

EXISTENCE AND BEHAVIOR OF SOLUTIONS FOR VARIATIONAL INEQUALITIES OVER PRODUCTS OF SETS

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ABSTRACT. Several problems arising in economics, physics, engineering and other fields can be modelled using variational inequalities over Cartesian products of sets or systems of variational inequalities. Such problems have been much studied and existence results were proved in the presence of different monotonicity or pseudomonotonicity concepts (see [1], [2]). We consider here a variational inequality over a product of sets, governed by a multi-valued mapping. Assuming that the mapping satisfies a certain pseudomonotonicity condition (used also in [3]) we prove the existence of a solution for the variational inequality. We also mention some connections between this condition and some classical notions of algebraic or topological pseudomonotonicity.

If the variational inequality depends on a parameter, a problem of interest is the behavior of the solution under perturbations of that parameter. In this paper we are interested in two aspects of this problem: the closedness of the solution mapping and the Hölder continuity of the solution.

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