

A fast convergence parallel DIRKN method and its applications to PDEs

Cong N.H.

Faculty of Mathematics, Mechanics and Informatics University of Hanoi, 90 Nguyen Trai, Dong Da, Hanoi,
Vietnam

Abstract: In this paper, we propose a fast convergence parallel iteration process for solving a low-order implicit Runge-Kutta-Nystr m method. The resulting scheme can be regarded as a parallel singly diagonally implicit Runge-Kutta-Nystr m (PDIRKN) method. On a two-processor computer, this parallel method requires effectively two sequential implicit stages per step. By numerical experiments applied to initial-boundary-value problems for semi-discrete partial differential equations (PDEs), we compare this method with some sequential DIRKN methods from the literature, and show its efficiency in a low-accuracy range which is realistic for these problems.    1995.

Author Keywords: Parallelism; Predictor-corrector methods; Runge-Kutta-Nystr m methods

Year: 1995

Source title: Applied Mathematics Letters

Volume: 8

Issue: 2

Page : 85-90

Link: Scopus Link

Correspondence Address: Cong, N.H.

ISSN: 8939659

CODEN: AMLEE

Language of Original Document: English

Abbreviated Source Title: Applied Mathematics Letters

Document Type: Article

Source: Scopus

Authors with affiliations:

1. Cong, N.H., Faculty of Mathematics, Mechanics and Informatics University of Hanoi, 90 Nguyen Trai, Dong Da, Hanoi, Vietnam