

Microscopy A Very Short Introduction Very Short I

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HUMAN EVOLUTION: A VERY SHORT INTRODUCTION BERNARD WOOD 2005-11-03 THIS INTRODUCTION TRACES THE HISTORY OF PALEOANTHROPOLOGY FROM ITS BEGINNINGS IN THE 18TH CENTURY TO THE LATEST FOSSIL FINDS. IT CONCENTRATES ON THE FOSSIL EVIDENCE FOR HUMAN EVOLUTION, MAKING REFERENCE TO THE RELEVANT ARCHAEOLOGICAL EVIDENCE WHEN APPROPRIATE.

AN INTRODUCTION TO MICROSCOPY BY MEANS OF LIGHT, ELECTRONS, X-RAYS, OR ULTRASOUND EUGENE ROCHOW 2012-12-16 MANY PEOPLE LOOK UPON A MICROSCOPE AS A MERE INSTRUMENT(L); TO THEM MICROSCOPY IS INSTRUMENTATION. OTHER PEOPLE CONSIDER A MICROSCOPE TO BE SIMPLY AN AID TO THE EYE; TO THEM MICROSCOPY IS PRIMARILY AN EXPAN SION OF MACROSCOPY. IN ACTUALITY, MICROSCOPY IS BOTH OBJECTIVE AND SUB JECTIVE; IT IS SEEING THROUGH AN INSTRUMENT BY MEANS OF THE EYE, AND MORE IMPORTANTLY, THE BRAIN. THE FUNCTION OF THE BRAIN IS TO INTERPRET THE EYE'S IMAGE IN TERMS OF THE OBJECT'S STRUCTURE. THOUGHT AND EXPERIENCE ARE REQUIRED TO DISTINGUISH STRUCTURE FROM ARTIFACT. IT IS SAID THAT GALILEO (1564-1642) HAD HIS ASSOCIATES FIRST LOOK THROUGH HIS TELESCOPE MICROSCOPE AT VERY FAMILIAR OBJECTS TO CONVINCING THEM THAT THE IMAGE WAS A TRUE REPRESENTATION OF THE OBJECT. THEN HE WOULD HAVE THEM PROCEED TO HITHERTO UNKNOWN WORLDS TOO FAR OR TOO SMALL TO BE SEEN WITH THE UN AIDED EYE. SINCE GALILEO'S TIME, LIGHT MICROSCOPES HAVE BEEN IMPROVED SO MUCH THAT PERFORMANCE IS NOW VERY CLOSE TO THEORETICAL LIMITS. ELECTRON MICROSCOPES HAVE BEEN DEVELOPED IN THE LAST FOUR DECADES TO EXHIBIT THOUSANDS OF TIMES THE RESOLVING POWER OF THE LIGHT MICROSCOPE. THROUGH THE NEWS MEDIA EVERYONE IS MADE AWARE OF THE MARVELOUS MICROSCOPICAL ACCOMPLISHMENTS IN IMAGERY. HOWEVER, LITTLE OR NO HINT IS GIVEN AS TO WHAT PARTS OF THE IMAGE ARE DERIVED FROM THE SPECIMEN ITSELF AND WHAT PARTS ARE FROM THE INSTRUMENTATION, TO SAY NOTHING OF THE CHANGES MADE DURING PREPARATION OF THE SPECIMEN.

THE CELL: A VERY SHORT INTRODUCTION TERENCE ALLEN 2011-09-29 ALL LIVING THINGS ON EARTH ARE COMPOSED OF CELLS. A CELL IS THE SIMPLEST UNIT OF A SELF-CONTAINED LIVING ORGANISM, AND THE VAST MAJORITY OF LIFE ON EARTH CONSISTS OF SINGLE-CELLED MICROBES, MOSTLY BACTERIA. THESE CONSIST OF A SIMPLE 'PROKARYOTIC' CELL, WITH NO NUCLEUS. THE BODIES OF MORE COMPLEX PLANTS AND ANIMALS CONSIST OF BILLIONS OF 'EUKARYOTIC' CELLS, OF VARYING KINDS, ADAPTED TO FILL DIFFERENT ROLES - RED BLOOD CELLS, MUSCLE CELLS, BRANCHED NEURONS. EACH CELL IS AN ASTONISHINGLY COMPLEX CHEMICAL FACTORY, THE ACTIVITIES OF WHICH WE HAVE ONLY BEGUN TO UNRAVEL IN THE PAST FIFTY YEARS OR SO THROUGH MODERN TECHNIQUES OF MICROSCOPY, BIOCHEMISTRY, AND MOLECULAR BIOLOGY. IN THIS VERY SHORT INTRODUCTION, TERENCE ALLEN AND GRAHAM COWLING DESCRIBE THE NATURE OF CELLS - THEIR BASIC STRUCTURE, THEIR VARYING FORMS, THEIR DIVISION, THEIR DIFFERENTIATION FROM INITIALLY HIGHLY FLEXIBLE STEM CELLS, THEIR SIGNALLING, AND PROGRAMMED DEATH. CELLS ARE THE BASIC CONSTITUENT OF LIFE, AND UNDERSTANDING CELLS AND HOW THEY WORK IS CENTRAL TO ALL BIOLOGY AND MEDICINE. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

THE WORLD OF THE MICROSCOPE CHRIS OXLADE 2008-01-01 SHOWS HOW TO GET THE BEST FROM VARIOUS TYPES OF MICROSCOPES, AND SUGGESTS PROJECTS WHICH REVEAL THE DETAIL OF EVERYDAY OBJECTS.

LIGHT: A VERY SHORT INTRODUCTION IAN A. WALMSLEY 2015-09-24 LIGHT ENABLES US TO SEE THE WORLD AROUND US. OUR SENSE OF SIGHT PROVIDES US WITH DIRECT INFORMATION ABOUT SPACE AND TIME, THE PHYSICAL ARRANGEMENT OF THE WORLD, AND HOW IT CHANGES. THIS ALMOST UNIVERSAL SHARED SENSATION OF VISION HAS LED TO A FASCINATION WITH THE NATURE AND PROPERTIES OF LIGHT ACROSS THE AGES. BUT THE LIGHT WE SEE IS JUST A SMALL PART OF THE WHOLE SPECTRUM OF ELECTROMAGNETIC RADIATION, RANGING FROM RADIO WAVES TO GAMMA RAYS. IN THIS VERY SHORT INTRODUCTION IAN WALMSLEY DISCUSSES EARLY ATTEMPTS TO EXPLAIN LIGHT, AND THE DEVELOPMENT OF APPARENTLY OPPOSING PARTICULATE AND WAVE THEORIES BY SCIENTISTS SUCH AS ISAAC NEWTON AND CHRISTIAAN HUYGENS. HE SHOWS HOW LIGHT WAS RECOGNIZED AS AN ELECTROMAGNETIC WAVE IN THE 19TH CENTURY, AND THE DEVELOPMENT OF THE QUANTUM MECHANICS VIEW OF WAVE-PARTICLE DUALITY IN THE 20TH CENTURY. HE ALSO DESCRIBES THE MANY APPLICATIONS OF LIGHT, DOMESTIC AND SCIENTIFIC, SUCH AS MICROWAVES, DVDS, AND LASERS. WE NOW USE THE WHOLE RANGE OF ELECTROMAGNETIC RADIATION TO PEER BOTH INTO THE HUMAN BODY AND DEEP INTO SPACE. TURNING TO THE FUTURE OF OPTICS, WALMSLEY CONCLUDES BY LOOKING AT SOME OF THE MOST EXCITING NEW DEVELOPMENTS USING QUANTUM LIGHT SOURCES IN COMMUNICATIONS AND COMPUTING. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

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.

