TopFuel 2024 – Call for Papers

After the successful Topfuel 2021 in Santander, TopFuel 2024 comes back again in Europe!

We're pleased to welcome you all again from from 29 September – 3 October at the MINATEC conference centre in Grenoble, France.

TopFuel's primary objective is to bring together leading international specialists in the field, from operators and engineering companies, designers and manufacturers, research institutes and universities, regulators and technical supporting organizations, to share experiences and advances in nuclear fuel technology, and to use the findings of the latest cutting-edge research to achieve high reliability, performance and safety of nuclear fuels for today and tomorrow.

The **TopFuel 2024** Programme Committee is calling for both oral and poster presentations in the following tracks:

Track 1. Operation and experience

a. 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;
b. Fuel assembly repair and reconstitution;
c. Failed fuel monitoring, water chemistry and corrosion/crud/dose countermeasures;
d. 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);
e. Fuel supply strategy;
f. Fluence reduction to reactor components.

Track 2. Advances in designs, materials, and manufacturing

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

Track 3. Short- and long-term Advanced Technology Fuels (ATF)

a. In-MTR and in-LWR LTR / LTA experience with advanced fuel and control rod designs, fuel pellet, cladding and component materials behaviour;
b. Qualification, licensing, deployment scenarios;
c. Life-cycle implementation from manufacturing to reactor operation and back-end;
d. In-reactor performance of ATFs in normal operation and AOOs;
e. Economics aspects of ATFs deployment strategy.

Track 4. Used fuel storage, transportation and re-use

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

Track 5. Transient fuel behaviour and safety related issues

a. Transient fuel behaviour (RIA, LOCA, ATWS, PCI/SCC, PCMI, post-CHF…),
b. Safety and design criteria (including DEC conditions), safety analysis and licensing for current fuel and ATF;
c. 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 behaviour under extended loss of cooling,…);
d. Quantification and management of margins;
e. Small- and large-scale fuel testing facilities;
f. In-pile and out-of-pile test results and analyses.

Track 6. Modelling, analysis, and methods

a. Development, verification, validation, and uncertainty quantification (VVUQ) of fuel performance modelling codes;
b. Multi-physics multi-scale modelling; water chemistry and crud modelling;
c. Validation databases;
d. Transposition to in-reactor and back-end conditions;
e. Fuel design and safety analysis methods, including uncertainty analysis;
f. Data-driven and artificial intelligence technology applications;
g. Modelling of ATF and SMR fuels.

TOP FUEL
REACTOR FUEL PERFORMANCE 2024

Authors should submit their abstract text (around 400 words) in English through the Abstract Submission System by:

12 January 2024

Notification of authors: 4 March 2024

Deadline for draft paper submission: 3 May 2024

Author notification of paper acceptance: 14 June 2024

Final deadline for full paper submission: 5 July 2024

Your accepted full paper will be included in the Conference Proceedings that will be posted on the ENS website**: www.euronuclear.org.**

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