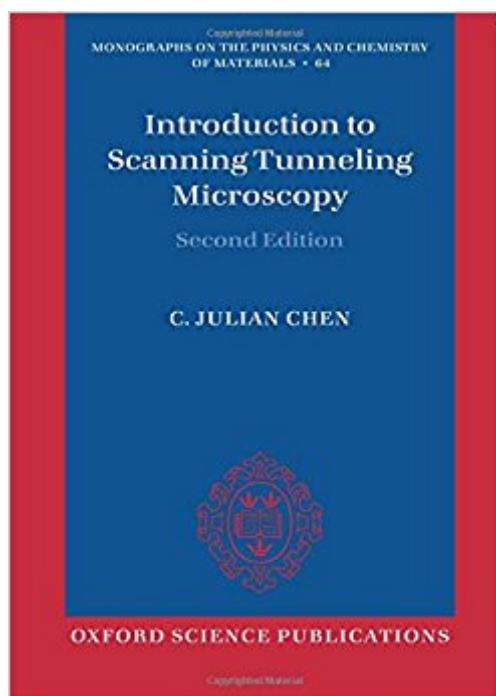


The book was found

# Introduction To Scanning Tunneling Microscopy (Monographs On The Physics And Chemistry Of Materials)



## Synopsis

The scanning tunneling microscope and the atomic force microscope, both capable of imaging and manipulating individual atoms, were crowned with the Nobel Prize in Physics in 1986, and are the cornerstones of nanotechnology today. The first edition of this book has nurtured numerous beginners and experts since 1993. The second edition is a thoroughly updated version of this 'bible' in the field. The second edition includes a number of new developments in the field. Non-contact atomic-force microscopy has demonstrated true atomic resolution. It enables direct observation and mapping of individual chemical bonds. A new chapter about the underlying physics, atomic forces, is added. The chapter on atomic force microscopy is substantially expanded. Spin-polarized STM has enabled the observation of local magnetic phenomena down to atomic scale. A pedagogical presentation of the basic concepts is included. Inelastic scanning tunneling microscopy has shown the capability of studying vibrational modes of individual molecules. The underlying theory and new instrumentation are added. For biological research, to increase the speed of scanning to observe life phenomena in real time is a key. Advances in this direction are presented as well. The capability of STM to manipulate individual atoms is one of the cornerstones of nanotechnology. The theoretical basis and in particular the relation between tunneling and interaction energy are thoroughly presented, together with experimental facts.

## Book Information

Series: Monographs on the Physics and Chemistry of Materials (Book 64)

Paperback: 488 pages

Publisher: Oxford University Press; 2 edition (February 15, 2016)

Language: English

ISBN-10: 0198754752

ISBN-13: 978-0198754756

Product Dimensions: 9.1 x 1.1 x 6.1 inches

Shipping Weight: 12.6 ounces (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #2,498,643 in Books (See Top 100 in Books) #78 in Books > Science & Math > Experiments, Instruments & Measurement > Electron Microscopes & Microscopy #172 in Books > Science & Math > Experiments, Instruments & Measurement > Microscopes & Microscopy #964 in Books > Science & Math > Physics > Solid-State Physics

[Download to continue reading...](#)

Introduction to Scanning Tunneling Microscopy (Monographs on the Physics and Chemistry of Materials) Scanning Electron Microscopy, X-Ray Microanalysis, and Analytical Electron Microscopy: A Laboratory Workbook Scanning and Transmission Electron Microscopy: An Introduction Scanning Probe Microscopy and Spectroscopy: Theory, Techniques, and Applications Phenology and Reproductive Aspect of Cannabis Sativa L: Scanning Electron Microscopy of pollen grains, trichomes and pollen physiology in different medium Scanning Probe Microscopy and Spectroscopy: Methods and Applications Electron Microprobe Analysis and Scanning Electron Microscopy in Geology Principles and Practice of Variable Pressure: Environmental Scanning Electron Microscopy (VP-ESEM) Scanning Electron Microscopy The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series) Flourescence Microscopy of Living Cells in Culture, Part A, Volume 29: Fluorescent Analogs, Labeling Cells, and Basic Microscopy (Methods in Cell Biology, Vol) (Vol 29) Role Microscopy In Semiconductor Failure Analysis (Royal Microscopical Society Microscopy Handbooks) Rare-Earth Iron Permanent Magnets (Monographs on the Physics and Chemistry of Materials) Tunneling to the Future: The Story of the Great Subway Expansion That Saved New York The Chemical Physics of Ice (Cambridge Monographs on Physics) The Physics of Welding (Materials Science & Technology Monographs) Transmission Electron Microscopy and Diffractometry of Materials Transmission Electron Microscopy: A Textbook for Materials Science Analysis and Purification Methods in Combinatorial Chemistry (Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications) Introduction to Vascular Scanning: A Guide for the Complete Beginner, 4th ed. (INTRODUCTIONS TO VASCULAR TECHNOLOGY)

[Dmca](#)