

THE WORLD COMES HERE.  
**TMS2025**  
154<sup>th</sup> 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:**

**MATERIALS DEGRADATION AND DEGRADATION BY DESIGN**

**Environmentally Assisted Cracking: Theory and Practice**

Environmentally assisted cracking (EAC) is a significant limit for the lifetime of material components in harsh environments in many fields, such as the oil and natural gas industry, advanced nuclear power plants, and navy applications. EAC can occur in metals, alloys, ceramics, composites, and may be a potential problem in recently developed materials such as additively manufactured materials, high entropy alloys (multi-principal element alloys), etc. The purpose of this symposium is to provide an international forum to foster the discussion of the critical problems in EAC and recent advances in both experiments and simulations. This symposium seeks technical presentations related to experimental and modeling studies of various types of EAC, such as hydrogen embrittlement, stress corrosion cracking, corrosion fatigue, and liquid metal embrittlement.

The symposium will encompass, but is not limited to, the following themes:

- Experimental methods for the performance test of EAC in the laboratory and real environments
- Development of physics-based approaches for EAC monitoring and prognostics
- Multiscale models to understand EAC mechanisms and predict the lifetime of structural materials in harsh environments
- Stress corrosion cracking of alloys in high-temperature water, seawater, or other environment
- Fracture and fatigue of alloys in hydrogen environment
- Degradation of materials in liquid metal environment.

**ORGANIZERS**

**Bai Cui**, University of Nebraska Lincoln; **Raul Rebak**, GE Global Research; **Srujan Rokkam**, Advanced Cooling Technologies, Inc.; **Jenifer Locke**, Ohio State University

**SYMPOSIUM SPONSORS**

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