A new application of multistage homotopy perturbation method to the chaotic Rössler system

ABSTRACT

In this paper, we present a numerical scheme based on an adaptation of the standard homotopy-perturbation method (HPM) is applied to the Chaotic Rössler system. The standard HPM is converted into a hybrid numeric-analytic method called the multistage HPM (MHPM). Comparisons with the fourth-order Runge-Kutta method (RK4) and standard HPM show that the MHPM is a reliable method for nonlinear equations.

Keyword: Chaotic Rössler system; Fourth-order Runge-Kutta method; Homotopy perturbation method; Multistage homotopy perturbation method