INTRODUCTION TO LIGHT MICROSCOPY DEE LAWLOR 2019-05-31 THIS BOOK OFFERS A BEGINNER'S GUIDE TO USING LIGHT MICROSCOPES. IT BEGINS WITH A BRIEF INTRODUCTION TO THE PHYSICS OF OPTICS, WHICH WILL GIVE THE READER A BASIC GRASP OF THE BEHAVIORS OF LIGHT. IN TURN, EACH PART OF THE MICROSCOPE IS EXPLAINED USING CLEAR AND SIMPLE ENGLISH, TOGETHER WITH DETAILED PHOTOGRAPHS AND DIAGRAMS. THE READER WILL LEARN THE FUNCTION, CARE AND CORRECT USE OF EACH PART. A TROUBLESHOOTING SECTION ALSO HELPS RESOLVE SOME OF THE MOST COMMON ISSUES ENCOUNTERED IN LIGHT MICROSCOPY. MOST PEOPLE HAVE A GENERAL IDEA OF HOW TO USE A MICROSCOPE, BUT MANY NEVER GET THE FULL BENEFIT, BECAUSE THEY RECEIVE NO TRAINING. WITH EASY-TO-FOLLOW STEPS AND DETAILED IMAGES, THIS GUIDE WILL HELP EVERYONE ACHIEVE THE BEST RESULTS, AND BE CONFIDENT USING THEIR MICROSCOPE. THIS BOOK IS INTENDED FOR ANYONE USING A LIGHT MICROSCOPE, SUCH AS UNIVERSITY STUDENTS, PEOPLE IN LAB ENVIRONMENTS, HOBBYISTS, EDUCATORS WHO TEACH SCIENCE TO YOUNG CHILDREN, AND ANYONE WITH A GENERAL INTEREST IN THESE VALUABLE TOOLS.

INTRODUCTION TO LIGHT MICROSCOPY S. BRADBURY 1998-06-02 THIS BOOK PROVIDES DETAILED AND FULLY ILLUSTRATED ADVICE ON CHOOSING AND USING THE APPROPRIATE TYPE OF LIGHT MICROSCOPE FOR A PARTICULAR APPLICATION. THE LOW-POWER STEREOMICROSCOPE IS DESCRIBED, AND THE MANY DIFFERENT TYPES OF CONDENSERS, OBJECTIVES AND EYEPIECES REQUIRED FOR THE HIGH-POWER COMPOUND MICROSCOPE ARE EXPLAINED IN DETAIL. THE BOOK ALSO DESCRIBES THE CORRECT CARE AND USE OF THE MICROSCOPE IN ORDER TO ACHIEVE THE BEST POSSIBLE IMAGE, AND PROVIDES A CHECKLIST TO AID IN THE DIAGNOSIS AND CORRECTION OF PROBLEMS. PRACTICAL STEP-BY-STEP GUIDANCE ENSURES THAT THE READER ALWAYS OBTAINS A CLEAR IMAGE, INTRODUCTION TO LIGHT MICROSCOPY IS THEREFORE AN ESSENTIAL GUIDE FOR AMATEUR AND PROFESSIONAL USERS OF THE LIGHT MICROSCOPE IN ALL AREAS OF SCIENCE.

MICROSCOPY TERENCE ALLEN 2015 USING LIGHT, ELECTRONS, OR X-RAYS, MICROSCOPES TODAY FORM A VITAL TOOL NOT ONLY IN BIOLOGY BUT IN MANY OTHER DISCIPLINES, INCLUDING MATERIALS SCIENCE AND NANOTECHNOLOGY. IN THIS VERY SHORT INTRODUCTION TERENCE ALLEN DESCRIBES THE SCIENTIFIC PRINCIPLES BEHIND THE MAIN FORMS OF MICROSCOPY, AND THE EXCITING NEW DEVELOPMENTS IN THE FIELD. BEGINNING WITH A BRIEF HISTORY OF MICROSCOPY, ALLEN SURVEYS THE DIVERSE AND POWERFUL FORMS OF MICROSCOPES AVAILABLE TODAY, ILLUSTRATING HOW MICROSCOPY IMPINGES ON ALMOST EVERY ASPECT OF OUR DAILY LIVES.

BIOCHEMISTRY: A VERY SHORT INTRODUCTION MARK LORCH 2021-05-27 VERY SHORT INTRODUCTIONS: BRILLIANT, SHARP, INSPIRING FROM THE SIMPLEST BACTERIA TO HUMANS, ALL LIVING THINGS ARE COMPOSED OF CELLS OF ONE TYPE OR ANOTHER, ALL OF WHICH HAVE FUNDAMENTALLY THE SAME CHEMISTRY. THIS CHEMISTRY MUST PROVIDE MECHANISMS THAT ALLOW CELLS TO INTERACT WITH THE EXTERNAL WORLD, A MEANS TO POWER THE CELL, MACHINERY TO CARRY OUT VARIED PROCESSES WITHIN THE

CELL, A STRUCTURE WITHIN WHICH EVERYTHING RUNS, AND ALSO GOVERNANCE THROUGH A WEB OF INTERLOCKING CHEMICAL REACTIONS. BIOCHEMISTRY IS THE STUDY OF THOSE REACTIONS, THE MOLECULES THAT ARE CREATED, MANIPULATED, AND DESTROYED AS A RESULT OF THEM, AND THE MASSIVE MACROMOLECULES (SUCH AS DNA, CYTOSKELETONS, PROTEINS AND CARBOHYDRATES) THAT FORM THE CHEMICAL MACHINERY AND STRUCTURES ON WHICH THESE BIOCHEMICAL REACTIONS TAKE PLACE. IT DIDN'T TAKE LONG FOR AN UNDERSTANDING OF THE CHEMISTRY OF LIFE TO TURN INTO A DESIRE TO MANIPULATE IT. DRUGS AND THERAPIES ALL AIM TO MODIFY BIOCHEMICAL PROCESSES FOR GOOD OR ILL: PENICILLIN, DERIVED FROM MOULD, STOPS BACTERIA MAKING THEIR CELL WALLS. ASPIRIN, WITH ITS ORIGINS IN WILLOW BARK, INHIBITS ENZYMES INVOLVED IN INFLAMMATORY RESPONSES. A FEW NANOGRAMS OF BOTULINUM TOXIN (BOTOX), CAN KILL BY PREVENTING THE RELEASE OF NEUROTRANSMITTERS FROM THE ENDS OF NERVES AND SO LEADS TO PARALYSIS AND DEATH, OR GIVE A WRINKLE FREE FOREHEAD (IF ADMINISTERED IN VERY TINY QUANTITIES). THIS VERY SHORT INTRODUCTION DISCUSSES THE KEY CONCEPTS OF BIOCHEMISTRY, AS WELL AS THE HISTORICAL FIGURES IN THE FIELD AND THE MOLECULES THEY STUDIED, BEFORE CONSIDERING THE CURRENT SCIENCE AND INNOVATIONS IN THE FIELD, AND THE INTERACTION BETWEEN BIOCHEMISTRY, BIOTECHNOLOGY, AND SYNTHETIC BIOLOGY. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

SOFT MATTER: A VERY SHORT INTRODUCTION TOM MCLEISH 2020-10-14 TOM MCLEISH DELVES INTO THE GROWING FIELD OF SOFT MATTER - THE STUDY OF MATERIALS SUCH AS POLYMERS, COLLOIDS, LIQUID CRYSTALS, AND FOAMS. LOOKING BENEATH THEIR APPEARANCE TO THEIR INNER STRUCTURE, HE DISCUSSES THEIR SHARED PHYSICAL PROPERTIES, THE PRINCIPLE OF BROWNIAN MOTION THAT UNDERLIES ALL SOFT MATTER, AND THE APPLICATIONS OF THESE MATERIALS.

