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Existence and uniqueness of solutions of a class of fourth order differential equation’s BVPs.
(Chinese. English summary) [Zbl 07404530]
Pure Appl. Math. 37, No. 1, 81-90 (2021)

Summary: In order to analyze the existence and uniqueness of solutions for clamped elastic beam at both ends, we study boundary value problems of nonlinear fourth-order ordinary differential equations by using the Leray-Schauder continuation theorem. The existence of solutions is obtained when the nonlinear term satisfies the condition of proper utmost growth. In addition, the uniqueness of solutions is obtained when the nonlinear term satisfies the Lipschitz condition.

MSC:
34B15 Nonlinear boundary value problems for ordinary differential equations

Keywords:
Caratheodory function; Wirtinger inequality; Leray-Schauder continuation theorem

Full Text: DOI