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TMS 2026

155th Annual Meeting & Exhibition

March 15–19, 2026
San Diego Convention Center
and Hilton San Diego Bayfront
San Diego, California, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING SYMPOSIUM

NUCLEAR MATERIALS

Metallic Fuels - Design, Fabrication, and Characterization

This symposium will focus on the theme of metallic nuclear fuel design and fabrication. This area has significantly evolved in the last decade, due to advancements in fabrication hardware, computational approaches, and cutting-edge characterization techniques, from electron and X-ray sources at large-scale user facilities and benchtop setups.

Specifically, here we will examine the intricate correlations between structure-property-performance of various fuel forms with special emphasis on metallic fuels which are a product of both traditional and novel, innovative fabrication techniques. A particular emphasis will be placed on the fundamental insights into physical and chemical phenomena, making possible progress in characterization and computational methodologies across multiple length and time scales.

We welcome contributions on a wide array of topics, which include but are not limited to:

- Atomic-scale and experimental investigation of defects behavior and chemical segregation
- Fuel materials microstructure modelling and analysis
- Swelling and fission gas release in metallic fuels
- Fuel-Cladding chemical interaction in metallic fuels
- Separate effects irradiation testing of metallic fuel specimens
- Emerging methods of fuel fabrication such as field-assisted sintering, additive manufacturing
- Advances in in situ and operando monitoring of nuclear fuel fabrication and characterization
- Machine learning assisted fabrication of advanced nuclear fuels
- Testing and licensing of new nuclear fuel forms
- Metallic fuel performance modeling under normal operating and accident scenarios

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QUESTIONS?
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