A GLOBALLY CONVERGENT HOMOTOPY METHOD FOR VARIATIONAL INEQUALITY PROBLEMS ON GENERAL CONVEX SETS

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Abstract

This paper provides a globally convergent homotopy method for variational inequality problems on general convex sets. Under conditions that the problem has no solution at infinity, which is weaker than several well-known solution conditions, and the Slater constraint qualification holds, the existence and global convergence of a smooth homotopy path are proven. In addition, the starting point is only needed to satisfy the affine equality constraints, not necessarily the convex inequality constraints, hence the proposed method is convenient to implement. A numerical path-following procedure is given to track the homotopy path, and preliminary computational results are also reported.