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Oscillation Criteria for Second Order Nonlinear Differential Equations with Damping

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Abstract: Oscillation criteria are given for second order nonlinear differential equations with damping of the form $(a(t) \psi(x) \dot{x}) \dot{\{}} + p(t) \dot{x} + q(t) f(x) = 0, \quad t \geq t_0$, where p and q are allowed to change signs on $[t_0, \infty)$. We employ the averaging technique to obtain sufficient conditions for oscillation of solutions of the above equation. Our results generalize and extend some known oscillation criteria in the literature.

Key Words: Oscillation, averaging, damping, Riccati substitution, second order.

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