2024 ANS Annual Conference

June 9–12, 2024 | Las Vegas, NV | The Mirage

CALL FOR PAPERS

EXECUTIVE CHAIRS

Technical Program Chair
Ray Klann (PNNL)

Assistant Program Chairs:
Christina Leggett (Booz Allen Hamilton)
John Bess (JFoster and Assoc.)

SUMMARY AND ABSTRACT DEADLINE: FRIDAY, FEBRUARY 2, 2024

FEBRUARY → SUBMISSION OF SUMMARIES AND ABSTRACTS: **Friday, February 2, 2024**

FEBRUARY → AUTHOR NOTIFICATION OF ACCEPTANCE: **Friday, February 23, 2024**

MARCH → REVISED SUMMARIES DUE: **Monday, March 11, 2024**

GUIDELINES FOR SUMMARIES

Please submit summaries describing work that is new, significant, and relevant to the nuclear industry. ANS will publish all accepted and presented summaries in the TRANSACTIONS. Summaries are presented orally at the conference, and presenters are expected to register for the conference. Non–U.S. attendees requesting a visa invitation letter: registrar@ans.org. Full papers based on summaries 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 before presentation at the ANS conference. It is the author's responsibility to protect classified, export-controlled, or proprietary information. Submit your summary via the ANS Electronic Paper Submission and Review (EPSR) portal; see link below.

FORMAT AND LENGTH

1. Use the ANS Template and Guidelines for TRANSACTIONS Summary Preparation provided at **ans.org/pubs/transactions**. Summaries that are not based on the ANS template will be rejected.
2. Summaries must be submitted as Adobe Acrobat PDF documents.
3. The minimum length is one full page.
4. The maximum length is four pages, including references, tables, and figures. After you save your document as a PDF, verify that it is still four or fewer pages.
5. Limit title to ten words; limit listing authors to three or fewer if possible.
6. Do not use all capital letters for the title or any part of the authors' names. For the title of the summary, Capitalize the First Letter of Major Words. Author names should be First Name or Initial(s) followed by Last Name.
7. The names of all authors should be entered into the Authors page in the EPSR. List the authors in the same order in which their names appear on the summary.
8. Do not use page numbers, headers, or footers. Do not save your PDF as "read only."
9. Keep the bottom margin clear so there is space for the ANS-applied footer and page number.

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.
6. If a disclaimer is required (e.g., related to the author's employer), it is the author's responsibility to include the disclaimer in the summary as either an end-of-summary note or footnote. Please ensure such footnotes do not interfere with the bottom margin, and do not format disclaimers as headers or footers.

LIGHTNING TALKS

If you are interested in making a brief presentation (fewer than 10 minutes) on a relevant technical topic in one of the technical subject areas but do not want to submit a summary, consider submitting an entry for a Lightning Talk to one of the Lightning Talk sessions listed on p. 2. Instead of a summary, submit a brief abstract. Use the **provided template**.

EXECUTIVE SESSIONS

Would you like to propose and arrange an Executive Session? If so, email the Program Specialist (contact information below). Executive Sessions take a broader look at developments in nuclear science and technology and their impact on policy and markets.

SUBMIT A SUMMARY OR ABSTRACT
https://epsr.ans.org/meeting/?m=346

PROGRAM SPECIALIST
Janet Davis
708-579-8253
jdavis@ans.org

2024 ANNUAL CONFERENCE: SESSION TITLES BY DIVISION (P) = Panel

1. ACCELERATOR APPLICATIONS (AAD)
1a. Accelerator Applications: General
1b. Accelerator Applications: Lightning Talks

2. AEROSPACE NUCLEAR SCIENCE AND TECHNOLOGY (ANSTD)
2a. Aerospace Nuclear Science and Technology: General
2b. Aerospace Nuclear Science and Technology: Lightning Talks

3. DECOMMISSIONING AND ENVIRONMENTAL SCIENCES (DESD)
3a. NTS/NNSS History of Environmental Remediation and Decommissioning (P)
3b. General Decommissioning (P)
3c. Decommissioning and Environmental Sciences: Lightning Talks

4. EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT (ETWDD)
4a. Cutting-Edge Techniques in Education, Training, and Distance Education
4b. Training, Human Performance, and Workforce Development
4c. Meeting the Educational Needs of Working Nuclear Professionals (online and/or certification programs)
4d. Innovations in Nuclear Curricula (energy, security, radiological)
4e. Focus on Communications: I (P)
4f. Focus on Communications: II (P)
4g. Education, Training, and Workforce Development: General
4h. Education, Training, and Workforce Development: Lightning Talks

5. FUEL CYCLE AND WASTE MANAGEMENT (FCWMD)
5a. Consent-Based Siting: Current Status and Key Considerations for Advancement (P)
5b. So you want to Recycle in the U.S.? (P)
5c. UNF as a Viable Fuel for Next Generation Electricity Production (P)
5d. Sustainability in Advanced Fuel Cycles (P)
5e. Advanced Reactor SNF Management - Strategies and Options (P)
5f. Progress Towards Establishing a Reliable Domestic HALEU Supply (P)
5g. Update on the International SNF Management Efforts (P)
5h. Automation and Artificial Intelligence (AI) / Machine Learning (ML) Applications for the Fuel Cycle and Waste Management
5i. Fuel Cycle Considerations of Advanced Reactors
5j. Research and Technical Challenges for Nuclear Waste Repositories
5k. Economics of the Backend of the Fuel Cycle
5l. Interim Storage and Disposal Activities Associated with Accident Tolerant Fuels and Advanced Reactor Fuels
5m. ARPA-E ONWARDS and CURIE Project Updates
5n. Advances in Reprocessing Flow Sheets
5o. Front End Activities for Reprocessing Facilities
5p. Front End Fuel Cycle Safeguards
5q. Modeling and Testing for UNF Storage, Integrity, and Transportation
5r. SNF Transportation, Systems, and Methods
5s. Innovative Methods to Monitor SNF
5t. Advances in Wet and Dry Storage of SNF
5u. Radiochemical Analysis and Inventory Reduction
5v. University Research in Fuel Cycle and Waste Management
5w. Fuel Cycle and Waste Management: General
5x. Fuel Cycle and Waste Management: Lightning Talks

6. FUSION ENERGY (FED)
6a. Fusion: General
6b. Fusion Energy: Lightning Talks

7. HUMAN FACTORS, INSTRUMENTATION, AND CONTROLS (HFICD)
7a. Advances in Sensors and Instrumentation
7b. Advances in Human Factors Engineering
7c. Autonomous Control of Reactor Technologies
7d. Cybersecurity in Wireless Technologies, Digital I&C, Digital Twins, and Human Factors
7e. Digital Twins and their Applications
7f. Emerging Topics in Artificial Intelligence and Machine Learning
7g. Human Reliability Analysis
7h. I&C Regulations, Standards, and Guidelines
7i. I&C for Flexible Plant Operations
7j. Online Monitoring, Diagnostics, and Prognostics
7k. Robotic Applications in Operation and Maintenance
7l. Remote Monitoring: I&C and Human Factor Considerations
7m. Advanced Technology and Business Processes for Sustaining the Nuclear Industry
7n. Automation of Light Water Reactors Operation and Maintenance (P)
7o. Extended Analysis of Human Factors for Security Issues and Advanced Operational Environment (P)
7p. Human Factors, Instrumentation, and Controls: General
7q. Human Factors, Instrumentation, and Controls: Lightning Talks

8. ISOTOPES AND RADIATION (IRD)
8a. Isotopes and Radiation: General
8b. Radiation Effects in Electronics and Electronic/Optical Materials
8c. Advancing Radionuclide Delivery Systems for Cancer Therapy
8d. Isotopes and Radiation: Lightning Talks

