

# On Some Methods for Solving Variational Inequalities

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**Abstract:** In this paper we consider some variational inequality problems and appropriate methods for solving them. A variational inequality problem defined by a maximal monotone operator and a feasible set defined by convex inequality constraints is studied and some convergent dual methods (including Lagrangian dual methods) for solving this problem are presented. Newton-type methods for monotone variational inequalities as well as Newton-type methods based on  $D$ -gap function for variational inequalities over a closed convex set are also considered. Analytic center cut methods for monotone variational inequalities are presented and conditions ensuring the applicability of cutting plane methods for variational inequalities are formulated.