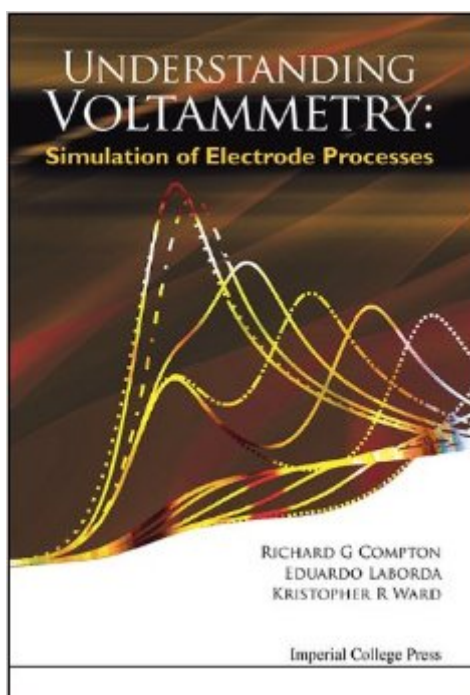


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# Understanding Voltammetry: Simulation Of Electrode Processes



## Synopsis

This is the first textbook in the field of electrochemistry that will teach experimental electrochemists how to carry out simulation of electrode processes. Processes at both macro- and micro-electrodes are examined and the simulation of both diffusion-only and diffusion-convection processes are addressed. The simulation of processes with coupled homogeneous kinetics and at microelectrode arrays are further discussed. Over the course of the book the reader's understanding is developed to the point where they will be able to undertake and solve research-level problems. The book leads the reader through from a basic understanding of the principles underlying electrochemical simulation to the development of computer programs which describe the complex processes found in voltammetry. This is the third book in the "Understanding Voltammetry" series, published with Imperial College Press and written by the Compton group. Other books in the series include "Understanding Voltammetry", written by Richard G Compton with Craig Banks and also "Understanding Voltammetry: Problems and Solutions" (2012) written by Richard G Compton with Christopher Batchelor-McAuley and Edmund Dickinson. These are and continue to be successful textbooks for graduates in electrochemistry and electroanalytical studies.

Contents: Introduction  
Mathematical Model of an Electrochemical System  
Numerical Solution of the Model System  
Diffusion-Only Electrochemical Problems in One-Dimensional Systems  
First-Order Chemical Kinetic Mechanisms  
Second-Order Chemical Kinetic Mechanisms  
Electrochemical Simulation in Weakly Supported Media  
Hydrodynamic Voltammetry  
Two-Dimensional Systems: Microdisc Electrodes  
Heterogeneous Surfaces  
Appendix A: Review of C++  
Appendix B: Microdisc Program

Readership: Graduate students pursuing electrochemistry and electroanalytical studies, as well as researchers and professionals working in the area.

## Book Information

File Size: 13848 KB

Print Length: 260 pages

Page Numbers Source ISBN: 1783263237

Publisher: ICP (November 22, 2013)

Publication Date: November 22, 2013

Sold by: Digital Services LLC

Language: English

ASIN: B00KMLQV2S

Text-to-Speech: Enabled

X-Ray: Not Enabled

Word Wise: Not Enabled

Lending: Not Enabled

Enhanced Typesetting: Not Enabled

Best Sellers Rank: #1,095,845 Paid in Kindle Store (See Top 100 Paid in Kindle Store) #53

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## Customer Reviews

Excellent supplement to Introduction to Voltammetry. The treatment of simulations is very good with well written software examples.

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