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Oscillation and non-oscillation criteria for linear nonhomogeneous systems of two first-order ordinary differential equations. (English) [Zbl 07428676](#)

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The paper deals with the linear system

$$\begin{aligned}\phi' &= p(t)\phi + q(t)\psi + f(t) \\ \psi' &= r(t)\phi + s(t)\psi + g(t),\end{aligned}\tag{1}$$

where all the functions are supposed to be continuous functions and also a special case of this system written in the form of the second order differential equation

$$(a(t)\phi')' + b(t)\phi' + c(t)\phi = d(t).\tag{2}$$

Using the transformation into Riccati equation the author derives oscillation and nonoscillation criteria for these equations. These criteria are based on a comparison of the system (1) with the homogeneous system obtained from (1) by letting $f(t) \equiv g(t) \equiv 0$.

Reviewer: [Robert Mařík \(Brno\)](#)

MSC:

[34C10](#) Oscillation theory, zeros, disconjugacy and comparison theory for ordinary differential equations

[34A30](#) Linear ordinary differential equations and systems

Keywords:

nonhomogeneous linear systems; Ordinary differential equations; oscillation; non-oscillation; second-order linear ordinary differential equations; Riccati equation method

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