IMPLICITLY CONSTITUTED MATERIALS: MODELING, ANALYSIS AND COMPUTATION

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Abstract

Implicit constitutive theory that is based on the idea of expressing the response of bodies by an implicit relation between the stress and appropriate kinematical variables, is capable of describing some of the material properties that explicit models seem unable to describe. It also provides a less standard interesting structure of the governing equations. We will present several examples emphasizing the advantages of this framework on three levels: modelling of material responses, theoretical analysis of related boundary values problems and computer simulations.