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**Periodic solutions of some Lienard and Duffing equations.** (English) Zbl 0689.34032

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The problem of existence of periodical solutions of differential equations of the form

$$(1) \quad u'' + f(u)u' + g(t, u) = 0, \quad u(0) = u(2\pi), \quad u' = u'(2\pi),$$

where  $f(u)$  is a continuous function on  $\mathbb{R}$  and  $g(t, u)$  is a Caratheodory function subject to certain growth restrictions, is considered. Several existence theorems providing the periodic solutions of (1) in resonance and some other particular cases (i.e. for  $f(u) = \text{const}$ ,  $f(u) \equiv 0$  etc.) are proved.

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#### MSC:

**34C25** Periodic solutions to ordinary differential equations

**34G10** Linear differential equations in abstract spaces

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#### Keywords:

[Caratheodory function](#)

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