THE JOURNAL OF MICROSCOPY AND NATURAL SCIENCE 1887

CHOICE RICHARD K. GARDNER 1976

VIRUSES: A VERY SHORT INTRODUCTION DOROTHY H. CRAWFORD 2011-07-28 VIRUSES ARE BIG NEWS. FROM PANDEMICS SUCH AS HIV, SWINE FLU, AND SARS, WE ARE CONSTANTLY BEING BOMBARDED WITH INFORMATION ABOUT NEW LETHAL INFECTIONS. IN THIS VERY SHORT INTRODUCTION DOROTHY CRAWFORD DEMONSTRATES HOW CLEVER THESE ENTITIES REALLY ARE. FROM THEIR DISCOVERY AND THE UNRAVELLING OF THEIR INTRICATE STRUCTURES, CRAWFORD DEMONSTRATES HOW THESE TINY PARASITES ARE BY FAR THE MOST ABUNDANT LIFE FORMS ON THE PLANET. WITH UP TO TWO BILLION OF THEM IN EACH LITRE OF SEA WATER, VIRUSES PLAY A VITAL ROLE IN CONTROLLING THE MARINE ENVIRONMENT AND ARE ESSENTIAL TO THE OCEAN'S DELICATE ECOSYSTEM. ANALYZING THE THREAT OF EMERGING VIRUS INFECTIONS, CRAWFORD RECOUNTS STORIES OF RENOWNED KILLER VIRUSES SUCH AS EBOLA AND RABIES AS WELL AS THE LESS KNOWN BAT-BORNE NIPAH AND HENDRA VIRUSES. PINPOINTING WILD ANIMALS AS THE SOURCE OF THE MOST RECENT PANDEMICS, SHE DISCUSSES THE REASONS BEHIND THE PRESENT INCREASE IN POTENTIALLY FATAL INFECTIONS, AS WELL AS EVIDENCE SUGGESTING THAT LONG TERM VIRUSES CAN EVENTUALLY LEAD TO CANCER. BY EXAMINING OUR LIFESTYLE IN THE 21ST CENTURY, CRAWFORD LOOKS TO THE FUTURE TO ASK WHETHER WE CAN EVER LIVE IN HARMONY WITH VIRUSES, AND CONSIDERS THE WAYS IN WHICH WE MAY NEED TO ADAPT TO PREVENT EMERGING VIRUSES WITH DEVASTATING CONSEQUENCES. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

BIOLOGICAL SPECIMEN PREPARATION FOR TRANSMISSION ELECTRON MICROSCOPY AUDREY M. GLAUERT 2014-07-14 THIS BOOK CONTAINS ALL THE NECESSARY INFORMATION AND ADVICE FOR ANYONE WISHING TO OBTAIN ELECTRON MICROGRAPHS SHOWING THE MOST ACCURATE ULTRASTRUCTURAL DETAIL IN THIN SECTIONS OF ANY TYPE OF BIOLOGICAL SPECIMEN. THE GUIDELINES FOR THE CHOICE OF PREPARATIVE METHODS ARE BASED ON AN EXTENSIVE SURVEY OF CURRENT LABORATORY PRACTICE. FOR THE FIRST TIME, IN A TEXTBOOK OF THIS KIND, THE MOLECULAR EVENTS OCCURRING DURING FIXATION AND EMBEDDING ARE ANALYSED IN DETAIL. THE REASONS FOR CHOOSING PARTICULAR SPECIMEN PREPARATION METHODS ARE EXPLAINED AND GUIDANCE IS GIVEN ON HOW TO MODIFY ESTABLISHED TECHNIQUES TO SUIT INDIVIDUAL REQUIREMENTS. ALL THE PRACTICAL METHODS ADVOCATED ARE CLEARLY DESCRIBED, WITH ACCOMPANYING TABLES AND THE RESULTS OBTAINABLE ARE ILLUSTRATED WITH MANY ELECTRON MICROGRAPHS. PORTLAND PRESS SERIES: PRACTICAL METHODS IN ELECTRON MICROSCOPY, VOLUME 17, AUDREY M. GLAUERT, EDITOR ORIGINALLY PUBLISHED IN 1999. THE PRINCETON LEGACY LIBRARY USES THE LATEST PRINT-ON-DEMAND TECHNOLOGY TO AGAIN MAKE AVAILABLE PREVIOUSLY OUT-OF-PRINT BOOKS FROM THE DISTINGUISHED BACKLIST OF PRINCETON UNIVERSITY PRESS. THESE EDITIONS PRESERVE THE ORIGINAL TEXTS OF THESE IMPORTANT BOOKS WHILE PRESENTING THEM IN DURABLE PAPERBACK AND HARDCOVER EDITIONS. THE GOAL OF THE PRINCETON LEGACY LIBRARY IS TO VASTLY INCREASE ACCESS TO THE RICH SCHOLARLY

HERITAGE FOUND IN THE THOUSANDS OF BOOKS PUBLISHED BY PRINCETON UNIVERSITY PRESS SINCE ITS FOUNDING IN 1905.

CHEMISTRY: A VERY SHORT INTRODUCTION PETER ATKINS 2015-02-26 MOST PEOPLE REMEMBER CHEMISTRY FROM THEIR SCHOOLDAYS AS LARGELY INCOMPREHENSIBLE, A SUBJECT THAT WAS FACT-RICH BUT UNDERSTANDING-POOR, SMELLY, AND SO FAR REMOVED FROM THE REAL WORLD OF EVENTS AND PLEASURES THAT THERE SEEMED LITTLE POINT, EXCEPT FOR THE MOST INTROVERTED, IN COMING TO TERMS WITH ITS GRUBBY CONCEPTS, SPELLS, RECIPES, AND RULES. PETER ATKINS WANTS TO CHANGE ALL THAT. IN THIS VERY SHORT INTRODUCTION TO CHEMISTRY, HE ENCOURAGES US TO LOOK AT CHEMISTRY ANEW, THROUGH A CHEMIST'S EYES, IN ORDER TO UNDERSTAND ITS CENTRAL CONCEPTS AND TO SEE HOW IT CONTRIBUTES NOT ONLY TOWARDS OUR MATERIAL COMFORT, BUT ALSO TO HUMAN CULTURE. ATKINS SHOWS HOW CHEMISTRY PROVIDES THE INFRASTRUCTURE OF OUR WORLD, THROUGH THE CHEMICAL INDUSTRY, THE FUELS OF HEATING, POWER GENERATION, AND TRANSPORT, AS WELL AS THE FABRICS OF OUR CLOTHING AND FURNISHINGS. BY CONSIDERING THE REMARKABLE ACHIEVEMENTS THAT CHEMISTRY HAS MADE, AND EXAMINING ITS PLACE BETWEEN BOTH PHYSICS AND BIOLOGY, ATKINS PRESENTS A FASCINATING, CLEAR, AND RIGOROUS EXPLORATION OF THE WORLD OF CHEMISTRY - ITS STRUCTURE, CORE CONCEPTS, AND EXCITING CONTRIBUTIONS TO NEW CUTTING-EDGE TECHNOLOGIES. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

