, Hakan Ozaltun, Walter J. Williams, Francine J. Rice, Glenn A. Moore, Jian Gan, James A. Smith, Mitchell K. Meyer, Daniel M. Wachs (INL), Gerard L. Hofman, Yeon Soo Kim (ANL)

9:40 am
Highlights from the Postirradiation Examination of AFC-3A and AFC-3B, Jason M. Harp, Heather J. M. Chichester (INL)

BREAK: 10:00-10:20 AM

TECHNICAL SESSION - 10:20 AM

Light Water Fuels and Structural Materials

Session Organizer: Yong Yang (Univ of Florida) **Chair:** James Cole (INL), All invited
Location: Empire D **Time:** 10:20 am-12:00 pm

10:20 am
Materials Challenges and Experimental Approaches to Understanding Long-Term Materials Behavior for Extended Nuclear Plant Operations, Keith J. Leonard (ORNL)

10:40 am
Zirconium Alloy Corrosion and Hydrogen Pickup, Arthur T. Motta (Penn State), Adrien Couet (Univ of Wisconsin-Madison)

11:00 am
The High Burnup Structure: Overview of Properties and Recent Findings, V. V. Rondinella, T. A. G. Wiss, F. Cappia, M. Marchetti, D. Papaioannou (EC-JRC-ITU)

11:20 am
Progress in Assessment of the Behavior of Light Water Reactor Nuclear Fuel Materials during Off-Normal Conditions, A. T. Nelson, J. T. White, E. S. Wood, K. J. McClellan (LANL)

11:40 am
Thermal Aging Degradation of Cast Stainless Steels in LWR Systems, Thak Sang Byun (PNNL), Ying Yang (ORNL), Nicole R. Overman (PNNL), Keith J. Leonard (ORNL)

EMBEDDED TOPICAL: NFSM 2016 I TUESDAY, JUNE 14

TECHNICAL SESSION - 1:30 PM

Modeling and Simulation—I

Session Organizer: Xianming Bai (INL) **Chair:** Steven Hayes (INL), All invited
Location: Empire D **Time:** 1:30-3:10 pm

1:30 pm
An Overview of Material Models in the BISON Fuel Performance Code, R. L. Williamson (INL)

1:50 pm
Meso-Scale Fuel Performance Modeling using the MARMOT Code, Yongfeng Zhang (INL), Michael Tonks (Penn State), Daniel Schwen (INL), David Andersson (LANL)

2:10 pm
Grizzly: A Multi-Scale and Multi-Physics Tool to Model Aging of Nuclear Power Plant Components, Pritam Chakraborty, Benjamin Spencer (INL), Marie Backman (Univ of Tennessee), William Hoffman (Univ of Idaho), Xian-Ming Bai, Yongfeng Zhang (INL)

2:30 pm
Multiscale Modeling of Accident Tolerant Fuels under the NEAMS ATF Program, Jason Hales, Kyle A. Gamble (INL)

2:50 pm
Atomistic Simulations in Support of UO_2 Fuel Performance Modeling, David Andersson (LANL)

BREAK: 3:10-3:30 PM

TECHNICAL SESSION - 3:30 PM

Advanced Characterization

Session Organizer: Yong Yang (Univ of Florida) **Chair:** Andrew T. Nelson (LANL), All invited
Location: Empire D **Time:** 3:30-5:10 pm

3:30 pm
Characterization of Ion Implantation and Irradiation Effects in Interface-Dominated Metallic Composites, N. Li (LANL), W. Han (Xi'an Jiaotong Univ), K. Hattar (SNL), A. Misra (Univ of Michigan)

3:50 pm
3D Study of Neutron Irradiation Effects on Tensile Deformation in Fe-Based Alloys using High Energy Synchrotron X-Rays, Xuan Zhang, Chi Xu, Jun-Sang Park, Hemant Sharma, Peter Kenesei, Jonathan Almer, Meimei Li (ANL)

4:10 pm
Recent Advances in Analytical Electron Microscopy for Irradiated Materials, Chad M. Parish, Philip D. Edmondson, Kevin G. Field, Kurt A. Terrani (ORNL), Rachel L. Seibert (IIT), Yutai Katoh (ORNL)

4:30 pm
Development of Ultra Small Scale Mechanical Testing and Localized He Implantation for Nuclear Applications, P. Hosemann, H. Vo, A. Reichardt, D. Frazer, Z. Wang, C. Howard (Univ of California, Berkeley)

4:50 pm
Applications of Transient Grating Spectroscopy to Radiation Materials Science, Cody Dennett, Sara Ferry, Penghui Cao (MIT), Shie-Hong Lin, Ji-Jung Kai (City Univ of Hong Kong), Michael Short (MIT)

BREAK: 5:10-5:30 PM

EMBEDDED TOPICAL: NFSM 2016 | TUESDAY, JUNE 14

POSTER SESSION & RECEPTION - 5:30 PM

Session Organizer: Yong Yang (Univ of Florida)
Location: Empire C **Time:** 5:30-7:30 pm

