

An implementation of QSAOR iterative method for non-homogeneous helmholtz equations

Abstract

This paper aims to show the usefulness of the quarter-sweep accelerated over relaxation (QSAOR) method by implementing the quarter-sweep approximation equation based on finite difference (FD) to solve two-dimensional (2D) Helmholtz equations compared to full-sweep accelerated over relaxation (FSAOR) and half sweep accelerated over relaxation (HSAOR) methods. The formulation and implementation of the QSAOR, HSAOR and FSAOR methods are also presented. Some numerical tests were carried out to illustrate that the QSAOR method is superior to HSAOR and FSAOR methods.