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Nota di contenuto	ANALYTICAL ELECTROCHEMISTRY; CONTENTS; Preface; Abbreviations and Symbols; 1 Fundamental Concepts; 1.1 Why Electroanalysis?; 1.2 Faradaic Processes; 1.2.1 Mass-Transport-Controlled Reactions; 1.2.1.1 Potential-Step Experiment; 1.2.1.2 Potential-Sweep Experiments; 1.2.2 Reactions Controlled by the Rate of Electron Transfer; 1.2.2.1 Activated Complex Theory; 1.3 Electrical Double Layer; 1.4 Electrocapillary Effect; 1.5 Supplementary Reading; Problems; References; 2 Study of Electrode Reactions and Interfacial Properties; 2.1 Cyclic Voltammetry; 2.1.1 Data Interpretation 2.1.1.1 Reversible Systems 2.1.1.2 Irreversible and Quasi-reversible Systems; 2.1.2 Study of Reaction Mechanisms; 2.1.3 Study of Adsorption Processes; 2.1.4 Quantitative Applications; 2.2 Spectroelectrochemistry; 2.2.1 Experimental Arrangement; 2.2.2 Principles and Applications; 2.2.3 Electrochemiluminescence; 2.2.4 Optical Probing of Electrode-Solution Interfaces; 2.3 Scanning Probe Microscopy; 2.3.1 Scanning Tunneling Microscopy; 2.3.2 Atomic Force Microscopy; 2.3.3 Scanning Electrochemical Microscopy; 2.4

Electrochemical Quartz Crystal Microbalance; 2.5 Impedance Spectroscopy; Examples
ProblemsReferences; 3 Controlled-Potential Techniques; 3.1 Chronoamperometry; 3.2 Polarography; 3.3 Pulse Voltammetry; 3.3.1 Normal-Pulse Voltammetry; 3.3.2 Differential-Pulse Voltammetry; 3.3.3 Square-Wave Voltammetry; 3.3.4 Staircase Voltammetry; 3.4 AC Voltammetry; 3.5 Stripping Analysis; 3.5.1 Anodic Stripping Voltammetry; 3.5.2 Potentiometric Stripping Analysis; 3.5.3 Adsorptive Stripping Voltammetry and Potentiometry; 3.5.4 Cathodic Stripping Voltammetry; 3.5.5 Abrasive Stripping Voltammetry; 3.5.6 Applications; 3.6 Flow Analysis; 3.6.1 Principles; 3.6.2 Cell Design 3.6.3 Mass Transport and Current Response3.6.4 Detection Modes; Examples; Problems; References; 4 Practical Considerations; 4.1 Electrochemical Cells; 4.2 Solvents and Supporting Electrolytes; 4.3 Oxygen Removal; 4.4 Instrumentation; 4.5 Working Electrodes; 4.5.1 Mercury Electrodes; 4.5.2 Solid Electrodes; 4.5.2.1 Rotating Disk and Rotating Ring Disk Electrodes; 4.5.2.2 Carbon Electrodes; 4.5.2.2.1 Glassy Carbon Electrodes; 4.5.2.2.2 Carbon Paste Electrodes; 4.5.2.2.3 Carbon Fiber Electrodes; 4.5.2.2.4 Diamond Electrodes; 4.5.2.3 Metal Electrodes; 4.5.3 Chemically Modified Electrodes 4.5.3.1 Self-Assembled Monolayers4.5.3.2 Carbon-Nanotube-Modified Electrodes; 4.5.3.3 Sol-gel Encapsulation of Reactive Species; 4.5.3.4 Electrocatalytically Modified Electrodes; 4.5.3.5 Preconcentrating Electrodes; 4.5.3.6 Permselective Coatings; 4.5.3.7 Conducting Polymers; 4.5.4 Microelectrodes; 4.5.4.1 Diffusion at Microelectrodes; 4.5.4.2 Microelectrode Configurations; 4.5.4.3 Composite Electrodes; Examples; Problems; References; 5 Potentiometry; 5.1 Principles of Potentiometric Measurements; 5.2 Ion-Selective Electrodes; 5.2.1 Glass Electrodes; 5.2.1.1 pH Electrodes 5.2.1.2 Glass Electrodes for Other Cations

Sommario/riassunto

Third Edition covers the latest advances in methodologies, sensors, detectors, and microchipsThe greatly expanded Third Edition of this internationally respected text continues to provide readers with a complete panorama of electroanalytical techniques and devices, offering a balancebetween voltammetric and potentiometric techniques. Emphasizing electroanalysis rather than physical electrochemistry, readers gain a deep understanding of the fundamentals of electrodereactions and electrochemical methods. Moreover, readers learn to apply their newfoundknowledge and skills to solve rea
