HYBRID EXTRAGRADIENT METHOD FOR FINDING A COMMON SOLUTION OF THE SPLIT FEASIBILITY AND SYSTEM OF EQUILIBRIUM PROBLEMS

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Abstract. The purpose of this paper is to introduce a new hybrid extragradient iterative algorithm for finding a common element of the set of fixed points of quasi-nonexpansive mappings and satisfying solutions of the split feasibility problem (SFP) and systems of equilibrium problem (SEP) in Hilbert spaces. We prove that the sequence generated by the proposed algorithm converge strongly to a common element of the fixed points set of quasi-nonexpansive mappings, the solution of split feasibility problems and systems of equilibrium problems under mild condition. The results presented in this paper generalized, improve and extend some well-known results in the literature.

Keywords. Extragradient method, Fixed point problems, Hybrid projection method, Split feasibility problems, Systems of equilibrium problems, Quasi-nonexpansive mappings, Lipschitz continuity.

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