1. Corrosion Behavior of Pressurized Austenitic Tubes in Oxygen Containing PbBi at 550°C, A. Weisenburger, A. Heinzel, G. Müller (KIT) **CANCELED**
2. Dependencies of Alpha Embrittlement in Neutron-Irradiated Model Fe-Cr-Al Alloys, S. A. Briggs (Univ of Wisconsin, Madison), P. D. Edmondson, K. C. Littrell (ORNL), Y. Yamamoto (ORNL UT-Battelle), K. Sridharan (Univ of Wisconsin, Madison), K. G. Field (ORNL)
3. In Situ TEM Microcompression Pillar Size Effects in Fe-9Cr ODS, K. H. Yano, M. J. Swenson, J. P. Wharry (Boise State Univ)
4. In Situ Sample Environment for Studying Corrosion of Nuclear Materials, Mohamed Elbakhshwan, Simerjeet Gill (BNL), Arthur Motta (Penn State), Randy Weidner, Thomas Anderson, Lynne Ecker (BNL)
5. Effect of Alloying Additions on Wrought FeCrAl Alloys for Accident-Tolerant Fuel Cladding, Yukinori Yamamoto (ORNL UT-Battelle), Kevin G. Field, Bruce A. Pint, Kurt A. Terrani (ORNL)
6. Recovery and Recrystallization Behavior of Nb-Containing Fe-Cr-Al Alloys, Zhiqian Sun (ORNL), Yukinori Yamamoto (ORNL UT-Battelle)
7. Mechanical and Microstructural Characterization of Low-Temperature Neutron Irradiated Zircaloy-4, Chinthaka M. Silva, Keith J. Leonard, Josina W. Geringer (ORNL), Eric Van Abel (2SHINE Medical Technologies), Christopher Bryan (ORNL)
8. TEM Study of Zircaloy 2 with FeCrAl Layer under Simulated BWR Environment, Donghee Park, Peter A. Mouche, Weicheng Zhong, Xiaochun Han, Brent J. Heuser (Univ of Illinois), Kiran K. Mandapaka, Gary S. Was (Univ of Michigan)
9. Alternative Fabrication of Volatile Metal Fuel Slugs for Sodium-Cooled Fast Reactor, Ki-Hwan Kim, Jong-Hwan Kim, Hoon Song, Seok-Jin Oh, Chan-Bock Lee (KAERI)
10. Distillation of Americium from Plutonium Americium Oxide, Leah Squires, Paul Lessing (INL)
11. Fabrication of Minor Actinide MOX Fuel for the AFC-2C and -2D Irradiations, Stewart Voit, Stephen Willson, Kenneth McClellan (LANL)
12. Identification and Quantification of Carbon Phases in Conversion Fuel for the Transient Reactor Test Facility, Robert Steele, Angelica Mata, Mary Lou Dunzik-Gougar (Idaho State Univ), Isabella van Rooyen (INL)
13. Orientation-Dependent Surface Faceting in UO_2, Yinbin Miao (Univ of Illinois), Kun Mo, Jeffrey Fortner, Ruqing Xu, Laura M. Jamison, Abdellatif M. Yacout (ANL), Tiankai Yao, Jie Lian (RPI)
14. An Introduction to the FCRD Transmutation Fuels Handbook 2015, Dawn E. Janney, Cynthia A. Papesch (INL)
15. Oxygen Potential Measurement and Point Defect Chemistry of UO_2, Masashi Watanabe, Masato Kato (JAEA), Takeo Sunaoshi (Inspection Development Co.)
16. Characterization of Fresh Nuclear Fuel using Time-of-Flight Neutrons, Adrian Simon Losko (Univ of California, Berkeley), Sven Vogel, Mark Andrew Bourke (LANL), Anton Tremsin (Univ of California, Berkeley), Stewart L. Voit, Kenneth J. McClellan, Michael Mocko, Peter Hosemann (Univ of California, Berkeley), Darrin D. Byler (LANL)
17. Nanoscale Mechanical Behavior of Nuclear Materials, U. Carvaja-Nunez (LANL), S. Pathak (Univ of Nevada, Reno), Y. Yang, N. A. Mara, J. T. White, E. S. Wood, A. T. Nelson (LANL)

POSTER SESSION & RECEPTION - 5:30 PM (continued)

18. Synthesis of ThN using a Carbothermic Reduction to Nitridation Process, A. J. Parkison, A. T. Nelson (LANL)

19. Fabrication of UN Microsphere Kernels for Fully Ceramic Microencapsulated Fuel, J. W. McMurray, T. B. Lindemer, R. D. Hunt, J. L. Collins, C. M. Silva, J. J. Henry, K. A. Terrani (ORNL)

20. Chromium-Based Mitigation Coatings on SiC Materials for Fuel Cladding, Caen Ang, Yutai Katoh, C. Kemery, J. Kiggans, Kurt Terrani (ORNL)

