

# THE WORLD COMES HERE.

# TMS 2023

## 152<sup>nd</sup> Annual Meeting & Exhibition

MARCH 19–23, 2023  
SAN DIEGO CONVENTION CENTER &  
HILTON SAN DIEGO BAYFRONT  
SAN DIEGO, CALIFORNIA, USA  
#TMSANNUALMEETING



**SUBMIT AN ABSTRACT BY JULY 1 FOR THE FOLLOWING TMS2023 SYMPOSIUM:**

## NUCLEAR MATERIALS

### Composite Materials for Nuclear Applications II

Composite materials are of growing interest for nuclear fusion and fission due to their combined excellent physical and mechanical properties that are compatible with extreme radiation and high temperature environments. With the development of next-generation fission reactors and fusion power, materials that can withstand higher neutron flux/thermal load/thermal mechanical stresses and more aggressive environments in terms of oxidation, corrosion/erosion, and tolerance to transmutation elements are required. This requirement makes it necessary to (i) understand the operational limits and degradation mechanisms of existing composite materials and (ii) develop and qualify new materials designs.

There is a strong overlap in materials research between fission and fusion in terms materials design, processing, characterization, and modelling. This symposium aims to bring scientists and engineers together to share ideas and so join the effort in both fields at an international level for the development of these crucial composite materials and to enable collaborations across groups and countries. The design/processing/modelling/joining of the following materials, as well as their physical/mechanical characterization using ex-situ and/or in-situ techniques, are encouraged:

- Graphite/carbon-based composites for fission and/or fusion (e.g., nuclear graphite, C/C, and novel designs)
- Ceramic-based composites for fusion and/or for nuclear cladding (e.g., SiC-SiC, C/SiC, and novel designs)
- Metal-based composites (e.g., ODS steels, components with protective single- or bi-layer coatings including diamond on fusion components and/or Cr or Cr/Nb on accident-tolerant fuel cladding, tungsten/tungsten composites, laminate systems)
- TRISO fuel (e.g., particles, compacts, and FCM fuel)

Presentations on SiC-related topics will be coordinated with concurrent symposia on ceramics to minimize overlap.

#### ORGANIZERS

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**QUESTIONS?**  
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