PROCEEDINGS OF SPIE

2008 International Conference on Optical Instruments and Technology

Optical Systems and Optoelectronic Instruments

Yunlong Sheng Yongtian Wang Lijiang Zeng Editors

16–19 November 2008 Beijing, China

Sponsored by CIS—China Instrument and Control Society SPIE

Cooperating Organizations

Optoelectronic-Mechanic Technology and System Integration Chapter, CIS (China) • Beijing Institute of Technology (China) • Capital Normal University (China) • Optical Instrument Chapter, CIS (China) Hamamatsu Photonics K.K. (Japan) • University of Shanghai for Science and Technology (China) Tsinghua University (China) • Tianjin University (China) • Zhejiang University (China) • Nanjing University (China) • Chongqing University (China)

Supporting Organizations

China Association for Science and Technology • National Natural Science Foundation of China COS—Chinese Optical Society • CNCS—Chinese National Committee for SPIE

Published by SPIE

Volume 7156

Proceedings of SPIE, 0277-786X, v. 7156

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:

Author(s), "Title of Paper," in 2008 International Conference on Optical Instruments and Technology: Optical Systems and Optoelectronic Instruments, edited by Yunlong Sheng, Yongtian Wang, Lijiang Zeng, Proceedings of SPIE Vol. 7156 (SPIE, Bellingham, WA, 2009) Article CID Number.

ISSN 0277-786X ISBN 9780819474001

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445 SPIE.org

Copyright © 2009, Society of Photo-Optical Instrumentation Engineers

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/09/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc.

The CID number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the last two digits of the six-digit CID number.

Contents

7156 0A

Part One	
xv xvii xix	Symposium Committees Conference Committee Introduction
	SESSION 1
7156 02	Imaging performances of the metallic superlens (Invited Paper) [7156-205] G. Tremblay, Y. Sheng, COPL, Univ. Laval (Canada)
7156 03	A novel micro zoom system design with liquid lens [7156-179] W. Zhang, W. Tian, Xi'an Institute of Optical and Precision Mechanics (China) and Graduate School of the Chinese Academy of Sciences (China)
7156 04	Ultrathin cameras using annular folded optics [7156-42] R. Zhang, W. Shen, Suzhou Univ. (China)
7156 05	Flexure tolerances required to fabricate a freeform HMD optical system [7156-10] M. M. Talha, Y. Wang, J. Chang, T. Zhang, Beijing Institute of Technology (China); D. Cheng, Beijing Institute of Technology (China) and College of Optical Sciences, Univ. of Arizona (United States); Z. H. Sun, Beijing Institute of Technology (China)
	SESSION 2
7156 06	Optical coherence tomography: technology and applications (Invited Paper) [7156-76] S. Chang, Y. Mao, C. Flueraru, S. Sherif, National Research Council Canada (Canada)
7156 07	In vivo simulation environment for fluorescence molecular tomography using Monte Carlo method [7156-106] Y. Zhang, Q. Xu, J. Li, S. Tang, X. Zhang, Xi'an Jiaotong Univ. (China)
7156 08	Vein image recognition technology based on DSP [7156-53] L. Quan, Changchun Univ. of Science and Technology (China); S. Tong, Dalian Univ. of Technology (China); S. Dan, Jilin People Radio Station (China); J. Peng, Changchun Qiming Automotive Electronics Co., Ltd. (China); G. Yang, Communication Science and Technology Co., Ltd. (China)
7156 09	Optimal design of optical fiber fluorescent thermometry [7156-74] D. Jia, T. Jia, L. Gao, Y. Lin, Shenyang Univ. of Technology (China)
	SESSION 3

Novel synthetical instructional system for principles of lasers [7156-54]

