4阶微分方程3点边值问题3个正解的存在性

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Existence of Triple Positive Solutions for Three-Point Boundary Value Problems of Fourth-Order Differential Equations

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摘要 讨论了一类4阶微分方程3点边值问题3个正解的存在性,其方程的非线性项f中含有未知函数u的2阶导数u″.通过运用锥上的Avery-Peterson不动点定理,得到该类边值问题3个正解存在性的充分条件.

关键词: 边值问题 正解 锥 不动点定理

Abstract: The existence of triple positive solutions for a class of fourth-order differential equations is studied,whose nonlinear term f contains the second-order derivative u″ of the unknown function u.By using the Avery-Peterson fixed point theorem,some sufficient conditions are obtained for the existence of triple positive solutions of the boundary value problems.

Key words: boundary value problem positive solutions cone fixed-point theorem

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