Approximate Solution for Nonlinear Oscillation of a Mass Attached to a Stretched Elastic Wire by Optimal Homotopy Asymptotic Method

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Abstract

A precise solution of a mathematical model of a mass connected to an elastic wire is being given in this work. The Optimal Homotopy Asymptotic Method is applied to solve this conventional model. Also, comparison with other numerical methodologies and its exact solution will be given for distinct amplitude of oscillations and compliance can be observed. Results suggest that this technique is useful for solving non-linear oscillatory system quite easily. The solution procedure confirm that this method can be easily extended to other kinds of non-linear oscillators.

References

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Index Terms
Keywords

Optimal Homotopy Asymptotic Method; Non-linear Oscillatory System; Small and Large Amplitude; Highest Degree of Accuracy