

<<MATLAB中的谱方法>>

图书基本信息

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内容概要

The aim of this book is to teach you the essentials of spectral collocation methods with the aid of 40 short MATLAB programs, or "M-files."* The programs are available online at <http://www.comlab.ox.ac.uk/oucl/work/nick.trefethen>, and you will run them and modify them to solve all kinds of ordinary and partial differential equations (ODEs and PDEs) connected with problems in fluid mechanics, quantum mechanics, vibrations, linear and nonlinear waves, complex analysis, and other fields. Concerning prerequisites, it is assumed that the words just written have meaning for you, that you have some knowledge of numerical methods, and that you already know MATLAB.

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作者简介

作者：（美国）特弗森（Lloyd N.Trefethen）Lloyd N.Trefethen is Professor of Numerical Analysis at Oxford University. His previous SIAM book, Numerical Linear Algebra (with David Bau III, 1997) has sold over 5000 copies.

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章节摘录

版权页：插图：A number of other colleagues commented upon drafts of the book and improved it. I am especially grateful to John Boyd, Frederic Dias, Des Higham, Nick Higham, Alvaro Meseguer, Paul Milewski, Damian Packer, and Satish Reddy. In a category by himself goes Mark Embree, who has read this book more carefully than anyone else but me, by far. Embree suggested many improvements in the text, and beyond that, he worked many of the exercises, catching errors and contributing new exercises of his own. I am lucky to have found Embree at a stage of his career when he still has so much time to give to others. The Numerical Analysis Group here at Oxford provides a stimulating environment to support a project like this. I want particularly to thank my three close colleagues Mike Giles, Endre Still, and Andy Wathen, whose friendship has made me glad I came to Oxford; Shirley Dickson, who cheerfully made multiple copies of drafts of the text half a dozen times on short notice; and our outstanding group secretary and administrator, Shirley Day, who will forgive me, I hope, for all the mornings I spent working on this book when I should have been doing other things. This book started out as a joint production with Andrew Spratley, a D. Phil. student, based on a masters-level course I taught in 1998 and 1999. I want to thank Spratley for writing the first draft of many of these pages and for major contributions to the book's layout and figures. Without his impetus, the book would not have been written. Once we knew it would be written, there was no doubt who the publisher should be. It was a pleasure to publish my previous book [TrBa97] with SIAM, an organization that manages to combine the highest professional standards with a personal touch. And there was no doubt who the copy editor should be: again the remarkable Beth Gallagher, whose eagle eye and good sense have improved the presentation from beginning to end.

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媒体关注与评论

Fascinating mathematics, intriguing graphics, and beautiful MATLAB codes. ——Cleve Moler. Chairman and Chief Scientist, The Mathworks, Inc. This is a charming book, beautifully written, easy to understand without sacrificing accuracy. The idea of using MATLAB is brilliant and will appeal to the students and the other readers.

—— David Gottlieb, Ford Foundation Professor of Applied Mathematics, Brown University

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