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Solvability of the forced Duffing equation at resonance. (English) Zbl 0915.34032

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The forced Duffing equation

$$u'(t) + m^2\omega^2 u(t) + g(u(t)) = h(t), \quad t \in [0,T], \quad u(0) - u(T) = u'(0) - u'(T) = 0,$$

with $T > 0$, $\omega = 2\pi/T$, $g \in C(\mathbb{R},\mathbb{R})$, and $h \in L^1(0,T)$, is considered. Using minimax methods a new solvability condition in both cases, $m = 0$ and $m \geq 1$, is obtained. Three theorems concerning these conditions are proved.

Reviewer: B.Cheshankov (Sofia)

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