On First- and Second-Order Difference Schemes for Differential-Algebraic Equations of Index at Most Two

Bulatov Mikhail, 李明恭, Solovarova, L.S.
Applied Statistics
Management
mglee@chu.edu.tw

Abstract

Abstract—Difference schemes of the Euler and trapezoidal types for the numerical solution of the ini
tial value problem for linear differential algebraic equations are examined. These schemes are ana
lyzed for model examples, and their superiority over the familiar first and second order implicit
methods is shown. Conditions for the convergence of the proposed algorithms are formulated

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