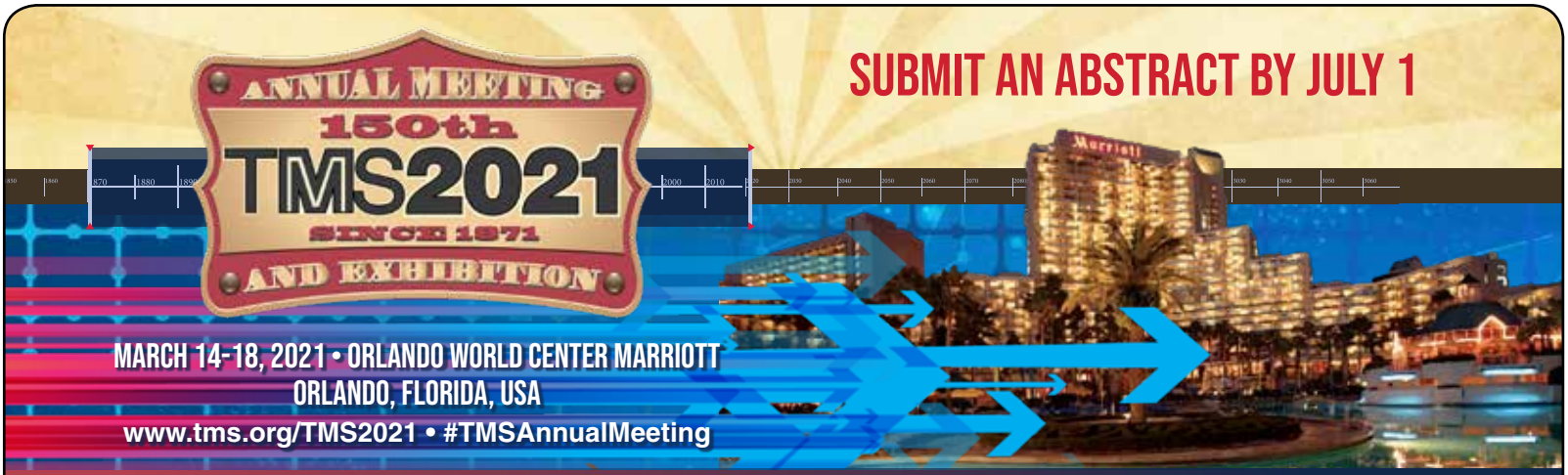

SUBMIT AN ABSTRACT TO:

NUCLEAR MATERIALS

THERMAL PROPERTY CHARACTERIZATION, MODELING, AND THEORY IN EXTREME ENVIRONMENTS

Thermal properties - i.e. conductivity, expansion, atomic/mass transport, and thermodynamics - are amongst the most fundamental parameters controlling the performance and long-term integrity of materials in a multitude of extreme environments. In nuclear applications, for example, the extreme pressures, temperatures, corrosive coolants, and radiation fields, have a significant impact on the thermal properties of nuclear fuels and claddings. Additionally, other extreme applications such as solid oxide fuel cells, thermal barrier coatings, high temperature alloys, thermoelectric materials, and heat shields, require an understanding of thermal properties and their evolution in service.

This symposium covers a broad scope of thermal properties of materials in extreme environments, ranging from fundamental science of thermal and mass transport, to experimental and computational techniques for measuring and predicting thermal properties. Topics of interest include, but are not limited to:

- Advancements in measurement techniques for thermal conductivity and expansion, including in situ methods
- Computational methods
- Electron-phonon coupling and relation to thermal or mass transport
- Fundamental thermal transport physics and mechanisms
- Non-destructive testing methods
- Advanced materials with unprecedented thermal properties
- Relationship of microstructure to thermal properties, including via TEM and APT
- Evolution of thermal properties in extreme environments
- Novel processing approaches for tailoring thermal properties

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