1. Record Nr. UNINA9910787778503321

Autore	Johnsen Sonke
Titolo	The optics of life [[electronic resource]] : a biologist's guide to light in nature / / Sonke Johnsen
Pubbl/distr/stampa	Princeton, N.J., : Princeton University Press, 2011
ISBN	9786613439741 1-283-43974-3 1-4008-4066-X
Edizione	[Course Book]
Descrizione fisica	1 online resource (357 p.)
Classificazione	SCI008000SCI053000
Disciplina	571.4/55
Soggetti	Photobiology Physiological optics Polarization (Light)
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	Front matter -- Contents -- Acknowledgments -- Chapter One. Introduction -- Chapter Two. Units and Geometry -- Chapter Three. Emission -- Chapter Four. Absorption -- Chapter Five. Scattering -- Chapter Six. Scattering with Interference -- Chapter Seven. Fluorescence -- Chapter Eight. Polarization -- Chapter Nine. Measuring Light -- Chapter Ten. What Is Light, Really? -- Appendix A. Converting Spectral Irradiance to Lux -- Appendix B. Calculating the Absorbance Spectrum of a Visual Pigment -- Appendix C. Refractive Indices of Common Substances -- Appendix D. Optical Properties of Very Clear Water -- Appendix E. Optical Properties of Natural Waters -- Appendix F. Useful Formulas -- Appendix G. Equipment and Software Suppliers -- Bibliography -- Index
Sommario/riassunto	"Optics--a field of physics focusing on the study of light--is also central to many areas of biology, including vision, ecology, botany, animal behavior, neurobiology, and molecular biology. The Optics of Life introduces the fundamentals of optics to biologists and non-physicists, giving them the tools they need to successfully incorporate optical measurements and principles into their research. S©œnke Johnsen starts with the basics, describing the properties of light and

the units and geometry of measurement. He then explores how light is created and propagates and how it interacts with matter, covering topics such as absorption, scattering, fluorescence, and polarization. Johnsen also provides a tutorial on how to measure light as well as an informative discussion of quantum mechanics. The Optics of Life features a host of examples drawn from nature and everyday life, and several appendixes that offer further practical guidance for researchers. This concise book uses a minimum of equations and jargon, explaining the basic physics of light in a succinct and lively manner. It is the essential primer for working biologists and for anyone seeking an accessible introduction to optics"--