Stabilities of Ulam-Hyers type for a Class of Nonlinear Fractional Differential Equations with Integral Boundary Conditions in Banach Spaces

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Talk Abstract

Motivated by the knowledge of the existence of continuous solutions of a certain fractional boundary value problem with integral boundary conditions, we present in here –in a unified manner– new sufficient conditions to conclude the existence and uniqueness of continuously differentiable solutions to this fractional boundary value problem and analyse its stability in the sense of Ulam-Hyers and Ulam-Hyers-Rassias. After presenting the main conclusions, two illustrative examples are provided to verify the effectiveness of the proposed theoretical results.

Keywords: Ulam-Hyers stability, Ulam-Hyers-Rassias stability, fractional boundary value problem, integral boundary conditions.

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