

1. Record Nr.	UNINA9910830965203321
Autore	Irie Masahiro
Titolo	Diarylethene molecular photoswitches : concepts and functionalities // Masahiro Irie
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH GmbH, , [2021] ©2021
ISBN	3-527-82286-0 3-527-34642-2 3-527-82285-2
Descrizione fisica	1 online resource (239 pages)
Disciplina	547.7
Soggetti	Molecular machinery
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- Preface -- Chapter 1 Introduction -- 1.1 General Introduction -- 1.2 Discovery of Diarylethene Molecular Photoswitches -- References -- Chapter 2 Reaction Mechanism -- 2.1 Basic Concepts -- 2.2 Theoretical Study -- 2.3 Reaction Dynamics -- 2.3.1 Cyclization Reaction -- 2.3.2 Cycloreversion Reaction -- References -- Chapter 3 Photoswitching Performance -- 3.1 Quantum Yield -- 3.1.1 Photocyclization Quantum Yield -- 3.1.2 Solvent Effect on Cyclization Quantum Yield -- 3.1.3 Photocycloreversion Quantum Yield -- 3.2 Thermal Stability -- 3.3 Fatigue Resistance -- 3.4 Fluorescence Property -- 3.4.1 TurnOff Mode Photoswitching -- 3.4.2 TurnOn Mode Photoswitching -- 3.5 Chiral Property -- References -- Chapter 4 Photoswitchable Crystals -- 4.1 Dichroism -- 4.2 XRay Crystallographic Analysis -- 4.3 Quantum Yield -- 4.4 Multicolored Systems and NanoLayered Periodic Structures -- 4.5 Fluorescent Crystals -- 4.6 Photomechanical Response -- 4.6.1 Surface Morphology Change -- 4.6.2 Reversible Shape Change -- 4.6.3 Bending Response of Mixed Crystals -- References -- Chapter 5 Memory -- 5.1 SingleMolecule Memory -- 5.2 NearField Optical Memory -- 5.3 ThreeDimensional Optical Memory -- 5.4 Readout Using Infrared Absorption, Raman Scattering, and Refractive Index Changes -- References -- Chapter 6 Switches -- 6.1 SingleMolecule

Conductance Photoswitch -- 6.2 Optical Switch Based on Refractive Index Change -- 6.3 Magnetism -- References -- Chapter 7 Surface Properties -- 7.1 Surface Wettability -- 7.2 Selective Metal Deposition -- 7.3 Subwavelength Nanopatterning -- References -- Chapter 8 Polymers and Liquid Crystals -- 8.1 Polymers -- 8.2 Liquid Crystals -- References -- Chapter 9 Applications -- 9.1 Organic FieldEffect Transistors (OFETs) -- 9.2 Metal Organic Frameworks (MOFs). 9.3 SuperResolution Fluorescence Microscopy -- 9.3.1 Control of Cycloreversion Quantum Yield -- 9.3.2 Fatigue Resistance -- 9.3.3 Photoswitching with SingleWavelength Visible Light -- 9.3.4 Super Resolution Bioimaging -- 9.4 Chemical Reactivity Control -- 9.5 Biological Activity -- 9.6 Color Dosimeters -- References -- Appendix A Synthesis Procedures of Typical Diarylethenes -- A.1 1,2Bis(2,4 dimethyl5phenyl3thienyl)perfluorocyclopentene (7) [5-7] -- A.2 1,2 Bis(2ethyl6phenyl1benzothiophene1,1 dioxide3yl) perfluorocyclopentene (11) [8-10] -- References -- Index -- EULA.
