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Existence and uniqueness results for fractional boundary value problems with multiple orders of fractional derivatives and integrals

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Abstract

We present some results on the existence and uniqueness of solutions for fractional differential equations with multiple orders of fractional derivatives and integrals with Caputo type fractional derivatives. The arguments are based on the Banach's fixed point theorem and Sadovskii's fixed point theorem.

Mathematics Subject Classification: 26A33, 34B25, 34B15.

Keywords: Caputo fractional derivative, multiple orders, boundary value problem, Sadovskii's fixed point, Banach's fixed point theorem, numerical example.

References

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