



# Annual Meeting 2022

June 12–16, 2022 | Anaheim, CA | Anaheim Hilton

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## CALL FOR PAPERS

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### EXECUTIVE CHAIRS

#### **General Chair**

Per Peterson (University of California Berkeley)

#### **Assistant General Chair**

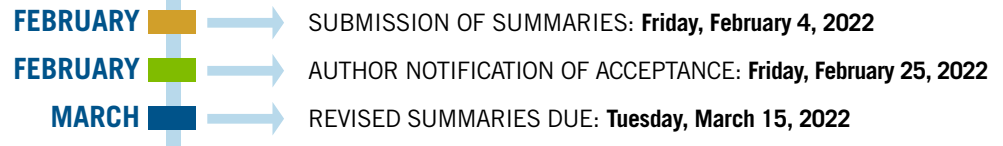
Lou Martinez (Kairos Power LLC)

#### **Technical Program Chair**

Kurshad Muftuoglu (Global Nuclear Fuel)

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### SUMMARY DEADLINE: FRIDAY, FEBRUARY 4, 2022



### 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. Summaries are presented orally at the meeting, and presenters are expected to register for the meeting. Non-U.S. attendees requesting a Visa or invitation letter: [registrar@ans.org](mailto: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 meeting. It is the author's responsibility to protect classified, export-controlled, or proprietary information.

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### FORMAT

Authors are required to use the ANS Template and Guidelines for TRANSACTIONS Summary Preparation provided at [ans.org/pubs/transactions](https://ans.org/pubs/transactions). Summaries must be submitted electronically using original Adobe Acrobat PDF documents and the ANS Electronic Paper Submission and Review (EPSR) system. Summaries not based on the ANS template will be rejected.

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### 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.
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### LENGTH AND PAGE CHARGES

1. The minimum length is one full page.
  2. The maximum length is four pages, including references, tables, and figures.
  3. Summaries will incur a \$50 per page publication fee.
  4. Limit title to ten words; limit listing authors to three or fewer if possible.
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### EXECUTIVE PANELS

Have an idea for an Executive Panel? If so, email the Program Specialist (contact information below). Executive Panels take a broader look at developments in nuclear science and technology and their impact on policy and markets.

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#### SUBMIT A SUMMARY

[epsr.ans.org/meeting/?m=312](https://epsr.ans.org/meeting/?m=312)

#### PROGRAM SPECIALIST

Janet Davis  
708-579-8253  
[jdavis@ans.org](mailto:jdavis@ans.org)



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## 2022 ANNUAL MEETING: SESSION TITLES BY DIVISION (P) = Panel

### 1. AEROSPACE NUCLEAR SCIENCE AND TECHNOLOGY (ANSTD)

- 1a. Aerospace Nuclear Science and Technology — General
- 1b. Space Nuclear Reactor Power Systems
- 1c. Nuclear Propulsion Systems

### 2. DECOMMISSIONING AND ENVIRONMENTAL SCIENCES (DESD)

- 2a. Commercial Decommissioning in the West (P)
- 2b. DOE Decommissioning in the West (P)
- 2c. Decommissioning on the Pacific Rim (P)
- 2d. Climate Effects on the West (P)
- 2e. General Topics in Decommissioning

### 3. EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT (ETWDD)

- 3a. Focus on Communications I (P)
- 3b. Focus on Communications II (P)
- 3c. Cutting-Edge Techniques in Education, Training, and Distance Education
- 3d. Training, Human Performance, and Workforce Development
- 3e. ANS Nuclear Grand Challenges I
- 3f. ANS Nuclear Grand Challenges II

### 4. FUEL CYCLE AND WASTE MANAGEMENT (FCWMD)

- 4a. Is All Plutonium Created Equal? (P)
- 4b. The Need for Sustainable Alpha-Related Skills Development (P)
- 4c. Update on Repository Status Around the World (P)
- 4d. Consent-Based Siting for Interim Storage Facilities (P)
- 4e. Molten Salt Properties, Chemistry, and Corrosion: Industrial Needs (P)
- 4f. Co-Siting Fuel Cycle and Other Nuclear Facilities at the Repository (P)
- 4g. Fuel Cycle and Waste Management: General
- 4h. University Research in Fuel Cycle and Waste Management
- 4i. Used Fuel Storage and Transportation
- 4j. Practical and Deployable Antineutrino Detection for Reactor Fuel Cycle Monitoring
- 4k. Safeguards and Security Challenges for Advanced Reactor Fuel/Waste Streams
- 4l. Waste Stabilization/Treatment
- 4m. Applications for AI/ML in Fuel Cycle and Waste Management QA Operations
- 4n. International Progress in Siting and Building a Repository
- 4o. NEW! Lightning Posters (Short Presentation Followed by Poster)

