

Oscillation criteria for second order sublinear dynamic equations with damping term

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Abstract

This paper concerns the oscillation of solutions to the second order sublinear dynamic equations with damping. No sign conditions are imposed on coefficients. We illustrate the results by several examples.

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INTERVAL CRITERIA FOR FORCED OSCILLATION OF DIFFERENTIAL EQUATIONS WITH p-LAPLACIAN, DAMPING, AND MIXED NONLINEARITIES

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Abstract

We consider forced second order differential equation with p-Laplacian and damping in the form of $(r(t)\phi(\alpha_0)(x'))' + p(t)\phi(\alpha_0)(x') + (N)\sum_{j=0}^{\infty} q(j)(t)\phi(\alpha_j)(x) = e(t)$, where $\phi(\alpha)(u) := |u|^{\alpha} \operatorname{sgn} u$, $\alpha(j) > 0$, $j = 0, 1, 2, \dots, N$, and $r, p, q(j), e$ is an element of $C([0, \infty), \mathbb{R})$ with $r(t) > 0$ on $[0, \infty)$. Interval oscillation criteria of the El-Sayed type and the Kong type are obtained. These criteria are further extended to equations with deviating arguments. Our work generalizes, unifies, and improves many existing results in the literature

Keywords: FORCING TERM; THEOREMS; MAINTENANCE

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