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On Caputo tempered fractional coupled systems with three-point boundary conditions

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Abstract

In this talk, we present some results on the existence, uniqueness and Ulam stability of solutions to systems of Caputo-tempered fractional differential equations subject to three-point boundary conditions. The analysis is grounded in an extended version of Perov's fixed point theorem and a Krasnoselskii-type approach. Our main results integrate these methods with techniques involving vector-valued metrics and matrix sequences that converge to zero. To further elucidate the findings, illustrative examples are provided in the final section of the talk.

Mathematics Subject Classification : 26A33, 34A08, 34K37.

Keywords : Three point boundary value problems, Caputo tempered fractional derivative, Perov's fixed point theorem, Existence, Uniqueness, Ulam stability, Vector-valued norm.

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