

Molecular Fluorescence Principles And Applications

AS RECOGNIZED, ADVENTURE AS SKILLFULLY AS EXPERIENCE NEARLY LESSON, AMUSEMENT, AS WELL AS CONTRACT CAN BE GOTTEN BY JUST CHECKING OUT A BOOK **MOLECULAR FLUORESCENCE PRINCIPLES AND APPLICATIONS** AFTER THAT IT IS NOT DIRECTLY DONE, YOU COULD AGREE TO EVEN MORE WITH REFERENCE TO THIS LIFE, REGARDING THE WORLD.

WE GIVE YOU THIS PROPER AS CAPABLY AS SIMPLE EXAGGERATION TO ACQUIRE THOSE ALL. WE COME UP WITH THE MONEY FOR MOLECULAR FLUORESCENCE PRINCIPLES AND APPLICATIONS AND NUMEROUS BOOKS COLLECTIONS FROM FICTIONS TO SCIENTIFIC RESEARCH IN ANY WAY. IN THE COURSE OF THEM IS THIS MOLECULAR FLUORESCENCE PRINCIPLES AND APPLICATIONS THAT CAN BE YOUR PARTNER.

INTRODUCTION TO FLUORESCENCE - DAVID M. JAMESON
2014-01-22

THE PHENOMENON KNOWN AS FLUORESCENCE IS NOW WIDELY USED IN THE CHEMICAL AND LIFE SCIENCES LARGELY DUE TO THE DEVELOPMENT OF HIGHLY SOPHISTICATED FLUORESCENT PROBE CHEMISTRIES AND THE COMMERCIAL AVAILABILITY OF THESE PROBES AS WELL AS THE DEVELOPMENT OF NOVEL MICROSCOPY APPROACHES. INTRODUCTION TO FLUORESCENCE HELPS READERS ACQUIRE A SOUND UNDERSTANDING OF BASIC

FLUORESCENCE THEORY AND PRACTICE. IT DESCRIBES GENERAL PRINCIPLES IN A STRAIGHTFORWARD WAY AND USES EXAMPLES FROM A VARIETY OF DISCIPLINES TO DEMONSTRATE THEM. IN COLOR THROUGHOUT, THE BOOK TAKES READERS THROUGH THE HISTORY OF IMPORTANT DISCOVERIES TO THE MOST CURRENT ADVANCES. IT INTRODUCES THE FUNDAMENTALS OF THE FLUORESCENCE PHENOMENON AND GIVES DETAILED EXAMPLES OF FLUORESCENCE APPLICATIONS IN THE MOLECULAR LIFE SCIENCES, INCLUDING BIOCHEMISTRY,

BIOPHYSICS, CLINICAL CHEMISTRY AND DIAGNOSTICS, PHARMACEUTICAL SCIENCE, AND CELL AND MOLECULAR BIOLOGY. THE AUTHOR PRESENTS THE BASIC THEORIES UNDERLYING THE APPLICATIONS AND OFFERS IN-DEPTH INFORMATION ON PRACTICAL ASPECTS. ALONG WITH A LIST OF REFERENCES IN EACH CHAPTER, THE TEXT INCORPORATES MORE THAN 250 FIGURES THAT CLEARLY ILLUSTRATE THE CONCEPTS AND GIVES THE CHEMICAL STRUCTURES OF THE MOST WIDELY USED FLUORESCENT MOLECULES. IN ADDITION, THE APPENDIX PROVIDES A "ROGUE'S GALLERY" OF THE MOST COMMON ERRORS AND PITFALLS TO AVOID.

PRACTICAL FLUORESCENCE; THEORY, METHODS, AND TECHNIQUES - GEORGE G. GUILBAULT 1973

CELLULAR IMAGING TECHNIQUES FOR NEUROSCIENCE AND BEYOND - FLORIS G. WOUTERLOOD 2012-08-08

THE IMAGING OF SMALL CELLULAR COMPONENTS REQUIRES POWERFUL INSTRUMENTS, AND AN ENTIRE FAMILY OF EQUIPMENT AND TECHNIQUES BASED ON THE CONFOCAL PRINCIPLE HAS BEEN DEVELOPED OVER THE PAST 30 YEARS. SUCH METHODS ARE COMMONLY USED BY NEUROSCIENCE RESEARCHERS, BUT THE MAJORITY OF THESE USERS DO NOT HAVE A MICROSCOPY OR A CELL BIOLOGY BACKGROUNDS AND DO CAN ENCOUNTER DIFFICULTIES IN OBTAINING AND INTERPRETING RESULTS. THIS VOLUME BRINGS EXPERTS IN HIGH-RESOLUTION OPTICAL MICROSCOPY APPLICATIONS IN

NEUROSCIENCE AND CELL BIOLOGY TOGETHER TO DOCUMENT THE STATE OF THE ART. OUTLINING WHAT IS CURRENTLY POSSIBLE, THE VOLUME ALSO DISCUSSES PROMISING DEVELOPMENTS FOR THE FUTURE AND AIDS READERS IN SELECTING THE MOST SCIENTIFICALLY MEANINGFUL APPROACH TO SOLVE THEIR QUESTIONS. EACH CHAPTER DISCUSSES INSTRUMENTATION AND TECHNOLOGY IN RELATIONSHIP TO APPLICATION IN RESEARCH. ALL OF THE COMMON AND CUTTING EDGE TRENDS ARE COVERED - FLUORESCENCE / LASER ELECTRON / NONLINEAR MICROSCOPY, INFRARED FLUORESCENCE, MULTIPHOTON IMAGING, TOMOGRAPHY, FRAP, LIVE IMAGING, STED, PALM/STORM, ETC. SINGLE AND MULTIPHOTON CONFOCAL MICROSCOPY, AND 4-PI CONFOCAL MICROSCOPY OBTAINING NANORESOLUTION VIA PHOTOACTIVATION LOCALIZATION MICROSCOPY (PALM) SEVERAL PROCEDURES THAT CORRELATE OBSERVATIONS IN OPTICAL FLUORESCENCE MICROSCOPY AND ELECTRON MICROSCOPY STUDY OF MORPHOLOGY AND FUNCTION VIA HIGH-RESOLUTION FLUORESCENCE PROCEDURES ADDITIONAL HIGH-RESOLUTION MICROSCOPIC TECHNIQUES

SUPRAMOLECULAR COORDINATION COMPLEXES - SANKARASEKARAN SHANMUGARAJU 2022-10-28

SUPRAMOLECULAR COORDINATION COMPLEXES: DESIGN, SYNTHESIS, AND APPLICATIONS DISCUSSES THE GROWTH OF THE FIELD AND EXPLORES THE ADVANTAGES, OPPORTUNITIES AND LATEST APPLICATIONS OF SUPRAMOLECULAR

COMPLEXES. BEGINNING WITH AN INTRODUCTION TO DESIGN PRINCIPLES, SYNTHETIC METHODS, AND POST-SYNTHETIC FUNCTIONALIZATION OF SUPRAMOLECULAR COMPLEXES, THE BOOK GOES ON TO COMPILE THE DIFFERENT ANALYTICAL AND COMPUTATIONAL MODELING METHODS USED TO UNDERSTAND THE STRUCTURE AND FUNCTIONAL PROPERTIES OF SUPRAMOLECULAR STRUCTURES. APPLICATIONS OF SUPRAMOLECULAR COMPLEXES IN BIOMEDICINE, SENSING, CATALYSIS AND MATERIALS ARE THEN EXPLORED IN DETAIL. DRAWING ON THE KNOWLEDGE OF A GLOBAL TEAM OF EXPERTS, THIS BOOK PROVIDES A WEALTH OF INTERESTING INFORMATION FOR STUDENTS AND RESEARCHERS WORKING IN THE DESIGN, SYNTHESIS OR APPLICATION OF SUCH COMPLEXES. DISCUSSES CUTTING-EDGE APPROACHES FOR THE INVESTIGATION OF SUPRAMOLECULAR COORDINATION CHEMISTRY SUMMARIZES A VARIED RANGE OF SUPRAMOLECULAR COORDINATION, COMPLEX DESIGNS AND APPLICATIONS HIGHLIGHTS THE INTERDISCIPLINARY CONNECTIONS BETWEEN SUPRAMOLECULAR CHEMISTRY AND THE FIELDS OF BIOLOGY AND MATERIALS SCIENCE

MOLECULAR IMAGING - BRIAN D. ROSS 2021-08-09

THE DETECTION AND MEASUREMENT OF THE DYNAMIC REGULATION AND INTERACTIONS OF CELLS AND PROTEINS WITHIN THE LIVING CELL ARE CRITICAL TO THE UNDERSTANDING OF CELLULAR BIOLOGY AND PATHOPHYSIOLOGY. THE MULTIDISCIPLINARY FIELD OF MOLECULAR IMAGING OF LIVING