MICROBIOLOGY NICHOLAS P. MONEY 2014 DESCRIBES THE EXPANSIONS OF MICROBIOLOGY; IT'S METHODS, FROM TRADITIONAL MICROSCOPY AND LABORATORY CULTURE TO THE LATEST GENOMIC ANALYSIS. --

DEEP LEARNING FOR THE LIFE SCIENCES BHARATH RAMSUNDAR 2019-04-10 DEEP LEARNING HAS ALREADY ACHIEVED REMARKABLE RESULTS IN MANY FIELDS. NOW IT'S MAKING WAVES THROUGHOUT THE SCIENCES BROADLY AND THE LIFE SCIENCES IN PARTICULAR. THIS PRACTICAL BOOK TEACHES DEVELOPERS AND SCIENTISTS HOW TO USE DEEP LEARNING FOR GENOMICS, CHEMISTRY, BIOPHYSICS, MICROSCOPY, MEDICAL ANALYSIS, AND OTHER FIELDS. IDEAL FOR PRACTICING DEVELOPERS AND SCIENTISTS READY TO APPLY THEIR SKILLS TO SCIENTIFIC APPLICATIONS SUCH AS BIOLOGY, GENETICS, AND DRUG DISCOVERY, THIS BOOK INTRODUCES SEVERAL DEEP NETWORK PRIMITIVES. YOU'LL FOLLOW A CASE STUDY ON THE PROBLEM OF DESIGNING NEW THERAPEUTICS THAT TIES TOGETHER PHYSICS, CHEMISTRY, BIOLOGY, AND MEDICINE—AN EXAMPLE THAT REPRESENTS ONE OF SCIENCE'S GREATEST CHALLENGES. LEARN THE BASICS OF PERFORMING MACHINE LEARNING ON MOLECULAR DATA UNDERSTAND WHY DEEP LEARNING IS A POWERFUL TOOL FOR GENETICS AND GENOMICS APPLY DEEP LEARNING TO UNDERSTAND BIOPHYSICAL SYSTEMS GET A BRIEF INTRODUCTION TO MACHINE LEARNING WITH DEEPCHEM USE DEEP LEARNING TO ANALYZE MICROSCOPIC IMAGES ANALYZE MEDICAL SCANS USING DEEP LEARNING TECHNIQUES LEARN ABOUT VARIATIONAL AUTOENCODERS AND GENERATIVE ADVERSARIAL NETWORKS INTERPRET WHAT YOUR MODEL IS DOING AND HOW IT'S WORKING

CRYSTALLOGRAPHY: A VERY SHORT INTRODUCTION A. M. GLAZER 2016-03-24 CRYSTALS HAVE FASCINATED US FOR CENTURIES WITH THEIR BEAUTY AND SYMMETRY, AND HAVE OFTEN BEEN INVESTED WITH MAGICAL POWERS. THE USE OF X-RAY DIFFRACTION, FIRST PIONEERED IN 1912 BY FATHER AND SON WILLIAM AND LAWRENCE BRAGG, ENABLED US TO PROBE THE STRUCTURE OF MOLECULES, AND HERALDED THE SCIENTIFIC STUDY OF CRYSTALS, LEADING TO AN UNDERSTANDING OF THEIR ATOMIC ARRANGEMENTS AT A FUNDAMENTAL LEVEL. THE NEW DISCIPLINE, CALLED X-RAY CRYSTALLOGRAPHY, HAS SUBSEQUENTLY EVOLVED INTO A FORMIDABLE SCIENCE THAT UNDERPINS MANY OTHER SCIENTIFIC AREAS. STARTING FROM THE DETERMINATION OF THE STRUCTURES OF VERY SIMPLE CRYSTALS, SUCH AS THAT OF COMMON SALT, TODAY IT HAS BECOME ALMOST ROUTINE TO DETERMINE THE POSITIONS OF TENS OF THOUSANDS OF ATOMS IN A CRYSTAL. IN THIS VERY SHORT INTRODUCTION MIKE GLAZER SHOWS HOW THE DISCOVERIES IN CRYSTALLOGRAPHY HAVE BEEN APPLIED TO THE CREATION OF NEW AND IMPORTANT MATERIALS, TO DRUGS AND PHARMACEUTICALS AND TO OUR UNDERSTANDING OF GENETICS, CELL BIOLOGY, PROTEINS, AND VIRUSES. TRACING THE HISTORY OF CRYSTALLOGRAPHY, HE ANALYSES ASTONISHING DEVELOPMENTS IN NEW SOURCES OF X-RAYS, AS WELL AS OF NEUTRONS, AND IN ELECTRON MICROSCOPY, AND CONSIDERS THE IMPACT THEY HAVE ON THE STUDY OF CRYSTALS TODAY. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

THE SCIENTIFIC REVOLUTION: A VERY SHORT INTRODUCTION LAWRENCE M. PRINCIPE 2011-04-28 THE SIXTEENTH AND SEVENTEENTH CENTURIES WITNESSED SUCH FERVENT INVESTIGATIONS OF THE NATURAL WORLD THAT THE PERIOD HAS BEEN CALLED THE 'SCIENTIFIC REVOLUTION.' NEW IDEAS AND DISCOVERIES NOT ONLY REDEFINED WHAT HUMAN BEINGS BELIEVED, KNEW, AND COULD DO, BUT ALSO FORCED THEM TO REDEFINE THEMSELVES WITH RESPECT TO THE STRANGE NEW WORLDS REVEALED BY SHIPS AND

