

Duffing equation with the potential Landesman-Lazer condition

Petr Tomiczek

Plzeň, Czech Republic

In this paper we investigate the nonlinear second order ordinary differential equation at resonance

$$u''(x) + cu' + \left(m^2 - \frac{c^2}{4}\right)u + g(x, u) = f(x), \quad x \in \langle 0, \pi \rangle,$$
$$x(0) = x(\pi) = 0.$$

We suppose that the nonlinearity g satisfies a potential Landesman-Lazer condition and we prove the existence of a solution to this problem using a saddle point theorem.