عنوان مقاله:

Numerical Analyses of Steady Non-Newtonian Flow over Flat Plate on Intermediate Reynolds Numbers by Finite Volume Method

محل انتشار:

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خلاصه مقاله:

The present work attempts to characterize the flow of power-law fluids past a flat plate. However, since high viscosity (or equivalently low Reynolds number). Is often the case for non-Newtonian fluid flows, the errors resulting from applying boundary layer theory can be substantial and experimental or computational validation, which is often lacking, is particularly needed. This is part of the objective of the present paper. In this paper we consider a perpendicular grid, parallel to X and Y coordinate axis and to solve discretized form of the governing equations, control volume method and SIMPLE algorithm is compiled. Calculation have carried out writing a Visual Basic ۶.۰ language to test the reliability of the results comparisons are made with both Newtonian and fluent software in non-Newtonian case. It is found that at lower Reynolds numbers the boundary layer approximation is considered to be inadequate. All so the accuracy of boundary layers estimations are studied. The results show that by in creasing the power coefficient and fluid power the boundary layer size will increase and by decreasing them it will decrease.

کلمات کلیدی: