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HOMOTOPY ANALYSIS METHOD FOR NONLINEAR BOUNDARY VALUE PROBLEM

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Abstract

Homotopy analysis method gives a strong approximate analytic solution to almost all nonlinear problems. In this paper, we have considered magneto-hydrodynamics (MHD) sink flow with a velocity power index of -1, for which exact analytic solution is given by Zhang et al. [14]. This problem is studied by using homotopy analysis method (HAM). The analytical solution obtained by Zhang et al. [14] exactly matches with HAM for h = 1 for a particular choice of linear operator which is an interesting coincidence. This provides greater insight into HAM.

Keywords and phrases: homotopy analysis method, sink flow, *h* curve, wall shear stress, linear operator.

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