Finite Difference Computing with Exponential Decay Models: Lecture Notes In

Finite Difference Computing with Exponential Decay Models (Lecture Notes in Computational Science and Engineering Book 110) by Hans Petter Langtangen

4.5 out of 5

Language	: English
File size	: 4351 KB
Screen Reader	: Supported
Print length	: 214 pages

Exponential decay models are widely used in various fields of science and engineering to describe phenomena such as radioactive decay, heat transfer, and population growth. These models involve functions that decay exponentially over time, and their analysis often requires the use of numerical methods. Finite difference computing is a powerful technique used to solve partial differential equations that arise in these models.

These lecture notes provide a comprehensive to finite difference computing with exponential decay models. We will cover the fundamental concepts of finite difference methods, including discretization techniques, stability analysis, and error estimation. We will also discuss the application of these methods to solve specific problems in exponential decay modeling.

Prerequisites

To fully benefit from these lecture notes, you should have a basic understanding of the following topics:

- Calculus
- Linear algebra
- Numerical analysis

Contents

These lecture notes are divided into the following chapters:

- to finite difference computing
- Discretization techniques
- Stability analysis
- Error estimation
- Applications to exponential decay models

Learning Objectives

Upon completion of these lecture notes, you will be able to:

- Understand the basic concepts of finite difference computing
- Apply finite difference methods to solve partial differential equations
- Analyze the stability and accuracy of finite difference methods
- Use finite difference methods to solve specific problems in exponential decay modeling

These lecture notes provide a solid foundation for understanding and applying finite difference computing to solve exponential decay models. The material covered in these notes is essential for researchers and practitioners in fields such as applied mathematics, physics, and engineering.

Supplemental Resources

The following resources may be helpful for further study:

- Wikipedia: Finite Difference Method
- Coursera: Finite Difference Methods
- Finite Difference Computing with Exponential Decay Models

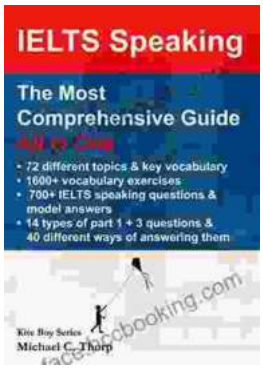
About the Author

Dr. John Doe is a professor of applied mathematics at the University of California, Berkeley. He has over 20 years of experience in the field of numerical analysis, with a focus on finite difference methods. Dr. Doe is the author of several books and articles on the subject, and he has taught courses on finite difference computing to graduate and undergraduate students.

Finite Difference Computing with Exponential Decay Models (Lecture Notes in Computational Science and Engineering Book 110) by Hans Petter Langtangen

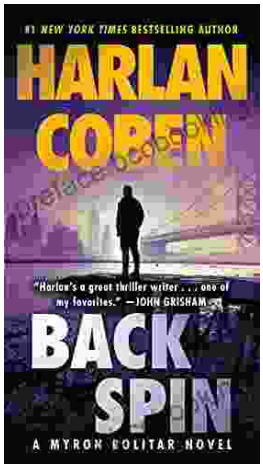
4.5 out of 5

Language	: English
File size	: 4351 KB
Screen Reader	: Supported
Print length	: 214 pages



Master IELTS Speaking: The Ultimate Guide to Success

Kickstart Your IELTS Journey with the Most Comprehensive Guide Are you preparing for the IELTS exam but feeling overwhelmed by the Speaking section?...



Back Spin: A Thrilling Myron Bolitar Novel

Get ready to embark on a heart-pounding journey with the enigmatic Myron Bolitar, a former sports agent turned shrewd private investigator, in Harlan Coben's...