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Titolo	Enzymes for solving humankind's problems : natural and artificial systems in health, agriculture, environment and energy // José J. G. Moura, Isabel Moura, and Luisa B. Maia (editors)
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] Â©2021
ISBN	3-030-58315-5
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (X, 506 p. 141 illus., 114 illus. in color.)
Disciplina	660.6
Soggetti	Sustainable development Biocatalysis Enzymes - Biotechnology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	A general overview of the subject -- State-of-art of the utilization of natural and artificial systems in general problems that affect the human life and society -- Hydrogen production (natural systems) -- Hydrogen production (artificial systems) -- Carbon footprint (carbon dioxide economy) -- Carbon dioxide utilisation - general overview -- Carbon dioxide utilisation - bioelectrochemical approaches -- Methane production -- Methane oxidation -- Biomass transformation and production of added-value compounds -- Biocatalysis for the production of added-value compounds -- Nitrogen footprint -- Nitrogen fixation and agriculture -- Reversing nitrogen fixation -- Nitrous oxide emission under control -- Oxygen splitting and photosynthesis -- Enzymatic Biofuel Cells -- Energy from bacteria -- Interspecies Electron Transfer -- Biocatalysis and pharmaceuticals -- Proteins, peptides and enzymes in our lives.
Sommario/riassunto	This book presents specific key natural and artificial systems that are promising biocatalysts in the areas of health, agriculture, environment and energy. It provides a comprehensive account of the state of the art of these systems and outlines the significant progress made in the last decade using these systems to develop innovative, sustainable and

environmentally friendly solutions. Chapters from expert contributors explore how natural enzymes and artificial systems tackle specific targets such as: climate change, carbon footprint and economy and carbon dioxide utilisation; nitrogen footprint and fixation and nitrous oxide mitigation; hydrogen production, fuel cells and energy from bacteria; biomass transformation and production of added-value compounds, as well as biosensors development. This book provides an important and inspiring account for the designing of new natural and artificial systems with enhanced properties, and it appeals not only to students and researchers working in the fields of energy, health, food and environment, but also to a wider audience of educated readers that are interested in these up-to-date and exciting subjects. Chapter “Carbon Dioxide Utilisation—The Formate Route” is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.
