

ISSN: 0146-9592

Optics Letters

OSA[®]
The Optical Society

**Volume 36
Number 8
April 15 2011**

Optics Letters

Volume 36
Number 8
April 15 2011

www.osa.org

Atmospheric and Oceanic Optics

- | | | |
|---|--------------------|------|
| Moment analysis of focus-diverse point spread functions for modal wavefront sensing of uniformly illuminated circular-pupil systems | <i>Hanshin Lee</i> | 1503 |
|---|--------------------|------|

Atomic and Molecular Physics

- | | | |
|--|---|------|
| Minimizing dispersive distortions in carrier-envelope phase sweeping with glass wedges | <i>M. Kremer, C. Hofrichter, B. Fischer, V. Sharma, N. Camus, T. Pfeifer, R. Moshhammer, and J. Ullrich</i> | 1455 |
|--|---|------|

Detectors

- | | | |
|---|---|------|
| Absolute calibration of photodetectors: photocurrent multiplication versus photocurrent subtraction | <i>I. N. Agafonov, M. V. Chekhova, T. S. Iskhakov, A. N. Penin, G. O. Rytikov, and O. A. Shcherbina</i> | 1329 |
|---|---|------|

Diffraction and Gratings

- | | | |
|---|--|------|
| Nonreciprocal extraordinary optical transmission through subwavelength slits in metallic film | <i>Haibin Zhu and Chun Jiang</i> | 1308 |
| Binary phase filters with a maximally-flat response | <i>Colin J. R. Sheppard</i> | 1386 |
| Voltage-controlled compression for period tuning of optical surface relief gratings | <i>Matthias Kollosche, Sebastian Döring, Joachim Stumpe, and Guggi Kofod</i> | 1389 |
| High-efficiency and fast-response tunable phase grating using a blue phase liquid crystal | <i>Jin Yan, Yan Li, and Shin-Tson Wu</i> | 1404 |
| Design of specific gratings operating under surface plasmon-polariton resonance | <i>I. S. Spevak, M. A. Timchenko, and A. V. Kats</i> | 1419 |

Shack-Hartmann multiple spots with diffractive lenses	<i>F. Castignoles, T. Lepine, P. Chavel, and G. Cohen</i>	1422
Design of ultrabroadband internal reflection gratings with high efficiency	<i>Qunyu Bi, Jiangjun Zheng, Meizhi Sun, Xinbo Yang, Xinglong Xie, and Zunqi Lin</i>	1431
Reflective silicon binary diffraction grating for visible wavelengths	<i>Zhen Peng, David A. Fattal, Andrei Faraon, Marco Fiorentino, Jingjing Li, and Raymond G. Beausoleil</i>	1515

Fiber Optics and Optical Communications

All-channel tunable optical dispersion compensator based on linear translation of a waveguide grating router	<i>David Sinefeld, Shalva Ben-Ezra, Christopher R. Doerr, and Dan M. Marom</i>	1410
Amplification of picosecond pulses and gigahertz signals in bismuth-doped fiber amplifiers	<i>B. H. Chapman, E. J. R. Kelleher, K. M. Golant, S. V. Popov, and J. R. Taylor</i>	1446
Photonic generation of triangular-shaped pulses based on frequency-to-time conversion	<i>Jia Ye, Lianshan Yan, Wei Pan, Bin Luo, Xihua Zou, Anlin Yi, and Steve Yao</i>	1458
Cross-phase-modulation-induced spectral effects in high-efficiency picosecond fiber optical parametric oscillators	<i>Chenji Gu, Christiane Goulart, and Jay E. Sharping</i>	1488
Improved high-contrast imaging with on-axis telescopes using a multistage vortex coronagraph	<i>Dimitri Mawet, Eugene Serabyn, J. Kent Wallace, and Laurent Pueyo</i>	1506
A triple function linear fiber laser with passive mode-locking and continuous-wave single-wavelength and multiwavelength lasing	<i>Jiajun Tian, Yong Yao, Jun Jun Xiao, Xiaochuan Xu, and Deying Chen</i>	1509
Coupling between counterpropagating cladding modes in fiber Bragg gratings	<i>D. Sáez-Rodríguez, J. L. Cruz, A. Díez, and M. V. Andrés</i>	1518

Fourier Optics and Signal Processing

Direct calculation of a three-dimensional diffracted field	<i>J. Lin, X.-C. Yuan, S. S. Kou, C. J. R. Sheppard, O. G. Rodríguez-Herrera, and J. C. Dainty</i>	1341
Compact optical correlator based on one phase-only spatial light modulator	<i>Xu Zeng, Jian Bai, Changlun Hou, and Guoguang Yang</i>	1383

Holography

Computation of high-stability DC balancing scheme for ferroelectric liquid crystal on silicon holograms using graphics processing units	<i>Joel Carpenter and Timothy D. Wilkinson</i>	1323
---	--	------

