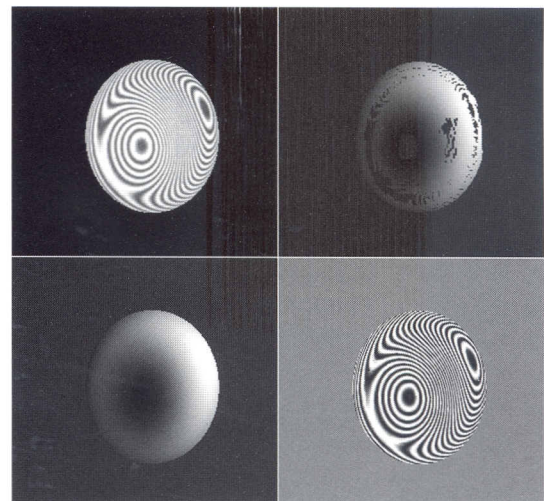
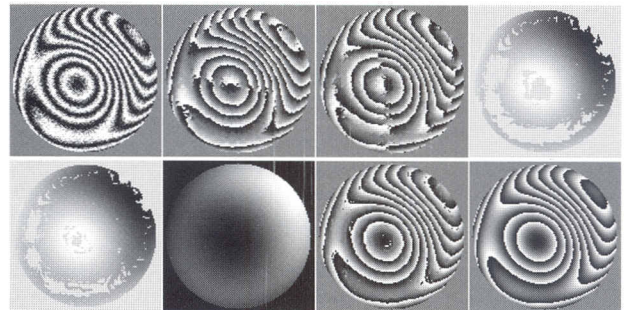
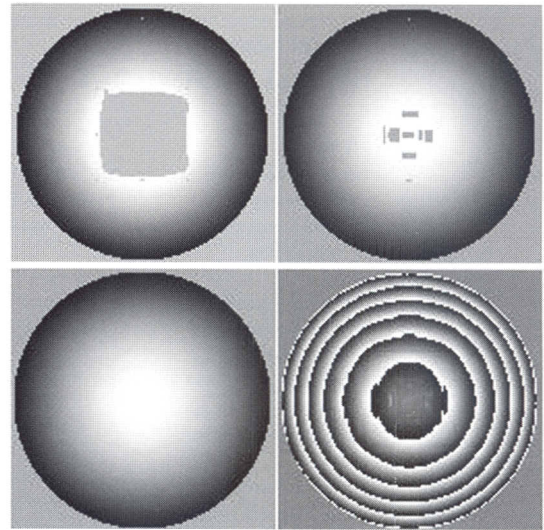


# Applied Optics



# Applied Optics

Volume 50  
Number 1  
1 January 2011

www.osa.org

## Information Pages

Feature Calendar v  
Information for Contributors xi

## Cover

Experimental interferograms with a variety of fringes. For details, see the paper by Munoz-Maciel *et al.* pp. 22–27.

## OPTICAL TECHNOLOGY

### Atmospheric and Oceanic Optics

Open-loop control of liquid-crystal spatial light modulators for vertical atmospheric turbulence wavefront correction

Chao Liu, Lifa Hu, Quanquan Mu, Zhaoliang Cao, and Li Xuan

82

### Detectors

Time-dependent photon number discrimination of InGaAs/InP avalanche photodiode single-photon detector

Yi Jian, E Wu, Xiuliang Chen, Guang Wu, and Heping Zeng

61

### Diffraction and Gratings

Electric field control of a Bragg diffraction optical beam splitter based on a cubic  $K_{0.99}Li_{0.01}Ta_{0.63}Nb_{0.37}O_3$  single crystal

Dewei Gong, Hao Tian, Liying Tan, and Zhongxiang Zhou

28

### Fiber Optics and Optical Communications

Reduced Fresnel losses in chalcogenide fibers obtained through fiber-end microstructuring

Catalin Florea, Jasbinder Sanghera, Lynda Busse, Brandon Shaw, Fritz Miklos, and Ishwar Aggarwal

17

### Geometric Optics

Geometric theory of wavefront aberrations in an off-axis spherical mirror

Armando Gomez-Vieyra and Daniel Malacara-Hernández

66

### Instrumentation, Measurement, and Metrology

Spectroscopic null ellipsometer using a variable retarder

Lionel R. Watkins and Sophie S. Shamailov

50

Active suppression of air refractive index fluctuation using a Fabry–Perot cavity and a piezoelectric volume actuator

