A New Block Method and Their Application to Numerical Solution of Ordinary Differential Equations

Song, Rei-Wei,李明恭
Applied Mathematics
Engineering
mglee@chu.edu.tw

Abstract

A class of multistage and multistep integration methods which can obtain r new values simultaneously at
each integration step was developed. Their stability regions were derived and sketched by MATLAB, and their regions
are either A-stable or A(a) -stable. Their applications to numerical solutions of nonstiff and stiff equations by
predictor-corrector scheme were also studied.

Keyword：Block method, multistages, and multistep method, predictor-corrector, A-stable, A(alpha)-method