

**EXISTENCE OF SOLUTION FOR A MULTI-VALUED  
VARIATIONAL INCLUSION INVOLVING  $P$ -ACCRETIVE  
MAPPING IN REAL UNIFORMLY SMOOTH BANACH SPACE**

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**Abstract**

In this paper, we consider a class of accretive mapping called  $P$ -accretive mapping, a natural generalization of accretive (monotone) mapping studied in [2-5,10,12]. We prove that the proximal-point mapping of the  $P$ -accretive mapping is single-valued and Lipschitz continuous. Further, we consider a class of multi-valued variational inclusion involving  $P$ -accretive mapping in real uniformly smooth Banach space. Using proximal-point mapping method, we prove the existence of solution and discuss the convergence analysis of iterative algorithm for a class of multi-valued variational inclusion. By exploiting the method of this paper, one can generalize and improve many known results in the literature.

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Key Words : *Multi-valued variational inclusion,  $P$ -accretive mapping, Proximal-point mapping method, Iterative algorithm, Convergence analysis.*

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