21. Fabrication and Testing of Complex Silicon Carbide Composite Structures, Hesham E. Khalifa, Chunghao P. Shih, George M. Jacobsen, Christian P. Deck (General Atomics)

22. Synchrotron Microdiffraction Study of Heavy-Ion-Irradiated Uranium-Molybdenum Dispersion Fuel, Laura M. Jamison, Kun Mo, Yinbin Miao, Bei Ye (ANL), Sumit Bhattacharya (Northwestern Univ), Ruqing Xu, Abdellatif M. Yacout (ANL)

23. Microstructural Characterization of In-Reactor Corrosion Tested Hastelloy N® and 316 Stainless Steel, G. Zheng, D. Carpenter, M. Ames, Y. Ostrovsky, Gordon E. Kohse, Kaichao Sun, Lin-wen Hu (MIT)

24. Positron Annihilation Spectroscopy Investigation of Vacancy Clusters in Neutron-Irradiated 3C-SiC, Xunxiang Hu, Takaaki Koyanagi, Yutai Katoh (ORNL)

25. Multiscale Model for Simulating Fission-Induced Recrystallization in U-Mo Alloy, Zhigang Mei, Linyun Liang, Abdellatif M. Yacout (ANL)

26. Comparison of Ion and Neutron Irradiations to 3 dpa at 500°C in Ferritic-Martensitic Alloys, Matthew J. Swenson, Janelle P. Wharry (Boise State Univ)

27. First-Principles Study of Inert Gas Incorporation and Migration Zirconium Nitride, Zhi-Gang Mei, Abdellatif M. Yacout, Yeon Soo Kim, Gerard L. Hofman (ANL)

28. Neutron Irradiation Effects on the Graphitic Structure of a Fine-Grain Graphite, A. A. Campbell (ORNL), K. Takizawa (Tokai Carbon Co., Ltd.), E. Cakmak, Y. Katoh (ORNL)

29. In-Situ High Energy X-Ray Characterization of Tensile Deformation of Advanced Austenitic Stainless Steels, Chi Xu (ANL/Univ of Florida), Xuan Zhang, Meimei Li, Jun-sang Park, Peter Kenesei, Jonathan Almer (ANL), Yong Yang (Univ of Florida)

30. Radiation Tolerance of Silicon Carbide Joints at LWR Relevant Temperature, Takaaki Koyanagi, Yutai Katoh, James O. Kiggans (ORNL), Tatsuya Hinoki (Kyoto Univ), Christina A. Back (General Atomics)

31. Development of Surface Grain Relief on Self-Ion Irradiated Copper, Cody A. Dennett, Michael P. Short, Alejandro Vega-Flick, Alexei A. Maznev, Keith A. Nelson (MIT)

32. Microstructure Evolution in Ion-Irradiated of UO_2, Lingfeng He, Jian Gan, Todd R. Allen (INL)

33. Advanced Characterization of Fuel Pellet and Cladding from the HB Robinson NPP, Philip D. Edmondson, Chad M. Parish, Tyler Gerczak, Kurt A. Terrani (ORNL)

34. Summary of FUTURIX-FTA Non-Destructive Examination, Heather J. M. Chichester, Jason M. Harp (INL)

35. Materials Irradiation Facility (MIF) at the High Flux Isotope Reactor (HFIR), Nesrin O. Cetiner, Graydon L. Yoder, Joel L. McDuffee, Don Wilder, Young So Kwon, Chris Bryan (ORNL)

36. Topological Defects in Graphite under Irradiation using Molecular Dynamics, Anant Raj, Jacob Eapen (NCSU)

37. An Improved Methodology to Determine Pore Size Distribution and Pore Density in the High Burnup Structure, F. Cappia, V. V. Rondinella (EC-JRC-ITU)

EMBEDDED TOPICAL: NFSM 2016 | TUESDAY, JUNE 14

POSTER SESSION & RECEPTION - 5:30 PM (continued)

38. Microstructural Characterization of Irradiated Fuels and Materials for the United States High Performance Research Reactor Fuel Development Program and the Fuel Cycle Research and Development Program, Bjorn E. Westman, Julie Tucker (Oregon State Univ), Brandon D. Miller (INL)

39. Fiber Optic Instrumentation in High Temperature Irradiation Environments, Christian M. Petrie (ORNL)

40. Updated Phase Calculation Method for Metallic Nuclear Fuel in BISON, Christopher Matthews, Jack Galloway, Cetin Unal (LANL)

41. Thermal Transport at (001) Twist Grain Boundaries in UO_2, A. Chernatynskiy (Missouri Science and Technology Univ), Bowen Deng (Montana Tech of the Univ of Montana), Simon R. Phillpot (Univ of Florida)

42. Neutronics Analysis Supporting Baseline Fuel-Rodlet Irradiation Design in TREAT Multi-SERTTA Vehicle, John D. Bess, Nicolas D. Woolstenhulme, Connie M. Hill (INL)