SCALPELS, TELESCOPES AND MICROSCOPES, EXPERIMENTATION AND CONTEMPLATION. DRIVEN BY RELIGIOUS DEVOTION, BY PRACTICAL NEED, BY THE PROMISE OF FAME AND PROFIT, OR BY THE SIMPLE DESIRE TO KNOW, A BROAD RANGE OF THINKERS AND WORKERS EXPLORED AND RECONCEPTUALIZED THE WORLD AROUND THEM. EXPLANATORY SYSTEMS WERE MADE, DISCARDED, AND REMADE BY SOME OF THE BEST-KNOWN NAMES IN THE ENTIRE HISTORY OF SCIENCE - COPERNICUS, GALILEO, NEWTON - AND BY MANY OTHERS LESS RECOGNIZED BUT NO LESS IMPORTANT. IN THIS VERY SHORT INTRODUCTION LAWRENCE M. PRINCIPE EXPLORES THE EXCITING DEVELOPMENTS IN THE SCIENCES OF THE STARS (ASTRONOMY, ASTROLOGY, AND COSMOLOGY), THE SCIENCES OF EARTH (GEOGRAPHY, GEOLOGY, HYDRAULICS, PNEUMATICS), THE SCIENCES OF MATTER AND MOTION (ALCHEMY, CHEMISTRY, KINEMATICS, PHYSICS), THE SCIENCES OF LIFE (MEDICINE, ANATOMY, BIOLOGY, ZOOLOGY), AND MUCH MORE. THE STORY IS TOLD FROM THE PERSPECTIVE OF THE HISTORICAL CHARACTERS THEMSELVES, EMPHASIZING THEIR BACKGROUND, CONTEXT, REASONING, AND MOTIVATIONS, AND DISPELLING WELL-WORN MYTHS ABOUT THE HISTORY OF SCIENCE. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

PHYSICAL PRINCIPLES OF ELECTRON MICROSCOPY RAY EGERTON 2011-02-11 SCANNING AND STATIONARY-BEAM ELECTRON MICROSCOPES ARE INDISPENSABLE TOOLS FOR BOTH RESEARCH AND ROUTINE EVALUATION IN MATERIALS SCIENCE, THE SEMICONDUCTOR INDUSTRY, NANOTECHNOLOGY AND THE BIOLOGICAL, FORENSIC, AND MEDICAL SCIENCES. THIS BOOK INTRODUCES CURRENT THEORY AND PRACTICE OF ELECTRON MICROSCOPY, PRIMARILY FOR UNDERGRADUATES WHO NEED TO UNDERSTAND HOW THE PRINCIPLES OF PHYSICS APPLY IN AN AREA OF TECHNOLOGY THAT HAS CONTRIBUTED GREATLY TO OUR UNDERSTANDING OF LIFE PROCESSES AND "INNER SPACE." PHYSICAL PRINCIPLES OF ELECTRON MICROSCOPY WILL APPEAL TO TECHNOLOGISTS WHO USE ELECTRON MICROSCOPES AND TO GRADUATE STUDENTS, UNIVERSITY TEACHERS AND RESEARCHERS WHO NEED A CONCISE REFERENCE ON THE BASIC PRINCIPLES OF MICROSCOPY.

INTRODUCTION TO ELECTRON MICROSCOPY SAUL WISCHNITZER 2013-10-22 INTRODUCTION TO ELECTRON MICROSCOPY, SECOND EDITION PROVIDES AN INTRODUCTION TO THE FOUNDATIONS OF ELECTRON MICROSCOPY; AN OUTLINE OF SOME PRACTICAL ASPECTS OF INSTRUMENT OPERATION; AND DISCUSSION OF THE RATIONALE OF THE METHODOLOGY OF BIOLOGICAL SPECIMEN PREPARATION. THE BOOK SEEKS TO PROVIDE A COMPREHENSIVE UNDERSTANDING OF THE THEORETICAL AND OPERATIONAL ASPECTS OF THE ELECTRON MICROSCOPE. THIS EDITION CONSISTS OF TWO PARTS. PART ONE DEALS WITH THE HISTORY, BASIC THEORY, AND OPERATION OF THE ELECTRON MICROSCOPE. PART TWO DISCUSSES STEPS USED IN MATERIAL PREPARATION FOR ELECTRON MICROSCOPE INVESTIGATION SUCH AS FIXATION, EMBEDDING, AND STAINING TECHNIQUES. BIOMEDICAL RESEARCHERS, MOLECULAR BIOLOGISTS, TOXICOLOGISTS, FORENSIC INVESTIGATORS, AND MEDICAL STUDENTS WILL FIND THIS BOOK A VERY USEFUL REFERENCE.

THE JOURNAL OF MICROSCOPY AND NATURAL SCIENCE POSTAL MICROSCOPICAL SOCIETY 1887

JOURNAL OF MICROSCOPY AND NATURAL SCIENCE 1887

FUNGI: A VERY SHORT INTRODUCTION NICHOLAS P. MONEY 2016-01-28 THE VARIETY OF THE MYCOLOGICAL WORLD IS FAR GREATER THAN MOST PEOPLE IMAGINE. TENS OF THOUSANDS OF FUNGAL SPECIES HAVE BEEN DESCRIBED AND MANY MORE ARE KNOWN ONLY FROM THE ABUNDANCE OF THEIR GENES IN SOIL AND WATER. FUNGI ARE HUGELY IMPORTANT AS AGENTS OF WOOD DECAY IN FORESTS, AND, AS PARASITES, THEY HAVE CAUSED THE DEATHS OF MILLIONS OF PEOPLE BY RAVAGING CROPS AND RESHAPING NATURAL ECOSYSTEMS. FUNGI PERFORM A VARIETY OF ESSENTIAL FUNCTIONS IN ECOSYSTEMS, AND ARE IMPORTANT TO BOTH AGRICULTURE AND BIOTECHNOLOGY. THEIR IMPORTANCE IS NOW BECOMING BETTER APPRECIATED AMONG SCIENTISTS, THOUGH THERE IS MUCH STILL TO BE UNDERSTOOD CONCERNING THEIR TAXONOMY AND EVOLUTION. THIS VERY SHORT INTRODUCTION HIGHLIGHTS THE VARIETY AND EXTRAORDINARY NATURES OF FUNGI, REVEALING THE REMARKABLE FACTS OF FUNGAL BIOLOGY AND THE GLOBAL SIGNIFICANCE OF THESE ENCHANTING ORGANISMS. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

HIGH-RESOLUTION EXTREME ULTRAVIOLET MICROSCOPY MICHAEL WERNER Z^[?] RCH 2014-11-07 THIS THESIS DESCRIBES NOVEL APPROACHES AND IMPLEMENTATION OF HIGH-RESOLUTION MICROSCOPY IN THE EXTREME ULTRAVIOLET LIGHT REGIME. USING COHERENT ULTRAFAST LASER-GENERATED SHORT WAVELENGTH RADIATION FOR ILLUMINATING SAMPLES ALLOWS IMAGING BEYOND THE RESOLUTION OF VISIBLE-LIGHT MICROSCOPES. MICHAEL Z^[?] RCH GIVES A COMPREHENSIVE OVERVIEW OF THE FUNDAMENTALS AND TECHNIQUES INVOLVED, STARTING FROM THE LASER-BASED FREQUENCY CONVERSION SCHEME AND ITS TECHNICAL IMPLEMENTATION AS WELL AS GENERAL CONSIDERATIONS OF DIFFRACTION-BASED IMAGING AT NANOSCOPIC SPATIAL RESOLUTION. EXPERIMENTS ON

DIGITAL IN-LINE HOLOGRAPHY AND COHERENT DIFFRACTION IMAGING OF ARTIFICIAL AND BIOLOGIC SPECIMENS ARE DEMONSTRATED AND DISCUSSED IN THIS BOOK. IN THE FIELD OF BIOLOGIC IMAGING, A NOVEL AWARD-WINNING CELL CLASSIFICATION SCHEME AND ITS FIRST EXPERIMENTAL APPLICATION FOR IDENTIFYING BREAST CANCER CELLS ARE INTRODUCED. FINALLY, THIS BOOK PRESENTS A NEWLY DEVELOPED TECHNIQUE OF GENERATING STRUCTURED ILLUMINATION BY MEANS OF SO-CALLED OPTICAL VORTEX BEAMS IN THE EXTREME ULTRAVIOLET REGIME AND PROPOSES ITS GENERAL USABILITY FOR SUPER-RESOLUTION IMAGING.

