



2024 International Congress on Advances in Nuclear Power Plants

EMBEDDED IN THE ANS ANNUAL CONFERENCE

June 16–19, 2024 | Las Vegas, NV | Mandalay Bay Resort And Casino



CALL FOR PAPERS

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Massachusetts Institute of Technology (USA)

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Idaho National Laboratory (USA)

W. Neal Mann
Argonne National Laboratory (USA)



PAPER DEADLINE: FRIDAY, JANUARY 29, 2024

JANUARY

SUBMISSION OF PAPERS: **January 29, 2024**

FEBRUARY

AUTHOR NOTIFICATION OF ACCEPTANCE: **February 16, 2024**

MARCH

REVISED PAPERS DUE: **March 11, 2024**

CONGRESS OVERVIEW

The International Congress on Advances in Nuclear Power Plants (ICAPP) provides a forum for leaders of the nuclear industry to exchange information, present results from their work, review the state of the industry, and discuss future directions and needs for the deployment of new nuclear power plant systems around the world. ICAPP will gather industry leaders in several invited lectures in plenary sessions.

This Congress welcomes the submission of full-length technical papers that will be peer reviewed and, if presented, published. All authors will present their papers in English. About 20 minutes will be allotted for each presentation.

ICAPP 2024 will be held as an international embedded topical meeting during the 2024 American Nuclear Society Annual Conference, and the registration fee will give access to both conferences.

PLENARY SESSIONS

ICAPP 2024 will feature two dedicated plenary sessions with the following themes: “Unlocking the Potential of the Nuclear Industry for a New and Secure Global Energy Paradigm” and “Decarbonization: The Key to a Nuclear Energy Comeback.”

PAPER SUBMISSION PROCESS

Authors should submit full-length papers (7–10 pages) to the ANS Electronic Paper Submission and Review (EPSR) portal; see link below. Papers will be reviewed for topicality, significance, and novelty. Authors of accepted papers must present their papers at the Congress in order to be published in the proceedings. Please closely follow the important deadlines above. The full paper template is on the [ICAPP meeting page](#).

PAGE CHARGES

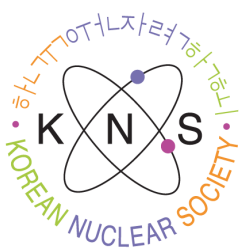
All full papers are limited to 10 pages. If an exception is made and a paper over 10 pages is accepted, there will be a page charge of \$100 per page starting with p. 11.

SUBMIT A PAPER

epsr.ans.org/meeting/?m=405

PROGRAM SPECIALIST

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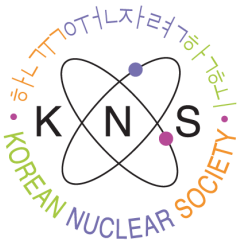
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TECHNICAL TRACKS



1. NUCLEAR POWER PLANTS

Reactors designed to produce electricity for wide-area synchronous grids or microgrids; various power scales (kilowatt to gigawatt), operating temperatures, coolants, and neutron energy spectra; design and development issues; improved power conversion, resource utilization, and/or waste characteristics.

2. REACTORS FOR HEAT AND COMBINED HEAT AND POWER

Reactors designed to produce industrial process heat, district heat, liquid and gaseous fuels (including hydrogen), hybrid and integrated energy systems (including energy storage), cogeneration; various power scales (kilowatt to gigawatt), operating temperatures, coolants, and neutron energy spectra; design and development issues.

3. PORTABLE AND PROPULSION REACTORS

Reactors designed for remote operations, disaster relief and recovery, space exploration, propulsion/locomotion on land/air/water/space; various power scales (kilowatt to megawatt), operating temperatures, coolants, and neutron energy spectra; design and development issues.

4. NON-ENERGY APPLICATIONS OF REACTORS

Reactors not designed for energy production; radionuclide production, actinide management; research, test, and demonstration platforms; various power scales (kilowatt to gigawatt), operating temperatures, coolants, and neutron energy spectra; design and development issues.

5. REACTOR PHYSICS

Nuclear data libraries and related error files, lattice calculation, deterministic and Monte Carlo approaches, core calculation, multi physics coupling, physics of new fuels, new fuel management, new reactor core designs, characterization of spent fuels.

6. THERMAL HYDRAULICS

Experimental techniques and measurements, phenomena identification and ranking, computer code scaling applicability and uncertainty quantification, containment thermal hydraulics, separate and integral effect tests, improved code development and qualification, single and two-phase flow heat transfer, advanced computational thermal hydraulic methods; single and two phase CFD.

7. FUELS, MATERIALS, AND STRUCTURES

Fuel, core, reactor pressure vessel and internal structures, advanced materials issues, environmental effects and fracture mechanics, concrete and steel containment design and analysis, design and monitoring for seismic, dynamic and extreme accidents, irradiation issues, materials and structural mechanics issues, aging material issues, codes and standards for new plant designs.

8. PLANT SAFETY, REGULATIONS, AND LICENSING

Transient and accident performance including LOCA and non-LOCA, severe accident analysis, nuclear plant security, advances in regulatory issues for operating and future plants, life assessment and management of aging, probabilistic safety assessment and reliability engineering, new methodologies for plant safety analysis and licensing, fire protection, emergency preparedness, used fuel storage and transportation; reactor licensing, advanced reactor design certification, combined license, and multinational design license application and evaluation.

Authors with expertise in the safety of advanced reactors are encouraged to submit papers to Advanced Reactor Safety (ARS) 2024 being held concurrently with ICAPP 2024. See ans.org/meetings/view-346/.

9. MARKETS AND FINANCING

Interdisciplinary modeling and analysis, market-level nuclear power plant deployment modeling, innovative approaches to nuclear project financing, economics-based optimization methods, business and economic challenges.

10. INNOVATIVE MANUFACTURING AND CONSTRUCTION

Improved construction techniques including factory fabrication, additive manufacturing, on-site manufacturing, and modular construction, supply chain readiness.

11. OPERATION, PERFORMANCE & RELIABILITY MANAGEMENT

O&M costs, life cycle management, risk-based maintenance, operational experiences, performance and reliability improvements, outage optimization, human factors, plant staffing, major component reliability, repair and replacement, in-service inspection, codes & standards, supply chain management and resilience, long-term operations and life extensions.

12. FUEL CYCLE & WASTE MANAGEMENT

TRU separation processes, fuel and target design for transmutation, partitioning and transmutation (P&T) deployment, waste minimization, advanced reprocessing processes and technologies, nuclear material recycling technologies, modeling of processes, back-end fuel cycle options, uranium and plutonium management issues, waste conditioning storage and disposal, thorium cycles, Accelerator Driven Systems (ADS), fuel supply chains, non-proliferation concerns.