An accurate block solver for stiff initial value problems

ABSTRACT

New implicit block formulae that compute solution of stiff initial value problems at two points simultaneously are derived and implemented in a variable step size mode. The strategy for changing the step size for optimum performance involves halving, increasing by a multiple of 1.7, or maintaining the current step size. The stability analysis of the methods indicates their suitability for solving stiff problems. Numerical results are given and compared with some existing backward differentiation formula algorithms. The results indicate an improvement in terms of accuracy.

Keyword: Block; Stiff.