

Parallel Multisplitting Methods for Differential Systems

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Abstract : We prove the superlinear convergence of asynchronous multi-splitting methods applied to differential equations. This study is based on the technique of nested sets. It permits to specify kind of the convergence in the asynchronous mode. The main characteristic of an asynchronous mode is that the local algorithm not have to wait at predetermined messages to become available. We allow some processors to communicate more frequently than others, and we allow the communication delays to be substantial and unpredictable. Note that synchronous algorithms in the computer science sense are particular cases of our formulation of asynchronous one.

Keywords : parallel methods, asynchronous mode, multisplitting, ODE

Conference Title : ICCSM 2015 : International Conference on Computer Science and Mathematics

Conference Location : Paris, France

Conference Dates : January 23-24, 2015