

《材料科学与工程基础》

图书基本信息

书名 : 《材料科学与工程基础》

13位ISBN编号 : 9787502541781

10位ISBN编号 : 7502541780

出版时间 : 2004-1

出版社 : 化学工业出版社

作者 : 凯里斯特

页数 : 524

版权说明 : 本站所提供下载的PDF图书仅提供预览和简介以及在线试读 , 请支持正版图书。

更多资源请访问 : www.tushu000.com

《材料科学与工程基础》

内容概要

《国外名校名著:材料科学与工程基础(第5版)(英文影印版)》 1. Introduction
1.1 Historical Perspective
1.2 Materials Science and Engineering
1.3 Why Study Materials Science and Engineering?
1.4 Classification of Materials
1.5 Advanced Materials
1.6 Modern Materials' Needs
2. Atomic Structure and Interatomic Bonding
2.1 Introduction
2.2 Fundamental Concepts
2.3 Electrons in Atoms
2.4 The Periodic Table
2.5 Bonding Forces and Energies
2.6 Primary Interatomic Bonds
2.7 Secondary Bonding or Van der Waals Bonding
2.8 Molecules。

《材料科学与工程基础》

作者简介

作者：(美国)凯里斯特

《材料科学与工程基础》

书籍目录

1. Introduction 1.1 Historical Perspective 1.2 Materials Science and Engineering 1.3 Why Study Materials Science and Engineering? 1.4 Classification of Materials 1.5 Advanced Materials 1.6 Modern Materials
' Needs2. Atomic Structure and Interatomic Bonding 2.1 Introduction 2.2 Fundamental Concepts 2.3 Electrons in Atoms 2.4 The Periodic Table 2.5 Bonding Forces and Energies 2.6 Primary Interatomic Bonds 2.7 Secondary Bonding or Van der Waals Bonding 2.8 Molecules3. Structures of Metals and Ceramics 3.1 Introduction 3.2 Fundamental 3.3 Unit Cells 3.4 Metallic Crystal Structures 3.5 Density Computations-Metals 3.6 Ceramic Crystal Structures 3.7 Density Computations-Ceramics 3.8 Silicate Ceramics 3.9 Carbon 3.10 Polymorphism and Allotropy 3.11 Crystal Systems 3.12 Crystallographic Directions 3.13 Crystallographic Planes 3.14 Linear and Planar Atomic Densities 3.15 Close-Packed Crystal Structures 3.16 Single Crystals 3.17 Polycrystalline Materials 3.18 Anisotropy 3.19 X-Ray Diffraction:Determination of Crystal Structures(CD-ROM)S-6 3.20 Noncrystalline solids4. Polymer Strutures 4.1 Introduction 4.2 Hydrocarbon Molecules 4.3 Polymer Molecules 4.4 The Chemistry of Polymer Molecules 4.5 Molecular Weight 4.6 Molecular Shape 4.7 Molecular Structure 4.8 Molecular Configurations(CD-ROM)S-11 4.9 Thermoplastic and Thermosetting Polymers 4.10 Copolymers 4.11 Polymer Crystals 4.12 Polymer Crystals5. Imperfections in Solids 5.1 Introduction 5.2 Point Defects in Metals 5.3 Point Defects in Ceramics 5.4 Impurities in Solids 5.5 Point Defects in Polymers 5.6 Specification of Composition 5.7 Dislocations-Linear Defects 5.8 Interfacial Defects 5.9 Bulk or Volume Defects 5.10 Atomic Vibrations 5.11 General 5.12 Microscopic Techniques 5.13 Grain Size Determination6. Diffusion 6.1 Introduction 6.2 Diffusion Mechanisms 6.3 Steady-State Diffusion 6.4 Nonsteady-State Diffusion 6.5 Factors That Influence Diffusion 6.6 Other Diffusion Paths 6.7 Diffusion in Ionic and Polymeric Materials7. Mechanical Properties 7.1 Introduction 7.2 Concepts of Stress and Strain 7.3 Stress-Strain Behavior 