

Half-sweep modified successive over relaxation method for solving second order two-point boundary value problems using cubic spline

Abstract

The aim of this paper is to discuss the application of Half-Sweep Modified Successive Over Relaxation (HSMSOR) iterative method for solving second order two-point boundary value problems. The effectiveness of the proposed HSMSOR method is examined by solving linear system generated from the cubic spline discretization of second order two-point boundary value problems. In addition, the formulation and implementation of the proposed method are also presented. The results obtained from the proposed HSMSOR method with cubic spline scheme are compared with the results of Full-Sweep Successive Over Relaxation (FSSOR) and Half-Sweep Successive Over Relaxation (HSSOR) methods to demonstrate computationally their effectiveness.