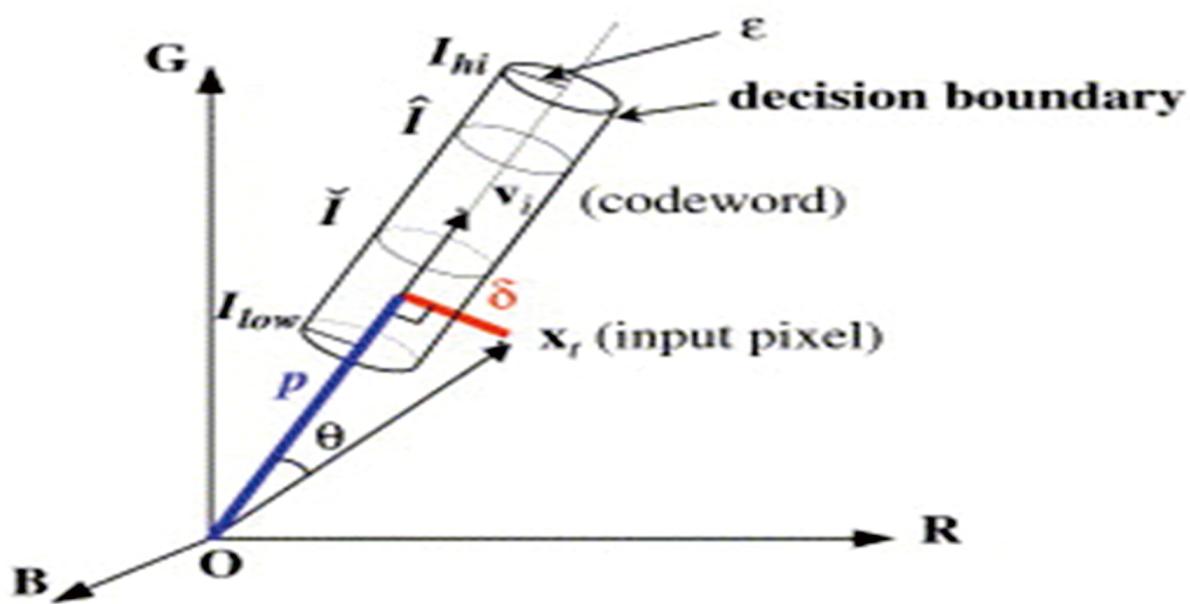
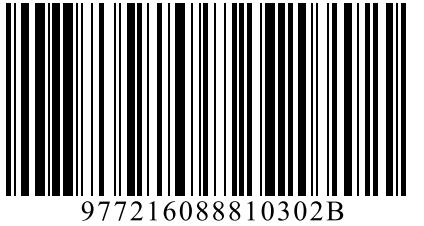


Optics and Photonics Journal



ISSN: 2160-8881



www.scirp.org/journal/opj

TABLE OF CONTENTS

Volume 3 Number 2B

June 2013

Simulation Studying Effects of Multiple Primary Aberrations on Donut-shaped Gaussian Beam

C. Zhang, K. G. Wang, J. T. Bai, Y. Liu, G. R. Wang.....1

New Technology of Laser Parallel Thermocracking of Brittle Materials

V. S. Kondratenko, V. Y. Borisovsky, A. S. Naumov, A. V. Sorokin.....6

Numerical Simulation on Laser Propulsion Capability of Polymer Target

N. L. Li, J. F. Ye, W. J. Zhou.....11

Study on the Gain Material with Four Energy Level Model Using FDTD Method

H. Xue, Z. X. Huang, X. L. Wu.....15

A Comparative Study of Fabrication of Long Wavelength Diode Lasers Using $\text{CCl}_2\text{F}_2/\text{O}_2$ and H_2/CH_4

B. Cakmak, M. Biber, T. Karacali, C. Duman.....21

Study on the Third-order Nonlinear Optical Properties of bis(tetraethylammonium) bis(1,3-dithiole-2-thione-4,5-dithiolato)cadium

H.L. Yang, F. J. Zhang, X. Q. Wang, G. H. Zhang.....25

Electromagnetically Induced Transparency Using a Artificial Molecule in Circuit Quantum Electrodynamics

