

# **An iterative solution for second order linear Fredholm integro-differential equations**

## **Abstract**

The objective of this paper is to analyze the application of the quarter-sweep iterative concept on Quadrature-Difference schemes namely central difference (CD)-composite trapezoidal (CT) with the Gauss-Seidel iterative method to solve second order linear Fredholm integro-differential equations. The formulation and implementation of the Full-, Half- and Quarter-Sweep Gauss-Seidel methods namely FSGS, HSGS and QSGS are presented for performance comparison. Furthermore, computational complexity and percentage reduction calculations are also presented with several numerical simulations. The numerical results show that the proposed QSGS method with the corresponding discretization schemes is superior compared to the FSGS and HSGS methods.