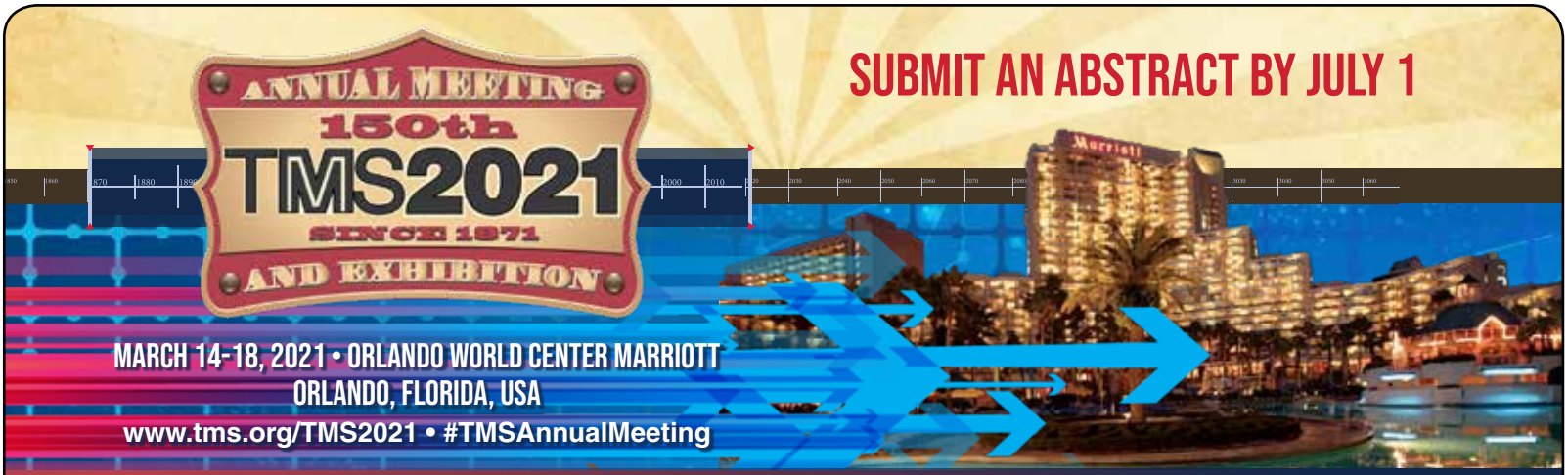

SUBMIT AN ABSTRACT TO:

NUCLEAR MATERIALS

MECHANICAL BEHAVIOR OF NUCLEAR REACTOR COMPONENTS

Current and future generation nuclear reactors require improved structural materials that improve efficiency during in-service conditions, allow for long reactor lifetimes, and increase safety during accidents. Given the increasingly large number of reactor design being considered (e.g. fusion, molten salt, LWRs, etc.), a series of distinct material concepts have been proposed to address these needs. Effects of reactor environments on mechanical behavior will be a key component to predicting strength and performance of materials in the aforementioned circumstances.

This symposium aims to take a closer look at the mechanical behavior of reactor components across length scales. With recent advancements and increased use of in-situ techniques, more is known about irradiation effects on strength than ever before. Simultaneously, ex-situ techniques are critical to probe component-sized parts, and validate the use of a material for inclusion within a reactor. Furthermore, synergy with materials modeling is advancing the prediction of material performance under normal and accident conditions, as well as reactor lifetimes.

Topics of interest include, but are not limited to:

- Mechanical behavior testing, including tension, compression, bend, bulge, creep, fatigue, and fracture
- Effects of environment on strength, including dose, dose rate, temperature, and corrosion
- Hardness testing, including nanohardness and microhardness
- Development of microstructure sensitive material strength models
- Modeling and simulation of irradiation defect interactions during mechanical testing
- Macroscopic component modeling for full scale performance
- In-situ mechanical testing, including micromechanical and nanomechanical compression and tension
- Novel techniques to probe material strength under reactor conditions

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