A THREE-STEP EXTENDED BLOCK HYBRID BACKWARD DIFFERENTIATION FORMULA FOR STIFF SYSTEM OF SECOND ORDER ORDINARY DIFFFERENTIAL EQUATIONS

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A stiff equation is a differential equation for which certain numerical methods for solving the equation are numerically unstable, unless the step size is taken to be extremely small. It has proven difficult to formulate a precise definition of stiffness, but the main idea is that the equation includes some terms that can lead to rapid variation in the solution

A three-step extended block hybrid backward differentiation formula is proposed for the stiff system of second order ordinary differential equations. This process compute the solution of stiff system in a block by block fashion by some discrete schemes obtained from the associated continuous schemes which are combined and implemented as a set of block formulae. Numerical experiments show that the method is suitable for stiff differential equations.