

<<Natural Borndary Int>>

图书基本信息

书名：<<Natural Borndary Integral Method and Its Applications自然边界元方法的数学理论>>

13位ISBN编号：9787030082701

10位ISBN编号：7030082702

出版时间：2006-7

出版时间：科学

作者：Dehao Yu

页数：539

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<Natural Borndary Int>>

内容概要

Boundary element methods are very important for solving boundary value problems in PDEs. Many boundary value problems of partial differential equations can be reduced into boundary integral equations by the natural boundary reduction. In this book the natural boundary integral method, suggested and developed by Feng and Yu, is introduced systematically. It is quite different from popular boundary element methods and has many distinctive advantages. The variational principle is conserved after the natural boundary reduction, and some useful properties are also preserved faithfully. Moreover, it can be applied directly and naturally in the coupling method and the domain decomposition method of finite and boundary elements. Most of the material in this book has only appeared in the author's previous papers. Compared with its Chinese edition (Science Press, Beijing 1993), many new research results such as the domain decomposition methods based on the natural boundary reduction are added. This book is intended for graduate students and researchers of computational and applied mathematics, scientific computing, computational mechanics and physics. It is also of interest to university lecturers, scientists and engineers who are interested in the application of the boundary element method.

<<Natural Borndary Int>>

书籍目录

Preface
Chapter I. General Principle of the Natural Boundary Integral Method 1.1 Introduction 1.2 Boundary Reductions and Boundary Element Methods 1.3 Basic Idea of the Natural Boundary Reduction 1.4 Numerical Computation of Hypersingular Integrals 1.5 Convergence and Error Estimates for the Natural Boundary 1.6 On Computation of Poisson Integral Formulas
Chapter II. Boundary Value Problem for the Harmonic Equation 2.1 Introduction 2.2 Representation of a Solution by Complex Variable Functions 2.3 Principle of the Natural Boundary Reduction 2.4 Natural Integral Equations and Poisson Integral Formulas for Some Typical Domains 2.5 Natural Boundary Reduction for General Simply Connected Domains 2.6 Natural Integral Operators and Their Inverse Operators 2.7 Direct Study of Natural Integral Equations 2.8 Numerical Solution of Natural Integral Equations 2.9 Numerical Solution of the Natural Integral Equation over a Sector with Crack or Concave Angle
Chapter III. Boundary Value Problem of the Biharmonic Equation 3.1 Introduction 3.2 Representation of a Solution by Complex Variable Functions 3.3 Principle of the Natural Boundary Reduction 3.4 Natural Integral Equations and Poisson Integral Formulas for Some Typical Domains 3.5 Natural Integral Operators and Their Inverse Operators 3.6 Direct Study of Natural Integral Equations 3.7 Numerical Solution of Natural Integral Equations 3.8 Boundary Value Problems of Multi-Harmonic Equations
Chapter IV. Plane Elasticity Problem 4.1 Introduction
Chapter V. Stokes Problem
Chapter VI. The Coupling of Natural Boundary Elements and Finite Elements
Chapter VII. Domain Decomposition Methods Based On Natural Boundary Reduction
References
Index

<<Natural Borndary Int>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>