

Symposium 26: Ceramic Materials for Nuclear Energy

Glass and ceramic-based materials are critical to advancing nuclear energy systems, commercial radiological devices, and waste treatment and immobilization solutions. Nuclear materials, whether for power generating technologies or waste immobilization, must operate in extreme environments. Components for nuclear reactors and fuels must operate in ultra-high temperature, pressure, and radiation fields. The wastes generated from these processes must be immobilized for long durations, and the materials used to do so will be exposed to dynamic corrosion environments. Improved understanding of the design and performance of all nuclear materials is paramount to their application and development, and is needed to advance developments in the field. This symposium will focus on the impacts of composition, processing, and radiation on material properties such as structure, mechanical robustness, and resistance to corrosion. The advanced characterization techniques and emergent modeling and simulation methods that have been developed to evaluate these materials will also be discussed.

This symposium is endorsed by the ACerS Nuclear and Environmental Technology Division and the Glass and Optical Materials Division. Papers are solicited on a wide variety of topics related to materials aspects in nuclear energy and waste immobilization using experiment, theory, and simulation.

<PROPOSED SESSION TOPICS>

- Ceramics for nuclear fission applications including structural applications
- Effects of corrosion on ceramic stability and radiation damage tolerant ceramics
- Innovative fabrication methods for nuclear reactor components and waste forms
- Advanced innovations in the characterization of materials for nuclear applications
- Predictability of material properties and behavior using synergistic simulations and experiments
- Corrosion resistance and performance of waste form materials
- Novel applications in hazardous and radioactive waste treatment and remediation
- Materials for advanced sensor applications

<ORGANIZERS>

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<INVITED LECTURES>

Tentative invited lecture information is posted in the following URL;

http://www.ceramic.or.jp/pacrim13/list_of_invited_speakers.html#26