Determination of the Limit Cycle by He's Parameter-Expansion for Oscillators in a $u^3/(1+u^2)$ Potential

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This paper applies He's parameter-expansion method to determine the limit cycle of oscillators in a $u^3/(1+u^2)$ potential. The results are compared with the exact solutions. This shows that the method is a convenient and powerful mathematical tool for the search of limit cycles of nonlinear oscillators.

Key words: He's Parameter-Expansion Method (PEM); Limit Cycle; Nonlinear Oscillators.