

A Variational Framework for Phase-Field Fracture Modeling with Applications to Fragmentation, Desiccation, Ductile Failure, and Spallation

Dissertation Defense

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Overview

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- Research contributions

The Variational Framework

- Kinematics and Constraints
- Thermodynamics
- The variational statement

Applications

- Intergranular Fracture in Polycrystalline Materials
- Soil Desiccation
- Towards Ductile Fracture

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Fracture is a common phenomenon in engineering applications.

We would like to understand fracture.

To characterize fracture by its development lifecycle: defects, nucleation, propagation, branching, merging.

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