DEEP UNDER COVER BOBO'S LITTLE BRAINIAC BOOKS 2016-07-06 YOU'RE USED TO LOOKING AT THINGS AS YOU SEE THEM WITH YOUR NAKED EYES BUT WHAT IF YOU CAN SEE THE WORLD AT A MICROSCOPIC SCALE? THAT'S GOING TO BE QUITE AN EXPERIENCE, ISN'T IT? THIS EXCITING EDUCATIONAL RESOURCE WILL INTRODUCE YOUR CHILD TO THE WORLD OF MICROSCOPES. HOPEFULLY, THIS BOOK WILL START THE SEEDS OF NEW LEARNING BROUGHT ABOUT BY CURIOSITY. READ TODAY!

MOLECULAR BIOLOGY OF THE CELL BRUCE ALBERTS 2004

ATOMIC FORCE MICROSCOPY PETER EATON 2010-03-25 ATOMIC FORCE MICROSCOPES ARE VERY IMPORTANT TOOLS FOR THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY. THIS BOOK PROVIDES AN INTRODUCTION TO THE MICROSCOPES SO THAT SCIENTISTS AND ENGINEERS CAN LEARN BOTH HOW TO USE THEM, AND WHAT THEY CAN DO.

MICROSCOPY: A VERY SHORT INTRODUCTION TERENCE ALLEN 2015-05-28 MICROSCOPY IS A DYNAMIC AREA OF SCIENCE, INCORPORATING BOTH BASIC CLASSROOM MICROSCOPES AND SOPHISTICATED RESEARCH STYLE INSTRUMENTS THAT CAN BE DRIVEN BY LIGHT, ELECTRONS, OR X-RAYS. THE RATE OF ADVANCE IN THE AREA OVER THE LAST 50 YEARS HAS LED TO A NUMBER OF TECHNOLOGICAL ADVANCES. IN THIS VERY SHORT INTRODUCTION TERENCE ALLEN, AN ESTABLISHED EXPERT ON MICROSCOPE TECHNIQUES, DESCRIBES THE SCIENTIFIC PRINCIPLES BEHIND THE MAIN FORMS OF MICROSCOPY, AND THE EXCITING NEW DEVELOPMENTS IN THE FIELD. FOCUSING ON THE MAIN UNDERLYING PRINCIPLES, AND INTRODUCING THE POWER OF WHAT IS ACHIEVABLE TODAY USING MICROSCOPES, ALLEN DEMONSTRATES HOW MICROSCOPY IMPINGES ON ALMOST EVERY ASPECT OF OUR DAILY LIVES; FROM MEDICAL DIAGNOSIS TO QUALITY CONTROL IN MANUFACTURE. BEGINNING WITH A BRIEF HISTORY OF THE EARLY STAGES OF MICROSCOPY DEVELOPMENT, ALLEN THEN CONCLUDES WITH A COMPREHENSIVE ACCOUNT OF THE DIVERSE SPECTRUM OF MICROSCOPY AVAILABLE TODAY. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

MINERALS: A VERY SHORT INTRODUCTION DAVID VAUGHAN 2014-10-23 MINERALS EXISTED LONG BEFORE ANY FORMS OF LIFE, PLAYING A KEY ROLE IN THE ORIGIN AND EVOLUTION OF LIFE; AN INTERACTION WITH BIOLOGICAL SYSTEMS THAT WE ARE ONLY NOW BEGINNING TO UNDERSTAND. EXPLORING THE TRADITIONAL STRAND OF MINERALOGY, WHICH EMPHASISES THE IMPORTANT MINERAL FAMILIES, THE WELL-ESTABLISHED ANALYTICAL METHODS (OPTICAL MICROSCOPY AND X-RAY DIFFRACTION) AND THE DRAMATIC DEVELOPMENTS MADE IN TECHNIQUES OVER RECENT DECADES, DAVID VAUGHAN ALSO INTRODUCES THE MODERN STRAND OF MINERALOGY, WHICH EXPLORES THE ROLE MINERALS PLAY IN THE PLATE TECTONIC CYCLE AND HOW THEY INTERACT WITH THE LIVING WORLD. DEMONSTRATING HOW MINERALS CAN BE CRITICAL FOR HUMAN HEALTH AND ILLNESS BY PROVIDING ESSENTIAL NUTRIENTS AND RELEASING POISONS, VAUGHAN EXPLORES THE MULTITUDE OF WAYS IN WHICH MINERALS HAVE AIDED OUR UNDERSTANDING OF THE WORLD. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

SYSTEM AND MEASUREMENTS YONG SANG 2020-01-20 THIS BOOK PROVIDES THE BASIC CONCEPTS AND FUNDAMENTAL PRINCIPLES OF DYNAMIC SYSTEMS INCLUDING EXPERIMENTAL METHODS, CALIBRATION, SIGNAL CONDITIONING, DATA ACQUISITION AND PROCESSING AS WELL AS THE RESULTS PRESENTATION. HOW TO SELECT SUITABLE SENSORS TO MEASURE IS ALSO INTRODUCED. IT IS AN ESSENTIAL REFERENCE TO STUDENTS, LECTURERS, PROFESSIONALS AND ANY INTERESTED LAY READERS IN MEASUREMENT TECHNOLOGY.

INTRODUCTION TO OPTICAL MICROSCOPY JEROME MERTZ 2019-08 PRESENTS A FULLY UPDATED, SELF-CONTAINED TEXTBOOK COVERING THE CORE THEORY AND PRACTICE OF BOTH CLASSICAL AND MODERN OPTICAL MICROSCOPY TECHNIQUES.

HANDBOOK OF BIOMEDICAL NONLINEAR OPTICAL MICROSCOPY BARRY R. MASTERS 2008-05-19 THE HANDBOOK OF BIOMEDICAL NONLINEAR OPTICAL MICROSCOPY PROVIDES COMPREHENSIVE TREATMENT OF THE THEORIES, TECHNIQUES, AND BIOMEDICAL

