<<矩阵计算>>

图书基本信息

书名：<<矩阵计算>>

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前言

The field of matfix computations continues to grow and mature.In the Third Edition we have added over 300 new references and 100 new problems.The LINPACK and EISPACK citations have bden replaced with appropriate pointers to LAPACK With key codes tabulated at the beginning of appropriate chapters. In the first Edition and Second Edition we identified a small number of global refefences：Wilkinson（1965），Forsythe and Moler（1967），Stewart（1973），Hanson and Lawson（1974）and Parlett（1980）.These volumes are as important as ever to the research landscape，but there are some mag- nificent new textbooks and monographs on the scene.See The Litemture section that follows. We continue as before With the practice of giving references at the end of each section and a master bibliography at the end of the book. The earlier editions suffered from a large number of typographical errors and we are obliged to the dozens of readers who have brought these to our attention.Many corrections and clarifications have been made. Here are some specific highlights of the new edition.Chapter 1（Matrix Multiplication Problems）and Chapter 6（Parallel Matrix Computations）have been completely rewritten with less formality.We think that this facilitates the building of intuition for high performance computing and draws a better line between algorithm and implementation on the printed page. In Chapter 2（Matrix Analysisl we expanded the treatment of CS de- composition and included a proof.The overview of floating point arithmetic has been brought up to date.In Chapter 4（Special Linear Systems）we embellished the Toeplitz section with connections to circulant matrices and the fast Fourier transform.A subsection on equilibrium systems has been included in our treatment of indefinite systems. A more accurate rendition of the modified Gram.Schmidt process is oifered in Chapter 5 fOrthogonalization and Least Squares）.Chapter 8（The Symmetric Eigenproblem）has been extensively rewritten and rear ranged SO as to minimize its dependence upon Chapter 7 fThe Unsymmetric Eigenproblem）.Indeed，the coupling between these two chapters is now so minimal that it is possible to read either one flrst.

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内容概要

本书系统介绍了矩阵计算的基本理论和方法。
内容包括矩阵乘法、矩阵分析、线性方程组、正交化和最小二乘法、特征值问题、Lanczos方法、矩阵函数及专题讨论等。
书中的许多算法都有现成的软件包实现，每节后还附有习题，并有注释和大量参考文献。
　　本书可作为高等学校数学系高年级本科生和研究生的教材，亦可作为计算数学和工程技术人员的参考用书。

作者简介

Gene H.Golub，（1932-2007），美国科学院、工程院和艺术科学院院士，世界著名的数分析专家，现代矩阵计算的奠基人，生前曾任斯坦福大学教授。
他是矩阵分解算法的主要贡献者，与William Kahan在1970年给出了奇异值分解（SingularValue Decomposition,SVD）的可行算法，一直沿用至今。
他发起组织了工业与应用数学国际会议（Intemational Congress on Industrial and Applied Mathematics，ICIAM）。

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书籍目录

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