

Bifurcation for a nonlinear Sturm-Liouville discrete problem

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In this talk, we prove a result about the structure of the solution set for a parameterized Sturm-Liouville boundary value problem defined on a discrete domain, along with Dirichlet boundary conditions. In a first step, based on the theory of time scales, we prove the existence of a solution of the problem, by using an appropriate Green function for this problem. After, by using the theory of global bifurcation, we prove the existence of a continuous branch of solutions arising from a trivial solution of the parameterized discrete problem. In this way, we extend the classical result of Rabinowitz on global bifurcation for ordinary differential equations.

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