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Titolo	Molecular Devices and Machines [[electronic resource]] : Concepts and Perspectives for the Nanoworld
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Altri autori (Persone)	CrediAlberto VenturiMargherita
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Note generali	Description based upon print version of record.
Nota di contenuto	Molecular Devices and Machines; Contents; Preface to the Second Edition; Glossary; List of Abbreviations; I General Concepts; 1 Introduction; 1.1 Devices and Machines at the Molecular Level; 1.2 Nanoscience and Nanotechnology; 1.3 Supramolecular (Multicomponent) Chemistry; 1.4 Top-Down (Large-Downward) Approach; 1.5 Bottom-Up (Small-Upward) Approach; 1.6 Bottom-up Molecule-by-Molecule Approach; 1.7 Self-Organization and Covalent Synthetic Design; 1.8 Energy and Signals; 2 Processing Energy and Signals by Molecular and Supramolecular Systems; 2.1 Introduction; 2.2 Molecular Electronics 2.3 Molecular Photonics2.4 Molecular Chemionics; 2.5 Molecular Electrophotonics; 2.5.1 Solution Systems; 2.5.2 Solid State; 2.6 Molecular Electrochemionics; 2.7 Molecular Photoelectronics; 2.7.1 Photoinduced Electron Transfer in Homogeneous Systems; 2.7.2 Photoinduced Potential Generation in Heterogeneous Systems; 2.8 Molecular Photochemionics; 2.8.1 Proton Release or Uptake; 2.8.2 Metal Ion Release; 2.8.3 Anion Release; 2.8.4 Molecule Release; 2.8.5 Configurational Changes; 2.9 Molecular Chemiophotonics; 2.10 Molecular Chemioelectronics; 2.11 Multiple Input/Processes

2.11.1 A Sequence of Two Chemical and a Photonic Inputs Generating Photon Emission2.11.2 Two Electrochemical Inputs in Parallel Generating a Chemical and a Photonic Process in a Sequence; 2.11.3 A Photonic Input Generating Parallel and Serial Processes; II Molecular Devices for Processing Electrons and Electronic Energy; 3 Fundamental Principles of Photoinduced Electron and Energy Transfer; 3.1 Molecular and Supramolecular Photochemistry; 3.1.1 Molecular Photochemistry; 3.1.2 Supramolecular Photochemistry; 3.2 Electron Transfer; 3.2.1 Marcus Theory; 3.2.2 Quantum Mechanical Theory
3.2.2.1 The Electronic Factor3.2.2.2 The Nuclear Factor; 3.2.2.3 Optical Electron Transfer; 3.3 Energy Transfer; 3.3.1 Coulombic Mechanism; 3.3.2 Exchange Mechanism; 3.4 Role of the Bridge; 4 Wires and Related Systems; 4.1 Introduction; 4.2 Conductivity Measurements; 4.3 Electron-Transfer Processes at Electrodes; 4.4 Wire-Type Systems Based on Photoinduced Charge Separation; 4.4.1 Introduction; 4.4.2 Dyads, Triads, and Larger Systems; 4.4.3 Covalently Linked Systems Containing Metal Complexes; 4.4.4 Covalently Linked Systems Containing Porphyrins
4.4.5 Covalently Linked Systems Based on Organic Compounds4.4.6 DNA and Related Systems; 4.5 Heterogeneous Photoinduced Electron Transfer; 4.6 Energy Transfer; 4.6.1 Covalently Linked Systems Containing Metal Complexes; 4.6.2 Covalently Linked Systems Containing Porphyrins; 4.6.3 Covalently Linked Systems Based on Organic Compounds; 4.6.4 DNA and Related Systems; 5 Switching Electron- and Energy-Transfer Processes; 5.1 Introduction; 5.2 Switching of Electron-Transfer Processes; 5.2.1 Photon Inputs; 5.2.1.1 Long-Lived Switching; 5.2.1.2 Fast and Ultrafast Switching; 5.2.2 Redox Inputs
5.2.3 Acid-Base Inputs

Sommario/riassunto

Targeted at a broad audience ranging from chemists and biochemists to physicists and engineers, this book covers advanced research while being written in an easily understandable language accessible to any interested researcher or graduate student.Following an introduction to the general concepts, the authors go on to discuss devices for processing electrons and electronic energy, memories, logic gates and related systems, and, finally, molecular-scale machines.

2. Record Nr. UNINA9910830623803321

Titolo	Renewable energy [[electronic resource]] : sustainable concepts for the energy change / / edited by Roland Wengenmayr and Thomas Buhrke
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Nota di contenuto	Title Page; Foreword; Preface; First-hand Information; Contents; Renewable Energy Sources - a Survey; A Tailwind for Sustainable Technology; Flowing Energy; How the Sun gets into the Power Plant; Solar Cells - an Overview; Solar Cells from Ribbon Silicon; Low-priced Modules for Solar Construction; On the Path towards Power-Grid Parity; Energy from the Depths; Green Opportunity or Danger?; Twists and Turns around Biofuels; Concentrated Green Energy; Synthetic Fuels from the Biomass; Electric Power from Hot Air; Sun, Moon and Earth as Power Source; Energy Reserves from the Oceans Salty vs. Fresh WaterPower from the Desert; Hydrogen: An Alternative to Fossil Fuels?; Heat on Call; Taming the Flame; Electric Automobiles; Cooling with the Heat of the Sun; A Super Climate in the Greenhouse; An Exceptional Sustainability Concept; The Allure of Multicolored Images; Subject Index
Sommario/riassunto	In the years since the publication of the first edition of this book, the world has undergone drastic changes in terms of energy sources. This is reflected in the expansion of this second edition from 20 to 26 chapters. The most dramatic occurrence was the Tsunami which struck Japan in March of 2011 and set off a reactor catastrophe at the nuclear power plants in Fukushima. On the other hand fossil fuel technology

drives the climate change to a threatening level. So, renewable energy sources are essential for the 21st century. The increasing number of wind power plants, solar collectors and