APPLICATIONS OF NONLINEAR OPTICS AND MICROSCOPY FOR CELL BIOLOGISTS, LIFE SCIENTISTS, BIOMEDICAL ENGINEERS, AND CLINICIANS. THE CHAPTERS ARE SEPARATED INTO BASIC AND ADVANCED SECTIONS, AND PROVIDE BOTH TEXTUAL AND GRAPHICAL ILLUSTRATIONS OF ALL KEY CONCEPTS. THE MORE BASIC SECTIONS ARE AIMED AT LIFE SCIENTISTS WITHOUT ADVANCED TRAINING IN PHYSICS AND MATHEMATICS, AND TUTORIALS ARE PROVIDED FOR THE MORE CHALLENGING SECTIONS. THE FIRST PART OF THE HANDBOOK INTRODUCES THE HISTORICAL CONTEXT OF NONLINEAR MICROSCOPY. THE SECOND PART PRESENTS THE NONLINEAR OPTICAL THEORY OF TWO- AND MULTIPHOTON EXCITED FLUORESCENCE (TPE, MPE) SPECTROSCOPY, SECOND AND THIRD HARMONIC GENERATION (SHG, THG) SPECTROSCOPY, AND COHERENT ANTI-STOKES RAMAN SPECTROSCOPY (CARS). THE THIRD PART INTRODUCES MODERN MICROSCOPIC AND SPECTROSCOPIC INSTRUMENTATION AND TECHNIQUES THAT ARE BASED ON NONLINEAR OPTICS. THE FOURTH PART PROVIDES KEY APPLICATIONS OF NONLINEAR MICROSCOPY TO THE BIOMEDICAL AREA: NEUROBIOLOGY, IMMUNOLOGY, TUMOR BIOLOGY, DEVELOPMENTAL BIOLOGY, DERMATOLOGY, AND CELLULAR METABOLISM. THERE ARE ALSO CHAPTERS ON NONLINEAR MOLECULAR PROBES, CELLULAR DAMAGE, AND NANOPROCESSING.

CHEMISTRY: A VERY SHORT INTRODUCTION PETER ATKINS 2015-02-26 MOST PEOPLE REMEMBER CHEMISTRY FROM THEIR SCHOOLDAYS AS LARGELY INCOMPREHENSIBLE, A SUBJECT THAT WAS FACT-RICH BUT UNDERSTANDING-POOR, SMELLY, AND SO FAR REMOVED FROM THE REAL WORLD OF EVENTS AND PLEASURES THAT THERE SEEMED LITTLE POINT, EXCEPT FOR THE MOST INTROVERTED, IN COMING TO TERMS WITH ITS GRUBBY CONCEPTS, SPELLS, RECIPES, AND RULES. PETER ATKINS WANTS TO CHANGE ALL THAT. IN THIS VERY SHORT INTRODUCTION TO CHEMISTRY, HE ENCOURAGES US TO LOOK AT CHEMISTRY ANEW, THROUGH A CHEMIST'S EYES, IN ORDER TO UNDERSTAND ITS CENTRAL CONCEPTS AND TO SEE HOW IT CONTRIBUTES NOT ONLY TOWARDS OUR MATERIAL COMFORT, BUT ALSO TO HUMAN CULTURE. ATKINS SHOWS HOW CHEMISTRY PROVIDES THE INFRASTRUCTURE OF OUR WORLD, THROUGH THE CHEMICAL INDUSTRY, THE FUELS OF HEATING, POWER GENERATION, AND TRANSPORT, AS WELL AS THE FABRICS OF OUR CLOTHING AND FURNISHINGS. BY CONSIDERING THE REMARKABLE ACHIEVEMENTS THAT CHEMISTRY HAS MADE, AND EXAMINING ITS PLACE BETWEEN BOTH PHYSICS AND BIOLOGY, ATKINS PRESENTS A FASCINATING, CLEAR, AND RIGOROUS EXPLORATION OF THE WORLD OF CHEMISTRY - ITS STRUCTURE, CORE CONCEPTS, AND EXCITING CONTRIBUTIONS TO NEW CUTTING-EDGE TECHNOLOGIES. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

MATERIALS: A VERY SHORT INTRODUCTION CHRISTOPHER HALL 2014-10-23 THE STUDY OF MATERIALS IS A MAJOR FIELD OF RESEARCH THAT SUPPORTS AND DRIVES INNOVATION IN TECHNOLOGY. USING MODERN SCIENTIFIC TECHNIQUES, MATERIALS SCIENTISTS AND ENGINEERS EXPLORE AND MANIPULATE MATERIALS, AND CREATE NEW ONES WITH REMARKABLE STRENGTH AND EXTRAORDINARY OPTICAL AND ELECTRICAL PROPERTIES. IN THIS VERY SHORT INTRODUCTION, CHRISTOPHER HALL LOOKS AT A WIDE RANGE OF MATERIALS, FROM STEEL, WOOD, AND RUBBER, TO GOLD, SILICON, AND GRAPHENE, DESCRIBING HOW MATERIALS ARE USED, HOW THEIR PROPERTIES ARISE FROM THEIR INTERNAL STRUCTURE, AND HOW USEFUL AND NOVEL THINGS ARE MADE FROM THEM. HE CONCLUDES BY LOOKING AT HOW THE GLOBAL SCALE OF MATERIALS CONSUMPTION NOW THREATENS THE GOAL OF SUSTAINABILITY. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.

A BEGINNERS' GUIDE TO SCANNING ELECTRON MICROSCOPY ANWAR UL-HAMID 2018-10-26 THIS BOOK WAS DEVELOPED WITH THE GOAL OF PROVIDING AN EASILY UNDERSTOOD TEXT FOR THOSE USERS OF THE SCANNING ELECTRON MICROSCOPE (SEM) WHO HAVE LITTLE OR NO BACKGROUND IN THE AREA. THE SEM IS ROUTINELY USED TO STUDY THE SURFACE STRUCTURE AND CHEMISTRY OF A WIDE RANGE OF BIOLOGICAL AND SYNTHETIC MATERIALS AT THE MICROMETER TO NANOMETER SCALE. EASE-OF-USE, TYPICALLY FACILE SAMPLE PREPARATION, AND STRAIGHTFORWARD IMAGE INTERPRETATION, COMBINED WITH HIGH RESOLUTION, HIGH DEPTH OF FIELD, AND THE ABILITY TO UNDERTAKE MICROCHEMICAL AND CRYSTALLOGRAPHIC ANALYSIS, HAS MADE SCANNING ELECTRON MICROSCOPY ONE OF THE MOST POWERFUL AND VERSATILE TECHNIQUES FOR CHARACTERIZATION TODAY. INDEED, THE SEM IS A VITAL TOOL FOR THE CHARACTERIZATION OF NANOSTRUCTURED MATERIALS AND THE DEVELOPMENT OF NANOTECHNOLOGY. HOWEVER, ITS WIDE USE BY PROFESSIONALS WITH DIVERSE TECHNICAL BACKGROUNDS—INCLUDING LIFE SCIENCE, MATERIALS SCIENCE, ENGINEERING, FORENSICS, MINERALOGY, ETC., AND IN VARIOUS SECTORS OF GOVERNMENT, INDUSTRY, AND ACADEMIA—EMPHASIZES THE NEED FOR AN INTRODUCTORY TEXT PROVIDING THE BASICS OF EFFECTIVE SEM IMAGING. *A BEGINNERS' GUIDE TO SCANNING ELECTRON MICROSCOPY* EXPLAINS INSTRUMENTATION, OPERATION, IMAGE INTERPRETATION AND SAMPLE PREPARATION IN A WIDE RANGING YET SUCCINCT AND PRACTICAL TEXT, TREATING THE ESSENTIAL THEORY OF SPECIMEN-BEAM INTERACTION AND IMAGE FORMATION IN A MANNER THAT CAN BE EFFORTLESSLY COMPREHENDED BY THE NOVICE SEM USER. THIS BOOK PROVIDES A CONCISE AND ACCESSIBLE INTRODUCTION TO THE ESSENTIALS OF SEM INCLUDES A LARGE NUMBER OF ILLUSTRATIONS

SPECIFICALLY CHOSEN TO AID READERS' UNDERSTANDING OF KEY CONCEPTS HIGHLIGHTS RECENT ADVANCES IN INSTRUMENTATION, IMAGING AND SAMPLE PREPARATION TECHNIQUES OFFERS EXAMPLES DRAWN FROM A VARIETY OF APPLICATIONS THAT APPEAL TO PROFESSIONALS FROM DIVERSE BACKGROUNDS.

