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Oscillation and nonoscillation of perturbed half-linear Euler differential equations. (English)

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The authors derive new oscillation and nonoscillation criteria for the perturbed half-linear Euler differential equation

$$(\Phi(x'))' + \left[\frac{\gamma_p}{t^p} + c(t) \right] \Phi(x) = 0,$$

where $\gamma_p := \left(\frac{p-1}{p}\right)^p$, $\Phi(x) := |x|^{p-2}x$, and $p > 1$. These criteria are motivated by the conjectures which were proposed in earlier separate papers by the authors. The methods traditionally use the variational and Riccati techniques.

Reviewer: [Roman Simon Hilscher \(Brno\)](#)

MSC:

34C10 Oscillation theory, zeros, disconjugacy and comparison theory for ordinary differential equations

Cited in **6** Documents

Keywords:

[Euler half-linear equation](#); [perturbation principle](#); [\(non\)principal solution](#); [variational principle](#); [Riccati technique](#)