

THE WORLD COMES HERE.
TMS 2025
154th Annual Meeting & Exhibition



March 23–27, 2025
MGM Grand Las Vegas
Hotel & Casino
Las Vegas, Nevada, USA
#TMSAnnualMeeting



SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2025 SYMPOSIUM:

NUCLEAR MATERIALS

Spectroscopic Methods and Analysis for Nuclear Energy Related Materials

Nuclear materials in nuclear energy applications are exposed to extreme environments during irradiation, such as high temperatures, corrosive environments, and high mechanical stress. High demanding environments such as these, require detailed understanding of the microstructure as well as short-range and long-range order, and diffusion, before and after exposure to these extreme environments to predict the lifetime and performance during operation. Spectroscopic techniques, in general, can elucidate structural phenomena (e.g., defects) and kinetic processes that allows insight into the structure-properties-performance relationships and help guiding future materials fabrication and processing efforts. With the development of advanced spectroscopic methods, together with novel extreme technologies, numerous exciting opportunities are emerging for nuclear materials research at extremes. We envision this symposium to highlight investigations resulting from but not limited to synchrotron X-ray absorption spectroscopy (XAS), X-ray emission spectroscopy (XES), synchrotron X-ray/neutron diffraction, nuclear magnetic resonance, positron annihilation spectroscopy, Raman spectroscopy, ultrasonic spectroscopy, mass spectroscopy, etc., are encouraged.

Specific topics of interest include:

- Defect chemistry and analysis
- Diffusion
- Correlation of short and long-range order
- Phase transition
- Impurity analysis
- Dopant chemistry
- Corrosion chemistry

ORGANIZERS

Scarlett Widgeon Paisner, Los Alamos National Laboratory; **Arjen van Veelen**, Los Alamos National Laboratory; **Xiaofeng Guo**, Washington State University; **Farida Selim**, Arizona State University; **Maik Lang**, University of Tennessee; **Dong (Lilly) Liu**, University of Oxford

SYMPOSIUM SPONSORS

TMS Structural Materials Division, TMS Nuclear Materials Committee