Tuan Quoc Banh, Yuria Ohkubo, Yoshinosuke Murai, and Masato Aketagawa

53

### Microscopy

Errors in confocal fluorescence ratiometric imaging microscopy due to chromatic aberration

Yuxiang Lin and Arthur F. Gmitro

95

### Scattering

Scattering of singular beams by subwavelength objects

Evyatar Hemo, Boris Spektor, and Joseph Shamir

33

## Officers of the Society

J. CHRISTOPHER DAINTY,  
President  
*National University of Ireland,  
Galway*

TONY F. HEINZ,  
President-Elect  
*Columbia University*

DONNA T. STRICKLAND,  
Vice President  
*University of Waterloo*

JAMES C. WYANT,  
Past President  
*University of Arizona*

STEPHEN D. FANTONE,  
Treasurer  
*Optikos Corporation*

ELIZABETH ROGAN,  
CEO

## OSA Staff

Christopher Videll  
*Managing Editor*

Joseph Richardson  
*Feature Proposals Manager*

Antoinette P. Wrighton  
*Director of Editorial Services*

M. Scott Dineen  
*Deputy Senior Director,  
Publications*

Kelly Cohen  
*Manuscripts Director*

Daniel Dawes  
*Production Editor*

Lucille Halberstadt  
*Production Editor*

Stu Griffith  
*Publications Senior Production  
Manager*

Carlos X. Izurieta  
*Production Assistant*

## Peer Review

Carmelita Washington  
*Applied Optics Coordinator*

Keith Jackson  
*Journal Assistant*

## Rights and Permissions

Susannah Lehman  
*Publications Research and  
Fulfillment Coordinator*

Elizabeth Nolan  
*Chief Publishing Officer*

Alan N. Tourtlotte  
*Director, Institutional Sales and  
Fulfillment*

# INFORMATION PROCESSING

## Image Processing

Adaptive convergence nonuniformity  
correction algorithm

Weixian Qian, Qian Chen, 1  
Junqi Bai, and Guohua Gu

Phase recovery from a single interferogram  
with closed fringes by phase unwrapping

Jesús Muñoz-Maciel, 22  
Francisco J. Casillas-Rodríguez,  
Miguel Mora-González,  
Francisco G. Peña-Lecona,  
Víctor M. Duran-Ramírez, and  
Gilberto Gómez-Rosas

# LASERS, PHOTONICS, AND ENVIRONMENTAL OPTICS

## Lasers and Laser Optics

Off-axis negative-branch unstable resonator in  
rectangular geometry

Carsten Pargmann, Thomas Hall, 11  
Frank Duschek,  
Karin Maria Grünwald, and  
Jürgen Handke

Optical trapping with focused Airy beams

Zhu Zheng, Bai-Fu Zhang, 43  
Hao Chen, Jianping Ding, and  
Hui-Tian Wang

Tunable high-power narrow-spectrum  
external-cavity diode laser at 675 nm as a  
pump source for UV generation

Mingjun Chi, Ole Bjarlin Jensen, 90  
Götz Erbert, Bernd Sumpf, and  
Paul Michael Petersen

Suppression of continuous lasing in a carbon  
nanotube polyimide film mode-locked  
erbium-doped fiber laser

Lili Gui, Xin Yang, 110  
Guangzhen Zhao, Xu Yang,  
Xiaosheng Xiao, Jinsong Zhu, and  
Changxi Yang

## Materials

Structure, growth, and optical properties of  
 $\text{TbAl}_3(\text{BO}_3)_4$  single crystal

Junye Lu, Cong Fu, and 116  
Jianzhong Chen

## Remote Sensing and Sensors

Production of the NO photofragment in the  
desorption of RDX and HMX from surfaces

Jason D. White, F. Ahu Akin, 74  
Harald Oser, and David R. Crosley

Lidar monitoring of regions of intense  
backscatter with poorly defined boundaries

Vladimir A. Kovalev, 103  
Alexander Petkov, Cyle Wold, and  
Wei Min Hao