Video-rate laser Doppler vibrometry by heterodyne holography	<i>Benjamin Samson, Frédéric Verpillat, Michel Gross, and Michael Atlan</i>	1449
Image Processing		
Phase-shifting interferometry based on principal component analysis	<i>J. Vargas, J. Antonio Quiroga, and T. Belenguer</i>	1326
Imaging Systems		
Achromatization of Wollaston polarizing beam splitters	<i>Gerald Wong, Roger Pilkington, and Andrew R. Harvey</i>	1332
Multipulse gate-delayed range gating imaging lidar	<i>Long Wu, Yuan Zhao, Yong Zhang, Chenfei Jin, and Jie Wu</i>	1365
Overcoming the shot-noise limitation of three-dimensional active imaging	<i>Xiuda Zhang, Huimin Yan, and Qin Zhou</i>	1434
Instrumentation, Measurement, and Metrology		
Colocalization of gold nanoparticle-conjugated DNA hybridization for enhanced surface plasmon detection using nanograting antennas	<i>Youngjin Oh, Wonju Lee, and Donghyun Kim</i>	1353
Sensitive and robust second-harmonic interferometer for measuring the dispersion of the electro-optic coefficients in bulk materials	<i>T. Del Rosso, D. Grando, P. Marsili, and F. Giammanco</i>	1437
Picoradian deflection measurement with an interferometric quasi-autocollimator using weak value amplification	<i>Matthew D. Turner, Charles A. Hagedorn, Stephan Schlamminger, and Jens H. Gundlach</i>	1479
Integrated Optics		
Ultras-small-V high-Q photonic crystal nanobeam microcavities based on slot and hollow-core waveguides	<i>Ping Yu, Biao Qi, Xiaoqing Jiang, Minghua Wang, and Jianyi Yang</i>	1314
Enhanced transduction of photonic crystal dye lasers for gas sensing via swelling polymer film	<i>Cameron L. C. Smith, Johan U. Lind, Claus H. Nielsen, Mads B. Christiansen, Thomas Buss, Niels B. Larsen, and Anders Kristensen</i>	1392
All-optical switching of a single resonance in silicon ring resonators	<i>Y. Henry Wen, Onur Kuzucu, Taige Hou, Michal Lipson, and Alexander L. Gaeta</i>	1413
Resonant delocalization and Bloch oscillations in modulated lattices	<i>R. El-Ganainy, D. N. Christodoulides, C. E. Rüter, and D. Kip</i>	1464

Robust design of an optical router based on a tapered side-coupled integrated spaced sequence of optical resonators	<i>P. Bettotti, M. Mancinelli, R. Guider, M. Masi, M. Rao Vanacharla, and L. Pavesi</i>	1473
Experimental demonstration of two methods for controlling the group delay in a system with photonic-crystal resonators coupled to a waveguide	<i>Yijie Huo, Sunil Sandhu, Jun Pan, Norbert Stuhmann, Michelle L. Povinelli, Joseph M. Kahn, James S. Harris, Martin M. Fejer, and Shanhui Fan</i>	1482
Wavelength demultiplexing structure based on arrayed plasmonic slot cavities	<i>Feifei Hu, Huaxiang Yi, and Zhiping Zhou</i>	1500

Lasers and Laser Optics

Enhanced coherence of weakly coupled lasers	<i>M. Nixon, M. Fridman, A. A. Friesem, and N. Davidson</i>	1320
Simultaneous spectrum and coherent combining by active phasing dual two-tone all-fiber MOPA chains	<i>Xiaolin Wang, Jingyong Leng, Hu Xiao, Yanxing Ma, Pu Zhou, Wenbo Du, Xiaojun Xu, Zejin Liu, and Yijun Zhao</i>	1338
Port output of metallo-dielectric confined circular microlasers	<i>Kai-Jun Che, Yong-Zhen Huang, Hui-Ying Xu, and Zhi-Ping Cai</i>	1374
Efficient, miniature, cw yellow source based on an intracavity frequency-doubled Nd:YVO ₄ self-Raman laser	<i>Xiaoli Li, Andrew J. Lee, Helen M. Pask, James A. Piper, and Yujing Huo</i>	1428
Efficient 521 nm all-fiber laser: splicing Pr ³⁺ -doped ZBLAN fiber to end-coated silica fiber	<i>Hideyuki Okamoto, Ken Kasuga, and Yoshinori Kubota</i>	1470
High-power 880-nm diode-directly-pumped passively mode-locked Nd:YVO ₄ laser at 1342 nm with a semiconductor saturable absorber mirror	<i>Fang-Qin Li, Ke Liu, Lin Han, Nan Zong, Yong Bo, Jing-Yuan Zhang, Qin-Jun Peng, Da-Fu Cui, and Zu-Yan Xu</i>	1485