7.4 Anelasticity 7.5 Elastic Properties of Materials 7.6 Tensile Properties 7.7 True Stress and Strain 7.8 Elastic Recovery During Plastic Deformation 7.9 Compressive, Shear, and Torsional Deformation 7.10 Flexural Strength 7.11 Elastic Behavior 7.12 Influence of Porosity on the Mechanical Propertise of Ceramics(CD-ROM)S-22 7.13 Stress-Strain Behavior 7.14 Macroscopic Deformation 7.15 Viscoelasticity(CD-ROM)S-22 7.16 Hardness 7.17 Hardness of Ceramic Materials 7.18 Tear Strength and Hardness of Polymers 7.19 Variability of Material Properties 7.20 Design/Safety Factors8. Deformation and Strengthening Mechanisms 8.1 Introduction 8.2 Historical 8.3 Basic Concepts of Dislocations 8.4 Characteristics of Dislocations 8.5 Slip Systems 8.6 Slip in Single Crystals(CD-ROM)S-31 8.7 Plastic Deformation of Polycrystalline Metals 8.8 Deformation by Twinning(CD-ROM)S-34 8.9 Strengthening by Grain Size Reduction 8.10 Solid-Solution Strengthening 8.12 Recovery 8.13 Recrystallization 8.14 Grain Growth 8.15 Crystalline Ceramics 8.16 Noncrystalline Ceramics 8.17 Deformation of Semicrystalline Polymers 8.18 Factors That Influence the Mechanical Properties of Semicrystalline Polymers[Detailed Version (CD-ROM)]S-35 8.19 Deformation of Elastomers9. Failure 9.1 Introduction 9.2 Fundamentals of Fracture 9.3 Ductile Fracture 9.4 Brittle Fracture 9.5a Principles of Fracture Mechanics[Detailed Version (CD-ROM)]S-38 9.6 Brittle Fracture of Ceramics 9.7 Fracture of Polymers 9.8 Impact Fracture Testing 9.9 Cyclic Stresses 9.10 The S-N Curve 9.11 Fatigue in Polymeric Materials 9.12a Crack Initiation and Propagation[Detailed Version (CD-ROM)]S-54 9.13 Crack Propagation Rate 9.14 Factors That Affect Fatigue Life 9.15 Environmental Effects(CD-ROM)S-62 9.16 Generalized Creep Behavior 9.17b Stress and Temperature Effects (Concise Version)S-65 9.18 Data Extrapolation Methods 9.19 Alloys for High-Temperature Use 9.20 Creep in Ceramic and Polymeric Materials10 Phase Diagrams 10.1 Introduction 10.2 Solubility 10.3 Phases 10.4 Microstructure 10.5 Phase Equilibria 10.6 Binary Isomorphous Systems 10.7 Interpretation of Phase Diagrams 10.8 Development of Microstructure in Isomorphous Alloys (CD-ROM)S-67 10.9 Mechanical Properties of Isomorphous Alloys 10.10 Binary Eutectic Systems 10.11 Development of Microstructure in Eutectic Alloys(CD-ROM)S-70 10.12 Equilibrium Diagrams Having Intermediate Phases or Compounds 10.13 Eutectoid and Peritectic Reactions 10.14 Congruent Phase Transformations 10.15 Ceramic Phase Diagrams(CD-ROM)S-77 10.16 Ternary Phase Diagrams 10.17 The Gibbs Phase Rule (CD-ROM)S-81 10.18 The Iron-Iron Carbide (Fe-Fe₃C)Phase Diagram 10.19 Development of Microstructures in Iron-Carbon Alloys 10.20 The Influence of Other Alloying Elements(CD-ROM)S-8311 Phase Transformations 11.1 Introduction 11.2 Basic Concepts 11.3 The Kinetics of Solid-State 11.4 Multiphase

