

The Adaptive Method of Lines

CDEs Group Presentation

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1 Introduction

- Motivation
- Method of lines used to solve Burgers' equation

2 Monitor Function

- Equidistribution principle
- Choice of monitor function

3 Static Method

- Moving Mesh theory and examples
- Mesh Refinement theory and examples

4 Dynamic Method

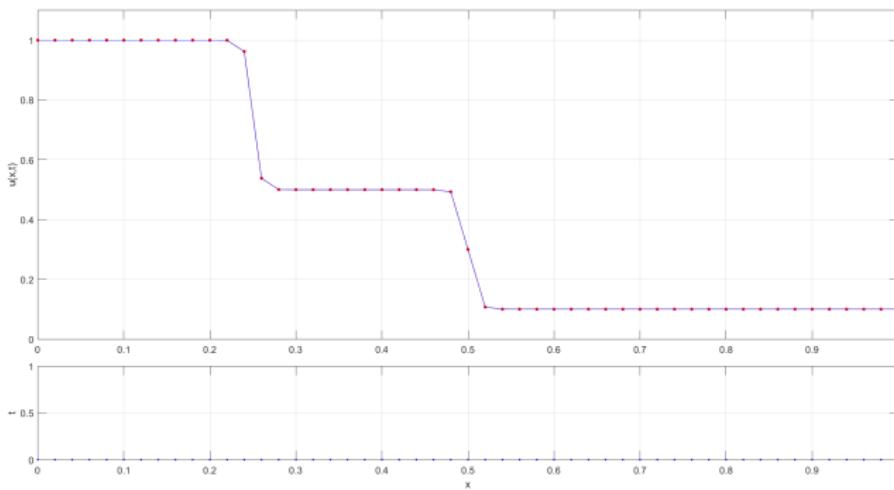
Motivation

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Method of Lines - Burgers' Equation

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Equidistribution Principle

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Choice of Monitor Function

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Moving Mesh

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Moving Mesh - KDV Equation Example 1

- Time step = 10

Moving Mesh - KDV Equation Example 2

- Time step = 2

Moving Mesh - Burgers' Equation Example 1

- Time step = 0.1

Moving Mesh - Burgers' Equation Example 2

- Time step = 0.01

Mesh Refinement

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Mesh Refinement - Burgers' Equation Example 1

- Time step = 0.1

Mesh Refinement - Burgers' Equation Example 2

- Time step = 0.01

Dynamic Method

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- content

Dynamic Method - Burgers' Equation Example

- Number of mesh points = 51

This is the last slide.

Any questions?