

Braides, Andrea; Dal Maso, Gianni; Garroni, Adriana

Variational formulation of softening phenomena in fracture mechanics: The one-dimensional case. (English) [Zbl 0945.74006](#)

Arch. Ration. Mech. Anal. 146, No. 1, 23-58 (1999).

Summary: We show that discrete models of atoms subject to nearest-neighbour nonlinear interactions approximate continua allowing for softening and fracture. A detailed study of local minima and stationary points is carried out. Scale effects are discussed.

MSC:

[74A45](#) Theories of fracture and damage

[74A60](#) Micromechanical theories

[74R20](#) Anelastic fracture and damage

[74G65](#) Energy minimization in equilibrium problems in solid mechanics

Cited in **1** Review
Cited in **51** Documents

Keywords:

variational principle; scale effects; discrete models of atoms; nearest-neighbour nonlinear interactions; softening; fracture; local minima; stationary points

Full Text: [DOI](#)