### 5. HUMAN FACTORS, INSTRUMENTATION, AND CONTROLS (HFICD)

- 5a. General Topics in HFE
- 5b. General Topics in I&C
- 5c. I&C and HFE Considerations for Decision Support Systems
- 5d. Advanced Visualization and Human Machine Interface
- 5e. Human Machine Interface Design for Microreactors and Advanced Reactors (P)
- 5f. Computer-Based Procedures
- 5g. Automated Work Packages
- 5h. Human Factors Impacts of Automation
- 5i. Implications of ML and AI for HFE and I&C
- 5j. HFE and I&C Aspects of Cyber- and Physical-Security for Nuclear Installations
- 5k. Autonomous Operation and Maintenance
- 5l. Standards for Digital I&C (P)
- 5m. Sensors and Communication
- 5n. Risk-Informed Operations and Maintenance
- 5o. Embedded Sensing
- 5p. Digital Twins

### 6. ISOTOPES AND RADIATION (IRD)

- 6a. Isotopes and Radiation: General
- 6b. Art of the Possible: Expanding the Potential of University Nuclear Programs through Enhanced Infrastructure Investments (P)

### 7. MATERIALS SCIENCE AND TECHNOLOGY (MSTD)

- 7a. Fuel and Materials for Molten Salt Reactors
- 7b. In-Pile Testing of Nuclear Fuels and Materials
- 7c. Advanced Manufacturing/Additive Manufacturing
- 7d. Sensors and In-Pile Instrumentation
- 7e. Nuclear Science User Facilities
- 7f. Accident Tolerant Fuels
- 7g. Nuclear Fuels
- 7h. Aging of Materials
- 7i. Fuels and Materials for Fast Reactors
- 7j. Irradiation Experiments for Nuclear Materials and Fuels Research

### 8. MATHEMATICS AND COMPUTATION (MCD)

- 8a. Current Issues in Computational Methods-Roundtable (P)
- 8b. Transport Methods
- 8c. Computational Methods and Mathematical Modeling
- 8d. Uncertainty Quantification, Sensitivity Analysis, and Machine Learning
- 8e. Numerical Methods for Space Nuclear Power and Propulsion

### 9. NUCLEAR INSTALLATIONS SAFETY (NISD)

- 9a. Current Topics in Probabilistic Risk Analysis
- 9b. Nuclear Installations Safety: General
- 9c. Test and Demonstration Reactors for Non-LWR Technologies (P)
- 9d. Emergent Topics for PRA Standards (P)
- 9e. Digital Twins for Risk and Safety Assessments (P)
- 9f. Overview of VTR Safety Experiments and Capabilities (P)

### 10. NUCLEAR NONPROLIFERATION POLICY (NNPD)

- 10a. Technology and Policy Advancements in Nuclear Nonproliferation

### 11. OPERATIONS AND POWER (OPD)

- 11a. Operations and Power: General
- 11b. Advanced Nuclear Reactors and Power Systems
- 11c. Energy Storage Integration with Nuclear Power Plants
- 11d. Hybrid and Integrated Energy Systems

### 12. RADIATION PROTECTION AND SHIELDING (RPSD)

- 12a. Accelerator Shielding and Dosimetry
- 12b. Radiation Detection
- 12c. Radiation Protection and Shielding General
- 12d. Computational Methods for Radiation Protection and Shielding
- 12e. Computational Human Phantoms
- 12f. CAD-to-Transport for Radiation Protection and Shielding
- 12g. Million Person Study Methods and Results

