

Fourth order diagonally implicit multistep block method for solving fuzzy differential equations

ABSTRACT

A fourth order diagonally implicit multistep block method is introduced to approximate the solution of fuzzy differential equations (FDEs). The problem is interpreted by using Seikkala's derivative. This method approximates two points simultaneously in a block along the interval. The Lagrange interpolating polynomial is applied in the formation of the formulas. The stability and convergence of this method at each computation points are given. Numerical solutions of this method are compared with the Runge-Kutta method of order four (RK(4)). The numerical results are given to highlight the performance of the proposed method when solving FDEs.

Keyword: Block method; Fuzzy differential equations; Lower triangular matrix