SUBJECTS CONTINUES TO EXPAND WITH DRAMATIC ADVANCES IN CHEMISTRY, MOLECULAR BIOLOGY, THERAPEUTICS, ENGINEERING, MEDICAL PHYSICS AND BIOMEDICAL APPLICATIONS. MOLECULAR IMAGING: PRINCIPLES AND PRACTICE, VOLUMES 1 AND 2, SECOND EDITION PROVIDES THE FIRST POINT OF ENTRY FOR PHYSICIANS, SCIENTISTS, AND PRACTITIONERS. THIS AUTHORITATIVE REFERENCE BOOK PROVIDES A COMPREHENSIBLE OVERVIEW ALONG WITH IN-DEPTH PRESENTATION OF MOLECULAR IMAGING CONCEPTS, TECHNOLOGIES AND APPLICATIONS MAKING IT THE FOREMOST SOURCE FOR BOTH ESTABLISHED AND NEW INVESTIGATORS, COLLABORATORS, STUDENTS AND ANYONE INTERESTED IN THIS EXCITING AND IMPORTANT FIELD. THE MOST AUTHORITATIVE AND COMPREHENSIVE RESOURCE AVAILABLE IN THE MOLECULAR-IMAGING FIELD, WRITTEN BY OVER 170 OF THE LEADING SCIENTISTS FROM AROUND THE WORLD WHO HAVE EVALUATED AND SUMMARIZED THE MOST IMPORTANT METHODS, PRINCIPLES, TECHNOLOGIES AND DATA CONCEPTS ILLUSTRATED WITH OVER 600 COLOR FIGURES AND MOLECULAR-IMAGING EXAMPLES CHAPTERS/TOPICS INCLUDE, ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING, USE OF ONLINE SOCIAL MEDIA, VIRTUAL AND AUGMENTED REALITY, OPTOGENETICS, FDA REGULATORY PROCESS OF IMAGING AGENTS AND DEVICES, EMERGING INSTRUMENTATION, MR ELASTOGRAPHY, MR FINGERPRINTING, OPERATIONAL RADIATION SAFETY, MULTISCALE IMAGING AND USES IN DRUG

DEVELOPMENT THIS EDITION IS PACKED WITH INNOVATIVE SCIENCE, INCLUDING THERANOSTICS, LIGHT SHEET FLUORESCENCE MICROSCOPY, (LSFM), MASS SPECTROMETRY IMAGING, COMBINING IN VITRO AND IN VIVO DIAGNOSTICS, RAMAN IMAGING, ALONG WITH MOLECULAR AND FUNCTIONAL IMAGING APPLICATIONS VALUABLE APPLICATIONS OF MOLECULAR IMAGING IN PEDIATRICS, ONCOLOGY, AUTOIMMUNE, CARDIOVASCULAR AND CNS DISEASES ARE ALSO PRESENTED THIS RESOURCE HELPS INTEGRATE DIVERSE MULTIDISCIPLINARY CONCEPTS ASSOCIATED WITH MOLECULAR IMAGING TO PROVIDE READERS WITH AN IMPROVED UNDERSTANDING OF CURRENT AND FUTURE APPLICATIONS

PRINCIPLES AND APPLICATIONS OF FLUORESCENCE SPECTROSCOPY - JIHAD RENE ALBANI 2008-04-15

FLUORESCENCE SPECTROSCOPY IS AN IMPORTANT INVESTIGATIONAL TOOL IN MANY AREAS OF ANALYTICAL SCIENCE, DUE TO ITS EXTREMELY HIGH SENSITIVITY AND SELECTIVITY. WITH MANY USES ACROSS A BROAD RANGE OF CHEMICAL, BIOCHEMICAL AND MEDICAL RESEARCH, IT HAS BECOME AN ESSENTIAL INVESTIGATIONAL TECHNIQUE ALLOWING DETAILED, REAL-TIME OBSERVATION OF THE STRUCTURE AND DYNAMICS OF INTACT BIOLOGICAL SYSTEMS WITH EXTREMELY HIGH RESOLUTION. IT IS PARTICULARLY HEAVILY USED IN THE PHARMACEUTICAL INDUSTRY WHERE IT HAS ALMOST COMPLETELY REPLACED RADIOCHEMICAL LABELLING. PRINCIPLES AND APPLICATIONS OF FLUORESCENCE

SPECTROSCOPY GIVES THE STUDENT AND NEW USER THE ESSENTIAL INFORMATION TO HELP THEM TO UNDERSTAND AND USE THE TECHNIQUE CONFIDENTLY IN THEIR RESEARCH. BY INTEGRATING THE TREATMENT OF ABSORPTION AND FLUORESCENCE, THE STUDENT IS SHOWN HOW FLUORESCENCE PHENOMENA ARISE AND HOW THESE CAN BE USED TO PROBE A RANGE OF ANALYTICAL PROBLEMS. A KEY ELEMENT OF THE BOOK IS THE INCLUSION OF PRACTICAL LABORATORY EXPERIMENTS THAT ILLUSTRATE THE FUNDAMENTAL POINTS AND APPLICATIONS OF THE TECHNIQUE.

AGGREGATION-INDUCED EMISSION - BEN ZHONG TANG
2013-09-05

AGGREGATION-INDUCED EMISSION (AIE) IS A NOVEL PHOTOPHYSICAL PHENOMENON WHICH OFFERS A NEW PLATFORM FOR RESEARCHERS TO LOOK INTO THE LIGHT-EMITTING PROCESSES FROM LUMINOGEN AGGREGATES, FROM WHICH USEFUL INFORMATION ON STRUCTURE-PROPERTY RELATIONSHIPS MAY BE COLLECTED AND MECHANISTIC INSIGHTS MAY BE GAINED. THE DISCOVERY OF THE AIE EFFECT OPENS A NEW AVENUE FOR THE DEVELOPMENT OF NEW LUMINOGEN MATERIALS IN THE AGGREGATE OR SOLID STATE. BY ENABLING LIGHT EMISSION IN THE PRACTICALLY USEFUL SOLID STATE, AIE HAS THE POTENTIAL TO EXPAND SIGNIFICANTLY THE TECHNOLOGICAL APPLICATIONS OF LUMINESCENT MATERIALS. AGGREGATION-INDUCED EMISSION: FUNDAMENTALS IS THE FIRST BOOK TO EXPLORE THE FUNDAMENTAL ISSUES OF AIE,

INCLUDING THE DESIGN, SYNTHESIS, AND PHOTOPHYSICAL BEHAVIOR OF AIE-ACTIVE MOLECULES AND POLYMERS. THE CONTROL OF THE MORPHOLOGICAL STRUCTURES OF THE AGGREGATES OF AIE-ACTIVE MATERIALS, AND THE EXPERIMENTAL INVESTIGATION AND THEORETICAL UNDERSTANDING OF THE AIE MECHANISM, ARE ALSO COVERED IN THIS VOLUME. TOPICS COVERED INCLUDE: AIE IN GROUP 14 METALLOIDES AIE IN ORGANIC ION PAIRS RED LIGHT-EMITTING AIE MATERIALS SUPRAMOLECULAR STRUCTURE AND AIE AIE-ACTIVE POLYMERS ENHANCED EMISSION BY RESTRICTION OF MOLECULAR ROTATION CRYSTALLIZATION-INDUCED EMISSION ENHANCEMENT THEORETICAL UNDERSTANDING OF AIE PHENOMENA THIS BOOK IS ESSENTIAL READING FOR SCIENTISTS AND ENGINEERS WHO ARE DESIGNING OPTOELECTRONIC MATERIALS AND BIOMEDICAL SENSORS, AND WILL ALSO BE OF INTEREST TO ACADEMIC RESEARCHERS IN MATERIALS SCIENCE AND PHYSICAL AND SYNTHETIC ORGANIC CHEMISTRY, AS WELL AS PHYSICISTS AND BIOLOGICAL CHEMISTS.

SINGLE-MOLECULE OPTICAL DETECTION, IMAGING AND SPECTROSCOPY - W. E. MOERNER 2008-09-26

SINGLE MOLECULE SPECTROSCOPY IS ONE OF THE HOTTEST TOPICS IN TODAY'S CHEMISTRY. IT BRINGS US CLOSE TO THE THE MOST EXCITING VISION GENERATIONS OF CHEMISTS HAVE BEEN DREAMING OF: TO OBSERVE AND EXAMINE SINGLE MOLECULES! WHILE MOST OF CHEMISTRY DEALS WITH MYRIADS OF MOLECULES, THIS BOOK PRESENTS THE LATEST

DEVELOPMENTS FOR THE DETECTION AND INVESTIGATION OF SINGLE ENTITIES. WRITTEN BY INTERNATIONALLY RENOWNED AUTHORS, IT IS A THOROUGH AND COMPREHENSIVE SURVEY OF CURRENT METHODS AND THEIR APPLICATIONS.