《材料科学与工程基础》

Transformations 11.5 Isothermal Transformation 11.6 Continuous Cooling Transformation
Diagrams(CD-ROM)S-85 11.7 Mechanical Behavior of Iron-Carbon Alloys 11.8 Tempered Martensite 11.9
Review of Phase Transformations for Iron-Carbon Alloys 11.10 Heat Treatments 11.11 Mechanism of Hardening
11.12 Miscellaneous Considerations 11.13 Crystallization 11.14 Melting 11.15 The Glass Transition 11.16 Melting
and Glass Transition Temperatures 11.17 Factors That Influence Melting and Glass Transition Temperatures
(CD-ROM)S-8712.Electrical Properties 12.1 Introduction 12.2 Ohm's Law 12.3 Electrical Conductivity 12.4
Electronic and Ionic Conduction 12.5 Energy Band Structures in Solids 12.6 Conduction in Terms of Band and
Atomic Bonding Models 12.7 Electron Mobility 12.8 Electrical Resistivity of Metals 12.9 Electrical Characteristics
of Commercial Alloys 12.10 Intrinsic Semiconduction 12.11 Extrinsic Semiconduction 12.15 Conduction in
Ionic Materials 12.16 Electrical Properties of Polymers14.Synthesis,Fabrication, and Processing of Materials
(CD-ROM)S-118 14.1 Introduction S-119 14.2 Forming Operations S-119 14.3 Casting 14.4 Miscellaneous
Techniques 14.5 Annealing Processes 14.6 Heat Treatment of Steels 14.7 Fabrication and Processing of Glasses
14.8 Fabrication of Clay Products 14.9 Powder Pressing 14.10 Tape Casting 14.11 Polymerization 14.12 Polymer
Additives 14.13 Forming Techniques for Plastics 14.14 Fabrication of Elastomers 14.15 Fabrication of Fibers and
Films15.Composites(CD-ROM)S-162 15.1 Introduction 15.2 Large-Particle Composites 15.3
Dispersion-Strengthened Composites 15.4 Influence of Fiber Length 15.5 Influence of Fiber Orientation and
Concentration 15.6 The Matrix Phase 15.7 The Matrix Phase 15.8 Polymer-Matrix Composites 15.9
Metal-Matrix Composites 15.10 Ceramic-Matrix Composites 15.11 Carbon-Carbon Composites 15.12 Hybrid
Composites 15.13 Processing of Fiber-Reinforced Composites 15.14 Laminar Composites 15.15 Sandwich
Panels16.Corrosion and Degradation of Materials (CD-ROM) 16.1 Introduction 16.2 Electrochemical
Considerations 16.3 Corrosion Rates 16.4 Prediction of Corrosion Rates 16.5 Passivity 16.6 Environmental
Effects 16.7 Forms of Corrosion 16.8 Corrosion Environments 16.9 Corrosion Prevention 16.10 Oxidation 16.11
Swelling and Dissolution 16.12 Bond Rupture 16.13 Weathering17.Thermal Properties(CD-ROM) 17.1
Introduction 17.2 Heat Capacity 17.3 Thermal Expansion 17.4 Thermal Conductivity 17.5 Thermal
Stresses18.Magnetic Properties 18.1 Introduction 18.2 Basic Concepts 18.3 Diamagnetism and Paramagnetism
18.4 Ferromagnetism 18.5 Antiferromagnetism and Ferrimagnetism 18.6 The Influence of Temperature on
Magnetic Behavior 18.7 Domains and Hysteresis 18.8 Soft Magnetic Materials 18.9 Hard Magnetic Materials
18.10 Magnetic Storage 18.11 Superconductivity19.Optical Properties(CD-ROM) 19.1 Introduction 19.2
Electromagnetic Radiation 19.3 Light Interactions with Solids 19.4 Atomic and Electronic Interactions 19.5
Refraction 19.6 Reflection 19.7 Absorption 19.8 Transmission 19.9 Color 19.10 Opacity and Translucency in
Insulators 19.11 Luminescence 19.12 Photoconductivity 19.13 Lasers 19.14 Optical Fibers in
Communications20.Materials Selection and Design Considerations(CD-ROM) 20.1 Introduction 20.2 Strength
20.3 Other Property Considerations and the Final Decision 20.4 Introduction 20.5 Automobile Valve Spring 20.6
Anatomy of the Hip Joint 20.7 Material Requirements 20.8 Materials Employed 20.9 Introduction 20.10
Thermal Protection System-Design Requirements 20.11 Thermal Protection System-Components 20.12
Introduction 20.13 Leadframe Design and Materials 20.14 Dis Bonding 20.15 Wire Bonding 20.16 Package
Encapsulation 20.17 Tape Automated Bonding21.Economic,Environmental, and Societal Issues in Materials
Science and Engineering 21.1 Introduction 21.2 Component Design 21.3 Materials 21.4 Manufacturing
Techniques 21.5 Recycling Issues in Materials Science and Engineering