H.-C. Li, G.-Q. Ge.....29

Optical Limiting and Stabilization Properties of a Liquid Dye on 1064 nm Nanosecond Laser Pulses

L. H. Wang, R. Z. Peng, Y. X. Zhao, F. P. Wu.....34

Selective Excitation of Two-pulse Femtosecond Coherent Anti-Stokes Raman Scattering in a Mixture

H. Zhang, X. H. Feng, Z. Q. Yu, X. Li, S. Zhang, Z. R. Sun.....38

PAD Spectrometer Based on Wide Tunable Optical Parametric Oscillator for Noninvasive Medical Diagnostics

D. B. Kolker, I. V. Sherstov, A. I. Karapuzikov, A. A. Karapuzikov, A. A. Boyko, M. K. Starikova, N. Y. Dukhovnikova,
V. N. Loconov, M. Y. Shtyrov, I. B. Miroshnichenko, K. G. Zenov, M. B. Miroshnichenko.....43

Double Cladding Seven-core Photonic Crystal Fiber

G. L. Zhang, F. F. Xing, P. G. Yan, H. F. Wei, H. Q. Li, S. S. Huang, R. Y. Lin, K. K. Chen.....47

Nonlinear Cascaded Femtosecond Third Harmonic Generation by Multi-grating Periodically Poled MgO-doped Lithium Niobate

S. G. Zhang, W. C. You, Z. C. Huang.....50

Research on the Dark Stripes Extraction Algorithm for Measuring Diameter with Diffraction

Q. Liu, F. L. Wei.....53

High Performance Asymmetric Three Corrugation-Pitch-Modulated DFB Lasers Suitable for Stable Single Longitudinal Mode Operation

Q. Zuo, J. Y. Zhao, Z. H. Wang, X. Chen, W. Liu.....57

Description of the FDML Laser with Quasi-steady State Model of the SOA	
Z. Wang, L. M. Zhang, L. L. Liu, Z. C. Sun, Y. F. Liu, F. Wang.....	61
Four-wavelength Microdisk Lasers Laterally Coupling to an Output Bus Waveguide	
L.-X. Zou, X.-M. Lv, Y.-Z. Huang, H. Long, Q.-F. Yao, Y. Du.....	66
High Peak Power, Single-polarized, Sub-nanoseconds Pulses Generation of a Yb-doped Rod-type Photonic Crystal Fiber Amplifier	
Z. W. Wang, S. T. Du, Z. K. Wang, J. He, Y. R. Wei, Q. H. Lou, J. Zhou.....	69
Design of High-speed Sampling System in Pulse Laser Application	
J. Liu, M.-A. Lv, J. Wang.....	73
Image Fusion Real-time System Based on FPGA and Multi-DSP	
F. Qu, B. C. Liu, J. Zhao, Q. Sun.....	76
Color Image Enhancement by an Integral Mask-filtering Approach Employing Nonlinear Transfer Function	
C.-C. Yang.....	79
Ghost Imaging Lidar via Sparsity Constraints in Real Atmosphere	
M. L. Chen, E. R. Li, W. L. Gong, Z. W. Bo, X. Y. Xu, C. Q. Zhao, X. Shen, W. D. Xu, S. S. Han.....	83
Comparison of Iterative Wavefront Estimation Methods	
Y. Pankratova, A. Larichev, N. Iroshnikov.....	86
Based on Fluent Numerical Calculation of Refractive Index on Rocket Engine Nozzle Plume	
Q. F. Huang, X. Wan Z. M. Zhang, H. M. Zhang, H. Y. Shen, T. T. Du.....	90
A Neuro-inspired Adaptive Motion Detector	
X. P. Zhong, L. Ma.....	94
Image Preprocessing Methods to Identify Micro-cracks of Road Pavement	
H. Wang, Z. Chen, L. J. Sun.....	99
A Simple Image Tamper Detection and Recovery Based on Fragile Watermark with One Parity Section and Two Restoration Sections	
C.-M. Wu, Y.-S. Shih.....	103
An Approach to Star Map Simulation for Star Sensor Considering the Effect of Image Motion	
A.-J. Li, C.-S. Liu, X.-F. Shen.....	108
System-on-a-Chip (SoC) Based Hardware Acceleration for Video Codec	
X. W. Niu, J. Fan.....	112
Reducing Refractive Index Variations in Compression Molded Lenses by Annealing	
B. Tao, L. G. Shen, A. Yi, M. J. Li, J. Zhou.....	118
Analysis of the Interference Signal of the Distributed Optical Fiber Sensing Based on DSP	
T. T. Du, X. Wan, Z. M. Zhang, H. M. Zhang, Q. Zhang.....	122
Multi-TBaud Optical Coding Based on Superluminal Space-to-Time Mapping in Long Period Gratings	
R. Ashrafi, M. Li, J. Azaña.....	126

