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Some Random Fixed Point Theorems for Non-Self Nonexpansive Random Operators

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Abstract: Let (Ω, Σ) be a measurable space, with \sum a sigma-algebra of subsets of Ω, and let E be a nonempty bounded closed convex and separable subset of a Banach space X, whose characteristic of noncompact convexity is less than 1. We prove that a multivalued nonexpansive, non-self operator T: Ω \times E \rightarrow KC(X) satisfying an inwardness condition and itself being a 1-χ-contractive nonexpansive mapping has a random fixed point. We also prove that a multivalued nonexpansive, non-self operator T:Ω\times E\rightarrow KC(X) with a uniformly convex X satisfying an inwardness condition has a random fixed point.

Key Words: Random fixed point, non-self mappings, Nonexpansive random operator, inwardness condition

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