CONVERGENCE AND STABILITY OF ISHIKAWA ITERATIVE SCHEMES FOR GENERAL NONLINEAR VARIATIONAL INCLUSIONS PROBLEMS WITH (A, η)-ACCRETIVE MAPPINGS IN BANACH SPACES

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Abstract. In this paper, we introduce and study a new class of general nonlinear variational inclusions with (A, η)-accretive mappings in Banach spaces. We propose the Ishikawa type perturbed iterative algorithms and establish the existence and uniqueness of solutions for the variational inclusions. Under certain conditions, we discuss convergence and stability of iterative sequences generated by the Ishikawa type perturbed algorithms.
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1   Introduction

Variational inclusions problems are among the most interesting and intensively studied classes of mathematical problems and have wide applications in the fields of optimization and control, economics and transportation equilibrium, engineering science. For the past year, many existence results and iterative algorithms for various variational inequality and variational inclusion problems have been studied. For details, see [1-24] and the references therein.

Recently, Huang and Fang [25] introduced the generalized m-accretive mapping and give the definition of the resolvent operator for the generalized m-accretive mappings in Banach spaces. They also showed some properties of the resolvent operator for the generalized m-accretive mappings in Banach spaces. For further works, see Huang [10], Jin [13, 14] and the references therein.

Very recently, Lan et al. [17] introduced a new concept of (A, η)-accretive mappings, which generalizes the existing monotone or accretive operators, and studied some properties of (A, η)-accretive mappings and defined resolvent operators associated with (A, η)-accretive mappings. They also studied