43. Mechanical Analysis to Study Pore Formation Mechanism in U-Mo/Al Dispersion Fuel, Gwan Yoon Jeong (UNIST), Yeon Soo Kim (ANL), Kyu Hong Lee (KAERI), Dong-Seong Sohn (UNIST)

44. Investigating Accident Tolerant Fuel Concepts using the BISON Fuel Performance Code, Kyle A. Gamble, Jason D. Hales (INL)

45. MARMOT Modeling of Microstructure-Dependent Thermal Conductivity in Nuclear Fuels, Xianming Bai (INL), Michael R. Tonks (INL/Penn State), Yongfeng Zhang, Jason D. Hales (INL)

46. An Interface Debonding Model for Integrity Assessment of Nuclear Fuel Rods, Ruijie Liu (UT San Antonio)

47. Fuel Performance Simulation of FeCrAl Cladding during Steady-State LWR Operation, R. T. Sweet (Univ of Tennessee), K. A. Terrani (ORNL), B. D. Wirth (Univ of Tennessee)

48. Comparison of Subdivided Versus Full-Length Fuel Pin Burnup in the ATF-2 Safety Analysis, Wilson M. Cowherd (INL)

49. Effect of Reactor Radiation on the Thermal Conductivity of Graphite-Based Dispersion Fuel, Kun Mo, Yinbin Miao, Arthur E. Wright, Dimitrios C. Kontogeorgakos, Heather M. Connaway, Abdellatif M. Yacout (ANL)

50. String-Like Transport in Superionic Conductors, Ajay Annamareddy, Jacob Eapen (NCSU)

51. A Preliminary Overview of Metal Fuel Models in BISON, S.R. Novascone, P. Medvedev, K. A. Gamble, R. J. Gardner, A. X. Zabriske (INL)

52. Continuum Scale Modeling of Thermal Conductivity in Hyperstoichiometric Uranium Dioxide, Austin W. Travis (Univ of California/LANL), David A. Andersson, Andrew T. Nelson (LANL)

53. Ab Initio Molecular Dynamics Analysis of Xenon Incorporation in Uranium Dioxide, C. A. Manring, J. L. Wormald, A. I. Hawari (NCSU)

54. Analysis of a Loop for Fission Gas Release and Monitoring at the PULSTAR Reactor, A. I. Hawari, M. Liu, M. R. Smith (NCSU), J. M. Harp, G. Pastore, R. L. Williamson (INL)

EMBEDDED TOPICAL: NFSM 2016 I TUESDAY, JUNE 14

POSTER SESSION & RECEPTION - 5:30 PM (continued)

55. Preliminary Compendium of the Initial Conditions and Evolution of the Fundamental Interactions of SiC with Ag and Pd, Daniel Velázquez, Rachel Seibert, William Limestall, Jeff Terry (Illinois Inst of Technology)

56. Study on Modeling of Nuclear Fuel End Drop during a Hypothetical Accident, Huan Li, Hernando Candra, Jose Pires (NRC) **CANCELED**

57. Synchrotron Characterization of the Oxidation of Advanced Steel Cladding Alloys, Mohamed Elbakhshwan, Simerjeet Gill, Abdul Rumaiz (BNL), Raul Rebak (General Electric), Lynne Ecker (BNL)

58. First-Principles Study of Surface Properties of U_3Si_2 for Accident Tolerant Fuel, Zhigang Mei, Abdellatif M. Yacout, Yinbin Miao (ANL), David Andersson (LANL)

59. Pool Boiling CHF Experiment for Cr-Alloy-Coated Accident Tolerant Fuel Cladding, Chan Lee, Chang Hwan Shin, Wang Kee In (KAERI)

60. Characterization of Simulated BWR and Steam Exposed FeCrAl Coated Zircaloy 2, Peter A. Mouche, Weicheng Zhong, Brent J. Heuser (Univ of Illinois), Kiran K. Mandapaka, Gary S. Was (Univ of Michigan)

61. Enhanced Thermal Conductivity UO_2-BeO and UO_2-SiC Fuels Behavior, Rong Liu, Wenzhong Zhou (City Univ of Hong Kong)

WEDNESDAY, JUNE 15

TECHNICAL SESSION - 8:20 AM

Advanced Structural Materials and Radiation Damage—I

Session Organizer: Xianming Bai (INL) **Chair:** Randy Nanstad (ORNL), All invited
Location: Empire D **Time:** 8:20-10:00 am

8:20 am
Towards High Performance Oxide-Dispersion-Strengthened Alloys, Tianyi Chen, Hyosim Kim, J. Gigax, Eda Aydogan, S. Ukai, Frank A. Garner, Lin Shao (Texas A&M)

