ANS National Meeting

2014 Winter Meeting and Technology Expo

November 9-13, 2014 • Anaheim, CA • Disneyland Hotel

"Nuclear: The Foundation of Clean Energy"

EMBEDDED TOPICAL MEETING

21st Topical Meeting on the Technology of Fusion Energy (TOFE)

Summary Deadline: June 13, 2014

CALL FOR PAPERS

CONFERENCE CHAIRS

General Chair
Ed Halpin, *Pacific Gas & Electric Company*

Technical Program Chair
Patrick J. Pinhero, *University of Missouri*

Assistant Technical Program Chairs
James J. Byrne, *Byrne & Associates LLC*
John D. Bess, *Idaho National Laboratory*

DEADLINES: NO EXCEPTIONS

SUBMISSION OF SUMMARIES:
April 1, 2014–June 13, 2014

AUTHOR NOTIFICATION OF ACCEPTANCE:
By July 25, 2014

REVISED SUMMARIES DUE:
August 11, 2014

FORMAT

Authors are now REQUIRED to use the ANS Template and "Guidelines for TRANSACTIONS Summary Preparation" provided on the ANS Web site. Summaries must be submitted electronically using Adobe Acrobat (PDF) files and original Microsoft Word documents and the ANS Electronic Submission System. Summaries not based on the ANS Template will be REJECTED.

GUIDELINES FOR SUMMARIES

Please submit summaries describing work that is NEW, SIGNIFICANT, and RELEVANT to the nuclear industry. ANS will publish all accepted summaries in the TRANSACTIONS. Papers are presented orally at the meeting, and presenters are expected to register for the meeting. Completed papers may be published elsewhere, but the summaries become the property of ANS. Under no circumstances should a summary or full paper be published in any other publication prior to presentation at the ANS meeting. It is the author's responsibility to protect classified or proprietary information.

CONTENT

1. Introduction: State the purpose of the work.
2. Description of the actual work: Must be NEW and SIGNIFICANT.
3. Results: Discuss their significance.
4. References: If any, must be closely related published works. Minimize the number of references.
5. Do not present a bibliographical listing.

LENGTH

1. The minimum length is one full page.
2. The maximum length is four pages, including references, tables, and figures.
3. Limit title to ten words; limit listing authors to three or fewer if possible.

PAGE CHARGE

ANS charges $100 per final printed page (prorated) in the TRANSACTIONS.

Authors should be prepared to provide their purchase order numbers when submitting their summaries electronically.

REQUIRED TEMPLATE AND "GUIDELINES FOR TRANSACTIONS SUMMARY PREPARATION":

www.ans.org/pubs/transactions

SUBMIT A SUMMARY:

www.ans.org/meetings

TRANSACTIONS COORDINATOR

Ellen Leitschuh
Tel: 708/579-8253
Fax: 708/579-8313
eleitschuh@ans.org

INFORMATION SERVICES

Joe Koblich, Director
Tel: 708/579-8237
Fax: 708/352-8274

2014 ANS Winter Meeting and Nuclear Expo

2014 Winter Meeting: Session Titles by Division

1. Accelerator Applications

1a. Accelerators and Materials Testing

2. Aerospace Nuclear Science and Technology

2a. Aerospace Nuclear Science and Technology: General

3. Biology and Medicine

3a. Biology and Medicine: General
3b. GEANT4 Tutorial [MCD, RPSD]
3c. FUKUSHIMA REVISITED

4. Decommissioning and Environmental Sciences

4a. Transportation of Radioactive Materials (P)
4b. Global Climate Change and Nuclear Power (P)
4c. TSCA, PCBs, and Low-Level Radioactive Wastes (P)
4d. Options Available to Commercial Nuclear Plants for Decommissioning (P)
4e. Groundwater/Tritium Radionuclide Releases to the Subsurface from Nuclear Power Plants and DOE Facilities. (P)
4f. Evolving Aspects of Decommissioning Commercial Power Reactors in the United States (P)
4g. Low Level Radioactive Waste (P)
4h. The Status and Lessons Learned from Active Decommissioning NPPs (P)

