Solvability for a nonlinear coupled system of Caputo fractional q-differential equations with nonlocal boundary conditions

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Abstract

In this work, we study a nonlinear coupled system of fractional q-difference equations with nonlocal boundary conditions involving the fractional q-derivatives of the Caputo type. Uniqueness result for solution of the underlying problem is presented with the aid of Banach's contraction principle, while the existence result is derived from Leray-Schauder's alternative. Finally, we introduce some examples to support our main results.

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