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| 1. | Record Nr. | UNINA9910830082303321 |
| | Titolo | Photophysics of molecular materials : from single molecules to single crystals / / edited by Guglielmo Lanzani |
| | Pubbl/distr/stampa | Weinheim, Germany : , : Wiley-VCH, , [2006] ©2006 |
| | ISBN | 1-280-85436-7 9786610854363 3-527-60732-3 3-527-60739-0 |
| | Descrizione fisica | 1 online resource (603 p.) |
| | Disciplina | 620.1/1295 |
| | Soggetti | Optical instruments Nanostructures |
| | 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 and index. |
| | Nota di contenuto | Photophysics of Molecular Materials; Contents; List of Contributors; 1 Introduction; 2 Optical Microscopy and Spectroscopy of Single Molecules; 2.1 Introduction; 2.2 Photophysical Principles of Single-Molecule Fluorescence Detection; 2.2.1 The Single Molecule as a Three-Level System; 2.2.2 Dipole-Dipole Coupled Oscillators; 2.2.2.1 Weak Coupling; 2.2.2.2 Strong Coupling; 2.3 Experimental Techniques; 2.3.1 Signal-to-Noise Considerations; 2.3.2 Room-Temperature Single-Molecule Spectroscopy; 2.3.2.1 Epifluorescence Microscopy; 2.3.2.2 Total Internal Reflection (TIR) Microscopy 2.3.2.3 Scanning Confocal Optical Microscopy2.3.2.4 Two-Photon-, 4- and STED Microscopy; 2.3.2.5 Scanning Near-Field Optical Microscopy; 2.3.3 Single-Molecule Spectroscopy at Cryogenic Temperatures; 2.3.3.1 The Laser System; 2.4 Applications; 2.4.1 Photon Antibunching; 2.4.2 Photon Bunching; 2.4.3 Electronic Coupling Between Molecules; 2.4.4 Single Molecules as Antennas: Orientation; 3 Optical Properties of Single Conjugated Polymer Chains (Polydiacetylenes); 3.1 Introduction; 3.1.1 Motivation for the Study; 3.1.2 Choice of the Experimental System |

| Sommario/riassunto | Carbon based pi-conjugated materials offer a broad range of applications, going from molecular electronics and single molecule devices to nanotechnology, plastic electronics and optoelectronics. The proper physical description of such materials is in between that of molecular solids and that of low-dimensional covalent semiconductors. This book is a comprehensive review of their elementary excitations processes and dynamics, which merges the two viewpoints, sometimes very different if not contrasting. In each chapter, a broad tutorial introduction provides a solid physical background t |