Half-Sweep Arithmetic Mean Method with High-Order Newton-Cotes Quadrature Schemes to Solve Linear Second Kind Fredholm Equations

ABSTRACT

The main purpose of this paper is to examine the effectiveness of the Half-Sweep Arithmetic Mean (HSAM) method in solving the dense linear systems generated from the discretization of the linear Fredholm integral equations of the second kind. In addition, the applications of the various orders of closed Newton-Cotes quadrature discretization schemes will be investigate in order to form linear systems. Furthermore, the basic formulation and implementation for the proposed method are also presented. Some illustrative examples are given to point out the efficiency of the proposed method.