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Interval oscillation criteria for certain forced second-order differential equations

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ABSTRACT.

By using generalized Riccati transformations and an inequality due to Hardy et al., several new interval oscillation criteria are established for the nonlinear damped differential equation

$$\left(r(t)k_1(x,x')\right)' + p(t)k_2(x,x')x' + q(t)f(x) = e(t), \quad t \geq t_0.$$

The new interval oscillation criteria are different from most known ones in the sense they are based on the information only on a sequence of subintervals of $[t_0,\infty)$, rather than on the whole half-line. Our results improve and extend the known some results in the literature.

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