

# Maximum and antimaximum principles for second-order linear ODEs with a non-constant damping coefficient

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We will discuss the maximum and antimaximum principles for the periodic problem

$$u'' = p(t)u + g(t)u'; \quad u(0) = u(\omega), \quad u'(0) = u'(\omega),$$

where  $p, g: \mathbb{R} \rightarrow \mathbb{R}$  are  $\omega$ -periodic (in general, sign-changing) locally Lebesgue integrable functions.

It is well known that these principles play an important role in the study of the existence, multiplicity, and stability of solutions to the non-linear periodic problem

$$u'' = p(t)u + g(t)u' + f(t, u, u'); \quad u(0) = u(\omega), \quad u'(0) = u'(\omega).$$