

Numerical Solution of a laminar viscous flow boundary layer equation using Haar Wavelet Quasilinearization Method

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Abstract

In this paper, we propose a wavelet method to solve the well known Blasius equation. The method is based on the Haar wavelet operational matrix defined over the interval $[0, 1]$. In this method, we have used the coordinate transformation for converting the problem on a fixed computational domain. The generalized Blasius equation arises in the various boundary layer problems of hydrodynamics and in fluid mechanics of laminar viscous flows. Comparison is made with existing solutions in literature. Haar Wavelet Quasilinearization Method is of high accuracy even in the case of a small number of grid points and without any iteration.

References

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