

A NOVEL APPROXIMATE METHOD FOR A NONLINEAR HEAT TRANSFER PROBLEM

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Abstract

In the present paper, a homotopy analysis method helped by techniques of asymptotic approximations as well as Pade approximation is employed to compute approximate solutions of a singular boundary value problem for a second order non-linear ordinary differential equation involving two parameters. The approximate solutions describe qualitative nature of diffusive waves in nonlinear heat transfer phenomena.

Key Words: Nonlinear Singular Boundary Value Problems of Heat Transfer, Asymptotic Approximations, Pade Approximation, Methods of Homotopy Analysis.

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