Título:

Autor:

Precio: $1372.00

Editorial:

Año: 2007

Tema:

Edición: 1ª

Sinopsis

ISBN: 9789812706256

The power of electrochemical measurements in respect of thermodynamics, kinetics and analysis is widely recognized but the subject can be unpredictable to the novice even if they have a strong physical and chemical background, especially if they wish to pursue quantitative measurements. Accordingly, some significant experiments are perhaps wisely never attempted while the literature is sadly replete with flawed attempts at rigorous voltammetry.

This textbook considers how to go about designing, explaining and interpreting experiments centered around various forms of voltammetry (cyclic, microelectrode, hydrodynamic, and so on). The reader is assumed to have a knowledge to Masters level of physical chemistry but no exposure to electrochemistry in general, or voltammetry in particular. While the book is designed to 'stand alone', references to important research papers are given to provide an entry into the literature.

The book gives clear introductions to the theories of electron transfer and of diffusion in its early chapters. These are developed to interpret voltammetric experiments at macro-electrodes before considering microelectrode behavior. A subsequent chapter introduces convection and describes hydrodynamic electrodes. Later chapters describe the voltammetric measurement of homogeneous kinetics, the study of adsorption on electrodes and the use of voltammetry for electroanalysis.

Contents:
Equilibrium Electrochemistry and the Nernst Equation
Electrode Kinetics
Diffusion
Cyclic Voltammetry at Macroelectrodes
Voltammetry at Microelectrodes
Voltammetry at Heterogeneous Surfaces
Cyclic Voltammetry: Coupled Homogeneous Kinetics and Adsorption

Hydrodynamic Electrodes
Voltammetry for Electroanalysis
Appendix:
Simulation of Electrode Processes