

MEGSOR iterative method for the triangle element solution of 2D Poisson equations

Abstract

In previous studies of finite difference approaches, the 4 Point-Modified Explicit Group (MEG) iterative method with or without a weighted parameter, ω , has been pointed out to be much faster as compared to the existing four point block iterative methods. The main characteristic of the MEG iterative method is to reduce computational complexity compared to the full-sweep or half-sweep methods. Due to the effectiveness of this method, the primary goal of this paper is to demonstrate the use of the 4 Point-Modified Explicit Group (MEG) iterative method together with a weighted parameter, namely 4 Point-MEGSOR. The effectiveness of this method has been shown via results of numerical experiments, which are recorded and analyzed, show that that the 4 Point-MEGSOR iterative scheme is superior as compared with the existing four point block schemes.