

## **Efficient interpolators in implicit block method for solving delay differential equations**

### **ABSTRACT**

In this paper, the development of an implicit block method with variable stepsize variable order technique is described. The grid-point formulae for different number of blocks are derived. The block method produces two new approximations in a single integration step by using the same back values. In order to vary the stepsize and order as efficiently as possible, the coefficients of the method at grid points are calculated and stored in the program. Delay solutions are approximated by using Lagrange and Hermite interpolations. These interpolation techniques prove to be both efficient and reliable with the two-point implicit block method in solving a wide range of delay differential equations.

**Keyword:** Block method; Delay differential equations; Interpolation technique; Variable order; Variable stepsize.