

<<纳米技术中的显微学手册.第1卷>>

图书基本信息

书名：<<纳米技术中的显微学手册.第1卷>>

13位ISBN编号：9787302111887

10位ISBN编号：730211188X

出版时间：2006-3

出版时间：清华大学出版社

作者：姚楠

页数：333

字数：535000

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>

<<纳米技术中的显微学手册.第1卷>>

内容概要

现代显微学在纳米技术领域的研究和发展中起到“眼睛”和“手”的功能。

迄今，人们仍在孜孜不倦地寻找纳米尺度上的“火眼金睛”。

本手册的目的在于提供关于各种显微学的原理及其在该迅猛发展的领域内应用的综述参考书。

本手册共有22个专题，每一专题都由不同研究领域的、处于世界前沿的科学家撰写。

本书是第1卷，涵盖的范围包括共聚焦光学显微镜、扫描近场光学显微镜、各种扫描探针显微术、离子显微镜等，共有10个专题。

本书力图使读者对所叙述的方法有一个概念上的理解，而不是只停留在对理论的堆砌上。

在每一个专题里，都会叙述相关的实例及其应用并加以讨论，使读者对每种显微技术都能明了和理解；还会进一步展示各章之间的内在联系，表明每一种技术如何在综合性的、复杂的测试中各自扮演独特的角色，解决具体的问题。

书籍目录

1 Confocal Scanning Optical Microscopy and Nanotechnology 1.1 Introduction 1.2 The Confocal Microscope 1.2.1 Principles of Confocal Microscopy 1.2.2 Instrumentation 1.2.3 Techniques for Improving Imaging of Nanoscale Materials 1.3 Applications to Nanotechnology 1.3.1 Three Dimensional Systems 1.3.2 Two Dimensional Systems 1.3.3 One Dimensional Systems 1.3.4 Zero Dimensional Systems 1.4 Summary and Future PerspectivesReferences 2 Scanning Near Field Optical Microscopy in Nanosciences 2.1 Scanning Near Field Optical Microscopy and Nanotechnology 2.2 Basic Concepts 2.3 Instrumentation 2.3.1 Probe Fabrication 2.3.2 Flexibility of Near Field Measurements 2.4 Applications in Nanoscience 2.4.1 Fluorescence Microscopy 2.4.2 Raman Microscopy 2.4.3 Plasmonic and Photonic Nanostructures 2.4.4 Nanolithography 2.4.5 Semiconductors 2.5 Perspectives References3 Scanning Tunneling Microscopy 3.1 Basic Principles of Scanning Tunneling Microscopy 3.1.1 Electronic Tunneling 3.1.2 Scanning Tunneling Microscope 3.2 Surface Structure Determination by Scanning Tunneling Microscopy 3.2.1 Semiconductor Surfaces 3.2.2 Metal Surfaces 3.2.3 Insulator Surfaces 3.2.4 Nanotubes and Nanowires 3.2.5 Surface and Subsurface Dynamic Processes 3.3 Scanning Tunneling Spectroscopies 3.3.1 Scanning Tunneling Spectroscopy 3.3.2 Inelastic Tunneling Spectroscopy 3.3.3 Local Work Function Measurement 3.4 STM Based Atomic Manipulation 3.4.1 Manipulation of Single atoms 3.4.2 STM Induced Chemical Reaction at Tip 3.5 Recent Developments 3.5.1 Spin Polarized STM 3.5.2 Ultra Low Temperature STM 3.5.3 Dual Tip STM 3.5.4 Variable Temperature Fast Scanning STM References4 Visualization of Nanostructures with Atomic Force Microscopy 4.1 Introductory Remarks 4.2 Basics of Atomic Force Microscopy 4.2.1 Main Principle and Components of Atomic Force Microscope 4.2.2 Operational Modes, Optimization of the Experiment and Image Resolution 4.2.3 Imaging in Various Environments and at Different Temperatures 4.3 Imaging of Macromolecules and Their Self Assemblies 4.3.1 Visualization of Single Polymer Chains 4.3.2 Alkanes, Polyethylene and Fluoroalkanes 4.4 Studies of Heterogeneous Systems 4.4.1 Semicrystalline Polymers 4.4.2 Block Copolymers 4.4.3 Polymer Blends and Nanocomposites 4.5 Concluding Remarks References5 Scanning Probe Microscopy for Nanoscale Manipulation and Patterning 5.1 Introduction 5.1.1 Nanoscale Toolbox for Nanotechnologists.....6 Scanning Thermal and Thermoelectric Microscopy7 Imaging Secondary Ion Mass Spectrometry8 Atom Probe Tomography9 Focused Ion Beam System—a Multifunctional Tool for Nanotechnology10 Electron Beam LithographyIndex

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>