8:40 am
Processing of Nanostructured Ferritic Alloys for Advanced Reactor Core Materials, S. A. Maloy, E. Aydogan, O. A. Anderoglu, T. A. Saleh (LANL), G. R. Odette (Univ of California, Santa Barbara), D. Hoelzer (ORNL), J. J. Lewandowski (CWRU), C. Lavender (PNNL), M. B. Toloczko, T. S. Byun (PNNL), T. Leonhardt (Rhenium Alloys)

9:00 am
Chemical Complexity Controls Energy Dissipation and Defect Evolution, L. K. Beland, Y. Zhang, G. M. Stocks, K. Jin, H. Bei (ORNL), C. Lu, L. Wang (Univ of Michigan), B. C. Sales, R. E.Stoller (ORNL), W. J. Weber (Univ of Tennessee)

9:20 am
Radiation Effects in Innovative Structural Materials, S. J. Zinkle (Univ of Tennessee), C. K. Ang, N. A. P. Kiran Kumar (ORNL), C. Li, J. Brechtl (Univ of Tennessee), H. Bei (ORNL)

9:40 am
Accelerated Ion Irradiation for Emulation of In-Reactor Radiation Damage, G. S. Was (Univ of Michigan), d,A. Motta (Penn State), B. Wirth (Univ of Tennessee)

BREAK: 10:00-10:20 AM

EMBEDDED TOPICAL: NFSM 2016 | WEDNESDAY, JUNE 15

TECHNICAL SESSION - 10:20 AM

Advanced Structural Materials and Radiation Damage—II

Session Organizer: Yong Yang (Univ of Florida) **Chair:** Stuart Maloy (LANL), All invited
Location: Empire D **Time:** 10:20 am-12:00 pm

10:20 am
Dispersion of Nano-Sized Oxide Particles in Ni-Based Alloy, Jinsung Jang, Young-Bum Chun, Suk Hoon Kang, Xiaodong Mao,Seongsu Lee, Ki Myung Song, Kunok Chang, Chang-Kyu Rhee (KAERI)

10:40 am
A Radial Heat Flow Apparatus for Thermal Conductivity Characterisation of Cylindrical Samples, Loïc Fave, Manuel A. Pouchon (Paul Scherrer Inst)

11:00 am
Additive Manufacturing of Research Reactor Control Elements and Subsequent Neutron Irradiation, Kurt A. Terrani, James Kiggans (ORNL), Niyanth Sridharan (Univ of Tennessee), Maxim Gussev (ORNL), Mark Norfolk (Fabrisonic LLC), Joseph R. Burns (Georgia Tech), David Chandler (UT-Battelle, ORNL), S. Suresh Babu (Univ of Tennessee), Christopher Bryan, Daniel Pinkston (ORNL)

11:20 am
Irradiation in the Swiss Spallation Neutron Source and its Applications, Yong Dai, Manuel A. Pouchon (Scherrer Inst)

11:40 am
Corrosion of Candidate Materials in Molten FLiBe Salt for Fluoride-Salt-Cooled High-Temperature Reactor (FHR), Guoping Cao (Univ of Wisconsin, Madison), Guiqiu Zheng (MIT), Kumar Sridharan (Univ of Wisconsin, Madison)

LUNCH: ATTENDEES ON OWN 11:30 AM-1:00 PM

TECHNICAL SESSION - 1:30 PM

NSUF Special Session—I

Session Organizer: Xianming Bai (INL) **Chair:** Steven Zinkle (Univ of Tennessee), All invited
Location: Empire D **Time:** 1:30-3:10 pm

1:30 pm
Overview of the U.S. Nuclear Science User Facilities, J. Rory Kennedy (INL)

1:50 pm
Materials Characterization using the Facilities of the Center for Synchrotron Radiation Research and Instrumentation (CSRRI), A NSUF Partner Facility, Jeff H. Terry (Illinois Inst of Technology)

2:10 pm
MAX Phases for the Nuclear Industry: Possibilities and Pitfalls, Michel W. Barsoum, Darin J. Tallman (Drexel Univ), Lingfeng He, Jian Gan (INL)

2:30 pm
Initial Results from the High Fluence UCSB ATR-2 Irradiation, G. Robert Odette, Takuya Yamamoto, Peter B. Wells, Nathan Almirall (Univ of California, Santa Barbara), Randy K. Nanstad (ORNL), Keith Wilford, Tim Williams (Rolls-Royce)

2:50 pm
Research and Development Capabilities Available through the Nuclear Science User Facilities, Brenden J. Heidrich (INL)

BREAK: 3:10-3:30 PM

EMBEDDED TOPICAL: NFSM 2016 | WEDNESDAY, JUNE 15

TECHNICAL SESSION - 3:30 PM

NSUF Special Session—II

Session Organizer: Yong Yang (Univ of Florida) **Chair:** Rory Kennedy (INL), All invited
Location: Empire D **Time:** 3:30-5:10 pm

3:30 pm
The Role of Electron and Atom Probe Tomography in Characterization of Nuclear Fuels, Assel Aitkaliyeva, Cynthia Papesch (INL), Yaqiao Wu (Boise State Univ/Center for Advanced Energy Studies), Haiming Wen (Idaho State Univ)