《材料科学与工程基础》

精彩短评

- 1、作为专业英语学习用的书籍
- 2、对于国内学生来说，能开眼界，书挺好的
- 3、这是我们高分子材料与工程专业必学的，呵呵，就是价格比京东贵了点
- 4、专业性很强,不错,适合研究生阅读,收藏.认真学习里面的语法和词汇很重要.
- 5、价廉物美，比较满意！
- 6、怎么没CD-ROM.
- 7、一半的内容都在光盘里！可是完全没看到光盘在哪里！上海书城有得买，贵个几块钱，可是最起码能买个全乎的！真是上当！
- 8、very excellent
- 9、书看着挺好的，可惜没有光盘。哪怕有张刻录的也行，毕竟书中的内容好多写着详见光盘，没有光盘就挺不爽的。还有就是我明明写着让开发票，我取快递的时候还问了快递员有发票吗？快递员说都在包装里面。结果打开看，根本没有，不知道这个问题客服能给解决下不？
- 10、对材料科学与工程初学者很有帮助，但是美中不足的是没有光盘
- 11、多一本参考书
- 12、对英语感兴趣的朋友不妨考虑一下
- 13、书还行，怎么没有光盘啊
- 14、感觉很好，恩，以后还会来的，恩。
- 15、服务很好效率很高书质量高
- 16、书的质量不错，印刷很好
- 17、不错的书，就是物流太慢
- 18、现在材料学研究与国际接轨，如果都不知道国外讲些什么，怎么接轨？这本书是引路石。
- 19、么有光碟啊
- 20、完全是英文内容
- 21、专业方面很不错的入门书
- 22、专业课，没办法。这门课要求双语教学。
- 23、没有光盘，可以用来学习科技英语
- 24、学专业课用的课本 专业领域里很经典的著作 非常好
- 25、导师推荐的，基础，英语读起来不是很难
- 26、看过了，不错
- 27、快递速度很给力，但是书打的折扣不给力哦，还有，书是11年印刷的哦
- 28、不错，适合准备研究生面试的同学
- 29、这本书非常好，和国内的一些高校的教材比，浅显易懂。
物流很快！
帮别人买的，质量什么的没看到，就不做评论了。
- 30、和其他网友的评论一样，没有光盘，纸质还可以哦！
- 31、全英文版的东西，内容似乎有点简单，不过本来就是基础教材
- 32、这本书十分不错，老师推荐的
- 33、都是泪水 看书看出来的泪水
- 34、收到了，书很好，，，
- 35、书质量很好，内容很清晰。。。
- 36、书是不错，但没有光盘。如果能在书店买到还是在书店买含光盘的。价格也不便宜多少，但光盘含一半内容。国外也搞缩减课时难道，重点掌握内容在书上，一般掌握在光盘上
- 37、没读完。。。
- 38、不错，呵呵呵呵 电话规范和形成股份和保护法
- 39、很完整的材料科学体系。这本书相当于是Materials Science and Engineering:an Introduction的一个删减版。去掉了不少的内容。
- 40、看的第一本专业英文著作，比大学时的教材好太多了。

《材料科学与工程基础》

- 41、为什么没有附带光盘，许多的内容都在cd-rom，而没有光盘。经典的东西没有了，咋回事，原来就没有还是光盘没有给？
- 42、内容不错，看起来比较费劲，不过有兴奋点
- 43、纸张不好，但是内容不错；内容不全，但是小木虫上有电子版的补充
- 44、今天刚收到书,很兴奋,可我打开书时发现书的边角损伤很严重,虽然说这难免,但我前几次买的都不错,不知道是不是天冷了服务质量也冻结了,呵呵,开个玩笑,支持中国,希望当当网在服务客户方面做的更好,因为客户是企业生命力的源泉,在世界经济全球化的今天,只有更好的服务质量才是企业赢得客户,生存的唯一出路!
- 45、感觉是正版的，但是没有那个防伪标志，还有书中说的光碟没有的！比亚马逊优惠好多！
- 46、换了一本，还是直到13章。
- 47、书本保护包装还行，送货也很快
- 48、挺基础
- 49、发货够快，没有想象中的那么不好，快递员态度也很好。书的质量还不错，页面不是很白，我喜欢。
- 50、影印版材料科学书籍
- 51、没有光盘，可以不可提供光盘地址的下载地址
- 52、好厚的英文版本。据说有光碟？！求证实

《材料科学与工程基础》

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:www.tushu000.com