Extragradient algorithms extended to equilibrium problems

Quoc Tran D., Le Dung M., Nguyen V.H.
National University of Hanoi, Viet Nam; Hanoi Institute of Mathematics, Viet Nam; University of Namur, Belgium

Abstract: We make use of the auxiliary problem principle to develop iterative algorithms for solving equilibrium problems. The first one is an extension of the extragradient algorithm to equilibrium problems. In this algorithm the equilibrium bifunction is not required to satisfy any monotonicity property, but it must satisfy a certain Lipschitz-type condition. To avoid this requirement we propose linesearch procedures commonly used in variational inequalities to obtain projection-type algorithms for solving equilibrium problems. Applications to mixed variational inequalities are discussed. A special class of equilibrium problems is investigated and some preliminary computational results are reported.
Author Keywords: Auxiliary problem principle; Equilibrium problem; Extragradient method; Linesearch; Variational inequality

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Authors with affiliations:

- Quoc Tran, D., National University of Hanoi, Viet Nam
- Le Dung, M., Hanoi Institute of Mathematics, Viet Nam
- Nguyen, V.H., University of Namur, Belgium

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