

著作类成果

有限单元法原理与应用（第三版）

【创新性】

全面系统地阐述了有限单元法的基本原理及其在土木、水利工程问题中的应用，包括弹性力学平面问题和空间问题、薄板、薄壳、厚板、厚壳、弹性稳定、塑性力学、大位移、断裂、动力反应、徐变、岩土力学、极限分析、混凝土和钢筋混凝土、流体力学、渗流分析、热传导、工程反分析、仿真分析、网格自动生成、误差估计及自适应技术等。本书取材实用、由浅入深、先易后难，便于自学；对于实际工程中有用的计算方法力求讲述清楚并给出具体计算公式，便于应用；对有限单元法的工程应用，注意工程的物理特性，要求采用的概化假定、计算参数和计算荷载等尽量接近实际，注重计算方法精度的适应性等，并重视有限元计算结果与实际观测资料相验证。

【影响力】

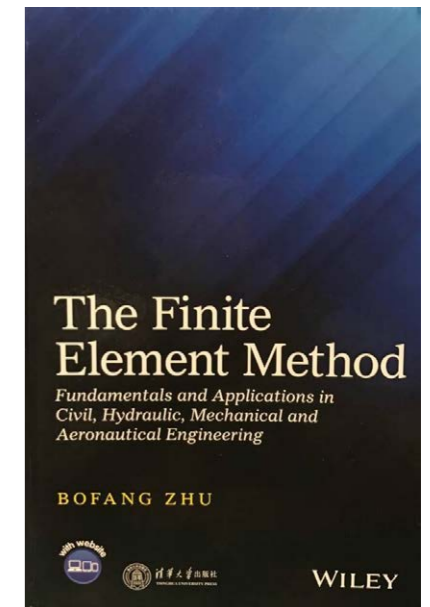
我国最早的有限元专著之一，为在我国推广有限元法发挥了重要作用；本书共出版三版，第一版于1976年8月，第二版于1998年10月，第三版于2009年6月；曾作为多所高校的有限元课程教材使用；英文版已由清华大学出版社和美国Wiley出版社联合出版；中国科学技术信息研究所编著的《中国高被引指数分析》（2011版）中，本书列为国内水利工程领域高被引图书第2名。

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【Innovation】

This book expounds, in an all-round and systematic manner, the basic theory of the finite element method and its application to civil engineering and hydraulic engineering, including plane and space problems of elasticity, thin plate, thin shell, thick plate, thick shell, elastic stability, plasticity, large displacement, fracture, dynamic response, creep, rock and soil mechanics, limit analysis, concrete and reinforced concrete, fluid mechanics, seepage analysis, heat conduction, back analysis in engineering, simulated analysis, automatic generation of meshes, error estimation and adaptive technique. This book is learner-friendly because it contains practical content and expounds knowledge step by step and from easy to difficult; and is also easy to use because it strives to clarify the computing methods usable in actual engineering and gives corresponding formulas. Regarding the engineering application of the finite element method, it pays attention to the physical characteristics of projects, requires adopted conceptualized assumption, calculation parameter and calculation load be close enough to reality and accuracy of calculation methods be adaptive, and stresses the verification between the calculation result of the finite element method and actual observational data.



【Influence】

Amongst the earliest finite element books in China, this book plays an important role in generalizing the finite element method in China. It has registered three editions, with the first edition published in August, 1976, the second edition in October, 1998 and the third edition in June, 2009. It served as a finite element textbook of many colleges and universities; and its English version has been published jointly by Tsinghua University Press and the U.S.-based Wiley & Sons, Inc. This

book ranks second amongst the highly-cited books of hydraulic engineering in China, according to the Analysis Report of Chinese Highly Cited Paper 2011 of the Institute of Scientific and Technical Information of China (ISTIC)

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THE FINITE ELEMENT METHOD THEORY AND APPLICATIONS(EDITION III)