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Improved generalized $M$-iteration for quasi-nonexpansive multivalued mappings with application in real Hilbert spaces. (English) Zbl 07487975

Summary: In this paper, we present a modified (improved) generalized $M$-iteration with the inertial technique for three quasi-nonexpansive multivalued mappings in a real Hilbert space. In addition, we obtain a weak convergence result under suitable conditions and the strong convergence result is achieved using the hybrid projection method with our modified generalized $M$-iteration. Finally, we apply our convergence results to certain optimization problem, and present some numerical experiments to show the efficiency and applicability of the proposed method in comparison with other improved iterative methods (modified SP-iterative scheme) in the literature. The results obtained in this paper extend, generalize and improve several results in this direction.

MSC:
47H06 Nonlinear accretive operators, dissipative operators, etc.
47H09 Contraction-type mappings, nonexpansive mappings, $A$-proper mappings, etc.
47J05 Equations involving nonlinear operators (general)
47J25 Iterative procedures involving nonlinear operators

Keywords:
iterative scheme; $M$-iteration; fixed point problem; Hilbert spaces

Full Text: Link

References:
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