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Approximate period of nonlinear oscillators with discontinuities by modified Lindstedt–Poincaré method. (English) Zbl 1078.34509

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The author considers a modified Lindstedt-Poincaré method for the study of a Cauchy problem for a nonlinear oscillator with jumping discontinuities. The main idea of the method is the introduction of an artificial small parameter in the equation which allows asymptotic expansions of the solution and of the frequency. At least for the presented problem, the high efficiency of the method is shown.

Reviewer: Mariano Rodriguez Ricard (La Habana)

MSC:

34A36 Discontinuous ordinary differential equations
34E05 Asymptotic expansions of solutions to ordinary differential equations
34A12 Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions to ordinary differential equations
34C15 Nonlinear oscillations and coupled oscillators for ordinary differential equations

Keywords:

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