FLUORESCENCE MOLECULAR TOMOGRAPHY - HUABEI JIANG 2022-09-13

FLUORESCENCE MOLECULAR TOMOGRAPHY: PRINCIPLES AND APPLICATIONS IS THE FIRST BOOK TO COVER THE UNDERLYING PRINCIPLES AND PRACTICAL APPLICATIONS OF FLUORESCENCE MOLECULAR TOMOGRAPHY (FMT) IN A SYSTEMATIC MANNER. USING A TUTORIAL APPROACH, THE TEXT BEGINS WITH AN OVERVIEW OF THE FUNDAMENTALS OF FMT AND GOES ON TO DETAIL IMAGE RECONSTRUCTION APPROACHES (INCLUDING LINEAR AND NONLINEAR RECONSTRUCTION ALGORITHMS), FMT INSTRUMENTATIONS (INCLUDING TIME-DOMAIN, FREQUENCY-DOMAIN, AND CONTINUOUS-WAVE DOMAIN SYSTEMS), AND IMPLEMENTATION OF IMAGE-ENHANCING SCHEMES (INCLUDING BOTH SOFTWARE AND HARDWARE APPROACHES). FURTHER CHAPTERS EXAMINE MULTIMODAL APPROACHES COMBINING PHOTOACOUSTIC TOMOGRAPHY (PAT), COMPUTED TOMOGRAPHY (CT), SINGLE-PHOTON EMISSION TOMOGRAPHY (SPECT), AND MAGNETIC RESONANCE IMAGING (MRI) AND DISCUSS BIOLUMINESCENCE TOMOGRAPHY AND MINIATURIZED FMT FROM HAND-HELD TO ENDOSCOPIC FMT. A FINAL CHAPTER LOOKS AT CLINICAL APPLICATIONS AND ANIMAL STUDIES. THIS AUTHORITATIVE AND PRACTICAL GUIDE WILL

SERVE AS A VALUABLE REFERENCE FOR RESEARCHERS, SCIENTISTS, CLINICIANS, AND INDUSTRY PROFESSIONALS. THE FIRST BOOK DEDICATED TO FLUORESCENCE MOLECULAR TOMOGRAPHY (FMT); COVERS UNDERLYING PRINCIPLES AND PRACTICAL APPLICATIONS; WRITTEN BY A LEADING FMT RESEARCH PIONEER AND EXPERT.

FLUORESCENT ANALOGS OF BIOMOLECULAR BUILDING BLOCKS

- MARCUS WILHELMSSON 2016-03-16

FLUORESCENT ANALOGS OF BIOMOLECULAR BUILDING BLOCKS FOCUSES ON THE DESIGN OF FLUORESCENT PROBES FOR THE FOUR MAJOR FAMILIES OF MACROMOLECULAR BUILDING BLOCKS. COMPILING THE EXPERTISE OF MULTIPLE AUTHORS, THIS BOOK MOVES FROM INTRODUCTORY CHAPTERS TO AN EXPLORATION OF THE DESIGN, SYNTHESIS, AND IMPLEMENTATION OF NEW FLUORESCENT ANALOGUES OF BIOMOLECULAR BUILDING BLOCKS, INCLUDING EXAMPLES OF SMALL-MOLECULE FLUOROPHORES AND SENSORS THAT ARE PART OF BIOMOLECULAR ASSEMBLIES.

PRINCIPLES AND APPLICATIONS OF MOLECULAR DIAGNOSTICS

- NADER RIFAI 2018-06-13

PRINCIPLES AND APPLICATIONS OF MOLECULAR DIAGNOSTICS SERVES AS A COMPREHENSIVE GUIDE FOR CLINICAL LABORATORY PROFESSIONALS APPLYING MOLECULAR TECHNOLOGY TO CLINICAL DIAGNOSIS. THE FIRST HALF OF THE BOOK COVERS PRINCIPLES AND ANALYTICAL CONCEPTS IN MOLECULAR DIAGNOSTICS SUCH AS GENOMES AND VARIANTS,

NUCLEIC ACIDS ISOLATION AND AMPLIFICATION METHODS, AND MEASUREMENT TECHNIQUES, CIRCULATING TUMOR CELLS, AND PLASMA DNA; THE SECOND HALF PRESENTS CLINICAL APPLICATIONS OF MOLECULAR DIAGNOSTICS IN GENETIC DISEASE, INFECTIOUS DISEASE, HEMATOPOIETIC MALIGNANCIES, SOLID TUMORS, PRENATAL DIAGNOSIS, PHARMACOGENETICS, AND IDENTITY TESTING. A THOROUGH YET SUCCINCT GUIDE TO USING MOLECULAR TESTING TECHNOLOGY, PRINCIPLES AND APPLICATIONS OF MOLECULAR DIAGNOSTICS IS AN ESSENTIAL RESOURCE FOR LABORATORY PROFESSIONALS, BIOLOGISTS, CHEMISTS, PHARMACEUTICAL AND BIOTECH RESEARCHERS, AND MANUFACTURERS OF MOLECULAR DIAGNOSTICS KITS AND INSTRUMENTS. EXPLAINS THE PRINCIPLES AND TOOLS OF MOLECULAR BIOLOGY DESCRIBES STANDARD AND STATE-OF-THE-ART MOLECULAR TECHNIQUES FOR OBTAINING QUALITATIVE AND QUANTITATIVE RESULTS PROVIDES A DETAILED DESCRIPTION OF CURRENT MOLECULAR APPLICATIONS USED TO SOLVE DIAGNOSTICS TASKS

AQUATIC ORGANIC MATTER FLUORESCENCE - PAULA G.

COBLE 2014-07-14

A CORE TEXT ON PRINCIPLES, LABORATORY/FIELD METHODOLOGIES, AND DATA INTERPRETATION FOR FLUORESCENCE APPLICATIONS IN AQUATIC SCIENCE, FOR ADVANCED STUDENTS AND RESEARCHERS.

TIME-CORRELATED SINGLE PHOTON COUNTING - DESMOND

O'CONNOR 2012-12-02

TIME-CORRELATED SINGLE PHOTON COUNTING HAS BEEN WRITTEN IN THE HOPE THAT BY RELATING THE AUTHORS' EXPERIENCES WITH A VARIETY OF DIFFERENT SINGLE PHOTON COUNTING SYSTEMS, THEY MAY PROVIDE A USEFUL SERVICE TO USERS AND POTENTIAL USERS OF THIS FORMIDABLY SENSITIVE TECHNIQUE. OF ALL THE TECHNIQUES AVAILABLE TO OBTAIN INFORMATION ON THE RATES OF DEPOPULATION OF EXCITED ELECTRONIC SINGLET STATES OF MOLECULAR SPECIES, MONITORING OF FLUORESCENCE PROVIDES, IN PRINCIPLE, THE SIMPLEST AND MOST DIRECT MEASURE OF CONCENTRATION. THIS VOLUME COMPRISES EIGHT CHAPTERS, WITH THE FIRST FOCUSING ON THE TIME DEPENDENCE AND APPLICATIONS OF FLUORESCENCE. SUCCEEDING CHAPTERS GO ON TO DISCUSS BASIC PRINCIPLES OF THE SINGLE PHOTON COUNTING LIFETIME MEASUREMENT; LIGHT SOURCES; PHOTOMULTIPLIERS; ELECTRONICS; DATA ANALYSIS; NANOSECOND TIME-RESOLVED EMISSION SPECTROSCOPY; TIME DEPENDENCE OF FLUORESCENCE ANISOTROPY. THIS BOOK WILL BE OF INTEREST TO PRACTITIONERS IN THE FIELD OF CHEMISTRY.

PHOTOCHEMISTRY VOLUME 48 - STEFANO PROTTI
2020-11-17

THIS VOLUME COMBINES REVIEWS ON THE LATEST ADVANCES IN PHOTOCHEMICAL RESEARCH WITH SPECIFIC TOPICAL HIGHLIGHTS IN THE FIELD. STARTING WITH PERIODICAL REPORTS OF THE RECENT LITERATURE ON ORGANIC AND

COMPUTATIONAL ASPECTS INCLUDING REPORTS ON COMPUTATIONAL PHOTOCHEMISTRY AND CHEMILUMINESCENCE OF BIOLOGICAL AND NANOTECHNOLOGICAL MOLECULES, PHOTOCHEMISTRY OF ALKENES, DIENES AND POLYENES, AROMATIC COMPOUNDS AND OXYGEN-CONTAINING FUNCTIONS. THE FINAL CHAPTER OF THIS SECTION IS A REVIEW OF INDUSTRIAL APPLICATION OF PHOTOCHEMISTRY FROM 2014 TO 2019. COVERAGE CONTINUES WITH HIGHLIGHTED TOPICS, IN THE SECOND PART, FROM RUTHENIUM-CAGED BIOACTIVE COMPOUNDS, ADVANCES IN LOGICALLY AND LIGHT INDUCED SYSTEMS, DEVELOPMENTS OF METAL-FREE PHOTOCATALYSTS, PHOTORESPONSIVE ORGANOPHOSPHORUS MATERIALS AND APPLICATIONS OF PHOTO-FRAGMENTATION IN SYNTHESIS, PHOTO-CLICK CHEMISTRY AND AZO-BASED MOLECULAR PHOTOSWITCHES. THIS VOLUME WILL AGAIN INCLUDE A SECTION ENTITLED 'SPR LECTURES ON PHOTOCHEMISTRY', A COLLECTION OF EXAMPLES FOR ACADEMIC READERS TO INTRODUCE A PHOTOCHEMISTRY TOPIC AND PRECIOUS HELP FOR STUDENTS IN PHOTOCHEMISTRY. PROVIDING CRITICAL ANALYSIS OF THE TOPICS, THIS BOOK IS ESSENTIAL READING FOR ANYONE WANTING TO KEEP UP TO DATE WITH THE LITERATURE ON PHOTOCHEMISTRY AND ITS APPLICATIONS. "A CERTAIN AMOUNT OF ENERGY DESTROYS THE SAME AMOUNT OF CO₂ ACCORDING TO THE WHETHER IT IS ADMINISTERED CONTINUOUSLY OR INTERMITTENTLY. IN ORDER TO RATIONALIZE THIS RESULT THERE ARE TWO POSSIBILITIES,

EITHER THE DESTRUCTION OF CO₂ FURTHER OCCURRED IN THE DARK PERIODS, WHICH WOULD LEAD TO THE SAME FORM OF ENERGY STORING FORM, OR IN THE ILLUMINATED PERIOD THE REACTION GOES AT TWICE THE RATE." O. WARBURG, *BIOCHEM. Z.*, 1919, 100, 230-270.

