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Linear elasticity obtained from finite elasticity by Γ -convergence under weak coerciveness conditions. (English) Zbl 1250.74008

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Summary: The energy functional of linear elasticity is obtained as Γ -limit of suitable rescalings of the energies of finite elasticity. The quadratic control from below of the energy density $W(\nabla v)$ for large values of the deformation gradient ∇v is replaced here by the weaker condition $W(\nabla v) \geq |\nabla v|^p$, for some $p > 1$. Energies of this type are commonly used in the study of a large class of compressible rubber-like materials.

MSC:

74B05 Classical linear elasticity

Cited in 17 Documents

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