3:50 pm
Testing of LWR Surveillance Materials from the High Fluence UCSB ATR-2 Irradiation, Randy Nanstad (ORNL), Janet Robertson, Mikhail A. Sokolov (ORNL), G. Robert Odette, Takuya Yamamoto, Peter B. Wells, Nathan Almirall (Univ of California, Santa Barbara), William L. Server (ATI Consulting), Timothy Hardin (EPRI), Keith Wilford, Tim Williams (Rolls Royce)

4:10 pm
Effect of Irradiation on Strengthening of a Model Fe-9Cr Oxide Dispersion Strengthened Alloy, J. P. Wharry, M. J. Swenson, C. K. Dolph, K. H. Yano (Boise State Univ))

4:30 pm
High Energy X-Ray Applications for the Characterization of Metallic Uranium Alloys, Maria A. Okuniewski (Purdue Univ), Lynne E. Ecker, Mohamed Elbakhshwan, David Sprouster (BNL), Daniel Velazquez, Rachel L. Seibert, Daniel Lee, Jeff H. Terry (IIT), Yongho Sohn (Univ of Central Florida), Brandon D. Miller, Randall S. Fielding (INL)

4:50 pm
Investigation of Fission Product Interaction with the SiC Containment Layer of High Burnup TRISO Fuel Particles, Rachel L. Seibert (IIT), Chad Parish, Kurt Terrani (ORNL), Jeff Terry (IIT)

EMBEDDED TOPICAL: NFSM 2016 | THURSDAY, JUNE 16

TECHNICAL SESSION - 8:20 AM

Modeling and Simulation—II

Session Organizer and Chair: Xianming Bai (INL), All invited
Location: Empire D **Time:** 8:20-9:40 am

8:20 am
Mechanical and Thermal Properties of Irradiated SiC/SiC Composites: Bridge Continuum Models with Atomic-Level Simulations, Fei Gao (Univ of Michigan), Ba Nghiep Nguyen, Charles H. Henager Jr. (PNNL)

8:40 am
Multiscale Investigation of Thermal Transport in UO_2 Fuel using Modeling and Simulation, Michael Tonks (Penn State), Xiang-Yang Liu, David Andersson, Christopher Stanek (LANL), Aleksandr Chernatynskiy (Missouri Univ Sci Tech)

9:00 am
CAMPUS: Fully Coupled Multiphysics Modeling and Simulation of LWR and FBR Nuclear Fuel Behavior, Rong Liu, Wenzhong Zhou (City Univ of Hong Kong)

9:20 am
Physics-Based Modeling of Precipitation in Nuclear Structural Materials, Mahmood Mamivand, Huibin Ke (Univ of Wisconsin, Madison), G. Robert Odette (Univ of California, Santa Barbara), Dane Morgan (Univ of Wisconsin, Madison)

BREAK: 10:00-10:20 AM

EMBEDDED TOPICAL: NFSM 2016 | THURSDAY, JUNE 16

TECHNICAL SESSION - 10:20 AM

Advanced Fuels and Fuel Cycle—II

Session Organizer: Yong Yang (Univ of Florida) **Chair:** Michael Tonks (Penn State), All invited
Location: Empire D **Time:** 10:20 am-12:00 pm

10:20 am
Tailored Microstructure and Properties in UO_2, Jie Lian, Tiankai Yao (RPI)

10:40 am
The Impact of Furnace-Testing on the Microstructure of an Irradiated U-Mo Fuel Plate, Dennis D. Keiser, Jian Gan, Jan-Fong Jue, Brandon D. Miller, Adam B. Robinson, James Madden, Francine Rice (INL)

11:00 am
Synthesis and Characterisation of Nanostructured UO_2 Compacts for Separate Effect Investigations, V. Tyrpekl, J. F. Vigier, T. Wiss, R. Jovani Abril, M. Cologna, J. Somers (JRC-ITE)

11:20 am
Small-Angle Neutron Scattering Measurements of the Delta Deuteride Phase in Zircaloy 4, Brent J. Heuser, Jun-Ii Lin (Univ of Illinois)

11:40 am
TEM Characterization of U-Mo Irradiated with High-Energy Xe Ions, Bei Ye, Laura M. Jamison (ANL), Sumit Bhattacharya (Northwestern Univ), Abdellatif Yacout (ANL)

Committee Meetings

NATIONAL COMMITTEES

Accreditation, Polices & Procedures
SUNDAY, 11 AM - 12 PM | BOLDEN 4

Board of Directors
Professional Division Reports
WEDNESDAY, 4 PM – 5:30 PM | EMPIRE B

