A Two-Dimensional Variational Model for the Equilibrium Configuration of an Incompressible, Elastic Body with a Three-Well Elastic Potential

Fuchs, Martin; Seregin, Gregory

Fachbereich Mathematik Universität des Saarlandes 66041 Saarbrücken Germany
Steklov Math. Institute 191011 St. Petersburg Russia

Abstract: We consider a geometrically linear variational model in two space dimensions for an incompressible, elastic body whose elastic potential has exactly three wells corresponding to one austenitic and to two martensitic phases. Passing to the dual problem we show that the stress tensor is weakly differentiable on the interior of the domain and in addition Hölder continuous on any subset of the union of the pure phases.

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