MOLECULAR SENSORS AND NANODEVICES - JOHN X. J. ZHANG
2018-11-19

MOLECULAR SENSORS AND NANODEVICES: PRINCIPLES, DESIGNS AND APPLICATIONS IN BIOMEDICAL ENGINEERING, SECOND EDITION IS DESIGNED TO BE USED AS A FOUNDATIONAL TEXT, AIMED AT GRADUATES, ADVANCED UNDERGRADUATES, EARLY-CAREER ENGINEERS AND CLINICIANS. THE BOOK PRESENTS THE ESSENTIAL PRINCIPLES OF MOLECULAR SENSORS, INCLUDING THEORIES, FABRICATION TECHNIQUES AND REVIEWS. IN ADDITION, IMPORTANT DEVICES AND RECENTLY, HIGHLY-CITED RESEARCH OUTCOMES ARE ALSO CITED. THIS DIFFERENTIATES THE BOOK FROM OTHER TITLES ON THE MARKET WHOSE PRIMARY FOCUS IS MORE RESEARCH-ORIENTED AND AIMED AT MORE OF A NICHE MARKET. COVERS THE FUNDAMENTAL PRINCIPLES OF DEVICE ENGINEERING AND MOLECULAR SENSING, SENSOR THEORIES AND APPLICATIONS IN BIOMEDICAL SCIENCE AND ENGINEERING INTRODUCES NANO/MICRO FABRICATION TECHNIQUES, INCLUDING MEMS, BIOMEMS, MICROTAS AND NANOMATERIALS SCIENCE THAT ARE ESSENTIAL IN THE MINIATURIZATION OF VERSATILE MOLECULAR SENSORS EXPLORES APPLICATIONS OF

NANOMATERIALS AND BIOMATERIALS, INCLUDING PROTEINS, DNAs, NANOPARTICLES, QUANTUM DOTS, NANOTUBES/WIRES AND GRAPHENE IN BIOMEDICINE

CHEMOSENSORS - BINGHE WANG 2011-08-24

A THOROUGH, ACCESSIBLE, AND GENERAL OVERVIEW OF CHEMOSENSORS PROVIDING A COMPREHENSIVE OVERVIEW OF CHEMOSENSORS—ORGANIC MOLECULES DESIGNED TO BIND AND SENSE SMALL MOLECULES OR METAL IONS—AND THEIR APPLICATIONS, *CHEMOSENSORS: PRINCIPLES, STRATEGIES, AND APPLICATIONS* IS AN ACCESSIBLE ONE-STOP RESOURCE FOR ANALYSTS, CLINICIANS, AND GRADUATE STUDENTS STUDYING ADVANCED CHEMISTRY AND CHEMOSENSING. CHEMOSENSORS FUNCTION ON A MOLECULAR LEVEL, GENERATING A SIGNAL UPON BINDING. THE BOOK REVIEWS THEIR SYNTHESIS, DESIGN, AND APPLICATIONS FOR DETECTING BIOLOGICAL AND ORGANIC MOLECULES AS WELL AS METAL IONS. THE TEXT HIGHLIGHTS APPLICATIONS IN DRUG DISCOVERY AND CATALYSES THAT HAVE NOT BEEN WELL COVERED ELSEWHERE. COVERING SUCH TOPICS AS MOLECULAR RECOGNITION, DETECTION METHODS, DESIGN STRATEGIES, AND IMPORTANT BIOLOGICAL ISSUES, THE BOOK IS BROKEN INTO FOUR SECTIONS THAT EXAMINE INTERMOLECULAR INTERACTIONS, STRATEGIES IN SENSOR DESIGN, DETECTION METHODS, AND CASE STUDIES IN METAL, SACCHARIDE, AND AMINO ACID SENSING. AN INDISPENSABLE SOURCE OF INFORMATION FOR CHEMICAL AND BIOMEDICAL EXPERTS USING

SENSORS, CHEMOSENSORS INCLUDES CASE STUDIES TO MAKE THE MATERIAL BOTH ACCESSIBLE AND UNDERSTANDABLE TO CHEMISTS OF ALL BACKGROUNDS.

NEW TRENDS IN FLUORESCENCE SPECTROSCOPY - BERNARD VALEUR 2012-12-06

THIS FIRST VOLUME IN THE NEW SPRINGER SERIES ON FLUORESCENCE BRINGS TOGETHER FUNDAMENTAL AND APPLIED RESEARCH FROM THIS HIGHLY INTERDISCIPLINARY AND FIELD, RANGING FROM CHEMISTRY AND PHYSICS TO BIOLOGY AND MEDICINE. SPECIAL ATTENTION IS GIVEN TO SUPRAMOLECULAR SYSTEMS, SENSOR APPLICATIONS, CONFOCAL MICROSCOPY AND PROTEIN-PROTEIN INTERACTIONS. THIS CAREFULLY EDITED COLLECTION OF ARTICLES IS AN INVALUABLE TOOL FOR PRACTITIONERS AND NOVICES.

PRINCIPLES OF FLUORESCENCE SPECTROSCOPY - JOSEPH R. LAKOWICZ 2013-11-11

FLUORESCENCE METHODS ARE BEING USED INCREASINGLY IN BIOCHEMICAL, MEDICAL, AND CHEMICAL RESEARCH. THIS IS BECAUSE OF THE INHERENT SENSITIVITY OF THIS TECHNIQUE. AND THE FAVORABLE TIME SCALE OF THE PHENOMENON OF FLUORESCENCE. 8 FLUORESCENCE EMISSION OCCURS ABOUT 10- SEC (10 NSEC) AFTER LIGHT ABSORPTION. DURING THIS PERIOD OF TIME A WIDE RANGE OF MOLECULAR PROCESSES CAN OCCUR, AND THESE CAN AFFECT THE SPECTRAL CHARACTERISTICS OF THE FLUORESCENT COMPOUND. THIS COMBINATION OF SENSITIVITY AND A FAVORABLE TIME SCALE

ALLOWS FLUORESCENCE METHODS TO BE GENERALLY USEFUL FOR STUDIES OF PROTEINS AND MEMBRANES AND THEIR INTERACTIONS WITH OTHER MACROMOLECULES. THIS BOOK DESCRIBES THE FUNDAMENTAL ASPECTS OF FLUORESCENCE. AND THE BIOCHEMICAL APPLICATIONS OF THIS METHODOLOGY. EACH CHAPTER STARTS WITH THE -THEORETICAL BASIS OF EACH PHENOMENON OF FLUORESCENCE, FOLLOWED BY EXAMPLES WHICH ILLUSTRATE THE USE OF THE PHENOMENON IN THE STUDY OF BIOCHEMICAL PROBLEMS. THE BOOK CONTAINS NUMEROUS FIGURES. IT IS FELT THAT SUCH GRAPHICAL PRESENTATIONS CONTRIBUTE TO PLEASURABLE READING AND INCREASED UNDERSTANDING. SEPARATE CHAPTERS ARE DEVOTED TO FLUORESCENCE POLARIZATION, LIFETIMES, QUENCHING, ENERGY TRANSFER, SOLVENT EFFECTS, AND EXCITED STATE REACTIONS. TO ENHANCE THE USEFULNESS OF THIS WORK AS A TEXTBOOK, PROBLEMS ARE INCLUDED WHICH ILLUSTRATE THE CONCEPTS DESCRIBED IN EACH CHAPTER. FURTHERMORE, A SEPARATE CHAPTER IS DEVOTED TO THE INSTRUMENTATION USED IN FLUORESCENCE SPECTROSCOPY. THIS CHAPTER WILL BE ESPECIALLY VALUABLE FOR THOSE PERFORMING OR CONTEMPLATING FLUORESCENCE MEASUREMENTS. SUCH MEASUREMENTS ARE EASILY COMPROMISED BY FAILURE TO CONSIDER A NUMBER OF SIMPLE PRINCIPLES.