ANS Board of Directors
THURSDAY, 7:30 AM – 4:30 PM | EMPIRE B

Bylaws & Rules
SUNDAY, 4 PM – 5:30 PM | STRAND 7

Communications
SUNDAY, 4 PM – 6 PM | STRAND 11A

Finance Meeting
TUESDAY, 12:30 PM – 7 PM | STRAND 7

Honors & Awards
MONDAY, 4 PM - 6 PM | STRAND 11A

International
SUNDAY, 11:30 AM – 2:30 PM | STRAND 11B

Local Section Workshop
SUNDAY, 9 AM – 12 PM | STRAND 13AB

Membership
SUNDAY, 10 AM – 12 PM | BOLDEN 5

National Program
NPC Screening & International
SUNDAY, 10 AM – 12 PM | FOSTER 1

NPC National Meeting Sub Committee
WEDNESDAY, 11:30 AM – 1 PM | STRAND 14

NPC Program
WEDNESDAY, 4 PM – 7:00 PM | EMPIRE A

NEED
SUNDAY, 7:30 PM – 9:30 PM | BOLDEN 5

Planning Committee
SUNDAY, 2 PM – 4 PM | BOLDEN 1

President's Meeting w/Committee Chairs
SUNDAY, 8 AM – 9 AM | EMPIRE C

NATIONAL COMMITTEES

President's Meeting w/Division Chairs
SUNDAY, 9 AM – 10 AM | EMPIRE C

Professional Development Coordination
TUESDAY, 4 PM – 5:30 PM | STRAND 11A

Professional Divisions
Training Workshop
SATURDAY, 5 PM - 7:00 PM | STRAND 11AB

Committee Meeting
TUESDAY, 4 PM – 5:30 PM | EMPIRE B

Professional Engineering Exam
PEEC Single Reference Development
SUNDAY, 12:30 PM – 2:30 PM | BOLDEN 3

PEEC Item Writers Group
SATURDAY, 5 PM – 10 PM | STRAND 7

PEEC Committee Meeting
SUNDAY, 4 PM – 6 PM | STRAND 9

PEEC 2016 Exam Pre-Test
SUNDAY, 8 AM – 3:30 PM | STRAND 9

Professional Women In ANS
MONDAY, 3 PM - 5 PM | STRAND 9

Public Policy
WEDNESDAY, 11:30 AM – 1:30 PM | STRAND 7

Publications Steering
Meetings, Proceedings & Transactions
SUNDAY, 9 AM – 10 AM | STRAND 10AB

Book Publishing
SUNDAY, 11 AM – 12:30 PM | STRAND 11A

Nuclear News Editorial Advisory
SUNDAY, 2 PM – 3:30 PM | STRAND 14

Technical Journals
SUNDAY, 1 PM – 4 PM | STRAND 11A

Nuclear Technology Editorial Advisory
SUNDAY, 4:30 PM – 5:30 PM | BOLDEN 2

Publications Steering Committee
MONDAY, 4:30 PM – 6:30 PM | STRAND 7

Committee Meetings

NATIONAL COMMITTEES

Scholarship Policy & Coordination
MONDAY, 12 PM – 1 PM | STRAND 11A

Student Sections
Executive
MONDAY, 6 PM – 7 PM | EMPIRE B

Reports
MONDAY, 7 PM – 8 PM | EMPIRE B

SPECIAL COMMITTEES

Special Committee on the Congressional Fellow Program
TUESDAY, 3:30 PM - 4:30 PM | STRAND 8

OTHER COMMITTEES

Christian Nuclear Fellowship
MONDAY, 7 PM – 8:30 PM | STRAND 7

Christian Nuclear Fellowship Breakfast
WEDNESDAY, 7:15 AM – 8:30 AM | STRAND 11A

KNS-US Chapter Meeting
MONDAY, 5 PM – 7 PM | BOLDEN 2

NEDHO
SUNDAY, 4 PM – 6 PM | BOLDEN 4

NURETH 17
MONDAY, 7 PM - 9 PM | BOLDEN 3

UWC Planning Committee
SUNDAY, 1 PM – 2 PM | FOSTER 1

DIVISION COMMITTEES

Accelerator Applications
Executive
MONDAY, 11:30 AM – 1:30 PM | STRAND 9

Aerospace Nuclear Science & Technology
MONDAY, 4 PM – 6 PM | STRAND 12B

DIVISION COMMITTEES

Biology and Medicine
Executive
SUNDAY, 4 PM – 5:30 PM | STRAND 14

Decommissioning and Environmental Sciences
Program
SUNDAY, 3:30 PM – 4:30 PM | BOLDEN 3

Executive
SUNDAY, 4:30 PM – 5:30 PM | BOLDEN 3

Education, Training & Workforce Development
Program
SUNDAY, 10:30 AM – 12 PM | FOSTER 2

University/Industry/Government Relations
SUNDAY, 1:30 PM – 2 PM | FOSTER 2

Alpha Nu Sigma National Honor Society
SUNDAY, 1 PM – 2 PM | STRAND 14

Executive/Membership/Honors & Awards
SUNDAY, 2 PM - 4 PM | FOSTER 2

Fuel Cycle & Waste Management
Program
SUNDAY, 12 PM – 1 PM | EMPIRE D

Executive
SUNDAY, 1 PM – 2:30 PM | EMPIRE D

Fusion Energy
Executive
TUESDAY, 6 PM – 8 PM | STRAND 8

Human Factors, Instrumentation, and Controls
Program
SUNDAY, 11 AM – 12 PM | STRAND 12A

