



# PSA 2025

19<sup>th</sup> International Conference on Probabilistic Safety Assessment and Analysis

June 15–18, 2025 | Chicago, IL | Chicago Marriott Downtown

Embedded in the 2025 ANS Annual Conference



## CALL FOR PAPERS

### EXECUTIVE CHAIRS

**Honorary Chair**

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**Technical Program Chair**

Dave Grabaskas, Argonne National Laboratory

**General Chair**

Rick Grantom, CRG

**Publications Chair**

Zahra Mohaghegh, University of Illinois Urbana-Champaign

### KEY DATES

- OCTOBER** → ABSTRACTS DUE: **October 14, 2024**
- NOVEMBER** → AUTHOR NOTIFICATION: **November 8, 2024**
- FEBRUARY** → FULL PAPERS DUE: **February 3, 2025**
- MARCH** → AUTHOR NOTIFICATION: **March 3, 2025**
- MARCH** → FINAL PAPERS DUE: **March 17, 2025**

### CONFERENCE 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 19th 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, licensing, operation, and other risk-informed applications of the next generation of reactors.

PSA 2025 is structured to foster interaction and collaboration across topic areas, leading to increased understanding and application of PSA in all phases of nuclear power plant design and operation. The use of PSA has continually increased over the last decade with reliance on PSAs and associated risk-informed applications at its highest point in nuclear industry history.

### STUDENT COMPETITION

We welcome and encourage students to submit papers to this conference. Please ensure that abstracts/papers for which the Primary Author is a student are identified as such in the yes/no student-status question in the Authors section of the EPSR. Judges will use this information to identify the conference’s best student papers, which will receive a cash prize.

### SPECIAL ISSUE

Outstanding papers will be selected for publishing in a special issue of *Nuclear Technology*. *Nuclear Technology* is the leading international publication reporting new information on the practical application of nuclear science for peaceful uses.

### ABSTRACT GUIDELINES

We are first soliciting abstracts with a maximum length of one page to be reviewed. Full papers with a length of 7-10 pages will be required if the abstract is accepted. Abstracts should include an identifying title, authors, affiliations, and two to three paragraphs (total fewer than 500 words) describing the key concepts of the paper. [Use the provided template](#). A wide range of topic areas are highlighted on p. 2; however, papers regarding safety and risk beyond the listed topics are also encouraged.

For those interested in organizing panel sessions, please prepare and submit an abstract with a description of the session and potential speakers. For those interested in organizing workshops or similar, please contact the conference organizers.

### SUBMIT AN ABSTRACT

<https://epsr.ans.org/meeting/?m=422>

### PROGRAM SPECIALIST

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## SUGGESTED TOPICS

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### 1. PSA METHODS, ANALYSES, AND APPLICATIONS

- 1.1. Level 1, 2, 3 PSA Applications
- 1.2. Full Scope Internal/External Event PSA Models, Applications, Feedback, and Lessons Learned
- 1.3. Low Power and Shutdown PSA
- 1.4. Multi-Unit Risk
- 1.5. Risk Informed Cyber Security
- 1.6. Extended Accident Risk, FLEX Effectiveness
- 1.7. Aggregation and Integration of PSA Hazard Group Models
- 1.8. Risk-Informed Physical Security
- 1.9. Proliferation Risks
- 1.10. Transportation Risks
- 1.11. Risk-Informed Onsite Waste Storage
- 1.12. Repository PSA
- 1.13. Micro-reactor PSAs
- 1.14. SMR PSAs
- 1.15. Non-LWR PSAs
- 1.16. Risk Analysis of Hybrid and Integrated Energy Systems
- 1.17. Risk Analysis for Test/Research Reactor and Non-Reactor Nuclear Facilities
- 1.18. Grid Resiliency and Reliability
- 1.19. Fuel Cycle Accident Risk
- 1.20. Non-Core Radioactivity Source Risk
- 1.21. Risk Management
- 1.22. Economic Risks
- 1.23. Health Risks
- 1.24. Risk Tradeoffs
- 1.25. Characterization of Risks
- 1.26. PSA Verification and Validation
- 1.27. PSA Tool Development
- 1.28. Dynamic PSA
- 1.29. Simplified Risk Assessments
- 1.30. Risk-Informed Margins Methods
- 1.31. Success Path Methods
- 1.32. PSA Software and Tools
- 1.33. Safety Culture, Socio-Technical and Organizational Safety Risk Analysis

### 2. SAFETY ASSESSMENT METHODS, ANALYSES, AND APPLICATIONS

- 2.1. Plant Response to Events
- 2.2. Safety Assessment
- 2.3. Human Reliability Analysis
- 2.4. Dependent Failure Analysis
- 2.5. Margin Assessment
- 2.6. Uncertainty Quantification/Treatment of Uncertainties Sensitivity Analysis
- 2.7. Digital Twins and Risk Analysis
- 2.8. Artificial Intelligence and Machine Learning for Risk Analysis
- 2.9. Component Reliability
- 2.10. Source Term Analysis
- 2.11. Digital I&C and Software Reliability
- 2.12. Passive System Reliability
- 2.13. Integrated Safety Assessment
- 2.14. Long Term Operations and Risk Informed Aging Management
- 2.15. Availability Modeling and Maintenance Optimization
- 2.16. Operational Experience and Data Analysis

### 3. RISK-INFORMED REGULATION, STANDARDS, AND DECISION-MAKING

- 3.1. Risk-Informed, Performance-Based Regulation
- 3.2. Risk-Informed Licensing Strategies
- 3.3. 10 CFR 50.69 Alternative Treatment Approaches and Applications
- 3.4. 10 CFR Part 53: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors
- 3.5. Licensing Modernization Project Feedback and Lessons Learned
- 3.6. Risk-Informed Management Programs (Technical Specifications, Maintenance, Internal Fire, NFPA 805)
- 3.7. Risk Informed Codes and Standards
- 3.8. Risk-Informed, Technology-Inclusive Design Standards
- 3.9. Risk-Informed Design and Construction
- 3.10. Risk-Informed Surveillance Program
- 3.11. Risk-Informed Technical Specifications
- 3.12. Risk-Informed Emergency Planning
- 3.13. Cost Savings through Risk-Informed Methods
- 3.14. Incorporation of Risk Insights in Decision-Making
- 3.15. Establishing Risk Acceptance Criteria
- 3.16. Consideration of Risk-Informed Regulations
- 3.17. Knowledge Transfer and Management