

Convexity concepts in nonlinear planar elasticity

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We consider several nonlinear energies in planar elasticity, e.g. energies depending on the logarithmic strain tensor, isochoric energies and specific energies using for incompressible elastic materials. The first aim is to study rank-one convexity and polyconvexity of these energies. A second aim is to use the relations between rank-one convexity and polyconvexity, in order to obtain analytical expression of quasiconvex envelope of some useful energies.