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TMS 2020

149th Annual Meeting & Exhibition

February 23-27, 2020 • San Diego, California, USA



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Corrosion

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
- EAC in additively manufactured materials and high-entropy alloys

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Abstract Deadline is July 1, 2019. Submit online at
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Questions?
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