

# **Newton-SOR iterative method for solving the two-dimensional porous medium equation**

## **ABSTRACT**

In this paper, we consider the application of the Newton the approximate solution of the two nonlinear finite difference approximation equation to implicit finite difference scheme. The developed nonlinear system is linearized by using the Newton method. At each temporal step, the corresponding linear systems are solved by using SOR iteration. We investigate the eff three examples of 2D PME and the performance is compared with the Newton method. Numerical results show that the Newton Newton-GS iterative method in terms of a number of iterations, computer time and maximum absolute errors.