### 13. REACTOR PHYSICS (RPD)

- 13a. Reactor Physics: General
- 13b. Reactor Analysis Methods
- 13c. Reactor Physics Design, Validation and Operational Experience
- 13d. Reactor Physics of Advanced Reactors
- 13e. Reactor Physics of Micro Reactors for Terrestrial and Space Applications
- 13f. Advances in Reactor Design Methods
- 13g. Versatile Test Reactor - Current Developments
- 13h. Versatile Test Reactor - Current Developments (P)
- 13i. Current Issues in LWR Core Design and Reactor Engineering Support
- 13j. Transformational Challenge Reactor - Current Developments
- 13k. Transformational Challenge Reactor - Current Developments (P)
- 13l. Research Reactors in Support of Advanced Reactors R&D (P)
- 13m. Research Reactors in Support of Advanced Reactors R&D
- 13n. Advances in Education in Criticality Evaluations and Reactor Physics (P)
- 13o. Sensitivity and uncertainty analysis in reactor physics

### 14. ROBOTICS AND REMOTE SYSTEMS (RRSD)

- 14a. Robotics and Remote Systems: General

## 2022 ANNUAL MEETING: TECHNICAL DIVISIONS

### AEROSPACE NUCLEAR SCIENCE AND TECHNOLOGY (ANSTD)

Jeffrey King, kingjc@mines.edu

### DECOMMISSIONING AND ENVIRONMENTAL SCIENCES (DESD)

Dustin Miller, Dustin.Miller@jacobs.com  
Jim Byrne, jbyrne4424@comcast.net

### EDUCATION, TRAINING, AND WORKFORCE DEVELOPMENT (ETWDD)

Lisa Marshall, lisammarshall@yahoo.com

### FUEL CYCLE AND WASTE MANAGEMENT (FCWMD)

Christina Leggett, Christina.Leggett@hq.doe.gov  
Ben Cipiti, bbcipit@sandia.gov

### FUSION ENERGY

Lauren Garrison, garrisonlm@ornl.gov

### HUMAN FACTORS, INSTRUMENTATION, AND CONTROLS (HFICD)

Jamie Coble, jcoble1@utk.edu

### 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

### MATHEMATICS AND COMPUTATION (MCD)

Brian Kiedrowski, bckiedro@umich.edu  
Sebastian Schunert, sebastian.schunert@inl.gov

### NUCLEAR CRITICALITY SAFETY (NCSD)

Vladimir Sobes, sobesv@utk.edu  
Ben Martin, benjamin.martin@cns.doe.gov

### NUCLEAR INSTALLATIONS SAFETY (NISD)

Askin Guler Yigitoglu, yigitoglu@ornl.gov  
Aaron Epiney, aaron.epiney@inl.gov

### NUCLEAR NONPROLIFERATION POLICY (NNPD)

Stefani Buster, srbuster@ncsu.edu  
Jim Behrens, jwbehrens@comcast.net

### OPERATIONS AND POWER (OPD)

W. Neal Mann, wmann@anl.gov

### RADIATION PROTECTION AND SHIELDING (RPSD)

Amir Bahadori, bahadori@ksu.edu

### REACTOR PHYSICS (RPD)

Max Fratoni, maxfratoni@berkeley.edu

### ROBOTICS AND REMOTE SYSTEMS DIVISION (RRSD)

Brian O'Neil, oneil@lanl.gov

### THERMAL HYDRAULICS (THD)

Igor Bolotnov, igor\_bolotnov@ncsu.edu  
Dillon Shaver, dshaver@anl.gov

### YOUNG MEMBERS GROUP (YMG)

Julianne McCallum, jgm@nei.org  
Alisha Kasam-Griffith, akasam@anl.gov

## EMBEDDED TOPICAL MEETINGS

### FUSION ENERGY (FED)

Sponsoring **Technology of Fusion Energy (TOFE)**  
[ans.org/meetings/view-312/](https://ans.org/meetings/view-312/)

### NUCLEAR CRITICALITY SAFETY (NCSD)

Sponsoring **Nuclear Criticality Safety Division Topical Meeting (NCSD 2022)**  
[ans.org/meetings/file/view-1080/](https://ans.org/meetings/file/view-1080/)

### THERMAL HYDRAULICS (THD)

Sponsoring **Advances in Thermal Hydraulics (ATH 2022)**  
[ans.org/meetings/view-1081/](https://ans.org/meetings/view-1081/)