

# MACHINE LEARNING EMPOWERED COMPUTATIONAL PLASTICITY, FRACTURE AND INTERDISCIPLINARITY

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## ABSTRACT

The field of computational plasticity and fracture is significantly advanced due to the integration of machine learning techniques. This symposium aims to explore the transformative impact of machine learning on the modeling, analysis, and prediction of plastic and fracture behavior in materials. To foster interdisciplinary collaboration among researchers in mechanics, physics, materials science and engineering, and data science, we invite researchers to share their latest findings, innovative approaches, and case studies that highlight the synergies between machine learning and computational plasticity and fracture.

## TOPICS OF INTEREST:

We welcome contributions that cover, but are not limited to, the following topics:

- Machine learning methodologies applied to computational plasticity.
- Machine learning methodologies for predicting plastic deformation.
- Data-driven modeling of constitutive behaviors.
- Integrating multi-scale experimental and simulation data to inform machine learning models
- Applications of neural networks and deep learning in plasticity.
- Uncertainty quantification in machine learning-enhanced models.
- Innovations in machine learning that enable real-time modeling and simulation of plasticity in engineering applications