

Implementation of VSVO code for solving boundary value problems of Dirichlet and Neumann type

ABSTRACT

In this paper, a variable step size and variable order strategy (VSVO) used in the block method is developed for solving directly the second order two-point boundary value problems (BVPs). The variable step size and variable order strategy managed to reduce the total step and assure the accuracy of the method. The proposed block method can compute the solutions at two points simultaneously and adapted with multiple shooting technique via three-step iterative method. The performance for the proposed method was tested on the single and system of second order BVPs of Dirichlet and Neumann type. Numerical results are given to show the efficiency of the proposed method when compare to the existing method in terms of total steps and execution time.

Keyword: Block method; Boundary value problem; Variable step size variable order (VSVO)