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Right-Hand Side Decomposition for Variational Inequalities

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Abstract

We consider a general class of variational inequality problems in a finite-dimensional space setting. The cost mapping need not be the gradient of any function. By using a right-hand side allocation technique, we transform such a problem into a collection of small-dimensional variational inequalities. The master problem is a set-valued variational inequality. We suggest a general iterative method for the problem obtained, which is convergent under monotonicity assumptions. We also show that regularization of partial problems enables us to create single-valued approximations for the cost mapping of the master problem and to propose simpler solution methods. © 2013 Springer Science+Business Media New York.

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Keywords

Combined relaxation method, Decomposition, Regularization, Right-hand side allocation, Variational inequalities