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TMS2023
152nd 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

Methods, Techniques, and Materials Discovery of Irradiation Effect Using In-situ Microscopy

Microstructural characterization of irradiated microstructure is the key to building mechanistic models that predict material behavior under irradiation. While a great knowledge has been obtained from the conventional ex situ, post-irradiation examinations, in situ experiments using electrons, x-ray, or neutrons can provide unique information that cannot be acquired by post-irradiation examinations. With recent advances in instrumentation, techniques, and the integration with modeling and artificial intelligence, there are renewed opportunities for in situ microscopy to further enhance our understanding on the irradiation effects on materials. This symposium looks for studies that utilize advanced methods or tools that in situ investigate the microstructure of materials under irradiation.

The scope of the symposium includes, but is not limited to:

- In situ observation of material microstructure under irradiation or irradiated materials under influences (e.g. deformation, heating, corrosion) using charged particles, x-ray, or neutrons
- Advanced in situ irradiation microscopy techniques
- Computer vision (CV) and machine learning (ML) applications on in situ microscopy
- Integrating in situ irradiation experiment with modeling and simulation
- Correlation of microstructure induced by In-situ ion irradiation and neutron irradiation
- Artifact of in situ experiments and mitigation methods

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