An extended Gauss-Seidel method for a class of multi-valued complementarity problems

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Abstract

The complementarity problem is one of the basic topics in nonlinear analysis; however, the methods for solving complementarity problems are usually developed for problems with single-valued mappings. In this paper we examine a class of complementarity problems with multi-valued mappings and propose an extension of the Gauss-Seidel algorithm for finding its solution. Its convergence is proved under off-diagonal antitonicity assumptions. Applications to Walrasian type equilibrium problems and to nonlinear input-output problems are also given. © 2008 Springer-Verlag.

Keywords