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PROGRAM SPECIALIST

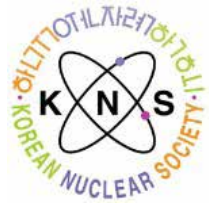
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TopFuel 2025: Nuclear Reactor Fuel Performance Conference

Fueling the Future – Building on our Legacy

October 5–9, 2025 | Nashville, TN | DoubleTree, Downtown Nashville

EXECUTIVE CHAIRS

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ABSTRACT DEADLINE: FEBRUARY 7, 2025

**SUBMISSION OF
ABSTRACTS**
FEBRUARY 7, 2025

**AUTHOR NOTIFICATION OF
ACCEPTANCE (ABSTRACTS)**
MARCH 7, 2025

FULL PAPERS DUE
MAY 9, 2025

**AUTHOR NOTIFICATION OF
ACCEPTANCE (FULL PAPERS)**
JUNE 12, 2025

**FINAL FULL PAPERS
(CAMERA READY) DUE**
JULY 7, 2025

TopFuel 2025 is the leading international conference on new developments in nuclear reactor fuel performance. Held annually and rotating between Asia, Europe, and the US, this event gathers experts from around the world. The theme for the 2025 meeting is “Fueling the Future – Building on our Legacy.” It reflects our commitment to advancing nuclear fuel technology while honoring the achievements that have brought us to this point. This year, the conference will continue to emphasize Light Water Reactor (LWR) fuel performance while also expanding to include Advanced Reactor fuels. Attendees will have the opportunity to explore the latest innovations, share research, and collaborate on the future of nuclear energy.

ABSTRACT GUIDELINES

Maximum of one page identifying title, authors, affiliations, and three paragraphs (total fewer than 500 words) describing the key concepts of the paper. A wide range of topic areas are highlighted on p. 2. The abstract template is on the [TopFuel web page](#). Additionally, please follow these formatting/submittal guidelines:

- Do not use all capital letters for the title or any part of any authors' names. For the title of the abstract, Capitalize the First Letter of Major Words. Author names should be First Name or Initial(s) followed by Last Name.
- The names of all authors should be entered into the Authors page in the Electronic Paper Submission and Review (EPSR) system. List the authors in the same order in which their names appear in the abstract. Author information in the conference program is derived from the entries in the EPSR's Authors page.
- In the EPSR, authors' affiliations should match the affiliation provided in the abstract itself. If an author has multiple affiliations, enter the ONE that should be included in the program, assuming the abstract and subsequent paper are accepted.

FULL PAPER SUBMISSION

Authors of accepted abstracts will be invited to submit full papers that are 3-10 pages in length. Full papers must describe work that is new, significant, and relevant to the conference. The limit for full-paper submissions is 10 pages. If 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.

TRACKS**I. Operation and Experience**

1. Fuel operating experience and performance: reliability and leakers, fuel assembly and component distortion, degradation and failures, handling issues, water-side corrosion and hydriding, stress corrosion cracking, poolside examination and hot cell PIE;
2. Fuel assembly repair and reconstitution;
3. Failed fuel monitoring, water chemistry and corrosion/crud/dose countermeasures;
4. In core fuel management: mixed core operation; reload variability; flexible operation (power modulation or load follow), extended operating domain, end of reactor life (management of final cycles);
5. Fuel supply strategy;
6. Fluence reduction to reactor components.

II. Advances in Designs, Materials, and Manufacturing

1. Fuel assembly design innovations;
2. Processing and manufacturing including progress in additive manufacturing;
3. Cladding and structural materials development; mechanical and corrosion behavior; irradiation experience in materials testing reactors (MTRs);
4. Fuel design improvements for higher than 5% enrichment, high burnup, fluence reduction and efficient disposal;
5. Development strategy for SMR fuels.

III. Evolutionary and Innovative Advanced Technology Fuels (ATF)

1. In-MTR and in-LWR LTR / LTA experience with advanced fuel and control rod designs, fuel pellet, cladding and component materials behavior;
2. Qualification, licensing, deployment scenarios;
3. Life-cycle implementation from manufacturing to reactor operation and back-end;
4. In-reactor performance of ATFs in normal operation and AOOs;
5. Economics aspects of ATFs deployment strategy

IV. Modeling, Analysis, and Methods

1. Development, verification, validation, and uncertainty quantification (VVUQ) of fuel performance modelling codes;
2. Multi-physics multi-scale modelling; water chemistry and crud modelling;
3. Validation databases;
4. Transposition to in-reactor and back-end conditions;
5. Fuel design and safety analysis methods, including uncertainty analysis;
6. Data-driven and artificial intelligence technology applications;
7. Modelling of ATF and SMR fuels.

V. Transient Fuel Behavior and Safety Related Issues

1. Transient fuel behavior (RIA, LOCA, ATWS, PCI/SCC, PCMI, post-CHF)
2. Safety and design criteria (including DEC conditions), safety analysis and licensing for current fuel and ATF;
3. Fuel safety related issues (e.g., fuel fragmentation, relocation, and dispersal; long term coolability; re-criticality; transient fission gas release; cladding ballooning and burst mechanisms; fuel behavior under extended loss of cooling);
4. Quantification and management of margins;
5. Small- and large-scale fuel testing facilities;
6. In-pile and out-of-pile test results and analyses.

VI. Used Fuel Storage, Transportation, and Re-Use

1. Closed fuel cycles and strategies
2. Re-use after transportation/storage;
3. Interim storage, dry storage, wet storage, and long-term storage strategies (including ATF);
4. Handling and transportation of damaged, high BU and non-standard fuels (including ATF); handling and treatment of leaking fuel;
5. Spent fuel safety: R&D activities, ageing issues, criteria, and regulations;
6. Long-term fuel database management.

VII. Innovations in Experimental Methods, Instrumentation and Test Facilities

1. Innovative instrumentation and experimental methods
2. Material test reactors: development of irradiation rigs specific to fuel

VIII. Advanced Reactor Fuel Designs and Performance

1. Fuel qualification of advanced reactors
2. Fuel performance modeling and safety analysis of fuel for advanced reactors
3. Accelerating qualification of new materials for advanced reactors
4. TRISO Fuel
5. Spent fuel and decommissioning of advanced reactors
6. Supply chain challenges and opportunities (Enrichment, HALEU, Transportation)
7. Fuel management and core design of advanced reactors