

## On the Derivation of Variable Step BBDF for Solving Second Order Stiff ODEs

**Authors :** S. A. M. Yatim, Z. B. Ibrahim, K. I. Othman, M. Suleiman

**Abstract :** The method of solving second order stiff ordinary differential equation (ODEs) that is based on backward differentiation formula (BDF) is considered in this paper. We derived the method by increasing the order of the existing method using an improved strategy in choosing the step size. Numerical results are presented to compare the efficiency of the proposed method to the MATLAB's suite of ODEs solvers namely ode15s and ode23s. The method was found to be efficient to solve second order ordinary differential equation.

**Keywords :** backward differentiation formulae, block backward differentiation formulae, stiff ordinary differential equation, variable step size

**Conference Title :** ICMMS 2014 : International Conference on Mathematics and Mathematical Sciences

**Conference Location :** Paris, France

**Conference Dates :** September 22-23, 2014