

The first comprehensive book on bioenergetics with emphasis on ion exchange and electron transfer processes in biological membranes and artificial bio-films

Bioenergetics is a field of biochemistry concerned with energy flow in living organisms. Fundamental to biological processes, this active research area includes the study of thousands of different cellular processes such as cellular respiration and the many other metabolic processes that can lead to production and utilization of energy in forms such as ATP molecules. By studying ion exchange and electron transfer processes in biological membranes and artificial bio-films, *Electrochemical Processes in Biological Systems* addresses how these processes contribute to developing modern biosensor and ion-sensor technology, as well as biofuel cells.

Addressing issues as interfacing living systems with electronic materials, energy power generation, and sensor and nanosensor technology, *Electrochemical Processes in Biological Systems* features:

- Discussions on the ion fluxes and electron transfer processes in biological membranes and artificial bio-films
- An in-depth description of the processes at the interface between the membrane/film and substrate electrode
- Application of living biological cells in understanding of these transfer processes
- Chapters that also include: cytochromes (P450s) roles in mammalian cellular pathways, reaction mechanism of multicopper blue oxidases related to their use in biodevices such as biofuel cells; electrochemical evaluation of the processes in surface-extracellular matrix and enzyme-based networks

With bioenergetics, bioelectrochemistry, biosensor and biofuel technology at the forefront of biological studies, this book cogently delivers the know-hows for electrochemists, electrocatalytic researchers, biochemists, nanotechnologists, and makes an invaluable supplement to undergraduate, graduate and post-doctorate studies in these fields.

Andrzej Lewenstam, DSc, f. Chairman of Working Group for Ion Sensitive Electrodes and Biosensors of the International Federation of Clinical Chemistry (IFCC). He was one of the founders and leaders of the "Solidarity" at the University of Warsaw in 1980, while pursuing his DSc. In 1990 he was appointed the Chair Professor in sensor technology at Åbo Akademi University and has been a full professor at AGH University of Science and Technology since 1993. He has published 250 papers, 20 patents and 18 book chapters. He is a member of the Editorial Advisory Board of six international journals, including *Electroanalysis*, *Foundations of Science and Magnesium Research*.

Lo Gorton, PhD, docent, is Chair Professor in Analytical Chemistry at Lund University since 1997 and Honoris Causa of the University of Bucharest, Romania, since 2000. In 2012, he became fellow of the International Society of Electrochemistry (ISE) and was awarded The International DropSens Award. In 2013 he was awarded The Katsumi Niki Prize in Bioelectrochemistry by the Bioelectrochemical division of the ISE. He has published more than 400 papers, 5 patents and 12 book chapters. He is a member of the Editorial Advisory Board of eight international journals, including *Electroanalysis*, *Bioelectrochemistry*, *ChemElectroChem* and *Open Analytical Chemistry*.

Cover Image: iStockphoto@duncan1890

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Also available
as an e-book

ISBN 978-0-470-57845-2



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