



# PSA 2023

## 18th International Probabilistic Safety Assessment and Analysis

July 15–20, 2023 | Knoxville, Tennessee, USA | Knoxville Convention Center

Co-located with NPIC&HMIT 2023 [ans.org/meetings/npic13psa2023/](https://ans.org/meetings/npic13psa2023/)



## CALL FOR PAPERS

### EXECUTIVE CHAIRS

#### *Honorary Chair*

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Mike D. Muhlheim, Oak Ridge National Laboratory

#### *Assistant General Chair*

Alex Huning, Oak Ridge National Laboratory

#### *Technical Program Chair*

Askin Guler Yigitoglu, Oak Ridge National Laboratory

#### *Publications Chair*

Mihai A. Diaconeasa, North Carolina State University

### PUBLICATION DEADLINES

- DECEMBER** → ABSTRACT SUBMISSION: **Tuesday, December 6, 2022**
- DECEMBER** → ABSTRACT REVIEW NOTIFICATION: **Monday, December 19, 2022**
- MARCH** → FULL PAPERS: **Tuesday, March 7, 2023**
- APRIL** → FULL PAPER REVIEW ACCEPTANCE NOTIFICATION: **Monday, April 10, 2023**
- MAY** → FINAL CAMERA-READY PAPERS SUBMISSION: **Monday, May 1, 2023**

### MEETING DESCRIPTION

Since 1978, the ANS biennial topical conference on Probabilistic Safety Assessment (PSA) has been a worldwide forum for communication of major probabilistic risk and safety topics, including issues, methods, applications, insights, policy, research, and risk-informed regulation experience. The 18th PSA meeting, sponsored by the ANS Nuclear Installations Safety Division, will highlight the role of probabilistic methods in understanding uncertainties, improving the safety and security of the current nuclear facilities, and supporting the design and other risk-informed applications of the next generation of reactors.

PSA 2023 will be of interest to those working in traditional applications such as nuclear reactor facilities, non-reactor installations, processing, decontamination and decommissioning, and storage as well as other nontraditional areas where probabilistic safety approaches are applied. The meeting welcomes the submission of full-length technical papers, which will be peer reviewed and published as conference proceedings. Papers will be scheduled for either podium or poster presentation at the discretion of the meeting organizers.

Detailed information and announcements regarding the conference will be posted on [ans.org/meetings/psa23/](https://ans.org/meetings/psa23/)

### ABSTRACT GUIDELINES

Maximum of one page identifying title, authors, affiliations, and two to three paragraphs (total fewer than 500 words) describing the key concepts of the paper. A wide range of topic areas are highlighted in the next page of this call. The abstract template is on the NPIC&HMIT 2023 and PSA 2023 [resources page](#).

### FULL PAPER SUBMISSION

Full papers must describe work that is new, significant, and relevant to risk assessment and risk-informed decision making. The limit for full-paper submissions is 10 pages. Papers exceeding 10 pages will be rejected. If an exception is made and a paper over 10 pages is accepted, page charges are \$100/page for p. 11 and above.

Authors of accepted papers must agree to register and attend the conference and present their papers. Papers that are not presented in person at the conference will not appear in the final conference publication. Selected papers will be invited to submit extended manuscripts for publication as a special issue in *Nuclear Technology*.

### SUBMIT AN ABSTRACT

<https://epsr.ans.org/meeting/?m=364>

### PROGRAM SPECIALIST

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## SUGGESTED TOPICS

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### P1: PSA ANALYSES (METHODS AND APPLICATIONS)

1. Level 1, 2, 3 PSA Applications
2. Full Scope PSA Models and Applications
3. Low Power and Shutdown PSA
4. Multi-Unit Risk
5. Cyber Security/Risk
6. Extended Accident Risk, FLEX Effectiveness
7. External Single and Multi-Hazards PSA
8. Internal Single and Multi-Hazards PSA
9. Risk-Informed Physical Security
10. Risk-Informed Proliferation
11. Transportation Risks
12. Risk-Informed Onsite Waste Storage
13. Repository PSA
14. Advanced Reactor Source Terms
15. Micro-reactor PSAs
16. SMR PSAs
17. Non-LWR PSAs
18. Hybrid and Integrated Energy Systems Safety
19. Test/Research Reactor and Non-Researcher Nuclear Facilities
20. Space Flight Risk
21. Grid Resiliency and Reliability
22. Fuel Cycle Accident Risk
23. Risk Management
24. Economic Risks
25. Health Risks

### P2: SAFETY ASSESSMENT TOPICS, SOFTWARES, METHODS AND TOOLS (ADVANCED METHODS/TOOLS)

1. Human Reliability Analysis
2. Dependent Failure Analysis
3. Margin Assessment
4. Uncertainty Quantification/Treatment of Uncertainties
5. Sensitivity Analysis
6. Data Analytics and Artificial Intelligence
7. Digital Twins
8. Machine Learning
9. Dynamic PSA
10. Computational Risk
11. Component Reliability
12. Digital I&C and Software Reliability
13. Passive System Reliability
14. Safety Culture, Socio-Technical and Organizational Risk
15. Hazard Analysis
16. Integrated Safety Assessment
17. Lifetime and Aging Management
18. Availability Modeling and Maintenance Optimization
19. Operational Experience and Data Analysis
20. Characterization of Risks
21. Risk Tradeoffs
22. PSA Verification and Validation

### P3: STANDARDS /TRAINING /REGULATION

1. Risk-Informed, Performance-Based Regulation
2. 10 CFR Part 53: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors
3. Risk-Informed Management Programs (Technical Specifications, Maintenance, Internal Fire, NFPA 805)
4. Light Water Reactor PSA Standards
5. Advanced Reactor PSA Standards
6. Risk-Informed, Technology-Inclusive Design Standards
7. Incorporation of Risk in Decision-Making
8. Risk Acceptability Criteria
9. Consideration of Risk Regulations
10. Knowledge Management

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**NOTE:** The topics listed above are not session titles; they are provided as a guide. The PSA 2023 Technical Program Committee will be happy to expand the areas and include new sessions in the program. Please contact Technical Program Chair Askin Guler Yigitoglu at [yigitoglu@ornl.gov](mailto:yigitoglu@ornl.gov) to discuss new and alternative concepts.

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