POSITIVE SOLUTIONS FOR BOUNDARY VALUE PROBLEMS INVOLVING NONLINEAR FRACTIONAL $q$–DIFFERENCE EQUATIONS

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Abstract. In this work, we investigate the eigenvalue intervals of nonlinear boundary value problems involving fractional $q$-difference equations by means of the properties of the Green function and Guo-Krasnosel’skii fixed point theorem on cones. Furthermore, some sufficient conditions for the nonexistence and existence of at least one or two positive solutions for the boundary value problem are established. As applications, some examples are presented to illustrate the main results.


Keywords and phrases: fractional $q$-difference, boundary value problems, positive solutions, fixed point theorem, eigenvalue.

REFERENCES