SPECTROSCOPY - MARK F. VITHA 2018-09-17 PROVIDES STUDENTS AND PRACTITIONERS WITH A

COMPREHENSIVE UNDERSTANDING OF THE THEORY OF SPECTROSCOPY AND THE DESIGN AND USE OF SPECTROPHOTOMETERS IN THIS BOOK, YOU WILL LEARN THE FUNDAMENTAL PRINCIPLES UNDERPINNING MOLECULAR SPECTROSCOPY AND THE CONNECTIONS BETWEEN THOSE PRINCIPLES AND THE DESIGN OF SPECTROPHOTOMETERS. SPECTROSCOPY, ALONG WITH CHROMATOGRAPHY, MASS SPECTROMETRY, AND ELECTROCHEMISTRY, IS AN IMPORTANT AND WIDELY-USED ANALYTICAL TECHNIQUE. APPLICATIONS OF SPECTROSCOPY INCLUDE AIR QUALITY MONITORING, COMPOUND IDENTIFICATION, AND THE ANALYSIS OF PAINTINGS AND CULTURALLY IMPORTANT ARTIFACTS. THIS BOOK INTRODUCES STUDENTS TO THE FUNDAMENTALS OF MOLECULAR SPECTROSCOPY – INCLUDING UV-VISIBLE, INFRARED, FLUORESCENCE, AND RAMAN SPECTROSCOPY – IN AN APPROACHABLE AND COMPREHENSIVE WAY. IT GOES BEYOND THE BASICS OF THE SUBJECT AND PROVIDES A DETAILED LOOK AT THE INTERPLAY BETWEEN THEORY AND PRACTICE, MAKING IT IDEAL FOR COURSES IN QUANTITATIVE ANALYSIS, INSTRUMENTAL ANALYSIS, AND BIOCHEMISTRY, AS WELL AS COURSES FOCUSED SOLELY ON SPECTROSCOPY. IT IS ALSO A VALUABLE RESOURCE FOR PRACTITIONERS WORKING IN LABORATORIES WHO REGULARLY PERFORM SPECTROSCOPIC ANALYSES. SPECTROSCOPY: PRINCIPLES AND INSTRUMENTATION: PROVIDES EXTENSIVE COVERAGE OF PRINCIPLES, INSTRUMENTATION, AND APPLICATIONS OF

MOLECULAR SPECTROSCOPY FACILITATES A MODULAR APPROACH TO TEACHING AND LEARNING ABOUT CHEMICAL INSTRUMENTATION HELPS STUDENTS VISUALIZE THE EFFECTS THAT ELECTROMAGNETIC RADIATION IN DIFFERENT REGIONS OF THE SPECTRUM HAS ON MATTER CONNECTS THE FUNDAMENTAL THEORY OF THE EFFECTS OF ELECTROMAGNETIC RADIATION ON MATTER TO THE DESIGN AND USE OF SPECTROPHOTOMETERS FEATURES NUMEROUS FIGURES AND DIAGRAMS TO FACILITATE LEARNING INCLUDES SEVERAL WORKED EXAMPLES AND COMPANION EXERCISES THROUGHOUT EACH CHAPTER SO THAT READERS CAN CHECK THEIR UNDERSTANDING OFFERS NUMEROUS PROBLEMS AT THE END OF EACH CHAPTER TO ALLOW READERS TO APPLY WHAT THEY HAVE LEARNED INCLUDES CASE STUDIES THAT ILLUSTRATE HOW SPECTROSCOPY IS USED IN PRACTICE, INCLUDING ANALYZING WORKS OF ART, STUDYING THE KINETICS OF ENZYMATIC REACTIONS, DETECTING EXPLOSIVES, AND DETERMINING THE DNA SEQUENCE OF THE HUMAN GENOME COMPLEMENTS CHROMATOGRAPHY: PRINCIPLES AND INSTRUMENTATION THE BOOK IS DIVIDED INTO FIVE CHAPTERS THAT COVER THE FUNDAMENTALS OF SPECTROSCOPY, UV-VISIBLE SPECTROSCOPY, FLUORESCENCE/LUMINESCENCE SPECTROSCOPY, INFRARED SPECTROSCOPY, AND RAMAN SPECTROSCOPY. EACH CHAPTER DETAILS THE THEORY UPON WHICH THE SPECIFIC TECHNIQUES ARE BASED, PROVIDES WAYS FOR READERS TO VISUALIZE THE MOLECULAR-LEVEL EFFECTS OF

ELECTROMAGNETIC RADIATION ON MATTER, DESCRIBES THE DESIGN AND COMPONENTS OF SPECTROPHOTOMETERS, DISCUSSES APPLICATIONS OF EACH TYPE OF SPECTROSCOPY, AND INCLUDES CASE STUDIES THAT ILLUSTRATE SPECIFIC APPLICATIONS OF SPECTROSCOPY. EACH CHAPTER IS DIVIDED INTO MULTIPLE SECTIONS USING HEADINGS AND SUBHEADINGS, MAKING IT EASY FOR READERS TO WORK THROUGH THE BOOK AND TO FIND SPECIFIC INFORMATION RELEVANT TO THEIR INTERESTS. NUMEROUS FIGURES, EXERCISES, WORKED EXAMPLES, AND END-OF-CHAPTER PROBLEMS REINFORCE IMPORTANT CONCEPTS AND FACILITATE LEARNING. SPECTROSCOPY: PRINCIPLES AND INSTRUMENTATION IS AN EXCELLENT TEXT THAT PREPARES UNDERGRADUATE STUDENTS AND PRACTITIONERS TO OPERATE IN MODERN LABORATORIES. HIGH-RESOLUTION MOLECULAR FLUORESCENCE SPECTROSCOPY IN LOW TEMPERATURE MATRICES - JOHANNES WILLEM HOFSTRAAT 1988

MOLECULAR SWITCHES - BEN L. FERINGA 2011-08-04
THE LONG-AWAITED SECOND EDITION OF THE SUCCESSFUL BOOK COVERING MOLECULAR SWITCHES NOW IN TWO VOLUMES! PROVIDING PRINCIPLES AND APPLICATIONS THIS BOOK BRINGS YOU EVERYTHING YOU NEED TO KNOW ABOUT MOLECULAR SWITCHES - A HOT TOPIC IN THE NANOWORLD. THE MAJOR CLASSES OF MOLECULAR SWITCHES INCLUDING CATENANES, ROTAXANES, AZOBENZENES TOGETHER WITH

POLYMER AND BIOMOLECULAR SWITCHING SYSTEMS AND DNA BASED SWITCHES ARE COVERED. CHEMISTS AND MATERIAL SCIENTISTS INTERESTED IN ONE OF THE MOST INNOVATIVE AREAS OF THEIR SCIENCE WILL BENEFIT GREATLY FROM READING THIS BOOK. "THIS BOOK WILL APPEAL MOST TO ORGANIC CHEMISTS, BECAUSE OF THE WAY NEW STRUCTURES ARE INTRODUCED THROUGH THEIR SYNTHESIS, BUT IT WILL ALSO PROVIDE A USEFUL INTRODUCTION FOR OTHER SCIENTISTS, PROVIDED THEY ARE CONVERSANT WITH MOLECULAR STRUCTURES." (ORGANIC AND BIOMOLECULAR CHEMISTRY) "... A COMPREHENSIVE AND UP-TO-DATE INSIGHT ..." (CHEMISTRY & INDUSTRY)

FLUORESCENCE APPLICATIONS IN BIOTECHNOLOGY AND LIFE SCIENCES - EWA M. GOLDYS 2009-08-24

A SELF-CONTAINED TREATMENT OF THE LATEST FLUORESCENCE APPLICATIONS IN BIOTECHNOLOGY AND THE LIFE SCIENCES THIS BOOK FOCUSES SPECIFICALLY ON THE PRESENT APPLICATIONS OF FLUORESCENCE IN MOLECULAR AND CELLULAR DYNAMICS, BIOLOGICAL/MEDICAL IMAGING, PROTEOMICS, GENOMICS, AND FLOW CYTOMETRY. IT RAISES AWARENESS OF THE LATEST SCIENTIFIC APPROACHES AND TECHNOLOGIES THAT MAY HELP RESOLVE PROBLEMS RELEVANT FOR THE INDUSTRY AND THE COMMUNITY IN AREAS SUCH AS PUBLIC HEALTH, FOOD SAFETY, AND ENVIRONMENTAL MONITORING. FOLLOWING AN INTRODUCTORY CHAPTER ON THE BASICS OF FLUORESCENCE, THE BOOK COVERS: LABELING OF

CELLS WITH FLUORESCENT DYES; GENETICALLY ENCODED FLUORESCENT PROTEINS; NANOPARTICLE FLUORESCENCE PROBES; QUANTITATIVE ANALYSIS OF FLUORESCENT IMAGES; SPECTRAL IMAGING AND UNMIXING; CORRELATION OF LIGHT WITH ELECTRON MICROSCOPY; FLUORESCENCE RESONANCE ENERGY TRANSFER AND APPLICATIONS; MONITORING MOLECULAR DYNAMICS IN LIVE CELLS USING FLUORESCENCE PHOTO-BLEACHING; TIME-RESOLVED FLUORESCENCE IN MICROSCOPY; FLUORESCENCE CORRELATION SPECTROSCOPY; FLOW CYTOMETRY; FLUORESCENCE IN DIAGNOSTIC IMAGING; FLUORESCENCE IN CLINICAL DIAGNOSES; IMMUNOCHEMICAL DETECTION OF ANALYTES BY USING FLUORESCENCE; MEMBRANE ORGANIZATION; AND PROBING THE KINETICS OF ION PUMPS VIA VOLTAGE-SENSITIVE FLUORESCENT DYES. WITH ITS MULTIDISCIPLINARY APPROACH AND EXCELLENT BALANCE OF RESEARCH AND DIAGNOSTIC TOPICS, THIS BOOK IS AN ESSENTIAL RESOURCE FOR POSTGRADUATE STUDENTS AND A BROAD RANGE OF SCIENTISTS AND RESEARCHERS IN BIOLOGY, PHYSICS, CHEMISTRY, BIOTECHNOLOGY, BIOENGINEERING, AND MEDICINE.

