1. Record Nr. UNINA9910810343203321 Atomic force microscopy in nanobiology / / edited by Kunio Takeyasu Titolo Boca Raton, FL:,: CRC Press:,: Pan Stanford Publishing,, [2014] Pubbl/distr/stampa ©2014 **ISBN** 0-429-07421-2 981-4411-58-2 Descrizione fisica 1 online resource (444 p.) Disciplina 574.0222 Soggetti Ultrastructure (Biology) Atomic force microscopy Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Nota di contenuto Front Cover; Contents; Contents; Preface; Preface; Chapter 1 A Short Story of AFM in Biology; Chapter 2 Protocols for Specimen and Substrate Preparation and Data Correction Methods; Chapter 3 Chemical Modification of AFM Probes and Coupling with Biomolecules: Chapter 4 Single- Molecule Dissection and Isolation Based on AFM Nanomanipulation; Chapter 5 Structural Biology with Cryo- AFMs and Computational Modeling: Chapter 6 High- Resolution Imaging of Biological Molecules by Frequency Modulation Atomic Force Microscopy; Chapter 7 Development of Recognition Imaging: From Molecules to Cells Chapter 8 Development of High- Speed AFM and Its Biological ApplicationsChapter 9 Real- Time AFMs Combined with Inverted Optical Microscopes for Wet Cell/ Tissue Imaging; Chapter 10 Studying the Cytoskeleton by Atomic Force Microscopy; Chapter 11 Determination of the Architecture of Multisubunit Proteins Using AFM Imaging; Chapter 12 Capturing Membrane Proteins atWork; Chapter 13 Enzymes and DNA: Molecular Motors in Action; Chapter 14 Genome-Folding Mechanisms in the Three Domains of Life Revealed by AFM; Chapter 15 Membrane Dynamics: Lipid- Protein Interactions Studied by

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## Sommario/riassunto

Recent developments in atomic force microscopy (AFM) have been accomplished through various technical and instrumental innovations, including high-resolution and recognition imaging technology under physiological conditions, fast-scanning AFM, and general methods for cantilever modification and force measurement. All these techniques are now highly powerful not only in material sciences but also in basic biological sciences. There are many nanotechnology books that focus on materials, instruments, and applications in engineering and medicine, but only a few of them are directed toward basic