5. Education, Training, and Workforce Development

5a Education, Training, and Workforce Development: General
5b. Cutting-Edge Techniques in Education and Training
5c. Student Design Competition
5d. The Innovations in Fuel Cycle Research Awards Program—A Student Competition
5e. U.S. DOE NEUP-Sponsored Student Research
5f. Advisory Council Metrics and Best Practices (P)
5g. Communicating the Benefits of Nuclear Energy in the Age of the Shale Gale–Panel
5h. Finding Common Ground with New Audience–Panel
5i. Research by U.S. DOE CASL Students (P)
5j. Cybersecurity Protecting our Digital Assets

6. Fuel Cycle and Waste Management

6a. Storage and Transportation of Used Nuclear Fuel
6b. Overview of Thorium Programs
6c. Thorium Resources, Recovery, and Fuel Fabrication
6d. Thorium Reactors [RPD]
6e. Thorium Fuel Reprocessing and Waste Management
6f. Preferred Thorium Fuel Cycles and Identification of Data Gaps (P)
6g. Factors Affecting Implementation of Industrial-Scale Used Fuel Recycle in the United States (P)
6h. Fuel Cycle and Waste Management: General
6i. Update on Status on Policy Issues in Waste Management (P)
6j. Recycle and Reuse of Nuclear Fuel Resources
6k. Progress in DOE's Fuel Cycle Research and Development Program (P)
6l. Low-Level Waste
6m. Fuel Cycle Options Analysis (P)

7. Human Factors, Instrumentation, and Controls

7a. Human Factors, Instrumentation, and Controls: General

8. Isotopes and Radiation

8a. Nuclear Measurements for Treaty Monitoring and Verification in Honor of Dr. Ned Wogman
8b. Radiation Imaging Applications in Medical Field and Industry
8c. Advancements in Nuclear Instrumentation and Measurement Technologies

9. Materials Science and Technology

9a. Nuclear Fuels
9b. Accident Tolerant Fuels
9c. Computational Modeling
9d. Used Nuclear Fuel Disposition
9e. Nuclear Structural Materials
9f. Advanced Measurements and Instrumentation
9g. Corrosion and Stress Corrosion Cracking

10. Mathematics and Computation

10a. Transport Methods: General
10b. Computational Methods: General
10c. Mathematical Modeling: General
10d. Uncertainty Quantification and Sensitivity Analysis Methods
10e. Current Issues in Computational Methods Roundtable

11. Nuclear Criticality Safety

11a. Recent Nuclear Criticality Safety Program Technical Accomplishments
11b. Data, Analysis, and Operations for Nuclear Criticality Safety
11c. Nuclear Criticality Safety Standards–Forum

12. Nuclear Installations Safety

12a. Safety Aspects of Utilization of LWR Type SMR for Industrial Process Heat and District (P)
12b. Specific Safety Aspects of SMR Reactors (P)
12c. Advances in Non-LWR Safety
12d. Hydrogen Safety
12e. Risk-Informed Technical Specification Initiatives
12f. Adequacy of Station Electric Distribution System Voltages: Degraded Voltage Protection
12g. Seismic Analysis Activities for Operating Reactors (I)
12h. Highlights From the NRC Regulatory Information Conference (RIC) 2014 (P)

2014 Winter Meeting: Session Titles by Division

12i. NRC's International Regulatory Development Partnership
12j. NRC Emergency Preparedness and Incident Response
12k. NRC Review of Advanced Reactor Designs
12l. Weld Residual Stress Analysis Validation Program
12m. Program to Assess the Reliability of Emerging Nondestructive Techniques (PARENT)
12n. NRC-Sponsored Environmentally Assisted Fatigue Research Activities
12o. Current Fire Research Activities
12p. Update on Lessons Learned from Fukushima (P)
12q. NRC Path Forward on NTTF Recommendation 1 (P)
12r. Current Topics in Probabilistic Risk Analysis
12s. Emerging Issues in Nuclear Facility Safety
12t. Nuclear Installations Safety: General

