Eigenvalue intervals for iterative systems of nonlinear boundary value problems on time scales

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ABSTRACT.

Values of $\lambda_1, \lambda_2, \cdots, \lambda_n$ are determined for which there exist positive solutions of the iterative system of dynamic equations, $u_i^{\Delta\Delta}(t) + \lambda_i a_i(t) f_i(u_{i+1}(\sigma(t))) = 0, 1 \leq i \leq n, u_{n+1}(t) = u_1(t)$, for $t \in [a,b]_{\mathbb{T}}$, and satisfying the boundary conditions, $\alpha u_i(a) - \beta u_i^{\Delta}(a) = 0 = \gamma u_i(\sigma^2(b)) + \delta u_i^{\Delta}(\sigma(b)), 1 \leq i \leq n$, where $\mathbb{T}$ is a time scale. A Guo-Krasnosel'skii fixed point theorem is applied.

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