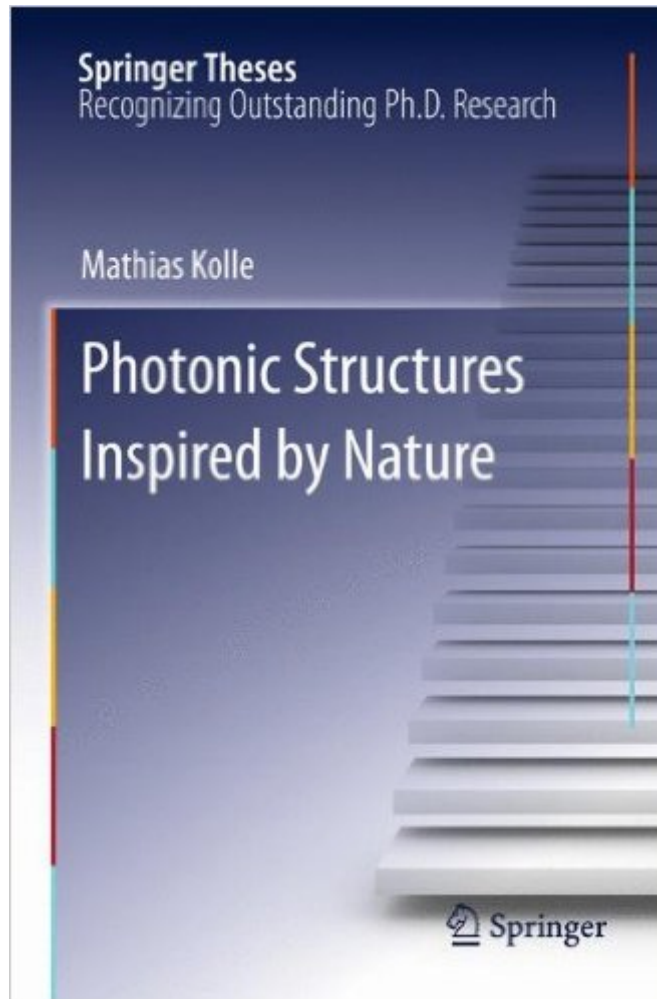


The book was found

Photonic Structures Inspired By Nature (Springer Theses)



Synopsis

Unlike most natural colours that are based on pigment absorption, the striking iridescent and intense colouration of many butterflies, birds or beetles stems from the interaction of light with periodic sub-micrometer surface or volume patterns, so called "photonic structures". These "structural colours" are increasingly well understood, but they are difficult to create artificially and exploit technologically. In this thesis the field of natural structural colours and biomimetic photonic structures is covered in a wide scope, ranging from plant photonics to theoretical optics. It demonstrates diffractive elements on the petal surfaces of many flowering plant species; these form the basis for the study of the role of structural colours in pollinator attraction. Self-assembly techniques, combined with scale able nanofabrication methods, were used to create complex artificial photonic structures inspired by those found in nature. In particular, the colour effect of a Papilio butterfly was mimicked and, by variation of its design motive, enhanced. All photonic effects described here are underpinned by state-of-the-art model calculations.

Book Information

Series: Springer Theses

Hardcover: 144 pages

Publisher: Springer; 2011 edition (January 10, 2011)

Language: English

ISBN-10: 364215168X

ISBN-13: 978-3642151682

Product Dimensions: 6.6 x 0.6 x 9.6 inches

Shipping Weight: 1 pounds (View shipping rates and policies)

Average Customer Review: 1.0 out of 5 stars See all reviews (1 customer review)

Best Sellers Rank: #4,292,080 in Books (See Top 100 in Books) #23 in Books > Science & Math > Biological Sciences > Bioelectricity #705 in Books > Science & Math > Physics > Nanostructures #913 in Books > Science & Math > Biological Sciences > Biophysics

Customer Reviews

The author uses figures to help explain observed phenomena, and many of these figures are so poorly reproduced that they are useless. Graphs have curves on them that can't be seen, probably because they were originally in color and are reproduced in black and white. Graphs are reduced in size to a point where you need a magnifying glass to view them. For example, one graph containing six curves is about 3/4 inch by 3/4 inch in size. If you want to learn about the mechanisms that

produce structural color in nature, don't waste your money on this book. I recommend the book Structural Colors in the Realm of Nature by S. Kinoshita. It is about twice as long, has beautifully reproduced figures, and is about the same price.

[Download to continue reading...](#)

Photonic Structures Inspired by Nature (Springer Theses) Towards Solid-State Quantum Repeaters: Ultrafast, Coherent Optical Control and Spin-Photon Entanglement in Charged InAs Quantum Dots (Springer Theses) Optical Properties of Bismuth-Based Topological Insulators (Springer Theses) Bringing Nature Home: Floral Arrangements Inspired by Nature Physics of Photonic Devices Photonic Crystals: Molding the Flow of Light, Second Edition Photonic Devices Selective Photonic Disinfection: A Ray of Hope in the War Against Pathogens (IOP Concise Physics) Photonic Crystals: Molding the Flow of Light Developing Graduate Theses and Projects in the Humanities Dissertations And Theses from Start to Finish: Psychology And Related Fields A Manual for Writers of Term Papers, Theses, and Dissertations (Chicago Guides to Writing, Editing, and Publishing) A Manual for Writers of Term Papers, Theses, and Dissertations, 6th Edition (Chicago Guides to Writing, Editing, and Publishing) Dissertations and Theses From Start to Finish: Psychology and Related Fields, Second Edition Biomimicry: Innovation Inspired by Nature Starting Out with Java: From Control Structures through Data Structures (2nd Edition) (Gaddis Series) Java Software Structures: Designing and Using Data Structures Java Software Structures: Designing and Using Data Structures (3rd Edition) Starting Out with Java: From Control Structures through Data Structures (3rd Edition) Design and Analysis of Composite Structures: With Applications to Aerospace Structures

[Dmca](#)