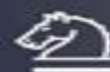


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Diffraction Optics and Nanophotonics Resolution Below the Diffraction Limit



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**Ivan A. Parinov, Shun-Hsyung
Chang, Erni Puspanantasari Putri**



Diffraction Optics And Nanophotonics Resolution Below The Diffraction Limit Springerbriefs In Physics:

Diffraction Optics and Nanophotonics Igor Minin, Oleg Minin, 2015-10-29 In this book the authors present several examples of techniques used to overcome the Abbe diffraction limit using flat and 3D diffractive optical elements photonic crystal lenses photonic jets and surface plasmon diffractive optics The structures discussed can be used in the microwave and THz range and also as scaled models for optical frequencies Such nano optical microlenses can be integrated for example into existing semiconductor heterostructure platforms for next generation optoelectronic applications Chapter 1 considers flat diffractive lenses and innovative 3D radiating structures including a conical millimeter wave Fresnel zone plate FZP lens proposed for subwavelength focusing In chapter 2 the subwavelength focusing properties of diffractive photonic crystal lenses are considered and it is shown that at least three different types of photonic crystal lens are possible With the aim of achieving subwavelength focusing in chapter 3 an alternative mechanism to produce photonic jets at Terahertz frequencies terajets using 3D dielectric particles of arbitrary size cuboids is considered A scheme to create a 2D teraknife using dielectric rods is also discussed In the final chapter the successful adaptation of free space 3D binary phase reversal conical FZPs for operation on surface plasmon polariton SPP waves demonstrates that analogues of Fourier diffractive components can be developed for in plane SPP 3D optics Reviewing theory modelling and experiment this book will be a valuable resource for students and researchers working on nanophotonics and sub wavelength focusing and imaging

Physics and Mechanics of New Materials and Their Applications Ivan A. Parinov, Shun-Hsyung Chang, Erni Puspanantasari Putri, 2024-02-01 This book presents 60 selected peer reviewed contributions from the international conference Physics and Mechanics of New Materials and Their Applications PHENMA 2023 3 8 October 2023 Surabaya Indonesia focusing on processing techniques physics mechanics and applications of advanced materials The book describes a broad spectrum of promising nanostructures crystal structures materials and composites with unique properties It presents nanotechnological design approaches environmental friendly processing techniques and physicochemical as well as mechanical studies of advanced materials The selected contributions describe recent progress in energy harvesting and piezoelectric materials optimization electromagnetoelastic actuators for nanotechnology research impedance spectroscopy and study of ceramic materials catalyst synthesis and control of morphological characteristics synthesis and study of electrocatalysts for fuel cells The presented results are important for ongoing efforts concerning the theory modelling and testing of advanced materials Other results are devoted to the analysis of technogenic raw materials and different material applications in science technique and industry

Diffraction Optics and Nanophotonics V. A. Soifer, 2017-09-01 Diffraction Optics and Nanophotonics is devoted to achievements in diffractive optics focusing on the creation of new nanophotonic components and devices as well as instrumentation and available information technology The author describes methods of calculation of diffractive optical elements to solve actual problems of nanophotonics Coverage includes mathematical

methods for calculation of diffraction gratings calculation of modes of inhomogeneous waveguides integral methods of calculation of electromagnetic field near the focus and methods of calculation of diffractive optical elements generating vortex laser beams Diffractive Optics and Micro Optics Optical Society of America,1996-06 Nonlinear Super-Resolution Nano-Optics and Applications Jingsong Wei,2014-10-09 This book covers many advances in the subjects of nano optics and nano photonics The author describes the principle and technical schematics of common methods for breaking through the optical diffraction limit and focuses on realizing optical super resolution with nonlinear effects of thin film materials The applications of nonlinear optical super resolution effects in nano data storage nanolithography and nano imaging are also presented This book is useful to graduate students majoring in optics and nano science and also serves as a reference book for academic researchers engineers technical professionals in the fields of super resolution optics and laser techniques nano optics and nano photonics nano data storage nano imaging micro nanofabrication and nanolithography and nonlinear optics *Diffractive Nanophotonics* Taylor & Francis Group,2021-12-13 Diffractive Nanophotonics demonstrates the utility of the well established methods of diffractive computer optics in solving nanophotonics tasks It is concerned with peculiar properties of laser light diffraction by microoptics elements with nanoscale features and light confinement in subwavelength space regions Written by recognized experts in t **Diffractive Optics and Micro-optics** Optical Society of America,1996-01-01 **Diffractive Optics and Micro-optics** Philippe Lalanne,Eric Gordon Johnson,Optical Society of America,2006 *Diffractive Optics for Industrial and Commercial Applications* Jari Turunen, Frank Wyrowski,1997

Diffractive Optics and Optical Microsystems S Martellucci,Arthur N Chester,2014-01-15 Proceedings of the 20th Course of the International School of Quantum Electronics held in Erice Italy November 14 24 1996 **Diffractive Optics and Micro-optics** ,1998 *Diffractive Optics* Donald C. O'Shea,2004 This book provides the reader with the broad range of materials that were discussed in a series of short courses presented at Georgia Tech on the design fabrication and testing of diffractive optical elements DOEs Although there are not long derivations or detailed methods for specific engineering calculations the reader should be familiar and comfortable with basic computational techniques This text is not a cookbook for producing DOEs but it should provide readers with sufficient information to assess whether this technology would benefit their work and to understand the requirements for using the concepts and techniques presented by the authors

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Diffractive Optics and Micro-optics. Conference Edition ,1998 Field Guide to Diffractive Optics Yakov G. Soskind,2011 Recent advancements in microfabrication technologies and the development of powerful simulation tools have led to a significant expansion of diffractive optics and diffractive optical components Instrument developers can choose from

a broad range of diffractive optics elements to complement refractive and reflective components in achieving a desired control of the optical field This Field Guide provides the operational principles and established terminology of diffractive optics as well as a comprehensive overview of the main types of diffractive optics components An emphasis is placed on the qualitative explanation of the diffraction phenomenon by the use of field distributions and graphs providing the basis for understanding the fundamental relations and important trends

Diffractive Optics and Micro-optics Robert Magnusson,2002 *Digital Diffractive Optics* Bernard C. Kress,Patrick Meyrueis,2000-11-02

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