13. Nuclear Nonproliferation Technical Group

13a. Nuclear Nonproliferation Technical Group: General
13b. Integration of Safety-Security-Safeguards (3S) in Nuclear Facilities [NISD]
13c. International Approaches to Nuclear Nonproliferation and Nuclear Culture and Education [ETWDD]
13d. Nuclear Industry Role in Nonproliferation Initiatives (P) [OPD, YMG]
13e. HEU Minimization for Medical Isotope Production [IRD, YMG]
13f. Nuclear Nonproliferation and Foreign Ownership of U.S. Reactors (P)
13g. New Developments on Nuclear Trade Agreements (P) [OPD]
13h. International Safeguards for UF6 Containers [FCWMD]
13i. Global Threat Reduction Initiative (GTRI) Accomplishments & Challenges (P) [YMG]
13j. Nuclear Data for Nonproliferation and Safeguards Applications [RPSD, YMG]
13j. The Gulf Nuclear Energy Infrastructure Institute (GNEII): Human Capacity Building for Nuclear Energy for Countries New to Nuclear Energy

14. Operations and Power

14a. Post Fukushima Technology Enhancements to Improve Safety Margins
14b. Advanced/Gen-IV Reactors
14c. Operations and Power: General

15. Radiation Protection and Shielding

15a. Radiation Protection and Shielding: General
15b. Computational Tools for Radiation Protection and Shielding
15c. Radiation Protection and Shielding-Roundtable
15d. Transport Calculation Benchmark Solutions for Evaluated Shielding, Criticality, and Reactor Physics Problems
15e. Topics in Reactor Dosimetry
15f. MAVRIC Tutorial Session

16. Reactor Physics

16a. Core Design Perspective on Accident Tolerant Fuels
16b. Advances in Fast Reactor Designs and Concepts [FCWMD]
16c. Tutorial on Radiation Protection and Shielding in Aeronautics and Space Applications [ANSTD, RPSD]
16d. Physics of Compact Reactors for Terrestrial and Space Applications [ANSTD]
16e. Physics and Engineering Analysis of Sub-Critical Driven Systems [FCWMD, AAD, FED]
16f. Moose Multi Physics Tutorial
16g. Reactor Physics: General
16h. Reactor Physics Analysis Methods
16i. Reactor Physics Design, Validation and Operating Experience
16j. New Nuclear Data Formats and Processing Capabilities (P) [NCSD]

17. Robotics and Remote Systems

17a. Robotics and Remote Systems: General

18. Thermal Hydraulics

18a. General Thermal Hydraulics
18b. Computational Thermal Hydraulics
18c. Experimental Thermal Hydraulics
18d. State of the Art in Modeling Fuel Rod Ballooning, Fuel Relocation and High Burnup Issues in LOCA Evaluation Models
18e. Young Professional Thermal Hydraulics Research Competition [YMG]
18f. Experimental Capabilities in Support of Thermal Hydraulics
18g. Thermal Hydraulics Analyst 2.1 (P)
18h. Experimental Support for System Code Development and Validation: IETs and SETs (P)
18i. Subchannel Thermal Hydraulic Analysis

19. Computation Medical Physics Working Group

19a. Deterministic Computational Methods for Radiation Transport and Dosimetry in Medical Physics and Radiation Shielding [BMD, MCD, RPSD]

20. Fusion Energy

20a. U.S. Department of Energy—Light Water Reactor Sustainability (LWRS)

2014 ANS Winter Meeting and Nuclear Expo

2014 Winter Meeting: Technical Divisions

Accelerator Applications (AAD)
Erich Schneider, eschneider@mail.utexas.edu

Aerospace Nuclear Science and Technology (ANSTD)
Martin Sattison, martin.sattison@inl.gov

