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On asymptotic integration of second-order delay differential equations

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Abstract

In this work, we study the asymptotic integration problem for second-order nonlinear delay differential equations of the form $((p(t)x'(t))' + q(t)x(t) = f(t, x(g(t)))$. It is shown that solutions are asymptotic to prescribed solutions of the associated linear homogeneous equation $((p(t)x'(t))' + q(t)x(t) = 0$ at infinity.

Key Words: Delay differential equation, Asymptotic integration, Fixed point theory, Principal solutions.

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