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Nota di contenuto	FUNDAMENTALS OF ELECTROCHEMISTRY; CONTENTS; Contributors; Preface to the Second Edition; Preface to the First Edition; List of Photographs; Abbreviations; Symbols; PART I BASIC CONCEPTS; 1. Electric Currents in Ionic Conductors; 1.1 Various Types of Conductors; 1.2 Ions in Electrolyte Solutions; 1.3 Conductivity of Electrolyte Solutions; 1.4 Circuits Involving Ionic Conductors. Electrodes; 1.5 Passage of Current Through Electrodes. Electrode Reactions; 1.6 Classification of Electrodes and Electrode Reactions; 1.7 Faraday's Laws; 1.8 Equations for Mass Balance 1.9 Sign Convention for Currents and Fluxes 2. Electrode Potentials; 2.1 Interfacial Potential Differences (Galvani Potentials); 2.2 Exchange Currents; 2.3 Open-Circuit Voltages; 2.4 Electrode Potentials; 2.5 Cell Voltage at Nonzero Current; 3. Thermodynamics of Electrochemical Systems; 3.1 Conventional and Undefined Parameters; 3.2 Thermodynamic Functions in Electrochemistry; 3.3 Thermodynamic

Activity; 3.4 Equations for the EMF of Galvanic Cells; 3.5 Concentration Dependence of Electrode Potentials; 3.6 Special Thermodynamic Features of Electrode Potentials; 4. Mass Transfer in Electrolytes
4.1 Basic Laws of Ionic Diffusion in Solutions 4.2 Limiting Diffusion Currents in Electrolytes; 4.3 Ionic Transport by Migration and Diffusion; 4.4 Convective Transport; 5. Phase Boundaries (Interfaces) Between Miscible Electrolytes; 5.1 Types of Interfaces Between Electrolytes; 5.2 Potentials Between Similar Electrolytes (Diffusion Potentials); 5.3 Distribution of the Ions Between Dissimilar but Miscible Electrolytes; 5.4 Distribution of Ions in Cells with Membrane; 5.5 Galvanic Cells with Transference; 6. Polarization of Electrodes; 6.1 Basic Concepts; 6.2 Laws of Activation Polarization
6.3 Diffusional Concentration Polarization 6.4 Superposition of Concentration and Activation Polarization; 7. Aqueous Electrolyte Solutions; 7.1 Electrolytic Dissociation; 7.2 Ionic Solvation (Hydration) in Solutions; 7.3 Activity of Real Electrolyte Solutions; 7.4 Physical Theories of Ion-Ion Interactions; 8. Nonaqueous Electrolytes; 8.1 Different Types of Electrolytes and Their Practical Utilization; 8.2 Nonaqueous Electrolyte Solutions; 8.3 Ionically Conducting Melts; 8.4 Inorganic Solid Electrolytes; 9. Electron Work Functions and Volta Potentials; 9.1 Surface Potential of a Phase
9.2 Work Functions 9.3 Volta Potentials; 9.4 Two Problems in Electrochemistry; 10. Structure and Properties of Surface Layers; 10.1 Electrical Structure of Interphases; 10.2 Adsorption Phenomena; 10.3 Thermodynamics of Surface Phenomena; 10.4 Mercury Electrode Surface; 10.5 Platinum Electrode Surface; 10.6 Surfaces of Other Electrodes; 11. Transient Processes; 11.1 Evidence for Transient Conditions; 11.2 Transient Diffusion to Electrodes of Large Size; 11.3 Transient Diffusion to Electrodes of Finite Size; 12. Electrochemical Research Techniques; 12.1 Reference Electrodes
12.2 Voltage and Electrode Potential Measurements (Potentiometry)

Sommario/riassunto

Fundamentals of Electrochemistry provides the basic outline of most topics of theoretical and applied electrochemistry for students not yet familiar with this field, as well as an outline of recent and advanced developments in electrochemistry for people who are already dealing with electrochemical problems.The content of this edition is arranged so that all basic information is contained in the first part of the book, which is now rewritten and simplified in order to make it more accessible and used as a textbook for undergraduate students. More advanced topics, of interest for postgr