Materials

Optically controllable and focus-tunable Fresnel lens in azo-dye-doped liquid crystals using a Sagnac interferometer	<i>Hui-Chen Yeh, Yi-Chieh Kuo, Shih-Hung Lin, Jia-De Lin, Ting-Shan Mo, and Shuan-Yu Huang</i>	1311
Baryscan: a sensitive and user-friendly alternative to Z scan for weak nonlinearities measurements	<i>Thomas Godin, Michael Fromager, Emmanuel Cagniot, Richard Moncorgé, and Kamel Aït-Ameur</i>	1401
Polarization insensitive terahertz metamaterial absorber	<i>J. Grant, Y. Ma, S. Saha, L. B. Lok, A. Khalid, and D. R. S. Cumming</i>	1524

Medical Optics and Biotechnology

- | | | |
|---|--|------|
| Multiple-view fluorescence optical tomography reconstruction using compression of experimental data | Nicolas Ducros, Andrea Bassi, Gianluca Valentini, Martin Schweiger, Simon Arridge, and Cosimo D'Andrea | 1377 |
|---|--|------|

Nonlinear Optics

- | | | |
|---|--|------|
| Observation of speckle pattern formation in transparent nonlinear random media | Francisco J. Rodríguez, Can Yao, Jorge L. Domínguez-Juárez, Jorge Bravo-Abad, and Jordi Martorell | 1347 |
| Dark nematicons | A. Piccardi, A. Alberucci, N. Tabiryan, and G. Assanto | 1356 |
| Symmetry-breaking dynamics of the modulational instability spectrum | M. Droques, B. Barviau, A. Kudlinski, M. Taki, A. Boucon, T. Sylvestre, and A. Mussot | 1359 |
| Directionally anisotropic Si nanowires: on-chip nonlinear grating devices in uniform waveguides | Jeffrey B. Driscoll, Richard R. Grote, Xiaoping Liu, Jerry I. Dadap, Nicolae C. Panoiu, and Richard M. Osgood, Jr. | 1416 |
| High-harmonic generation from plasma mirrors at kilohertz repetition rate | Antonin Borot, Arnaud Malvache, Xiaowei Chen, Denis Douillet, Grégory Iaquaniello, Thierry Lefrou, Patrick Audebert, Jean-Paul Geindre, Gérard Mourou, Fabien Quéré, and Rodrigo Lopez-Martens | 1461 |
| Mobility of high-power solitons in saturable nonlinear photonic lattices | Uta Naether, Rodrigo A. Vicencio, and Milutin Stépčić | 1467 |

Optical Design and Fabrication

- | | | |
|--|---|------|
| Trapping and transporting aerosols with a single optical bottle beam generated by moiré techniques | Peng Zhang, Ze Zhang, Jai Prakash, Simon Huang, Daniel Hernandez, Matthew Salazar, Demetrios N. Christodoulides, and Zhigang Chen | 1491 |
|--|---|------|

Optical Devices

- | | | |
|---|---|------|
| Quality-factor enhancement of supermodes in coupled microdisks | M. Benyoucef, J.-B. Shim, J. Wiersig, and O. G. Schmidt | 1317 |
| High Q light-emitting Si-rich Si ₃ N ₄ microdisks | Federico Ferrarese Lupi, Daniel Navarro-Urrios, Josep Monserrat, Carlos Dominguez, Paolo Pellegrino, and Blas Garrido | 1344 |

Multiplication of optical frequency shift by cascaded electro-optic traveling phase gratings operating above 10 GHz	<i>Shintaro Hisatake, Takaaki Konishi, and Tadao Nagatsuma</i>	1350
Plasmon-resonance-induced enhancement of the reflection band in a one-dimensional metal nanocomposite photonic crystal	<i>Saima Husaini, Lev Deych, and Vinod M. Menon</i>	1368
Control of light transmission in laser-written phase-shifted Bragg grating couplers	<i>Sangwoo Ha, Martin Ams, Graham D. Marshall, Dragomir N. Neshev, Andrey A. Sukhorukov, Yuri S. Kivshar, and Michael J. Withford</i>	1380
Magneto-optic fiber Sagnac modulator based on magnetic fluids	<i>Peng Zu, Chi Chiu Chan, Lew Wen Siang, Yongxing Jin, Yifan Zhang, Liew Hwi Fen, Lihan Chen, and Xinyong Dong</i>	1425
Angle-independent plasmonic infrared band-stop reflective filter based on the Ag/SiO ₂ /Ag T-shaped array	<i>Cheng-Wen Cheng, Mohammed Nadhim Abbas, Zi-Chang Chang, M. H. Shih, Chih-Ming Wang, M. C. Wu, and Yia-Chung Chang</i>	1440
Influence of organic capping layers on the performance of transparent organic light-emitting diodes	<i>Jonghee Lee, Simone Hofmann, Mauro Furno, Michael Thomschke, Yong Hyun Kim, Björn Lüssem, and Karl Leo</i>	1443
Analysis of rectangular resonant cavities in terahertz parallel-plate waveguides	<i>Victoria Astley, Blake McCracken, Rajind Mendis, and Daniel M. Mittleman</i>	1452
Modeling magnetic photonic crystals with lossy ferrites using an efficient complex envelope alternating-direction-implicit finite-difference time-domain method	<i>Gurpreet Singh, Eng Leong Tan, and Zhi Ning Chen</i>	1494

