

SEMINARIO CMM-MINERIA.

EXPOSITOR:

Blaise Bourdin
Department of Mathematics & Statistics
McMaster University
Canada Research Chair

TITLE: Fracture of heterogeneous materials: a phase-field approach.

ABSTRACT:

In this talk, I will describe recent attempts at devising a rigorous framework for the analysis and numerical simulation of crack propagation in heterogeneous materials. I will focus on the challenge of devising a mathematically sound and mechanistically coherent concept of effective toughness and computing it.

I will first explain how classical theories such as homogenization fail to provide a meaningful answer to this question. Then, I will propose a framework based on the idea of computational homogenization in trajectory space. I will show how it can account for new toughening mechanisms induced by heterogeneities. Finally, I will present classes of meta-materials exhibiting unconventional fracture properties.

Zoom:

<https://uchile.zoom.us/j/92439215399?pwd=hfJvadYwg951WOz2UV5CtbzkSa3f8a.1>

DÍA / HORA Miércoles 30 de abril, 2025 / 12:00 hrs.

LUGAR Sala Maryam Mirzakhani (Multimedia) CMM, Piso 6, Beauchef 851 Edificio Norte.

