Some Nonlinear Ergodic Theorems in a Hilbert Space with Applications

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Abstract

We introduce the notion of generalized hybrid sequences, extending the notion of nonexpansive sequences introduced and studied in our previous work [2-8], and prove ergodic and convergence theorems for such sequences in a Hilbert space H. Subsequently, we apply our results to prove new fixed point theorems for generalized hybrid mappings, first introduced in [14, 19], defined on arbitrary nonempty subsets of H.