Optical Tweezers or Optical Manipulation

Ensemble method to measure the potential energy of nanoparticles in an optical trap	<i>Joseph Junio, Jack Ng, Joel A. Cohen, Zhifang Lin, and H. Daniel Ou-Yang</i>	1497
---	---	------

Optics at Surfaces

Engineering the plasmon resonance of large area bimetallic nanoparticle films by laser nanostructuring for chemical sensors	<i>Michail J. Beliatas, Simon J. Henley, and S. Ravi P. Silva</i>	1362
---	---	------

Officers of the Society

J. Christopher Dainty, *President*
Tony F. Heinz, *President-Elect*
James C. Wyant, *Past President*
Donna Strickland,

Vice President

Stephen Fantone, *Treasurer*
Elizabeth A. Rogan,

Chief Executive Officer

Stephen A. Burns, *Chair,*
Publications Council

Charles E. Synborski, *Chair,*
Corporate Associates

Ian A. Walmsley, *Chair, Member*
and Education Services

Anderson Gomes, *Chair,*
International Council

Laura Weller-Brophy, *Chair,*
Meetings Council

David N. Fittinghoff, *Chair,*
Board of Meetings

OSA Staff

Daniel R. Franzen,
Managing Editor

Monica R. Payne,
Production Editor

Stu Griffith, *Publications Senior*
Production Manager

Carlos X. Izurieta,
Production Assistant

Antoinette P. Wrighton, *Director*
of Editorial Production

M. Scott Dineen, *Deputy Senior*
Director, Publications

Peer Review

Kelly Cohen,
Director of Manuscripts

Joseph Richardson,
Peer Review Manager

Miriam Day, *Journal Assistant*
Carmelita Washington,

Manuscripts Coordinator
Agnetha Moore, *Journal*
Assistant

Elizabeth Nolan,
Chief Publishing Officer
Alan N. Tourtlotte,
Director, Institutional Sales
and Fulfillment
Susannah Lehman,
Fulfillment Coordinator

Optoelectronics

Ultrathin nickel oxide film as a hole buffer layer to enhance the optoelectronic performance of a polymer light-emitting diode

Yongli Wang, Qiaoli Niu,
Candong Hu, Wenjie Wang,
Miao He, Yong Zhang, Shutu Li,
Lingzhi Zhao, Xin Wang,
Jia Xu, Qiuxiang Zhu, and
Sihai Chen

1521

Physical Optics

Quantum interference and entanglement of photons that do not overlap in time

R. Wiegner, C. Thiel,
J. von Zanthier, and
G. S. Agarwal

1512

Quantum Optics

Wavelength-scale imaging of trapped ions using a phase Fresnel lens

A. Jechow, E. W. Streed,
B. G. Norton, M. J. Petrasianus,
and D. Kielpinski

1371

Testing spectral filters as Gaussian quantum optical channels

K. Laiho, A. Christ,
K. N. Cassemiro, and
C. Silberhorn

1476

Scattering

Transition from the ballistic to the diffusive regime in a turbid medium

Andre Yaroshevsky, Ziv Glasser,
Er'el Granot, and Shmuel
Sternklar

1395

Thin Films

Toward a new generation of low-loss mirrors for the advanced gravitational waves interferometers

L. Pinard, B. Sassolas,
R. Flaminio, D. Forest,
A. Lacoudre, C. Michel,
J. L. Montorio, and N. Morgado

1407

X-ray Optics

Efficiency calibrations of cylindrically bent transmission crystals in the 20 to 80 keV x-ray energy range

Csilla I. Szabo, Uri Feldman,
Stephen Seltzer,
Lawrence T. Hudson,
Michelle O'Brien,
Hye-Sook Park, and
John F. Seely

1335

Quadriwave lateral shearing interferometry in an achromatic and continuously self-imaging regime for future x-ray phase imaging

Julien Rizzi, Timm Weitkamp,
Nicolas Guérineau, Mourad Idir,
Pascal Mercère, Guillaume
Druart, Grégory Vincent,
Paulo da Silva, and
Jérôme Primot

1398