Photonic Communications and Quantum Information Storage Capacities

W. C. Lindsey.....131

Printable Optical Filters for Visible Optical Communications

P. S. André, L. Nero, Vânia T. Freitas, M. S. Relvas, R. A. S. Ferreira.....136

LED Modulation Characteristics in a Visible-Light Communication System

Y. R. Pei, S. X. Zhu, H. Yang, L. X. Zhao, X. Y. Yi, J. X. Wang, J. M. Li.....139

Study on Turbulence Effects for Beam Propagation in Turbulent Atmosphere

P. P. Pan.....143

Design of Wireless Optical Access System using LED

L. W. Ding, F. Liu, Y. J. He, H. B. Zhu, Y. J. Wang.....148

Real-time Audio & Video Transmission System Based on Visible Light Communication

Y. J. He, L. W. Ding, Y. X. Gong, Y. J. Wang.....153

Design of Thermo-Optic Variable Optical Attenuator Based on Quartz Substrate

H. Q. Dai, J. M. An, L. L. Wang, Y. Wang, L. Y. Zhang, J. S. Zhang, H. J. Wang, P. Pan, X. G. Zhang,
R. D. Liu, J. G. Li, Y. D. Wu, X. W. Hu.....158

Generation of Feedback-induced Chaos in a Semiconductor Ring Laser

X. Zhang, G. H. Yuan, Z. R. Wang.....162

Request-based Dynamic Bandwidth Allocation of Gigabit Passive Optical Network

C.-T. Chiu, Y.-C. Wang.....165

A Novel Method with Martingale Theory for Phase Noise Analysis in Coherent Optical Communication

C. L. Sui, Q. M. Wang, S. L. Xiao, P. Q. Li.....171

Bismuth and Erbium Co-doped Optical Fiber for a White Light Fiber Source

D. W. Song, J. Z. Zhang, S. Fang, W. M. Sun, Z. M. Sathi, Y. H. Luo, G.-D. Peng.....175

Automatic Detection of Optical “Faults” in Communications Networks

M. Bartur.....179

Experimental Investigation of Improving the Performance of the Chaotic Optical Communication with Chaos-Masking through Wavelength Mismatch

W. Chang, X. L. Chen, Q. C. Zhao, H. X. Yin, N. Zhao.....183

Nonlinear Polarization Rotation Characteristic Phenomenon in a Bulk Semiconductor Optical Amplifier

X. H. Feng, J. R. Ji, G. M. Zhang.....187

Evanescence Fields Inside a Cut-off Waveguide as Near Fields

Z.-Y. Wang, J. Gou, S. J. Shi, Q. Qiu.....192

Design of Seven-core Photonic Crystal Fiber with Flat In-phase Mode for Yb: Fiber Laser Pumping

R. J. Dong, P. G. Yan, G. L. Zhang, H. Q. Li, S. C. Ruan, H. F. Wei, J. Luo.....197

Polarization Jitters Caused by Fiber Nonlinearity in PM Optical Communication System

L.-L. Liu, C.-Q. Wu, W. Yang, J. Wang, G.-D. Liu.....202

Simulation and Design of a Low Crosstalk Hexagonal Photonic Crystal Crossover Waveguide