9. MATERIALS SCIENCE AND TECHNOLOGY (MSTD)
9a. Nuclear Fuels
9b. Accident Tolerant Fuels
9c. Fuels and Materials for Molten Salt Reactors
9d. Fuel and Materials for Fast Reactors
9e. In-Pile Testing of Nuclear Fuels and Materials
9f. Irradiation Experiments for Nuclear Materials and Fuels Research
9g. Sensors and In-Pile Instrumentation
9h. Environmental Degradation of Materials
9i. Advanced Manufacturing/Additive Manufacturing

9. MATERIALS SCIENCE AND TECHNOLOGY (MSTD) CONTINUED
9j. Artificial Intelligence and Machine Learning Applications in Nuclear Materials
9k. Nuclear Science User Facilities
9l. Actinide Science
9m. Sample Preparation and Examination of Materials for Low Energy Nuclear Reaction Experiments
9n. Materials Science and Technology: General
9o. Materials Science and Technology: Lightning Talks

10. MATHEMATICS AND COMPUTATION (MCD)
10a. Current Issues in Computational Methods – Roundtable (P)
10b. Transport Methods
10c. Computational Methods and Mathematical Modeling
10d. Uncertainty Quantification, Sensitivity Analysis, and Machine Learning
10e. Mathematics and Computation: General
10f. Mathematics and Computation: Lightning Talks

11. NUCLEAR CRITICALITY SAFETY (NCSD)
11a. Sharing of Good Industry Practices and/or Lessons Learned in NCS (P)
11b. Integration of NCS into Facility Maintenance (P)
11c. Innovation in Nuclear Criticality Safety
11d. Nuclear Data Needs for Nuclear Criticality Safety and Advanced Reactor Concepts
11e. Nuclear Criticality Safety: General
11f. Nuclear Criticality Safety: Lightning Talks

12. NUCLEAR INSTALLATIONS SAFETY (NISD)
12a. Nuclear Installations Safety: General
12b. Nuclear Installations Safety: Lightning Talks

Also see embedded topical meeting **Advanced Reactor Safety (ARS)**

13. NUCLEAR NONPROLIFERATION POLICY (NNPD)
13a. Capturing the Important Information Gathered at the 2023 ANTPC Embedded Topical in Washington, DC
13b. Status of Nuclear Arms Control Treaties and Policies Supporting Nonproliferation
13c. Science, Engineering, and Technology Supporting Nuclear Nonproliferation Efforts
13d. Nonproliferation Considerations and the Need for High-Assay Low-Enriched Uranium (HALEU) to Fuel Future Nuclear Reactors of Current Interest
13e. Reviewing the History of Nuclear Testing at the Nevada Test Site and Projecting into the Future of this Important Nuclear Capability
13f. Nuclear Nonproliferation Policy: General
13g. Nuclear Nonproliferation Policy: Lightning Talks

14. OPERATIONS AND POWER (OPD)
14a. Advanced Nuclear Reactors and Power Systems
14b. Energy Storage Integration with Nuclear Power Plants
14c. Hybrid and Integrated Energy Systems
14d. Nuclear Energy Markets, Financing, and Economics
14e. Operations and Power: General
14f. Operations and Power: Lightning Talks

Also see embedded topical meeting **International Congress on Advances in Nuclear Power Plants (ICAPP)**

15. RADIATION PROTECTION AND SHIELDING (RPSD)
15a. Radiation Protection and Shielding: General
15b. Computational Tools for Radiation Protection and Shielding
15c. Second Target Station and Proton Power Upgrade at SNS
15d. Radiation Protection and Shielding: Lightning Talks

16. REACTOR PHYSICS (RPD)
16a. Reactor Physics: General
16b. Reactor Physics Design, Validation and Operational Experience
16c. Reactor Physics of Advanced Reactors
16d. Reactor Physics of Micro Reactors for Terrestrial and Space Applications
16e. Advances in Reactor Design Methods
16f. Research Reactors in Support of Advanced Reactors R&D
16g. Early Career Reactor Physicist Award (P)
16h. Reactor Analysis Methods
16i. Overview of MARVEL Readiness (P)
16j. Reactor Physics: Lightning Talks

