A new Octo modified explicit group iterative method for the solution of 2D elliptic PDEs

Abstract

The main aim of this paper is to examine a new block iterative method known as the four Point-Octo Modified Explicit Group (OMEG) iterative method in solving two-dimensional elliptic partial differential equations. The method is shown to be very much faster as compared to the full-, half- and quarter-sweep iterative methods. In addition, formulation and implementation of the proposed method to solve the problems are also presented. Numerical test and comparison with other existing four point block iterative methods are given to illustrate the effectiveness of the proposed method.