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Fixed Point Theorems for Suzuki Nonexpansive Mappings in Banach Spaces

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ABSTRACT

This paper delves into the study of fixed points for Suzuki nonexpansive mappings in Banach spaces. To investigate these fixed points, we employ a widely explored technique known as the asymptotic center technique. Utilizing the geometric structure of the asymptotic center and the properties of the asymptotic radius, we establish several fixed point results for Suzuki nonexpansive mappings in Banach spaces. We demonstrate that, under certain conditions, the asymptotic radius and Chebyshev radius are equal. Additionally, we establish the convergence of regular approximate fixed point sequences to the fixed points of Suzuki nonexpansive mappings. Examples are provided to illustrate the results. Our theorems generalize several results in the literature.

Keywords: Banach space; Nonexpansive mapping; Suzuki nonexpansive mapping

How to Cite

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