Executive
SUNDAY, 12:00 PM – 2:30 PM | STRAND 12A

Isotopes and Radiation
Joint Program Committee-I&R/BM
SUNDAY, 1:30 PM - 2:30 PM | BOLDEN 6

Executive
SUNDAY, 2:30 PM – 4:30 PM | BOLDEN 6

Materials Science & Technology
Executive
MONDAY, 6 PM – 8 PM | STRAND 11A

Committee Meetings

DIVISION COMMITTEES

Mathematics & Computation
Program
SUNDAY, 1 PM – 2 PM | STRAND 7

Executive
SUNDAY, 2 PM – 4 PM | STRAND 7

Nuclear Criticality Safety
Education Meeting
SUNDAY, 1 PM – 2 PM | EMPIRE C

Program
SUNDAY, 2 PM – 3 PM | EMPIRE C

Executive
SUNDAY, 3 PM – 4:30 PM | EMPIRE C

Nuclear Installations Safety
Program
SUNDAY, 4 PM – 5:30 PM | FOSTER 2

Executive
MONDAY, 6 PM – 8 PM | STRAND 10B

Nuclear Nonproliferation Policy
Special Advisory Committee
SUNDAY, 1 PM - 2 PM | STRAND 12B

Program
SUNDAY, 2 PM – 3 PM | STRAND 12B

Executive
SUNDAY, 3 PM – 4:30 PM | STRAND 12B

NNTG/IRD/FC&UM Integration Meeting
SUNDAY, 4:30 PM – 5 PM | STRAND 12B

Operations & Power
Program
SUNDAY, 2 PM – 3:30 PM | FOSTER 1

Executive
SUNDAY, 3:30 PM – 6:00 PM | FOSTER 1

Radiation Protection & Shielding
Program
SUNDAY, 2 PM – 3 PM | STRAND 13AB

Standards Committee
SUNDAY, 3 PM - 4 PM | STRAND 13AB

DIVISION COMMITTEES

Radiation Protection & Shielding (cont'd)
Executive
SUNDAY, 4 PM – 5 PM | STRAND 13AB

Reactor Physics
Honors & Awards
SUNDAY, 10 AM – 11 AM | STRAND 10AB

Goals & Planning
SUNDAY, 1 PM – 2 PM | STRAND 10AB

Program
SUNDAY, 2 PM – 4 PM | STRAND 10AB

Executive
SUNDAY, 4 PM – 6 PM | STRAND 10AB

Robotics & Remote Systems
Executive
SUNDAY, 12 PM – 4 PM | BOLDEN 2

Thermal Hydraulics
Program
SUNDAY, 2:30 PM – 4:30 PM | STRAND 12A

Executive
SUNDAY, 4:30 PM – 6 PM | STRAND 12A

Young Members Group (TG)
Program
MONDAY, 10 AM - 11 AM | STRAND 12B

Executive Committee
MONDAY, 11:30 AM – 1 PM | STRAND 12B

STANDARDS COMMITTEES

ANS-2.6
TUESDAY, 10 AM – 4 PM | STRAND 14

ANS-3.15
MONDAY, 5 PM – 7 PM | STRAND 8

ANS-8.1
MONDAY, 3 PM – 5 PM | BOLDEN 1

ANS-8.20
SUNDAY, 9 AM – 12 PM | STRAND 14

Committee Meetings

STANDARDS COMMITTEES

ANS 8.26
WEDNESDAY, 7 AM - 8:30 AM | STRAND 7

ANS-8.28
TUESDAY, 1 PM – 3 PM | STRAND 9

ANS-19 Reactor Physics
MONDAY, 8:30 AM – 10:30 AM | STRAND 7

ANS-30.2
MONDAY, 9 AM – 11 AM | STRAND 10B

ANS-30.2 (continued)
MONDAY, 11 AM – 4 PM | STRAND 8

ANS-57.2/57.3
WEDNESDAY, 8 AM – 11:30 AM | STRAND 9

FWDCC
MONDAY, 11:30 AM – 1:30 PM | STRAND 10B

RP3C
MONDAY, 2:30 PM – 6:00 PM | STRAND 10B

Standards Board
TUESDAY, 8:30 AM – 6 PM | STRAND 12B

ANS Organization Membership

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Floor Plan

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2016 ANS Annual Meeting

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- ANS Technical Sessions
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ANS Meals,
ANS Poster Sessions,
NFSM Poster Session

ANS Special Sessions:

- Opening Plenary
- General Chair Special Session
- Technical Program Chair's Special Session
- ANS President's Special Session

ANS Registration and Bookstore

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