

## **Parallel direct integration variable step block method for solving large system of higher order ordinary differential equations.**

### **ABSTRACT**

The performance of the developed two point block method designed for two processors for solving directly non stiff large systems of higher order ordinary differential equations (ODEs) has been investigated. The method calculates the numerical solution at two points simultaneously and produces two new equally spaced solution values within a block and it is possible to assign the computational tasks at each time step to a single processor. The algorithm of the method was developed in C language and the parallel computation was done on a parallel shared memory environment. Numerical results are given to compare the efficiency of the developed method to the sequential timing. For large problems, the parallel implementation produced 1.95 speed up and 98% efficiency for the two processors.

**Keyword:** Numerical method; Parallel method; Block method; Higher order odes.