17. ROBOTICS AND REMOTE SYSTEMS (RRSD)
17a. Robotics and Remote Systems: General
17b. Robotics and Remote Systems: Lightning Talks

18. THERMAL HYDRAULICS (THD)
18a. General Thermal Hydraulics
18b. Computational Thermal Hydraulics
18c. Experimental Thermal Hydraulics
18d. Experimental Two-Phase Flow
18e. Computational Two-Phase Flow
18f. Advanced Reactor Thermal Hydraulics
18g. Hi-2-Low Multiscale Modeling
18h. Thermal Striping
18i. Fluid-Structure Interaction and Multiphysics Coupling
18j. Machine Learning and AI for Thermal Hydraulics
18k. Verification, Validation, and Uncertainty Quantification of Machine Learning Models (P)
18l. CFD and System Code Validation for HTGR Applications Leveraging HTTF Data (P)
18m. Enabling TH Technologies for Digital Twins (P)
18n. Thermal Hydraulics: Lightning Talks

2024 ANNUAL CONFERENCE TECHNICAL DIVISIONS

ACCELERATOR APPLICATIONS (AAD)
Lin Shao, lshao@tamu.edu

AEROSPACE NUCLEAR SCIENCE AND TECHNOLOGY (ANSTD)
Jeffrey King, kingjc@mines.edu

DECOMMISSIONING AND ENVIRONMENTAL SCIENCES (DESD)
Dustin Miller, DMiller@TerranearPMC.com
Jim Byrne, jbyrne4424@comcast.net

EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT (ETWDD)
Lisa Marshall, lisa.marshall@ncsu.edu

FUEL CYCLE AND WASTE MANAGEMENT (FCWMD)
Michael Smith, Michael.Smith@charlotte.edu
Leah Squires, Leah.Squires@inl.gov

FUSION ENERGY (FED)
Paul Humrickhouse, humrickhoupw@ornl.gov
Lauren Garrison, lgarrison@cfs.energy

HUMAN FACTORS, INSTRUMENTATION, AND CONTROLS (HFICD)
Vivek Agarwal, vivek.agarwal@inl.gov

ISOTOPES AND RADIATION (IRD)
Igor Jovanovic, ijov@umich.edu
Kenan Unlu, K-unlu@psu.edu

MATERIALS SCIENCE AND TECHNOLOGY (MSTD)
Kenneth Geelhood, Kenneth.Geelhood@pnnl.gov
Jake Quincey, quinceyj@oregonstate.edu

MATHEMATICS AND COMPUTATION (MCD)
Sebastian Schunert, sebastian.schunert@inl.gov
Koroush Shirvan, kshirvan@mit.edu

NUCLEAR CRITICALITY SAFETY (NCSD)
Ben Martin, benjamin.martin@pxy12.doe.gov
Amy Van Der Vyver, amy.vandervyver@sellafieldsites.com

NUCLEAR INSTALLATIONS SAFETY (NISD)
Mihai A. Diaconeasa, madiacon@ncsu.edu

NUCLEAR NONPROLIFERATION POLICY (NNPD)
Tom Hanlon, hanlonte@gmail.com
Jim Behrens, jwbehrens@comcast.net
Stefani Buster, srbuster@gmail.com

OPERATIONS AND POWER (OPD)
W. Neal Mann, wmann@anl.gov

RADIATION PROTECTION AND SHIELDING (RPSD)
Irina Popova, popovai@ornl.gov

REACTOR PHYSICS (RPD)
Max Fratoni, maxfratoni@berkeley.edu

ROBOTICS AND REMOTE SYSTEMS (RRSD)
Young Park, ypark@anl.gov
Adam Carroll, carrollaj@ornl.gov

THERMAL HYDRAULICS (THD)
Dillon Shaver, dshaver@anl.gov
Izabela Gutowska, izabela.gutowska@oregonstate.edu

YOUNG MEMBERS GROUP (YMG)
Evan Gonzalez, gonzalez121@llnl.gov
Pierre-Clement Simon, PierreClement.Simon@inl.gov