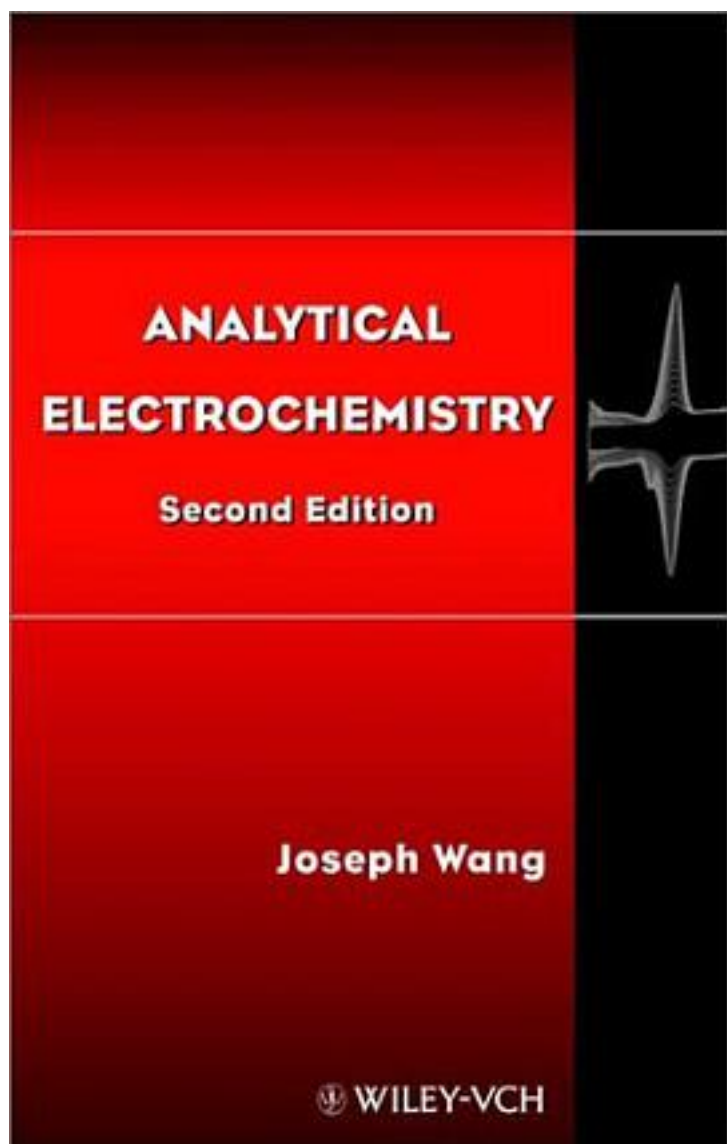


Analytical Electrochemistry



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Third Edition covers the latest advances in methodologies, sensors, detectors, and microchips

The greatly expanded Third Edition of this internationally respected text continues to provide readers with a complete panorama of electroanalytical techniques and devices, offering a balance between voltammetric and potentiometric techniques. Emphasizing electroanalysis rather than physical electrochemistry, readers gain a deep understanding of the fundamentals of electrode reactions and electrochemical methods. Moreover, readers learn to apply their newfound knowledge and skills to solve real-world analytical problems.

The text consists of six expertly crafted chapters:

- * Chapter 1 introduces fundamental aspects of electrode reactions and the structure of the interfacial region
- * Chapter 2 studies electrode reactions and high-resolution surface characterization, using techniques ranging from cyclic voltammetry to scanning probe microscopies
- * Chapter 3 features an overview of modern finite-current controlled potential techniques
- * Chapter 4 presents electrochemical instrumentation and electrode materials, including modified electrodes and ultramicroelectrodes
- * Chapter 5 details the principles of potentiometric measurements and various classes of ion selective electrodes
- * Chapter 6 explores the growing field of chemical sensors, including biosensors, gas sensors, microchip devices, and sensor arrays

Among the new topics covered, readers discover DNA biosensors, impedance spectroscopy, detection of capillary electrophoresis, diamond electrodes, carbon-nanotube and nanoparticle-based arrays and devices, large-amplitude AC voltammetry, solid-state ion-selective electrodes, ion selective electrodes for trace analysis, and lab-on-a-chip devices. New figures, worked examples, and end-of-chapter questions have also been added to this edition.

Given the rapid pace of discovery and growth of new applications in the field, this text is essential for an up-to-date presentation of the latest advances in methodologies, sensors, detectors, and microchips. It is recommended for graduate-level courses in electroanalytical chemistry and as a supplement for upper-level undergraduate courses in instrumental analysis. The text also meets the reference needs for any industry, government, or academic laboratory engaged in electroanalysis and biosensors.

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