ANALYTICAL METHODS IN SUPRAMOLECULAR CHEMISTRY - CHRISTOPH A. SCHALLEY 2007-02-27

AN OVERVIEW OF THE TECHNIQUES USED TO EXAMINE SUPRAMOLECULAR AGGREGATES FROM A METHODOLOGICAL POINT OF VIEW. EDITED BY A RISING STAR IN THE COMMUNITY AND AN EXPERIENCED AUTHOR, THIS IS A DEFINITIVE SURVEY

OF USEFUL MODERN ANALYTICAL METHODS FOR UNDERSTANDING SUPRAMOLECULAR CHEMISTRY, FROM NMR TO SINGLE-MOLECULE SPECTROSCOPY, FROM ELECTRON MICROSCOPY TO EXTRACTION METHODS. A DEFINITIVE STUDY OF THIS FIELD TOUCHING MANY INTERDISCIPLINARY AREAS SUCH AS MOLECULAR DEVICES, BIOLOGY, BIOORGANIC CHEMISTRY, MATERIAL SCIENCE, AND NANOTECHNOLOGY.

FUNDAMENTALS OF LIGHT MICROSCOPY AND ELECTRONIC IMAGING - DOUGLAS B. MURPHY 2012-08-22

FUNDAMENTALS OF LIGHT MICROSCOPY AND ELECTRONIC IMAGING, SECOND EDITION PROVIDES A COHERENT INTRODUCTION TO THE PRINCIPLES AND APPLICATIONS OF THE INTEGRATED OPTICAL MICROSCOPE SYSTEM, COVERING BOTH THEORETICAL AND PRACTICAL CONSIDERATIONS. IT EXPANDS AND UPDATES DISCUSSIONS OF MULTI-SPECTRAL IMAGING, INTENSIFIED DIGITAL CAMERAS, SIGNAL COLOCALIZATION, AND USES OF OBJECTIVES, AND OFFERS GUIDANCE IN THE SELECTION OF MICROSCOPES AND ELECTRONIC CAMERAS, AS WELL AS APPROPRIATE AUXILIARY OPTICAL SYSTEMS AND FLUORESCENT TAGS. THE BOOK IS DIVIDED INTO THREE SECTIONS COVERING OPTICAL PRINCIPLES IN DIFFRACTION AND IMAGE FORMATION, BASIC MODES OF LIGHT MICROSCOPY, AND COMPONENTS OF MODERN ELECTRONIC IMAGING SYSTEMS AND IMAGE PROCESSING OPERATIONS. EACH CHAPTER INTRODUCES RELEVANT THEORY, FOLLOWED BY DESCRIPTIONS OF INSTRUMENT ALIGNMENT AND IMAGE INTERPRETATION. THIS

REVISION INCLUDES NEW CHAPTERS ON LIVE CELL IMAGING, MEASUREMENT OF PROTEIN DYNAMICS, DECONVOLUTION MICROSCOPY, AND INTERFERENCE MICROSCOPY. POWERPOINT SLIDES OF THE FIGURES AS WELL AS OTHER SUPPLEMENTARY MATERIALS FOR INSTRUCTORS ARE AVAILABLE AT A COMPANION WEBSITE:

[WWW.WILEY.COM/GO/MURPHY/LIGHTMICROSCOPY](http://www.wiley.com/go/murphy/lightmicroscopy)
METHODS IN PHYSICAL CHEMISTRY, 2 VOLUME SET - ROLF SCHERER
FER 2012-09-27

THANKS TO THE PROGRESS MADE IN INSTRUMENTS AND TECHNIQUES, THE METHODS IN PHYSICAL CHEMISTRY HAVE DEVELOPED RAPIDLY OVER THE PAST FEW DECADES, MAKING THEM INCREASINGLY VALUABLE FOR SCIENTISTS OF MANY DISCIPLINES. THESE TWO MUST-HAVE VOLUMES MEET THE NEEDS OF THE SCIENTIFIC COMMUNITY FOR A THOROUGH OVERVIEW OF ALL THE IMPORTANT METHODS CURRENTLY USED. AS SUCH, THIS WORK BRIDGES THE GAP BETWEEN STANDARD TEXTBOOKS AND REVIEW ARTICLES, COVERING A LARGE NUMBER OF METHODS, AS WELL AS THE MOTIVATION BEHIND THEIR USE. A UNIFORM APPROACH IS ADOPTED THROUGHOUT BOTH VOLUMES, WHILE THE CRITICAL COMPARISON OF THE ADVANTAGES AND DISADVANTAGES OF EACH METHOD MAKES THIS A VALUABLE REFERENCE FOR PHYSICAL CHEMISTS AND OTHER SCIENTISTS WORKING WITH THESE TECHNIQUES.

SYSTEMATIC EXPLORATION OF INDOLIZINE-BASED SMALL

FLUORESCENT MOLECULES - YOUNGJUN LEE 2018-08-16

THIS THESIS DESCRIBES AN IN-DEPTH STUDY OF AN INDOLIZINE-BASED FLUOROPHORE, FROM UNDERSTANDING OF ITS STRUCTURE-PHOTOPHYSICAL PROPERTY RELATIONSHIP TO ITS APPLICATION AS A USEFUL BIOLOGICAL REPORTER. ORGANIC FLUOROPHORES HAVE BEEN EXTENSIVELY USED IN THE FIELD OF MOLECULAR BIOLOGY OWING TO THEIR EXCELLENT PHOTOPHYSICAL PROPERTY, SUITABLE CELL PERMEABILITY, AND SYNTHETIC FLEXIBILITY. UNDERSTANDING OF THE STRUCTURE-PHOTOPHYSICAL PROPERTY RELATIONSHIP OF A GIVEN FLUOROPHORE OFTEN PAVES THE ROAD TO THE DEVELOPMENT OF VALUABLE MOLECULAR PROBES TO VISUALIZE AND TRANSCRIBE BIOLOGICAL NETWORKS. IN THIS THESIS, RESPECTIVE CHAPTERS DEAL WITH MOLECULAR DESIGN, ORGANIC SYNTHESIS, STRUCTURE-PROPERTY ANALYSIS, AND QUANTUM-MECHANICAL INTERPRETATION OF UNEXPLORED FAMILY OF INDOLIZINE-BASED MOLECULES. THIS SYSTEMATIC EXPLORATION HAS LED TO RATIONAL DEVELOPMENT OF A NEW MICROALGAE LIPID DROPLET PROBE, COLORFUL BIOORTHOGONAL FLUOROGENIC PROBES, AND A BRIGHT MITOCHONDRIAL PROBE, WORKING UNDER LIVE CELL CONDITIONS. HARNESSING THE OPTICAL PROPERTIES OF A GIVEN FLUOROPHORE HAS BEEN AN IMPORTANT TOPIC FOR A COUPLE OF DECADES, BOTH IN INDUSTRY AND IN ACADEMIA. THIS THESIS PROVIDES USEFUL INSIGHTS FOR THE IMPROVEMENT AND DEVELOPMENT OF UNIQUE SMALL

FLUORESCENT MATERIALS, OR OPTICAL MATERIALS.

HANDBOOK OF SINGLE MOLECULE FLUORESCENCE

SPECTROSCOPY - CHRIS GELL 2006-08-17

THIS IS A PRACTICAL INTRODUCTION TO SINGLE MOLECULE FLUORESCENCE EXPERIMENTS, THE ANALYSIS OF THE DATA, AND APPLICATIONS OF THE TECHNIQUES TO THE STUDY OF BIOLOGICAL STRUCTURE AND FUNCTION.

FLUORESCENCE MICROSCOPY - ULRICH KUBITSCHKE

2017-03-27

WHILE THERE ARE MANY PUBLICATIONS ON THE TOPIC WRITTEN BY EXPERTS FOR EXPERTS, THIS TEXT IS SPECIFICALLY DESIGNED TO ALLOW ADVANCED STUDENTS AND RESEARCHERS WITH NO BACKGROUND IN PHYSICS TO COMPREHEND NOVEL FLUORESCENCE MICROSCOPY TECHNIQUES.

THIS SECOND EDITION FEATURES NEW CHAPTERS AND A SUBSEQUENT FOCUS ON SUPER-RESOLUTION AND SINGLE-MOLECULE MICROSCOPY AS WELL AS AN EXPANDED INTRODUCTION. EACH CHAPTER IS WRITTEN BY A RENOWNED EXPERT IN THE FIELD, AND HAS BEEN THOROUGHLY REVISED TO REFLECT THE DEVELOPMENTS IN RECENT YEARS.

