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Nota di contenuto	Part I. Electron based Bioscience -- Chapter 1: (Tentative) Latest knowledges of (electro)microbiology -- Chapter 2: Importance of electron flow in (micro)biological metabolism -- Chapter 3: Extracellular electron transfer in bioelectrochemically active microorganisms -- Chapter 4: Direct interspecies electron transfer -- Chapter 5: Extracellular electron uptake mechanisms by sulfate reducing bacteria -- Chapter 6: Conversion of electric energy into life energy -- Part II. Electron based Biotechnology -- Chapter 7: Electrochemical interactions between microorganisms and conductive particles- Chapter 8: Bioelectrochemical reversible interconversion in the 2H+/H2 and CO2/formate redox systems and its importance in forthcoming energy system -- Chapter 9: Application of enzymatic reactions involving electron transfer for the production of useful chemicals -- Chapter 10: Fatty acid production of thraustochytrids and cellular redox balance -- Chapter 11: Control of microbial metabolisms by electrochemical cultivation method -- Part III. Electron based Biocorrosion -- Chapter 12: Microbiologically influenced corrosion -- Chapter 13: Electrochemistry on Corrosion Engineering -- Chapter 14:

Microorganisms inducing microbiologically influenced corrosion --
Chapter 15: Electron flow rate in the corrosion and its application --
Chapter 16: Biocorrosion and souring in the crude oil production
process -- Chapter 17: Metallurgical factors effect on bacterial
adhesion and bio-corrosion.

Sommario/riassunto

This book offers a comprehensive introduction to electron-based bioscience, biotechnology, and biocorrosion. It both explains the importance of electron flow during metabolic processes in microorganisms and provides valuable insights into emerging applications in various fields. In the opening section, readers will find up-to-date information on topics such as electron transfer reactions, extracellular electron transfer mechanisms, direct interspecies electron transfer, and electron uptake by sulfate-reducing bacteria. The focus then shifts to state-of-the-art advances and applications in the field of biotechnology. Here, the coverage encompasses e.g. progress in understanding electrochemical interactions between microorganisms and conductive particles, enzymatic reactions and their application in the bioproduction of useful chemicals, and the importance of redox balance for fatty acid production. In closing, the book addresses various aspects of the complex phenomenon of microbiologically induced corrosion, highlighting novel insights from the fields of electromicrobiology and electrochemistry and their implications. .
