SM6S_12354

XXI International Congress of Theoretical and Applied Mechanics
Warsaw, Poland, August 15–21, 2004

Agmon's Condition for Incompressible Elasticity: a Variational Formulation

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In a previous paper, I developed the analogues for incompressible, finite, elasticity to results obtained by Ball and Marsden, and by Simpson and Spector for the compressible case. Specifically, a condition of quasiconvexity at the boundary, its weak version-the localized second variation condition, and conditions necessary and sufficient for the truth of the latter were found. Here, in emulation of results of Mielke and Sprenger for compressible elasticity, I recast the aforementioned necessary and sufficient conditions in an equivalent, variational form. In nonsingular cases, Agmon's condition is shown to be equivalent to the condition that a certain algebraic Riccati equation should possess a positive-semidefinite solution. The implications of this condition are explored for various special situations.

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