

|                         |  |
|-------------------------|--|
| 1. Record Nr.           | UNINA9910208814503321  |
| Titolo                  | Electrochemical processes in biological systems // edited by Andrzej Lewenstam, Lo Gorton ; contributors Julea N. Butt [and twenty three others]   |
| Pubbl/distr/stampa      | Hoboken, New Jersey : , : Wiley, , 2015<br>©2015   |
| ISBN                    | 1-118-89907-5<br>1-118-89904-0<br>1-118-89884-2  |
| Edizione                | [1st ed.]  |
| Descrizione fisica      | 1 online resource (343 p.)   |
| Collana                 | Wiley Series on Electrocatalysis and Electrochemistry  |
| Disciplina              | 612.01421  |
| Soggetti                | Bioenergetics<br>Ion exchange  |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
| Note generali           | Description based upon print version of record.  |
| Nota di bibliografia    | Includes bibliographical references at the end of each chapters and index.   |
| Nota di contenuto       | ""TITLE PAGE""; ""TABLE OF CONTENTS""; ""CONTRIBUTORS""; ""PREFACE""; ""1 MODELING OF RELATIONS BETWEEN IONIC FLUXES AND MEMBRANE POTENTIAL IN ARTIFICIAL MEMBRANES""; ""1.1 INTRODUCTORY CONSIDERATIONS""; ""1.2 GENERAL CONSIDERATIONS CONCERNING MEMBRANE POTENTIALS AND TRANSFER OF IONIC SPECIES""; ""1.3 POTENTIALS AND ION TRANSPORT IN ION-SELECTIVE ELECTRODES MEMBRANES""; ""1.4 SUMMARY""; ""REFERENCES""; ""2 TRANSMEMBRANE ION FLUXES FOR LOWERING DETECTION LIMIT OF ION-SELECTIVE ELECTRODES""; ""2.1 INTRODUCTION""; ""2.2 DEFINITION OF THE DL""; ""2.3 SIGNIFICANT REDUCTION OF THE DL""; ""2.4 THEORETICAL DESCRIPTION OF DL""""2.5 MODEL COMPARISON""; ""2.6 INVERSE PROBLEM""; ""2.7 IONS OF DIFFERENT CHARGES""; ""2.8 SUMMARY""; ""REFERENCES""; ""3 ION TRANSPORT AND (SELECTED) ION CHANNELS IN BIOLOGICAL MEMBRANES IN HEALTH AND PATHOLOGY""; ""3.1 ION CHANNELS: STRUCTURE, FUNCTION, AND METHODS OF STUDY""; ""3.2 ION CHANNELS IN HEALTH AND PATHOLOGY""; ""ACKNOWLEDGMENTS""; ""REFERENCES""; ""4 ELECTRICAL COUPLING THROUGH GAP JUNCTIONS BETWEEN ELECTRICALLY EXCITABLE CELLS""; |

""4.1 MOLECULAR CHARACTERISTICS OF GAP JUNCTIONS""; ""4.2 DISTRIBUTION OF GJS IN THE BRAIN""  
""4.3 ELECTRICAL SIGNALING THROUGH GJS""""4.4 ROLES OF GJ-MEDIATED ELECTRICAL SIGNALING IN BRAIN FUNCTION""; ""4.5 PLASTICITY AND MODULATION OF GAP JUNCTIONAL COUPLING""; ""4.6 CLINICAL RELEVANCE""; ""4.7 CONCLUDING REMARKS""; ""ACKNOWLEDGMENTS""; ""REFERENCES""; ""5 ENZYME FILM ELECTROCHEMISTRY""; ""5.1 INTRODUCTION""; ""5.2 THE FILM ELECTROCHEMISTRY EXPERIMENT""; ""5.3 ENZYME FILM ELECTROCHEMISTRY: THE BASICS""; ""5.4 MOLECULAR DETERMINANTS OF ENZYME ACTIVITY""; ""5.5 NONTURNOVER SIGNALS""; ""5.6 CONCLUSION""; ""ACKNOWLEDGMENTS""; ""REFERENCES""  
""6 PLANT PHOTOSYSTEM II AS AN EXAMPLE OF A NATURAL PHOTOVOLTAIC DEVICE""""6.1 INTRODUCTORY REMARKS ON PHOTOSYNTHESIS""; ""6.2 PHOTOSYNTHETIC EXCITATION ENERGY TRANSFER""; ""6.3 PHOTOSYNTHETIC ELECTRON AND PROTON TRANSPORT""; ""6.4 PERSPECTIVES OF BIOMIMETIC APPLICATIONS""; ""ACKNOWLEDGMENTS""; ""REFERENCES""; ""7 ELECTROCHEMICAL ACTIVATION OF CYTOCHROME P450""; ""7.1 INTRODUCTION""; ""7.2 HOMOGENEOUS SYSTEMS: SMALL-MOLECULE ELECTROCHEMICAL MEDIATORS""; ""7.3 HETEROGENEOUS SYSTEMS: SURFACE-CONFINED P450 FILMS""; ""7.4 THOUGHTS ABOUT THE FUTURE OF P450 ELECTROCHEMISTRY""; ""ACKNOWLEDGMENTS""  
""REFERENCES""""8 MOLECULAR PROPERTIES AND REACTION MECHANISM OF MULTICOPPER OXIDASES RELATED TO THEIR USE IN BIOFUEL CELLS""; ""8.1 INTRODUCTION""; ""8.2 MCOs IN SOLUTION: STRUCTURE AND MECHANISM""; ""8.3 MCOs IN ELECTROCHEMISTRY""; ""8.4 FUNCTIONALITY OF IMMOBILIZED AND SOLUBILIZED MCOs""; ""8.5 CONCLUDING COMMENTS""; ""ACKNOWLEDGMENTS""; ""REFERENCES""; ""9 ELECTROCHEMICAL MONITORING OF THE WELL-BEING OF CELLS""; ""9.1 ELECTROCHEMICAL MONITORING""; ""9.2 CELL DEATH: ELECTROCHEMICAL CYTOTOXICITY MEASUREMENTS""; ""9.3 CURVATURE/SIZE EFFECT ON DENATURATION OF PROTEINS""  
""9.4 COVALENT ANCHORING: CHEMISTRY ON GOLD""

---

### Sommario/riassunto

The first book to provide a comprehensive look at bioenergetics, the energy flow in living systems, by studying ion exchange and electron transfer processes in biological membranes and artificial bio-films, and how these processes contribute to developing modern biosensor and ion-sensor technology, as well as biofuel cells. The book: Discusses the ion fluxes and electron transfer processes in biological membranes and artificial bio-films Provides an in-depth description of the processes at the interface between the membrane/film and substrate electrode Is the first of its kind to provide a comprehensive look at how these processes are understood in biology of living cells Addresses how these processes contribute to developing modern biosensor and ion-sensor technology, as well as biofuel cells.

---