

Sturm-Liouville Theory
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A Survey of Nonlinear Sturm-Liouville Equations

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Abstract

This note gives a brief survey of existence, uniqueness and bifurcation results for nonlinear Sturm-Liouville equations. Early in 1960, Nehari made an interesting proposal to study solutions with a prescribed number of nodes. His ideas have had a great influence on critical point theory as a branch of the calculus of variations. Rabinowitz established a global bifurcation theorem based on the nodal properties of solutions. Some results on bifurcation from the lowest point of the continuous spectrum will also be discussed.