JOSA A

Optics, Image Science, and Vision

Journal of the Optical Society of America A

OSA®
The Optical Society

Volume 28 Number 2 February 2011 JOSA A

Optics, Image Science, and Vision

Volume 28 Number 2 February 2011

PAPERS

Atmospheric and Oceanic Optics

Narrow-beam propagation in a two-dimensional scattering medium

Y. A. Ilyushin and V. P. Budak

Coherence and Statistical Optics

Wavelength decorrelation of speckle in propagation through a thick diffuser

Nien-An Chang, 245 Nicholas George, and Wanli Chi

Diffraction and Gratings

Self-similar focusing with generalized devil's lenses

Cristina Casanova, Walter D. Furlan, Laura Remón, Arnau Calatayud, Juan A. Monsoriu, and Omel Mendoza-Yero

Fourier Optics and Signal Processing

Eigenfunctions and self-imaging phenomena of the two-dimensional nonseparable linear canonical transform

J.-J. Ding and S.-C. Pei

8

76

210

Geometric Optics

Image field distribution model of wavefront aberration and models of distortion and field curvature

ne se eminetarias. La electronista de la constanta de la constanta

Francesco Borghero and

Toshiaki Matsuzawa

96

Refractive-index distributions generating as light rays a given family of curves lying on a surface

Thomas Kotoulas

Cristian E. Gutiérrez

278

Reflection, refraction, and the Legendre transform

284

OSA®
The Optical Society

(Contents continued inside)

Optical Devices

| optical bevices | | |
|--|---|-----|
| Trapping and releasing light by mechanical implementation in metamaterial waveguides | Yongyao Chen, Jianqiang Gu, X. C. Xie, and Weili Zhang | 272 |
| Physical Optics | | |
| Radiative flux from a multiple-point bioluminescent or chemiluminescent source within a cylindrical reactor incident on a planar-circular coaxial detector. I. Arbitrary radiation field | Stanislaw Tryka | 126 |
| Radiative flux from a multiple-point bioluminescent or chemiluminescent source within a cylindrical reactor incident on a planar-circular coaxial detector. II. Rotationally symmetric radiation | Stanislaw Tryka | 147 |
| Utilization efficiency of spherical metal nanoparticles that increase light absorption in absorbing media | Raman A. Dynich | 222 |
| Physical optics theory for the diffraction of waves by impedance surfaces | Yusuf Ziya Umul | 255 |
| Scattering | | |
| Analysis of electromagnetic scattering by uniaxial anisotropic bispheres | Zheng-Jun Li, Zhen-Sen Wu, and Hai-Ying Li | 118 |
| Vision, Color, and Visual Optics | | |
| Dimensionality of color space in natural images | Antoni Buades, Jose-Luis Lisani, and Jean-Michel Morel | 203 |

Technical Calendar

See www.osa.org/meetings

Copyright @ 2011, Optical Society of America. Copying of material in this journal is subject to payment of copying fees. The code that appears on the first page of each article in this journal gives the per-article copying fee for each copy of the article made beyond the free copying permitted under Sections 107 and 108 of the U.S. Copyright Law. This fee should be paid through the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, Mass. 01923. The same fees and procedures apply to articles published in previous volumes of this journal. Permission is granted to quote excerpts from articles in this journal in scientific works with the customary acknowledgment of the source, including the author's name and the journal name, volume, page, and year. Reproduction of figures and tables is likewise permitted in other articles and books, provided that the same information is printed with them, permission of one of the original authors is obtained, and notification is given to the Optical Society of America. Republication or systematic or multiple reproduction of any material (including electronic publication or reproduction) in this journal (including abstracts) is permitted only under license from the Optical Society of America; in addition, the Optical Society may require that permission also be obtained from one of the authors. Address inquiries and notices to the Director of Publications, Optical Society of America, 2010 Massachusetts Avenue, N.W., Washington, D.C. 20036. In the case of articles whose authors are employees of the United States Government or its contractors or grantees, the Optical Society of America recognizes the right of the United States Government to retain a nonexclusive, royaltyfree license to use the author's copyrighted article for United States Government purposes.

Holography Angle-multiplexed holographic data storage Jung-Ping Liu with minimum cross talk noise **Image Processing** Variational estimation of inhomogeneous Kenji Hara and Ko Nishino specular reflectance and illumination from a single view Clustering-driven residue filter for profile Jun Jiang, Jun Cheng, measurement system Ying Zhou, and Guang Chen **Imaging Systems** Estimating the usefulness of distorted natural David M. Rouse. 157 images using an image contour degradation Sheila S. Hemami, measure Romuald Pépion, and Patrick Le Callet Instrumentation, Measurement, and Metrology Propagation of aberrations through phase-Laurent Puevo, 189 induced amplitude apodization coronagraph N. Jeremy Kasdin, and Stuart Shaklan Chuanwei Zhang, Shiyuan Liu, Fitting-determined formulation of effective 263 medium approximation for 3D trench Tielin Shi, and Zirong Tang structures in model-based infrared reflectrometry **Materials** Two-dimensional point spread matrix of Rafał Kotyński, 111 Tomasz I. Antosiewicz, layered metal-dielectric imaging elements Karol Król, and Krassimir Panajotov Derivation of plasmonic resonances in the Thomas Weiss, 238 Fourier modal method with adaptive spatial Nikolay A. Gippius, resolution and matched coordinates Sergei G. Tikhodeev, Gérard Granet, and Harald Giessen **Medical Optics and Biotechnology** Photon diffusion in a homogeneous medium Angi Zhang, Guan Xu, 66 bounded externally or internally by an Chathuri Daluwatte, Gang Yao, infinitely long circular cylindrical applicator. Charles F. Bunting, II. Quantitative examinations of the Brian W. Pogue, and steady-state theory Daging Piao