

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9911019536103321 |
| Autore | Bubert H (Henning) |
| Titolo | Surface and Thin Film Analysis : A Compendium of Principles, Instrumentation and Applications |
| Pubbl/distr/stampa | Hoboken, : Wiley, 2011 |
| ISBN | 1-280-55760-5 9786610557608 3-527-60016-7 |
| Edizione | [2nd ed.] |
| Descrizione fisica | 1 online resource (559 p.) |
| Altri autori (Persone) | JenettH (Holger) |
| Disciplina | 530.4275 541.33 |
| Soggetti | Thin films - Analysis - Surfaces Electron spectroscopy Spectrum analysis |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di contenuto | Surface and Thin Film Analysis: A Compendium of Principles, Instrumentation, and Applications; Contents; Preface to the First Edition; Preface to the Second Edition; List of Contributors; 1: Introduction; Part One: Electron Detection; 2: X-Ray Photoelectron Spectroscopy (XPS); 2.1 Principles; 2.2 Instrumentation; 2.2.1 Vacuum Requirements; 2.2.2 X-Ray Sources; 2.2.3 Synchrotron Radiation; 2.2.4 Electron Energy Analyzers; 2.2.5 Spatial Resolution; 2.3 Spectral Information and Chemical Shifts; 2.4 Quantification, Depth Profiling, and Imaging; 2.4.1 Quantification; 2.4.2 Depth Profiling; 2.4.3 Imaging; 2.5 The Auger Parameter; 2.6 Applications; 2.6.1 Catalysis; 2.6.2 Polymers; 2.6.3 Corrosion and Passivation; 2.6.4 Adhesion; 2.6.5 Superconductors; 2.6.6 Semiconductors; 2.7 Ultraviolet Photoelectron Spectroscopy (UPS); References; 3: Auger Electron Spectroscopy (AES); 3.1 Principles; 3.2 Instrumentation; 3.2.1 Vacuum Requirements; 3.2.2 Electron Sources; 3.2.3 Electron-Energy Analyzers; 3.3 Spectral Information; 3.4 Quantification and Depth Profiling; 3.4.1 Quantification; 3.4.2 Depth Profiling; 3.5 Applications; 3.5.1 Grain Boundary Segregation; 3.5.2 Semiconductor Technology |

3.5.3 Thin Films and Interfaces 3.5.4 Surface Segregation; 3.6 Scanning Auger Microscopy (SAM); References; 4: Electron Energy-Loss Spectroscopy (EELS) and Energy-Filtering Transmission Electron Microscopy (EFTEM); 4.1 Principles; 4.2 Instrumentation; 4.3 Qualitative Spectral Information; 4.3.1 Low-Loss Excitations; 4.3.2 Ionization Losses; 4.3.3 Fine Structures; 4.4 Quantification; 4.5 Imaging of Element Distribution; 4.6 Summary; References; 5: Low-Energy Electron Diffraction (LEED); 5.1 Principles and History; 5.2 Instrumentation; 5.3 Qualitative Information; 5.3.1 LEED Pattern 5.3.2 Spot Profile Analysis 5.3.3 Applications and Restrictions; 5.4 Quantitative Structural Information; 5.4.1 Principles; 5.4.2 Experimental Techniques; 5.4.3 Computer Programs; 5.4.4 Applications and Restrictions; 5.5 Low-Energy Electron Microscopy; 5.5.1 Principles of Operation; 5.5.2 Applications and Restrictions; References; 6: Other Electron-Detecting Techniques; 6.1 Ion (Excited) Auger Electron Spectroscopy (IAES); 6.2 Ion Neutralization Spectroscopy (INS); 6.3 Inelastic Electron Tunneling Spectroscopy (IETS); Reference; Part Two: Ion Detection

7: Static Secondary Ion Mass Spectrometry (SSIMS) 7.1 Principles; 7.2 Instrumentation; 7.2.1 Ion Sources; 7.2.2 Mass Analyzers; 7.2.2.1 Quadrupole Mass Spectrometers; 7.2.2.2 Time-of-Flight Mass Spectrometry (TOF-MS); 7.3 Quantification; 7.4 Spectral Information; 7.5 Applications; 7.5.1 Oxide Films; 7.5.2 Interfaces; 7.5.3 Polymers; 7.5.4 Biosensors; 7.5.5 Surface Reactions; 7.5.6 Imaging; 7.5.7 Ultra-Shallow Depth Profiling; References; 8: Dynamic Secondary Ion Mass Spectrometry (SIMS); 8.1 Principles; 8.1.1 Compensation of Preferential Sputtering; 8.1.2 Atomic Mixing 8.1.3 Implantation of Primary Ions

Sommario/riassunto

Surveying and comparing all techniques relevant for practical applications, this second edition of a bestseller is a vital guide to this hot topic in nano- and surface technology. Completely revised and updated, sections include electron, ion and photon detection, as well as scanning microscopy, while new chapters have been added to cover such recently developed techniques as SNOM, SERS, and laser ablation. Over 500 references and a list of equipment suppliers make this a rapid reference for materials scientists, analytical chemists, and those working in the biotechnological industry.