

## **SOME TOPICS ON SOME NEW CLASSES OF CONSTITUTIVE RELATIONS FOR ELASTIC BODIES**

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**Abstract.** Some new classes of constitutive relations for elastic bodies have been presented recently, which cannot be classified as either Cauchy or Green elastic bodies. In one of such relations the Cauchy stress tensor and the left Cauchy Green strain tensor appear in an implicit relation, from where in general it is not possible to express explicitly the stress as a function of the strain or viceversa. Interesting subclasses of constitutive relations can be obtained from such general expression by, for example, considering that the gradient of the displacement field is small but the relation with the stresses is nonlinear. In this work some theoretical considerations for some of these new classes of elastic bodies are presented along with the solutions of some boundary value problems.