



Scanning Probe Microscopy and Spectroscopy: Methods and Applications

By Roland Wiesendanger

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The investigation and manipulation of matter on the atomic scale have been revolutionized by scanning tunneling microscopy and related scanning probe techniques. This book is the first to provide a clear and comprehensive introduction to this subject. Beginning with the theoretical background of scanning tunneling microscopy, the design and instrumentation of practical STM and associated systems are described in detail, including topographic imaging, local tunneling barrier height measurements, tunneling spectroscopy, and local potentiometry. A treatment of the experimental techniques used in scanning force microscopy and other scanning probe techniques rounds out this section. The second part discusses representative applications of these techniques in fields such as condensed matter physics, chemistry, materials science, biology, and nanotechnology, so this book will be extremely valuable to upper-division students and researchers in these areas.

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Bibliography

- Sales Rank: #2723504 in Books
- Brand: Brand: Cambridge University Press
- Published on: 1994-11-25
- Original language: English
- Number of items: 1
- Dimensions: 8.98" h x 1.46" w x 5.98" l, 2.12 pounds
- Binding: Paperback
- 637 pages

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