

1. Record Nr.	UNISA996203158003316
Titolo	Electrochemical nanotechnology [[electronic resource]] : in-situ local probe techniques at electrochemical interfaces // edited by W.J. Lorenz and W. Plieth
Pubbl/distr/stampa	Weinheim ; ; Chichester, : Wiley-VCH, c1998
ISBN	1-281-76387-X 9786611763879 3-527-61215-7 3-527-61214-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (354 p.)
Altri autori (Persone)	LorenzW. J PliethW (Waldfried)
Disciplina	620.5
Soggetti	Nanotechnology Atomic force microscopy Electrochemistry Scanning probe microscopy Scanning tunneling microscopy Surface chemistry Surfaces (Physics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index. "A publication initiated by IUPAC."
Nota di contenuto	Electrochemical Nanotechnology; Preface; Contents; Part I General Aspects; Local Probing of Electrochemical Processes at Non-ideal Electrodes; Electrochemistry and Nanotechnology; Imaging of Electrochemical Processes and Biological Macromolecular Adsorbates by in-situ Scanning Tunneling Microscopy; Beyond the Landscapes: Imaging the Invisible; Part II Roughness and Interface Structure; Roughness Kinetics and Mechanism Derived from the Analysis of AFM and STM Imaging Data; Electrodes with a Defined Mesoscopic Structure In-situ Stress Measurements at the Solid/liquid Interface Using a Micromechanical SensorSurface Structure and Electrochemistry: New

Insight by Scanning Tunneling Microscopy; Part III Surface Modification; STM and AFM Studies of the Electrified Solid-Liquid Interface: Monolayers, Multilayers, and Organic Transformations; Scanning Probe Microscopy Studies of Molecular Redox Films; New Aspects of Iodine-modified Single-crystal Electrodes; The Growth and the Surface Properties of Polypyrrole on Single Crystal Graphite Electrodes as Studied by in-situ Electrochemical Scanning Probe Microscopy Part IV Nucleation and Electrodeposition Nucleation and Growth at Metal Electrode Surfaces; STM Studies of Electrodeposition of Strained-Layer Metallic Superlattices; Part V Oxide Layers and Corrosion; STM Studies of Thin Anodic Oxide Layer; Local Probing of Electrochemical Interfaces in Corrosion Research; Morphology and Nucleation of Ni-TiO₂ LIGA Layers; SPM Investigations on Oxide-covered Titanium Surfaces: Problems and Possibilities; Part VI Semiconductors; Electrochemical Surface Processing of Semiconductors at the Atomic Level In-situ Electrochemical AFM Study of Semiconductor Electrodes in Electrolyte Solutions Part VII STM and Complementary Methods; In-situ STM and Electrochemical UHV Technique: Complementary, Noncompeting Techniques; Growth Morphology and Molecular Orientation of Additives in Electrocrystallization Studied by Surface-enhanced Raman spectroscopy; Instrumental Design and Prospects for NMR-Electrochemistry; List of Contributors; List of Abbreviations; Symbol List; Subject Index

Sommario/riassunto

A new window to local studies of interface phenomena at solid state surfaces has been opened by the development of local probe techniques such as Scanning Tunneling Microscopy (STM) or Atomic Force Microscopy (AFM) and related methods during the past fifteen years. The in-situ application of local probe methods in different systems belongs to modern nanotechnology and has two aspects: an analytical aspect and a preparative aspect. The first aspect covers the application of the local probe methods to characterize thermodynamic, structural and dynamic properties of solid state surfaces a
