



Further Results for some Third Order Differential Systems with Nonlinear Dissipation *

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Abstract

We formulate nonuniform nonresonance criteria for certain third order differential systems of the form $X''' + AX'' + G(t, X') + CX = P(t)$, which further improves upon our recent results in [12], given under sharp nonresonance considerations. The work also provides extensions and generalisations to the results of Ezeilo and Omari [5], and Minhós [9] from the scalar to the vector situations.

Key words: Nonlinear dissipation, sharp and nonuniform nonresonance.

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1 Introduction

An investigation of the solvability circumstances for the nonlinear differential system

$$X''' + AX'' + G(t, X') + CX = P(t) \quad (1.1)$$

subject to the T -periodic boundary conditions

$$X(0) - X(T) = X'(0) - X'(T) = X''(0) - X''(T) = 0 \quad (1.2)$$

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