E. Pilehvar, H. Kaatuzian, M. Danaie.....209

Channel Simulation of Non-imaging Optical MIMO Communication

J. Feng, L. W. Ding, Y. J. Wang.....212

Photoluminescence of Por-Si with High-ordered Mosaic Structure Received at Long Anodic Etching p-Si (100) in the Electrolyte with an Internal Current Source

K. B. Tynyshtykbayev, V. B. Glazman, M. A. Yeleuov, A. T. Issova, B. A. Rakymetov, D. Muratov, S.Z.Tokmoldin.....217

Effects of Annealing Conditions on ZnO Buffer Layer for Inverted Polymer Solar Cells

C. Liu, L. H. Zheng, Z. Y. Gao, Y. H. Gan, J. Zhang, C. N. Li.....222

Maskless Microscopic Lithography through Shaping Ultraviolet Laser with Digital Micro-mirror Device

X.-Y. Ding, Y.-X. Ren, R.-D. Lu.....227

Recognition of Bragg Wavelength Disturbed by Time Delay of Fiber Length in Prepositive Tunable Filter

C. Li, X. Y. Chao, Y. N. Li, T. Xie, Z. G. Zhao, X. Xiong.....232

Fiber Optic Sensors and Sensor Networks Using a Time-domain Sensing Scheme

C. J. Wang, M. Kaya, P. Sahay, H. Alali, R. Reese.....236

Coupling Device with Resonant Cavities Based on Periodic Dielectric Waveguides

R.-C. Lu, Y.-L. Jang.....240

A Theoretical Study of Light Absorption in Self Assembled Quantum Dots

T. A. Ameen, Y. M. El-Batawy, A. A. Abouelsaood.....243

Base Width Variations and its Effects on Frequency Response of Double Hetero-structure Long Wavelength Transistor Laser

M. R. Farjadian, H. Kaatuzian, I. Taghavi.....248

10 Gb/s Optical Interconnection on Flexible Optical Waveguide in Electronic Printed Circuit Board

S.-H. Hsu, C.-Y. Tsou, C.-M. Wang, S.-C. Tseng.....252

Dependence Study of Optoelectronics Performance on Carefully Differed LiF Thickness in Alq₃ Based OLEDs

S. X. Su, C. X. Pan, X. Luo, W. Chen, J. R. Lian.....256

A Comparison of Active and Passive Metamaterials from Equivalent Lumped Elements Modes

Y.-F. Ge, H. Huang, Y. Liu, H.-J. Sun, X. Lv, L.-M. Si.....260

A Smart Graded-index Multimode Fiber Based Sensor Unit for Multi-parameter Sensing Applications

S. Fang, B. Y. Li, D. W. Song, J. Z. Zhang, W. M. Sun, L. B. Yuan.....265

Characteristics Analysis of Chemical Concentration Sensor Based on Three-layer FBG

Z. X. Wu, X. Y. Yu, E. Gu, Z. Kong, W. C. Li.....268

Study of Raman Spectroscopy to detect the Underlying Substance Concealed below Diffusely Scattering Medium

X. H. Zhang, J. Zhang, H. F. Zhang, J. X. Lu, L. J. Wang, Y. S. Xu.....272

Industrial Temperature Monitoring System Design Based on ZigBee and Infrared Temperature Sensing

D. Peng, S. P. Wan.....277

Hardening and Optimizing of the Black Gold Thin Film as the Absorption Layer for Infrared Detector

D.-p. Qian, C.-g. Wu, Y. Shuai, W.-B. Luo, Q.-X. Peng, X.-Y. Chen, W.-L. Zhang.....281

Effect of the Cladding Layer Cavity on the Efficiency of 650 nm Resonant Cavity Light Emitting Diodes

J. J. Li, T. Liu, J. C. Li, X. Ya.....284

Analysis of Microdisk/Microring's Surface Roughness Effect by Orthogonal Decomposition

C. L. Sui, Q. M. Wang, S. L. Xiao, P. Q. Li.....288

Intracavity Tunneling Introduced Transparency in Ultrastrong-coupling Regime

T. Wang, R. Zhang, C. X. Zhou, X. M. Su.....293

Effects of Quantum well Size Alteration on Excitonic Population Oscillation Slow Light Devices Properties