THE HIDDEN BEAUTY OF THE MICROSCOPIC WORLD JAMES WEISS 2021-06-08 THE VIDEOGRAPHER BEHIND THE JOURNEY TO THE MICROCOSMOS YOUTUBE CHANNEL (386K SUBSCRIBERS) JAMES WEISS PRESENTS A BEGINNER'S GUIDE TO THE EXTREMELY SMALL AND UTTERLY STRANGE LIFE THAT SURROUNDS US. JAMES WEISS WAS FEELING LOST IN LIFE WHEN HE FIRST DISCOVERED HIS INTEREST IN THE MICROSCOPIC WORLD. WITH HIS OWN MICROSCOPE AND A LITTLE HOMESPUN INGENUITY, HE BEGAN TO CAPTURE THOUSANDS OF HOURS OF STUNNING FOOTAGE OF THE CREATURES THAT HE FOUND AROUND HIM: THE LOCAL POND, AT THE BEACH, IN A PUDDLE. WHAT HE FOUND ASTOUNDED HIM, AND IT BECAME HIS MISSION TO REVEAL THE BEAUTY OF THE MICROCOSMOS TO EVERYONE. IN HIS FUN AND ACCESSIBLE STYLE, INTERSPERSED WITH OTHERWORLDLY PHOTOGRAPHS, JAMES PRESENTS THIS BEGINNER'S GUIDE TO THE INVISIBLE LIFE THAT SURROUNDS US. FROM THE MOST SIMPLE SINGLE-CELLED LIFE, TO COMPLEX MICRO-ANIMALS, JAMES REVEALS THE SECRETS OF A WORLD THAT WE RARELY CONSIDER. NAVIGATING THE BIRTHS, FEASTS, TRAGEDIES, IDIOSYNCRACIES AND DEATHS OF A CAST OF TINY CHARACTERS, LEARN HOW THESE LIFEFORMS WORK AND WHAT LESSONS THEY CAN TEACH US ABOUT OUR OWN EXISTENCE. MIXING SCIENTIFIC DETAIL WITH THOUGHTFUL MUSINGS THAT BETRAY THE FASCINATION AT THE HEART OF HIS TOPIC, JAMES HAS CREATED A WAY OF LOOKING AT MICROORGANISMS IN AN EMPATHETIC AND ENGAGING STYLE. YOU'LL DISCOVER FASCINATING ABSURDITIES: THAT A CELL CAN BE BOTH ITS OWN DAUGHTER AND ITS OWN MOTHER. THAT IMMORTALITY REALLY DOES EXIST, AND IT COMES IN THE FORM OF A TEENY, TENTACLED MEDUSA. AND THAT SEEING THE WONDER OF NATURE FROM A NEW PERSPECTIVE CAN LITERALLY SAVE YOUR LIFE.

THE JOURNAL OF MICROSCOPY AND NATURAL SCIENCE: THE JOURNAL OF THE POSTAL MICROSCOPICAL SOCIETY 1887

FORENSIC SCIENCE: A VERY SHORT INTRODUCTION JIM FRASER 2020-02-27 FORENSIC SCIENCE IS A SUBJECT OF WIDE FASCINATION. WHAT HAPPENS AT A CRIME SCENE? HOW DOES DNA PROFILING WORK? HOW CAN IT HELP SOLVE CRIMES THAT HAPPENED 20 YEARS AGO? IN FORENSIC SCIENCE, A CRIMINAL CASE CAN OFTEN HINGE ON A PIECE OF EVIDENCE SUCH AS A HAIR, A BLOOD TRACE, HALF A FOOTPRINT, OR A TYRE MARK. COMPLEX SCIENTIFIC FINDINGS MUST BE CONSIDERED CAREFULLY AND DISPASSIONATELY, AND COMMUNICATED WITH CLARITY, SIMPLICITY, AND PRECISION. HIGH PROFILE CASES SUCH AS THE STEPHEN LAWRENCE ENQUIRY AND THE MADELEINE McCANN CASE HAVE ATTRACTED ENORMOUS MEDIA ATTENTION AND ENHANCED GENERAL INTEREST IN THIS AREA IN RECENT YEARS. IN THIS VERY SHORT INTRODUCTION, JIM FRASER INTRODUCES THE CONCEPT OF FORENSIC SCIENCE AND EXPLAINS HOW IT IS USED IN THE INVESTIGATION OF CRIME. HE BEGINS AT THE CRIME SCENE ITSELF, EXPLAINING THE PRINCIPLES AND PROCESSES OF CRIME SCENE MANAGEMENT, AND DRAWING ON HIS OWN PERSONAL EXPERIENCE OF HIGH PROFILE CASES INCLUDING, THE MURDER OF RACHEL NICKELL AND THE UNSOLVED MURDER OF JILL DANDO. FRASER EXPLORES HOW FORENSIC SCIENTISTS WORK; FROM THE RECONSTRUCTION OF EVENTS TO LABORATORY EXAMINATIONS. HE CONSIDERS THE TECHNIQUES THEY USE, SUCH AS FINGERPRINTING, AND GOES ON TO HIGHLIGHT THE IMMENSE IMPACT DNA PROFILING HAS HAD. PROVIDING EXAMPLES FROM FORENSIC SCIENCE CASES IN THE UK, US, AND OTHER COUNTRIES, HE CONSIDERS THE TECHNIQUES AND CHALLENGES FACED AROUND THE WORLD. THIS NEW EDITION HAS BEEN FULLY UPDATED TO TAKE INTO ACCOUNT DEVELOPMENTS IN AREAS SUCH AS DNA ANALYSIS AND DRUG ANALYSIS, AND THE GROWING FIELD OF DIGITAL FORENSICS. TOPICAL AREAS EXPLORED INCLUDE THE GROWING SIGNIFICANCE OF COGNITIVE BIAS IN FORENSIC SCIENCE, AND RECENT RESEARCH THAT RAISES DOUBTS ABOUT THE VALIDITY OF SOME FORENSIC TECHNIQUES. ABOUT THE SERIES: THE VERY SHORT INTRODUCTIONS SERIES FROM OXFORD UNIVERSITY PRESS CONTAINS HUNDREDS OF TITLES IN ALMOST EVERY SUBJECT AREA. THESE POCKET-SIZED BOOKS ARE THE PERFECT WAY TO GET AHEAD IN A NEW SUBJECT QUICKLY. OUR EXPERT AUTHORS COMBINE FACTS, ANALYSIS, PERSPECTIVE, NEW IDEAS, AND ENTHUSIASM TO MAKE INTERESTING AND CHALLENGING TOPICS HIGHLY READABLE.