Biology and Medicine (BMD)
Rolf Zeisler, rolf.zeisler@nist.gov

Decommissioning and Environmental Sciences (ESD)
Eduardo Farfan, eduardo.farfan@srnl.doe.gov

Education, Training, and Workforce Development (ETWDD)
John Bennion, john.bennion@ge.com

Fuel Cycle and Waste Management (FCWMD)
Jean-Francois Lucchini, lucchinijf@pvtnetworks.net

Fusion Energy (FED)
Lee Cadwallader, lee.cadwallader@inl.gov

Human Factors, Instrumentation, and Controls (HFICD)
Sacit Cetiner, cetinerms@ornl.gov

Isotopes and Radiation (IRD)
Kenan Unlu, K-unlu@psu.edu

Materials Science and Technology (MSTD)
Kenneth J. Geelhood, kenneth.geelhood@pnl.gov

Mathematics and Computation (MCD)
Ryan McClarren, rmclarren@umich.edu

Nuclear Criticality Safety (NCSD)
Allison Miller, admille@sandia.gov

Nuclear Installations Safety (NISD)
Matthew Denman, mdenma@sandia.gov

Nuclear Nonproliferation Technical Group (NNTG)
Chris Robinson, robinsonrc@12doe.gov

Operations and Power (OPD)
Gale Hauck, hauckge@westinghouse.com

Radiation Protection and Shielding (RPSD)
Peter Caracappa, caracp3@rpi.edu

Reactor Physics (RPD)
Alexander Stanculescu, Alexander.Stanculescu@inl.gov

Robotics and Remote Systems (RRSD)
Carl D. Crane, ccrane@ufl.edu

Thermal Hydraulics (THD)
Elia Merzari, emerzari@anl.gov

Young Members Group (YMG)
Brett Rampal, bret.rampal@gmail.com

Computation Medical Physics Working Group
Rolf Zeisler, rolf.zeisler@nist.gov

Embedded Topical Meeting: 21st Topical Meeting on the Technology of Fusion Energy (TOFE)
November 9-13 2014 • Anaheim, California • Disneyland Hotel

EMBEDDED TOPICAL MEETING CHAIRS

General Chair:
Brian Wirth, University of Tennessee, Knoxville

Technical Program Chairs:
Vincent Chan, General Atomics
Rajesh Maingi, Princeton Plasma Physics Laboratory

Abstract submission deadline: May 30, 2014, with one-page summaries submitted electronically at www.ans.org/meetings. Publication of full papers will be available in a special issue of *Fusion Science and Technology,* with manuscripts due at the completion of the meeting.

About the meeting: The 21st TOFE will provide a forum to present recent results and advances in fusion technology and fundamental science obtained in either single effects laboratories or today's major experimental facilities, as well as to discuss the current status of ITER and the future of national and worldwide fusion programs. Special sessions are planned on the safety and environmental impact of fusion, and perspectives on a potential fusion nuclear science facility.

TECHNICAL TOPICS:

• Fusion Engineering and Science
- Progress of major facilities (e.g. ITER, Alcator C-Mod, DIII-D, NSTX-U, NIF)
- Plasma engineering, heating and cooling
- Plasma materials interactions
- Plasma diagnostics
- Magnets
- Alternate fusion concepts
- IFE specific areas

• Energy Development Facilities
- Materials behavior and component test facilities
- Power plant studies
- Perspectives on a Fusion Nuclear Science Facility (FNSF)
- Test blanket development, planning and testing for ITER
- Fuel handling and processing
- Computational tools and validation

• Extracting Fusion Power
- Power conversion
- Safety and Environmental impact of fusion
- Nuclear analysis (neutronics and shielding)
- Fuel cycle and breeding
- Divertors and high heat flux components
- Materials development and modeling

• Non-Electrical Fusion Applications (e.g., Propulsion)

For additional information, contact General Chair: Brian Wirth at bdwirth@utk.edu