

APPLICATION OF MULTISTAGE HOMOTOPY PERTURBATION METHOD FOR THE SINGULAR PERTURBATION INITIAL AND BOUNDARY VALUE PROBLEMS

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Abstract

In this article the multistage homotopy-perturbation method is used to solve singular perturbation initial value and boundary value problems. This method is a modification of homotopy-perturbation method in a sequence of subintervals to find more accurate approximate solution to the problems. The analytic-numeric solutions for the given examples demonstrate a good accuracy of the method and the results are evidence that the method is effective for solving a large number of singular problems.

Key Words : Singular perturbation problems, Multistage homotopy perturbation method.