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ADVANCED SIMULATION IN DAMAGE, FRACTURE, FATIGUE, HYDROGEN EMBRITTLEMENT AND PHASE-FIELD MODELING

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ABSTRACT

This invited session focuses on advanced simulation in damage, fracture, fatigue, hydrogen embrittlement and phase-field modeling that is crucial for understanding the behavior of materials and structures under various loading conditions. These phenomena are essential to ensuring safety, reliability, and performance in engineering applications across diverse fields such as material science, aerospace, civil engineering, automotive, etc. Topics of this session include, but certainly are not limited to computational models for damage, fracture, hydrogen embrittlement and crack nucleation and propagation; computational methods such as nonlocal formulation and phase-field approaches; experimental validation and case studies; as well as industrial application involving damage, fracture, fatigue and crack propagation.

In this invited session, we would like to bring together engineers and researchers around the world that are working on new theories, advanced numerical models and methods to share, exchange research results and explore new ideas, methods and enhancements to the existing theories with aim to advance the understanding and knowledge of damage, fracture, fatigue, and hydrogen embrittlement.