

## **Partitionable variational inequalities with multi-valued mappings**

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### **Abstract**

We consider multi-valued variational inequalities defined on a Cartesian product of finite-dimensional subspaces. We introduce extensions of order monotonicity concepts for set-valued mappings, which are adjusted to the case where the subspaces need not be real lines. These concepts enable us to establish new existence and uniqueness results for the corresponding partitionable multi-valued variational inequalities. Following a parametric coercivity approach, we obtain convergence of the Tikhonov regularization method without monotonicity conditions. © 2006 Springer-Verlag Berlin Heidelberg.

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### **Keywords**

Existence and uniqueness results, Multi-valued mappings, Order monotonicity, Partitionable variational inequalities, Regularization method