

# Introduction to Electrochemical Science and Engineering

By Serguei N. Lvov

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Due to the increasing demand for power generation and the limited nature of fossil fuels, new initiatives for energy development based on electrochemical energy conversion systems are springing up around the world. **Introduction to Electrochemical Science and Engineering** describes the basic operational principles for a number of growing electrochemical engineering-related technologies, including fuel cells, electrolyzers, and flow batteries.

Inspired by the author's more than ten years of experience teaching undergraduate electrochemistry-related courses at Penn State University, this essential text:

- Ensures a fundamental knowledge of the core concepts of electrochemical science and engineering, such as electrochemical cells, electrolytic conductivity, electrode potential, and current-potential relations related to a variety of electrochemical systems
- Develops the initial skills needed to understand an electrochemical experiment and successfully evaluate experimental data without visiting a laboratory
- Provides more than 360 conceptual and numerical problems distributed over nine quizzes and nine video-based assignments
- Contains a number of illustrative case studies related to novel electrochemical energy conversion systems
- Promotes an appreciation of the capabilities and applications of key electrochemical techniques

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Introduction to Electrochemical Science and Engineering is an ideal textbook for undergraduate engineering and science students and those readers in need of introductory-level content. Furthermore, experienced readers will find this book useful for solidifying their electrochemical background.

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