

**He, Jihuan**

**Modified Lindstedt-Poincaré methods for some strongly nonlinear oscillations. III: Double series expansion.** (English) [Zbl 1072.34507](#)

*Int. J. Nonlinear Sci. Numer. Simul.* 2, No. 4, 317-320 (2001).

**Summary:** We propose a new perturbation technique for strongly nonlinear oscillations with two parameters, which need not to be small in the present study. In this new method, the solution is expanded into a double series of the two parameters. In order to avoid the secular terms, a constant in the equation is also expressed in a double series expansion. The preliminary study shows that the obtained approximate solutions are uniformly valid on the whole solution domain.

For Part I: Expansion of a constant see *Int. J. Non-Linear Mech.* 37, No. 2, 309–314 (2002; [Zbl 1116.34320](#)); and Part II: A new transformation, *ibid.* 37, No. 2, 315–320 (2002; [Zbl 1116.34321](#)).

Reviewer: [Reviewer \(Berlin\)](#)

**MSC:**

- [34C15](#) Nonlinear oscillations and coupled oscillators for ordinary differential equations
- [34E05](#) Asymptotic expansions of solutions to ordinary differential equations
- [34E10](#) Perturbations, asymptotics of solutions to ordinary differential equations

Cited in **1** Review  
Cited in **40** Documents

**Full Text:** [DOI](#)

**References:**

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