

## **New algorithm of two-point block method for solving boundary value problem with dirichlet and Neumann boundary conditions**

### **ABSTRACT**

Two-point block method with variable step-size strategy is presented to obtain the solutions for boundary value problems directly. Dirichlet type and Neumann type of boundary conditions are studied in this paper. Multiple shooting techniques adapted with the three-step iterative method are employed for generating the guessing value. Six boundary value problems are solved using the proposed method, and the numerical results are compared to the existing methods. The results suggest a significant improvement in the efficiency of the proposed methods in terms of the number of steps, execution time, and accuracy.

**Keyword:** Block methods; Dirichlet and Neumann boundary conditions; Dirichlet type; Execution time; Multiple shooting; Numerical results; Two-point; Variable step size.