

<<现代光谱学>>

图书基本信息

书名 : <<现代光谱学>>

13位ISBN编号 : 9787030211873

10位ISBN编号 : 7030211871

出版时间 : 2008-3

出版时间 : 科学出版社

作者 : 帕森

页数 : 512

版权说明 : 本站所提供之下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问 : <http://www.tushu007.com>

<<现代光谱学>>

内容概要

本书详细论述了光学光谱理论，并介绍如何将这些理论运用于现代分子和细胞生物物理和生物化学。内容包括电子和振动吸收，荧光共振能量转移，激子相互作用，圆二色性，相干和失相，超快泵探针和光子回波光谱，单分子和荧光相关光谱，拉曼散射，以及多重吸收。

本书论述基于时间相关的量子力学，为此领域专业人士提供了足够全面和详细的资料，并例举了数量众多的理论表达式或演示实验等。

本书可供分析化学、生物化学、生物物理学和物理化学等专业高校师生、科研人员参考。

<<现代光谱学>>

作者简介

作者 : (美国)帕森(Parson)

<<现代光谱学>>

书籍目录

1 Introduction 1.1 Overview 1.2 The Beer-Lambert Law 1.3 Regions of the Electromagnetic Spectrum
1.4 Absorption Spectra of Proteins and Nucleic Acids 1.5 Absorption Spectra of Mixtures 1.6 The Photoelectric Effect 1.7 Techniques for Measuring Absorbance 1.8 Pump-Probe and Photon-Echo Experiments 1.9 Linear and Circular Dichroism 1.10 Distortions of Absorption Spectra by Light Scattering or Nonuniform Distributions of the Absorbing Molecules 1.11 Fluorescence 1.12 IR and Raman Spectroscopy 1.13 Lasers 1.14 Nomenclature

2 Basic Concepts of Quantum Mechanics 2.1 Wavefunctions, Operators, and Expectation Values 2.1.1 Wavefunctions 2.1.2 Operators and Expectation Values 2.2 The Time-Dependent and Time-Independent Schrödinger Equations 2.2.1 Superposition States 2.3 Spatial Wavefunctions 2.3.1 A Free Particle 2.3.2 A Particle in a Box 2.3.3 The Harmonic Oscillator 2.3.4 Atomic Orbitals 2.3.5 Molecular Orbitals 2.3.6 Approximate Wavefunctions for Large Systems 2.4 Spin Wavefunctions and Singlet and Triplet States 2.5 Transitions Between States: Time-Dependent Perturbation Theory 2.6 Lifetimes of States and the Uncertainty Principle

3 Light 3.1 Electromagnetic Fields 3.1.1 Electrostatic Forces and Fields 3.1.2 Electrostatic Potentials 3.1.3 Electromagnetic Radiation 3.1.4 Energy Density and Irradiance 3.1.5 The Complex Electric Susceptibility and Refractive Index. 3.1.6 Local-Field Correction Factors 3.2 The Black-Body Radiation Law 3.3 Linear and Circular Polarization 3.4 Quantum Theory of Electromagnetic Radiation 3.5 Superposition States and Interference Effects in Quantum Optics .. 3.6 Distribution of Frequencies in Short Pulses of Light

4 Electronic Absorption 4.1 Interactions of Electrons with Oscillating Electric Fields 4.2 The Rates of Absorption and Stimulated Emission 4.3 Transition Dipoles and Dipole Strengths 4.4 Calculating Transition Dipoles for Molecular Orbitals 4.5 Molecular Symmetry and Forbidden and Allowed Transitions 4.6 Linear Dichroism 4.7 Configuration Interactions 4.8 Calculating Electric Transition Dipoles with the Gradient Operator 4.9 Transition Dipoles for Excitations to Singlet and Triplet States 4.10 The Born-Oppenheimer Approximation, Franck-Condon Factors, and the Shapes of Electronic Absorption Bands 4.11 Spectroscopic Hole-Burning 4.12 Effects of the Surroundings on Molecular Transition Energies 4.13 The Electronic Stark Effect

5 Fluorescence 5.1 The Einstein Coefficients 5.2 The Stokes Shift 5.3 The Mirror-Image Law 5.4 The Strickler-Berg Equation and Other Relationships Between Absorption and Fluorescence 5.5 Quantum Theory of Absorption and Emission 5.6 Fluorescence Yields and Lifetimes 5.7 Fluorescent Probes and Tags 5.8 Photobleaching 5.9 Fluorescence Anisotropy 5.10 Single-Molecule Fluorescence and High-Resolution Fluorescence Microscopy 5.11 Fluorescence Correlation Spectroscopy 5.12 Intersystem Crossing, Phosphorescence, and Delayed Fluorescence

6 Vibrational Absorption 7 Resonance Energy Transfer 8 Exciton Interactions 9 Circular Dichroism 10 Coherence and Dephasing 11 Pump-Probe Spectroscopy, Photon Echoes, and Vibrational Wavepackets 12 Raman Scattering and Other Multiphoton Processes

Appendix 1-Vectors Appendix 2-Matrices Appendix 3-Fourier Transforms Appendix 4-Fluorescence Phase Shift and Modulation Appendix 5-CGS and SI Units and Abbreviations References Subject Index

<<现代光谱学>>

编辑推荐

《现代光谱学·生物物理学与生物化学例析》可供分析化学、生物化学、生物物理学和物理化学等专业高校师生、科研人员参考。

<<现代光谱学>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>