

## <<计算复杂性的现代方法>>

### 图书基本信息

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### 内容概要

本书是一部将所有有关复杂度知识理论集于一体的教程。将最新进展和经典结果结合起来，是一部很难得的研究生入门级教程。既是相关科研人员的一部很好的参考书，也是自学人员很难得的一本很好自学教程。本书一开始引入该领域的最基本知识，然后逐步深入，介绍更多深层次的结果，每章末都附有练习。对复杂度感兴趣的人士，物理学家，数学家以及科研人员这本书都是相当受益。

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## 章节摘录

版权页：插图： Physicists , mathematicians , and other scientists . This group has become increasingly interested in computational complexity theory , especially because of high—profile results such as Shor's algorithm and the recent deterministic test for primality . This intellectually sophisticated group will be able to quickly read through Part . Progressing on to Parts and , they can read individual chapters and find almost everything they need to understand current research . Computer scientists who do not work in complexity theory per se . They may use the book for self—study , reference , or to teach an undergraduate or graduate course in theory of computation or complexity theory . Anyone——professors or students——who does research in complexity theory or plans to do so . The coverage of recent results and advanced topics is detailed enough to prepare readers for research in complexity and related areas . Undergraduate theory of computation . Many computer science ( CS ) departments offer an undergraduate Theory of Computation course , using , say , Sipser's book ( Sip96 ) . Our text could be used to supplement Sipser's book with coverage of some more modern topics , such as probabilistic algorithms , cryptography , and quantum computing . Undergraduate students may find these more exciting than traditional topics , such as automata theory and the finer distinctions of computability theory . The prerequisite mathematical background would be some comfort with mathematical proofs and discrete mathematics , as covered in the typical "discrete math" or "math for CS" courses currently offered in many CS departments . Introduction to computational complexity for advanced undergrads or beginning grads . The book can be used as a text for an introductory complexity course aimed at advanced undergraduate or graduate students in computer science ( replacing books such as Papadimitriou's 1994 text ( Pap94 ) that do not contain many recent results ) . Such a course would probably include many topics from Part and then a sprinkling from Parts and and assume some background in algorithms and/or the theory of computation . Graduate complexity course . The book can serve as a text for a graduate complexity course that prepares graduate students for research in complexity theory or related areas like algorithms and machine learning . Such a course can use Part to review basic material and then move on to the advanced topics of Parts and . The book contains far more material than can be taught in one term , and we provide on our Web site several alternative outlines for such a course .

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