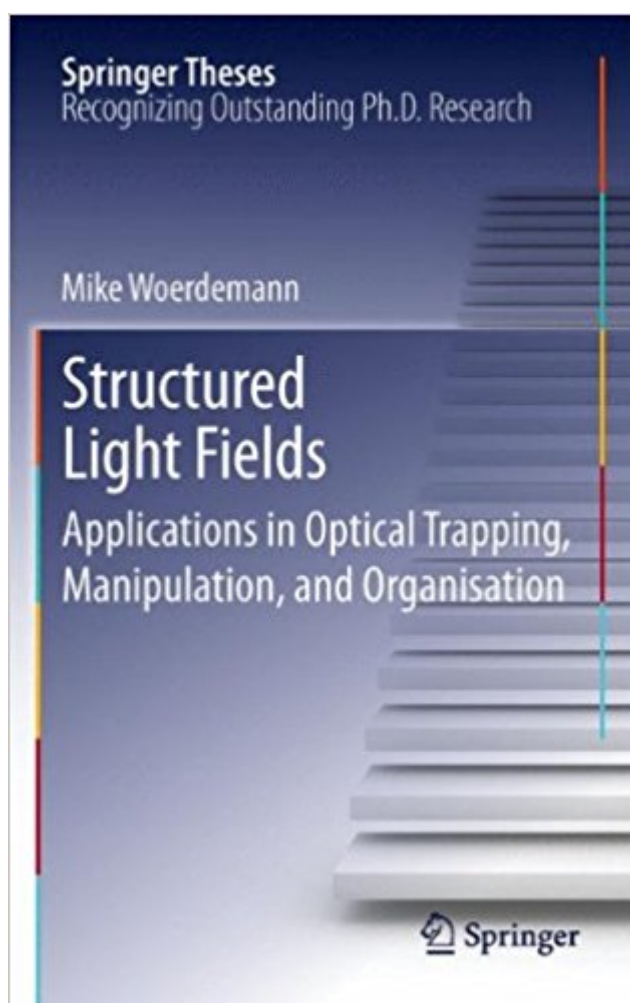


The book was found

Structured Light Fields: Applications In Optical Trapping, Manipulation, And Organisation (Springer Theses)



Synopsis

The optical trapping of colloidal matter is an unequalled field of technology for enabling precise handling of particles on microscopic scales, solely by the force of light. Although the basic concept of optical tweezers, which are based on a single laser beam, has matured and found a vast number of exciting applications, in particular in the life sciences, there are strong demands for more sophisticated approaches. This thesis gives an introductory overview of existing optical micromanipulation techniques and reviews the state-of-the-art of the emerging field of structured light fields and their applications in optical trapping, micromanipulation, and organisation. The author presents established, and introduces novel concepts for the holographic and non-holographic shaping of a light field. A special emphasis of the work is the demonstration of advanced applications of the thus created structured light fields in optical micromanipulation, utilising various geometries and unconventional light propagation properties. While most of the concepts developed are demonstrated with artificial microscopic reference particles, the work concludes with a comprehensive demonstration of optical control and alignment of bacterial cells, and hierarchical supramolecular organisation utilising dedicated nanocontainer particles.

Book Information

Series: Springer Theses

Hardcover: 136 pages

Publisher: Springer; 2012 edition (May 16, 2012)

Language: English

ISBN-10: 3642293220

ISBN-13: 978-3642293221

Product Dimensions: 6.2 x 0.5 x 9.2 inches

Shipping Weight: 13.4 ounces (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #6,314,708 in Books (See Top 100 in Books) #34 in Books > Science & Math > Biological Sciences > Bioelectricity #974 in Books > Science & Math > Physics > Molecular Physics #1042 in Books > Science & Math > Physics > Nuclear Physics > Atomic & Nuclear Physics

Customer Reviews

The optical trapping of colloidal matter is an unequalled field of technology for enabling precise handling of particles on microscopic scales, solely by the force of light. Although the basic

concept of optical tweezers, which are based on a single laser beam, has matured and found a vast number of exciting applications, in particular in the life sciences, there are strong demands for more sophisticated approaches. This thesis gives an introductory overview of existing optical micromanipulation techniques and reviews the state-of-the-art of the emerging field of structured light fields and their applications in optical trapping, micromanipulation, and organisation. The author presents established, and introduces novel concepts for the holographic and non-holographic shaping of a light field. A special emphasis of the work is the demonstration of advanced applications of the thus created structured light fields in optical micromanipulation, utilising various geometries and unconventional light propagation properties. While most of the concepts developed are demonstrated with artificial microscopic reference particles, the work concludes with a comprehensive demonstration of optical control and alignment of bacterial cells, and hierarchical supramolecular organisation utilising dedicated nanocontainer particles.

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

Structured Light Fields: Applications in Optical Trapping, Manipulation, and Organisation (Springer Theses) Manipulation: The Complete Step by Step Guide on Manipulation, Mind Control and NLP (Manipulation Series Book 3) Manipulation: The Definitive Guide to Understanding Manipulation, MindControl and NLP: Manipulation Series, Volume 1 Optical Thin Films: User's Handbook (Macmillan Series in Optical and Electro-Optical Engineering) The Structured Studio: French Horn: A structured guide to teaching private lessons Dissertations And Theses from Start to Finish: Psychology And Related Fields Dissertations and Theses From Start to Finish: Psychology and Related Fields, Second Edition Handbook of Organic Materials for Optical and (Opto)Electronic Devices: Properties and Applications (Woodhead Publishing Series in Electronic and Optical Materials) Standard Model Measurements with the ATLAS Detector: Monte Carlo Simulations of the Tile Calorimeter and Measurement of the Z $\rightarrow$ $\tau^+ \tau^-$ Cross Section (Springer Theses) Tunneling Dynamics in Open Ultracold Bosonic Systems: Numerically Exact Dynamics $\rightarrow$ Analytical Models $\rightarrow$ Control Schemes (Springer Theses) Photonic Structures Inspired by Nature (Springer Theses) General Theory of Light Propagation and Imaging Through the Atmosphere (Springer Series in Optical Sciences) Quantum Entanglement in Electron Optics: Generation, Characterization, and Applications (Springer Series on Atomic, Optical, and Plasma Physics) Mind Control Mastery 4th Edition: Successful Guide to Human Psychology and Manipulation, Persuasion and Deception! (Mind Control, Manipulation, Deception, ... Psychology, Intuition, Manifestation,) Manipulation: How to Recognize and Outwit Emotional Manipulation and Mind Control in Your Relationships - 3rd Edition Manipulation: Proven Manipulation Techniques to

Influence People with NLP, Mind Control and Persuasion! Manipulation: Proven Manipulation Techniques To Influence People With NLP, Mind Control and Persuasion! (Persuasion, Mind Control, Influence People) Mind Control, Human Psychology, Manipulation, Persuasion and Deception Techniques Revealed. (dark psychology, mind control, hypnosis, forbidden psychology, manipulation)) MIND CONTROL: Manipulation, Deception and Persuasion Exposed: Human Psychology (Manipulation, Hypnosis, Brainwashing, Subconscious Mind, Psychopath) Dental Materials: Properties and Manipulation, 9e (Dental Materials: Properties & Manipulation (Craig))

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)