H. Kaatuzian, H. S. Kojori, A. Zandi, R. Kohandani.....298

Effect of Electrode Surface Modification by Sulfide on QCM Based Protein Biosensor

Y.-C. Lin, Y.-C. Chen, L.-Y. Chen.....305

Algorithm Research on Moving Object Detection of Surveillance Video Sequence

K. H. Yang, Z. M. Cai, L. L. Zhao.....308

Simulation of Gas Discharge in Tube and Paschen's Law

J. Wang.....313

Image Correction Method of Color Line-Scan System

Z.-L. Chen, Y.-T. Ye, Y.-C. Song, Y. Luo, L. Liu, J.-X. Liu.....318

Novel Understanding of Electron States Architecture and Its Dimensionality in Semiconductors

X. M. Ren.....322

Holographic Raman Tweezers Controlled by Hand Gestures and Voice Commands

Z. Tomori, M. Antalik, P. Kesa, J. Kanka, P. Jakl, M. Sery, S. Bernatova, P. Zemanek.....331

Cascadability of Uniform Fibre Bragg Grating for 40 Gbit/s RZ-OOK to NRZ-OOK Conversion

O. Ozolins, V. Bobrovs, G. Ivanovs.....337

Optics and Photonics Journal (OPJ)

Journal Information

SUBSCRIPTIONS

The *Optics and Photonics Journal* (Online at Scientific Research Publishing, www.SciRP.org) is published quarterly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$59 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

COPYRIGHT

Copyright©2013 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

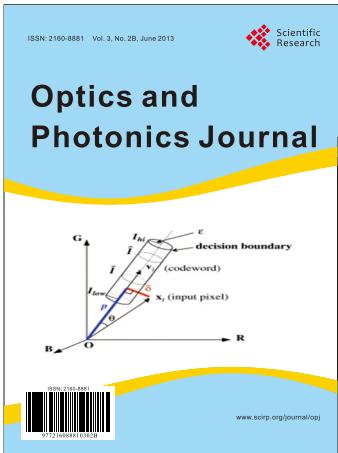
Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assumes no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: opj@scirp.org



Optics and Photonics Journal (OPJ)

ISSN: 2160-8881 (Print) 2160-889X (Online)
<http://www.scirp.org/journal/opj>

Optics and Photonics Journal (OPJ) is an international, specialized, English-language journal devoted to publication of original contributions in all areas of optics and photonics. The Journal disseminates new results in the theory, design, applications, fabrication, performance and characterization of optics and photonics materials including bio-related functions such as bio-optics, bio-photonics and also optoelectronics. The journal is also devoted to challenging and innovating methods and techniques related to the development of optics and photonics materials, characterization and applications.

Subject Coverage

The journal publishes original papers including but not limited to the following fields:

- All related associated materials and characterization techniques development
- Bio-induced optical materials and applications
- Bio-photonics
- Imaging processes
- Laser spectroscopy
- Light wave communication systems
- Nanophotonics
- Nonlinear optics
- Optical fibers
- Photonic crystals
- Quantum optics
- Waveguides

We are also interested in: 1) Short reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book reviews—Comments and critiques.

Notes for Intending Authors

The journal publishes the highest quality original full articles, communications, notes, reviews, special issues and books, covering both the experimental and theoretical aspects including but not limited to the above materials, techniques and studies. Papers are acceptable provided they report important findings, novel insights or useful techniques within the scope of the journal. All manuscript must be prepared in English, and are subjected to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by prints in hard copy.

Website and E-Mail

<http://www.scirp.org/journal/opj> E-mail: opj@scirp.org

What is SCIRP?

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science, by delivering superior scientific publications and scientific information solution provider that enable advancement in scientific research.

What is Open Access?

All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, world-wide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
 - Rigorous peer review of research papers
 - Prompt faster publication with less cost
 - Guaranteed targeted, multidisciplinary audience



Scientific Research

Website: <http://www.scirp.org>

Subscription: sub@scirp.org

Advertisement: service@scirp.org