

Chambolle, Antonin

A density result in two-dimensional linearized elasticity, and applications. (English)

Zbl 1030.74007

Arch. Ration. Mech. Anal. 167, No. 3, 211-233 (2003).

Summary: We show that in a two-dimensional bounded open set whose complement has a finite number of connected components, the vector fields $u \in H^1(\Omega; \mathbb{R}^2)$ are dense in the space of fields whose symmetrized gradient $e(u)$ belongs to $L^2(\Omega; \mathbb{R}^4)$. This allows us to show the continuity of some linearized elasticity problems with respect to variations of the set, with applications to shape optimization or to the study of crack evolution.

MSC:

74B15 Equations linearized about a deformed state (small deformations superposed on large)

Cited in **60** Documents

35Q72 Other PDE from mechanics (MSC2000)

Keywords:

dense set; vector fields; symmetrized gradient; linearized elasticity; shape optimization; crack evolution

Full Text: DOI