Modified Iterative Method For the Solution of Fredholm Integral Equations of the Second Kind via Matrices

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Abstract

The Traditional Iterative technique is modified by expanding both the kernel and the known functions into Maclaurin polynomials of the same degree. The given modified method gives a very simple form for the iterated kernels via the well - known Hilbert matrix. Thus, the iterative solutions of an integral equation of the second kind can be reduced to the solution of a matrix equation, whereas only one coefficient matrix is required to be computed. Therefore, computational complexity can be considerably reduced and much computational time can be saved. The convergence of the given iterated solution is studied and the three conditions are given concluded results , figures, and Tables of calculations are observed during the solution of some numerical examples using MatLab.