MOLECULAR FLUORESCENCE - BERNARD VALEUR

2013-03-27

THIS SECOND EDITION OF THE WELL-ESTABLISHED BESTSELLER IS COMPLETELY UPDATED AND REVISED WITH APPROXIMATELY 30 % ADDITIONAL MATERIAL, INCLUDING TWO NEW CHAPTERS ON APPLICATIONS, WHICH HAS SEEN THE MOST

SIGNIFICANT DEVELOPMENTS. THE COMPREHENSIVE OVERVIEW WRITTEN AT AN INTRODUCTORY LEVEL COVERS FUNDAMENTAL ASPECTS, PRINCIPLES OF INSTRUMENTATION AND PRACTICAL APPLICATIONS, WHILE PROVIDING MANY VALUABLE TIPS. FOR PHOTOCHEMISTS AND PHOTOPHYSICISTS, PHYSICAL CHEMISTS, MOLECULAR PHYSICISTS, BIOPHYSICISTS, BIOCHEMISTS AND BIOLOGISTS, LECTURERS AND STUDENTS OF CHEMISTRY, PHYSICS, AND BIOLOGY.

MOLECULAR IMAGING - RALPH WEISSLEDER 2010

THE FIELD OF MOLECULAR IMAGING OF LIVING SUBJECTS HAVE EVOLVED CONSIDERABLY AND HAVE SEEN SPECTACULAR ADVANCES IN CHEMISTRY, ENGINEERING AND BIOMEDICAL APPLICATIONS. THIS TEXTBOOK WAS DESIGNED TO FILL THE NEED FOR AN AUTHORITATIVE SOURCE FOR THIS MULTI-DISCIPLINARY FIELD. WE HAVE BEEN FORTUNATE TO RECRUIT OVER 80 LEADING AUTHORS CONTRIBUTING 75 INDIVIDUAL CHAPTERS. GIVEN THE MULTIDISCIPLINARY NATURE OF THE FIELD, THE BOOK IS BROKEN INTO SIX DIFFERENT SECTIONS: "MOLECULAR IMAGING TECHNOLOGIES", "CHEMISTRY", "MOLECULAR IMAGING IN CELL AND MOLECULAR BIOLOGY", "APPLICATIONS OF MOLECULAR IMAGING", "MOLECULAR IMAGING IN DRUG EVALUATION" WITH THE FINAL SECTION COMPRISED OF CHAPTERS ON COMPUTATION, BIOINFORMATICS AND MODELING. THE ORGANIZATION OF THIS LARGE AMOUNT OF INFORMATION IS LOGICAL AND STRIVES TO AVOID REDUNDANCIES AMONG CHAPTERS. IT ENCOURAGES THE USE OF

FIGURES TO ILLUSTRATE CONCEPTS AND TO PROVIDE NUMEROUS MOLECULAR IMAGING EXAMPLES.

INTRODUCTION TO FLUORESCENCE SENSING - ALEXANDER P. DEMCHENKO 2015-10-06

FLUORESCENCE IS THE MOST POPULAR TECHNIQUE IN CHEMICAL AND BIOLOGICAL SENSING AND THIS BOOK PROVIDES SYSTEMATIC KNOWLEDGE OF BASIC PRINCIPLES IN THE DESIGN OF FLUORESCENCE SENSING AND IMAGING TECHNIQUES TOGETHER WITH CRITICAL ANALYSIS OF RECENT DEVELOPMENTS. ITS ULTIMATE SENSITIVITY, HIGH TEMPORAL AND SPATIAL RESOLUTION AND VERSATILITY ENABLES HIGH RESOLUTION IMAGING WITHIN LIVING CELLS. IT DEVELOPS RAPIDLY IN THE DIRECTIONS OF CONSTRUCTING NEW MOLECULAR RECOGNITION UNITS, NEW FLUORESCENCE REPORTERS AND IN IMPROVING SENSITIVITY OF RESPONSE, UP TO THE DETECTION OF SINGLE MOLECULES. ITS APPLICATION AREAS RANGE FROM THE CONTROL OF INDUSTRIAL PROCESSES TO ENVIRONMENTAL MONITORING AND CLINICAL DIAGNOSTICS. BEING A GUIDE FOR STUDENTS AND YOUNG RESEARCHERS, IT ALSO ADDRESSES PROFESSIONALS INVOLVED IN BASIC AND APPLIED RESEARCH. MAKING A STRONG LINK BETWEEN EDUCATION, RESEARCH AND PRODUCT DEVELOPMENT, THIS BOOK DISCUSSES PROSPECTS FOR FUTURE PROGRESS.

SINGLE MOLECULE SPECTROSCOPY - R. RIGLER 2012-12-06

THE TOPICS RANGE FROM SINGLE MOLECULE EXPERIMENTS IN

QUANTUM OPTICS AND SOLID-STATE PHYSICS TO ANALOGOUS INVESTIGATIONS IN PHYSICAL CHEMISTRY AND BIOPHYSICS.

SINGLE MOLECULE BIOLOGY - ALEXANDER E. KNIGHT 2009-02-26

SINGLE MOLECULE TECHNIQUES, INCLUDING SINGLE MOLECULE FLUORESCENCE, OPTICAL TWEEZERS, AND SCANNING PROBE MICROSCOPY, ALLOW FOR THE MANIPULATION AND MEASUREMENT OF SINGLE BIOLOGICAL MOLECULES WITHIN A LIVE CELL OR IN CULTURE. THESE APPROACHES, AMONGST THE MOST EXCITING TOOLS AVAILABLE IN BIOLOGY TODAY, OFFER POWERFUL NEW WAYS TO ELUCIDATE BIOLOGICAL FUNCTION, BOTH IN TERMS OF REVEALING MECHANISMS OF ACTION ON A MOLECULAR LEVEL AS WELL AS TRACKING THE BEHAVIOUR OF MOLECULES IN LIVING CELLS. THIS BOOK PROVIDES THE FIRST COMPLETE AND AUTHORITATIVE TREATMENT OF THIS RAPIDLY EMERGING FIELD, EXPLICITLY FROM A BIOLOGICAL PERSPECTIVE. THE CONTENTS ARE ORGANIZED BY BIOLOGICAL SYSTEM OR MOLECULE. EACH CHAPTER DISCUSSES INSIGHTS THAT HAVE BEEN REVEALED ABOUT THEIR MECHANISM, STRUCTURE OR FUNCTION BY SINGLE MOLECULE TECHNIQUES. AMONG THE TOPICS COVERED ARE ENZYMES, MOTOR PROTEINS, MEMBRANE CHANNELS, DNA, RIBOZYMES, CYTOSKELETAL PROTEINS, AND OTHER KEY MOLECULES OF CURRENT INTEREST. AN INTRODUCTION BY THE EDITOR PROVIDES A CONCISE REVIEW OF KEY PRINCIPLES AND AN HISTORICAL OVERVIEW. THE LAST

SECTION DISCUSSES APPLICATIONS IN MOLECULAR DIAGNOSTICS AND DRUG DISCOVERY. * ORGANIZED BY BIOLOGICAL SYSTEM OR MOLECULE. * EACH CHAPTER DISCUSSES INSIGHTS INTO MECHANISM OF ACTION, STRUCTURE, AND FUNCTION * COVERS ENZYMES, MOTOR PROTEINS, MEMBRANE CHANNELS, DNA, RIBOZYMES, ETC. * INCLUDES AN INTRODUCTION TO KEY PRINCIPLES AND AN HISTORICAL OVERVIEW. * DISCUSSES APPLICATIONS IN MOLECULAR DIAGNOSTICS AND DRUG DISCOVERY. * PROVIDES AN EXPERT'S PERSPECTIVE ON FUTURE DEVELOPMENTS.

PRINCIPLES OF FLUORESCENCE SPECTROSCOPY - JOSEPH R. LAKOWICZ 2013-04-17

IN THE SECOND EDITION OF PRINCIPLES I HAVE ATTEMPTED TO MAINTAIN THE EMPHASIS ON BASICS, WHILE UPDATING THE EXAMPLES TO INCLUDE MORE RECENT RESULTS FROM THE LITERATURE. THERE IS A NEW CHAPTER PROVIDING AN OVERVIEW OF EXTRINSIC FLUOROPHORES. THE DISCUSSION OF TIME-RESOLVED MEASUREMENTS HAS BEEN EXPANDED TO TWO CHAPTERS. QUENCHING HAS ALSO BEEN EXPANDED IN TWO CHAPTERS. ENERGY TRANSFER AND ANISOTROPY HAVE EACH BEEN EXPANDED TO THREE CHAPTERS. THERE IS ALSO A NEW CHAPTER ON FLUORESCENCE SENSING. TO ENHANCE THE USEFULNESS OF THIS BOOK AS A TEXTBOOK, MOST CHAPTERS ARE FOLLOWED BY A SET OF PROBLEMS. SECTIONS WHICH DESCRIBE ADVANCED TOPICS ARE INDICATED AS SUCH, TO ALLOW THESE SECTIONS TO BE SKIPPED IN AN INTRODUCTION

COURSE. GLOSSARIES ARE PROVIDED FOR COMMONLY USED ACRONYMS AND MATHEMATICAL SYMBOLS. FOR THOSE WANTING ADDITIONAL INFORMATION, THE FINAL APPENDIX CONTAINS A LIST OF RECOMMENDED BOOKS WHICH EXPAND ON VARIOUS SPECIALIZED TOPICS.' FROM THE AUTHOR'S PREFACE
SINGLE MOLECULE DETECTION IN SOLUTION - JURGEN ENDERLEIN
2002-05-06

THE DETECTION OF SINGLE MOLECULES OPENS UP NEW HORIZONS IN ANALYTICAL CHEMISTRY, BIOLOGY AND MEDICINE. THIS DISCIPLINE, WHICH BELONGS TO THE EXPANDING FIELD OF NANOSCIENCE, HAS BEEN RAPIDLY EMERGING OVER THE LAST TEN YEARS. THIS HANDBOOK PROVIDES A THOROUGH OVERVIEW OF THE FIELD. IT BEGINS WITH BASICS OF SINGLE MOLECULE DETECTION IN SOLUTION, DESCRIBES METHODS AND DEVICES (FLUORESCENCE CORRELATION SPECTROSCOPY, SURFACE ENHANCED RAMAN SCATTERING, SENSORS, ESPECIALLY DYES, SCREENING TECHNIQUES, ESPECIALLY CONFOCAL LASER SCANNING MICROSCOPY). IN THE SECOND PART, VARIOUS APPLICATIONS IN LIFE SCIENCES AND MEDICINE PROVIDE THE LATEST RESEARCH RESULTS. THIS MODERN HANDBOOK IS A HIGHLY ACCESSIBLE REFERENCE FOR A BROAD COMMUNITY FROM ADVANCED RESEARCHERS, SPECIALISTS AND COMPANY PROFESSIONALS IN PHYSICS, SPECTROSCOPY, BIOTECHNOLOGY, ANALYTICAL CHEMISTRY, AND MEDICINE. WRITTEN BY LEADING AUTHORITIES IN THE FIELD, IT IS TIMELY AND FILLS A GAP - UP TO NOW THERE EXISTS NO HANDBOOK

CONCERNING THIS THEME.

INTRODUCTION TO FLUORESCENCE SPECTROSCOPY -

ASHUTOSH SHARMA 1999-05-21

AN ACCESSIBLE GUIDE TO ALL ASPECTS OF MOLECULAR FLUORESCENCE SPECTROSCOPY THIS BOOK INTRODUCES THE UNINITIATED READER TO THE GROWING BODY OF ANALYTICAL METHODS BASED ON MOLECULAR FLUORESCENCE. GEARED TO PRACTITIONERS WITH NO PARTICULAR TRAINING OR EXPOSURE TO THE FIELD, IT HIGHLIGHTS FLUORESCENCE SPECTROSCOPY'S TREMENDOUS APPEAL IN PRESENT-DAY PHARMACEUTICAL, BIOMEDICAL, AND ENVIRONMENTAL ANALYSIS. WRITTEN BY TWO HIGHLY RESPECTED EXPERTS IN THE FIELD, INTRODUCTION TO FLUORESCENCE SPECTROSCOPY COVERS ALL ASPECTS OF THE TECHNOLOGY-PHYSICAL FUNDAMENTALS, INSTRUMENTATION, METHODS, AND APPLICATIONS. THE INFORMATION IS OFFERED AT A VERY PRACTICAL LEVEL AND ADDRESSES A BROAD RANGE OF CHEMICAL, PHYSICAL, BIOLOGICAL, AND GEOLOGICAL PROBLEMS. THE AUTHORS INCORPORATE RECENT ADVANCES IN COMMERCIALY AVAILABLE INSTRUMENTATION AS WELL AS FLUORESCENT DERIVATIZING AGENTS, PROVIDE MANY EXAMPLES OF STATE-OF-THE-ART APPLICATIONS, AND DISCUSS FUTURE TRENDS. CONCISE, ACCESSIBLE, UP-TO-DATE, INTRODUCTION TO FLUORESCENCE SPECTROSCOPY IS AN INDISPENSABLE REFERENCE AND AN INVALUABLE PRIMER FOR THOSE INVOLVED IN THE FIELD OF ANALYTICAL SCIENCE AND OTHER

PROFESSIONALS INTERESTED IN THIS FAST-EVOLVING ANALYTICAL TECHNIQUE.

MOLECULAR PHOTOPHYSICS AND SPECTROSCOPY - DAVID L ANDREWS 2014-09-01

THIS BOOK PROVIDES A FRESH, PHOTON-BASED DESCRIPTION OF MODERN MOLECULAR SPECTROSCOPY AND PHOTOPHYSICS, WITH APPLICATIONS DRAWN FROM CHEMISTRY, BIOLOGY, PHYSICS AND MATERIALS SCIENCE. THE CONCISE AND DETAILED APPROACH INCLUDES SOME OF THE MOST RECENT DEVELOPMENTS. HANDBOOK OF FLUORESCENCE SPECTROSCOPY AND IMAGING - MARKUS SAUER 2010-12-23

PROVIDING MUCH-NEEDED INFORMATION ON FLUORESCENCE SPECTROSCOPY AND MICROSCOPY, THIS READY REFERENCE COVERS DETECTION TECHNIQUES, DATA REGISTRATION, AND THE USE OF SPECTROSCOPIC TOOLS, AS WELL AS NEW TECHNIQUES FOR IMPROVING THE RESOLUTION OF OPTICAL MICROSCOPY BELOW THE RESOLUTION GAP. STARTING WITH THE BASIC PRINCIPLES, THE BOOK GOES ON TO TREAT FLUOROPHORES AND LABELING, SINGLE-MOLECULE FLUORESCENCE SPECTROSCOPY AND ENZYMATICS, AS WELL AS EXCITED STATE ENERGY TRANSFER, AND SUPER-RESOLUTION FLUORESCENCE IMAGING. EXAMPLES SHOW HOW EACH TECHNIQUE CAN HELP IN OBTAINING DETAILED AND REFINED INFORMATION FROM INDIVIDUAL MOLECULAR SYSTEMS.

FLUORESCENCE AND PHOSPHORESCENCE SPECTROSCOPY -
STEPHEN G SCHULMAN 2013-10-22

FLUORESCENCE AND PHOSPHORESCENCE SPECTROSCOPY: PHYSICOCHEMICAL PRINCIPLES AND PRACTICE DEALS WITH THE PHYSICOCHEMICAL PRINCIPLES AND APPLICATIONS OF FLUORESCENCE AND PHOSPHORESCENCE SPECTROSCOPY IN EXPERIMENTAL BIOLOGY AND CHEMISTRY. TOPICS COVERED INCLUDE THE ABSORPTION OF LIGHT BY MOLECULES; INSTRUMENTATION FOR THE MEASUREMENT OF FLUORESCENCE AND PHOSPHORESCENCE; SOLVENT AND ACIDITY EFFECTS ON ELECTRONIC SPECTRA; AND POLARIZATION OF FLUORESCENCE AND PHOSPHORESCENCE. COMPRISED OF FOUR CHAPTERS, THIS BOOK BEGINS WITH A DISCUSSION ON PHOTOPHYSICAL PROCESSES IN ISOLATED MOLECULES AND MOLECULES IN SOLUTION, PAYING PARTICULAR ATTENTION TO THERMAL EQUILIBRATION OF ELECTRONICALLY EXCITED MOLECULES, PHOTOTAUTOMERISM, AND COORDINATION BY METAL IONS. THE NEXT CHAPTER DESCRIBES THE INSTRUMENTATION FOR MEASURING FLUORESCENCE AND PHOSPHORESCENCE, WHICH CONSISTS ESSENTIALLY OF A LIGHT SOURCE TO ELECTRONICALLY EXCITE THE SAMPLE; A MONOCHROMATOR TO SEPARATE THE LIGHT OF DESIRED ENERGY FROM THE SOURCE; A SAMPLE COMPARTMENT; A SECOND MONOCHROMATOR TO ISOLATE THE SAMPLE'S FLUORESCENCE

ENERGY FROM THE EXCITATION ENERGY; A PHOTODETECTOR TO TRANSLATE THE FLUORESCENT LIGHT INTO AN ELECTRICAL SIGNAL; AND A READOUT SYSTEM SUCH AS A GALVANOMETER OR A RECORDER, COUPLED WITH AN AMPLIFIER TO DETERMINE THE INTENSITY OF FLUORESCENT LIGHT THAT IS EMITTED. THE FINAL CHAPTER IS DEVOTED TO VARIOUS APPLICATIONS OF FLUORESCENCE AND PHOSPHORESCENCE SPECTROSCOPY, INCLUDING ANALYSIS OF ORGANIC AND INORGANIC COMPOUNDS. THIS MONOGRAPH IS WRITTEN PRIMARILY FOR ANALYTICAL CHEMISTS AND BIOLOGICAL SCIENTISTS.

- UTE RESCH-GENGER

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ANALYTICAL CHEMISTS AND MATERIALS SCIENTISTS WILL FIND THIS A USEFUL ADDITION TO THEIR ARMORY. THE CONTRIBUTORS HAVE SOUGHT TO HIGHLIGHT THE PRESENT STATE OF AFFAIRS IN THE VALIDATION AND QUALITY ASSURANCE OF FLUORESCENCE MEASUREMENTS, AS WELL AS THE NEED FOR FUTURE STANDARDS. METHODS INCLUDED RANGE FROM STEADY-STATE FLUOROMETRY AND MICROFLUOROMETRY, MICROSCOPY, AND MICRO-ARRAY TECHNOLOGY, TO TIME-RESOLVED FLUORESCENCE AND FLUORESCENCE DEPOLARIZATION IMAGING TECHNIQUES.