Z. Hu, S. Zhang, H. Jia, Tsinghua Univ. (China)

iii

	SESSION 4
7156 OB	An apparatus for the measurement of spectral specular reflectance of spot area in curved surfaces (Invited Paper) [7156-127] X. Zheng, Zhejiang Univ. (China); Z. Wang, Shibuya Optical Co. (Japan); Y. Zhao, Nanjing Dong Lilai Optics and Electronics Enterprise Co., Ltd. (China)
7156 OC	Three-dimensional whole circumference shape measurement system using optical patterns projection technique [7156-177] K. Tsujioka, Fujita Health Univ. (Japan); Y. Uchida, Aichi Institute of Technology (Japan); JN. Liu, Southeast Univ. (China); H. Furuhashi, Y. Uchida, Aichi Institute of Technology (Japan)
7156 OD	A novel calibration character study for micro-displacement actuators with segmented mirrors [7156-163] Y. Zou, M. Hui, J. Du, F. Yu, Y. Zhao, Beijing Institute of Technology (China)
7156 OE	Beam profile and spectral characteristic of THz wave in free space [7156-140] G. Zhao, K. Yang, M. Wu, L. Wu, Capital Normal Univ. (China)
	SESSION 5
7156 OF	Adaptive aberration compensation system using a high-resolution liquid crystal on silicon spatial light phase modulator (Invited Paper) [7156-208] H. Huang, T. Inoue, T. Hara, Hamamatsu Photonics K.K. (Japan)
7156 0G	Astigmatism analysis by matrix methods in white cells (Invited Paper) [7156-94] K. Chen, H. Yang, L. Sun, G. Jin, Tsinghua Univ. (China)
7156 OH	Characteristic analysis of Golay 6 multiple-mirror telescope [7156-45] Q. Wu, Suzhou Univ. of Science and Technology (China) and Soochow Univ. (China); F. Wu, Changzhou Institute of Technology (China) and Soochow Univ. (China); L. Qian, Soochow Univ. (China)
7156 01	A new kind of phase mask and its properties used in wavefront coding systems [7156-143] H. Cai, C. Fang, L. Fan, Z. Huang, Y. Zhang, Tianjin Univ. (China)
7156 OJ	Development in design and optimization methods for optical systems and optoelectronic instruments [7156-26] Q. Ding, H. Liu, Luoyang Institute of Electro-Optical Equipment (China)
	SESSION 6
7156 OK	Convex grating imaging spectrograph with light weight and high fidelity [7156-28] Y. Ji, Y. Chen, Q. Liu, S. Zhu, G. Gong, W. Shen, Soochow Univ. (China)
7156 OL	Optical design of prism-grating-prism imaging spectrometers [7156-37] S. Zhu, M. Tang, Y. Ji, G. Gong, R. Zhang, W. Shen, Soochow Univ. (China)

7156 OM	The influence of polarization direction on the visibility of the new Fourier transform spectrometer based on Wollaston prisms [7156-80] Z. Gao, L. Tong, Y. Mao, X. Chen, Beijing Jiaotong Univ. (China)				
	SESSION 7				
7156 ON	Research on sun-tracking warning systems in solar blind UV [7156-137] Y. Tang, L. Zhang, T. Bai, G. Ni, Beijing Institute of Technology (China)				
7156 00	Design and development of optoelectronic detecting system for space debris [7156-79] Y. Zhao, C. Fan, X. Han, C. Liu, Z. Li, Q. Song, X. Dong, National Astronomical Observatories (China)				
7156 OP	A virtual microscope: status, design, and applications [7156-30] J. Chen, Motic China Group Co. Ltd (China)				
7156 0Q	Automatic calibration system for analog instruments based on DSP and CCD sensor [7156-151]				
	J. Lan, X. Wei, Z. Bai, Univ. of Science and Technology Beijing (China)				
7156 OR	Study on flexible calibration method for binocular stereo vision system [7156-58] P. Wang, H. Sun, C. Sun, Tianjin Univ. (China)				
7156 OS	Simulation of plume UV radiation distributions at different altitudes [7156-167] A. Guo, T. Bai, Y. Tang, Beijing Institute of Technology (China)				
	SESSION 8				
7156 OT	A digital particle image velocimetry (DPIV) system based on multispectral imaging [7156-32] C. Tang, E. Li, Tianjin Univ. (China)				
7156 OU	400mm aperture lidar system and its applications [7156-20] S. Xiao, B. Zhang, X. Mao, J. Zhao, Nanjing Univ. of Information Science and Technology (China)				
7156 OV	Influence of noise to PCS particle sizing with Tikhonov regularization inverse algorithm [7156-146] J. Shen, Y. Cheng, Q. Han, W. Liu, J. Song, Shandong Univ. of Technology (China)				
7156 OW	Simulation of automatic gain control method for laser radar receiver [7156-149] X. Cai, H. Shang, L. Wang, S. Yang, Heilongjiang Univ. (China)				
	SESSION 9				
7156 OX	Study on recognition algorithm for paper currency numbers based on neural network [7156-120] X. Li, T. Liu, Y. Li, Z. Zhang, S. Deng, Tianjin Univ. (China)				

7156 OY	An adaptive morphological algorithm to segment Chinese square seal in bank check image (Invited Paper) [7156-138] J. He, T. Liu, Z. Zhang, Tianjin Univ. (China)
7156 OZ	Contrast enhancement and image smoothing with a reaction-diffusion equation [7156-145] H. Wang, Z. Yin, North China Electric Power Univ. (China)
7156 10	Beacon recognition and tracking based on omni-vision [7156-92] B. Zhang, Y. Liu, Tianjin Key Lab. for Control Theory and Applications in Complicated System (China); Z. Cao, Tianjin Univ. of Technology (China)
	SESSION 10
7156 11	Optoelectronic correlator based on ATD vector vision model with image encoding method for chromatic image recognition [7156-144] C. Wang, C. Chen, T. Lin, T. Chen, Yuan Ze Univ. (Taiwan)
7156 12	Automatic ship target classification based on aerial images [7156-160] J. Lan, L. Wan, Univ. of Science and Technology Beijing (China)
7156 13	Research on moving object detection based on frog's eyes [7156-73] H. Fu, D. Li, X. Zhang, Beijing Institute of Technology (China)
	SESSION 11
7156 14	Fast algorithm for airfield extraction under complex circumstance based on remote sensing image [7156-161] J. Lan, S. Li, Z. Bai, Univ. of Science and Technology Beijing (China)
7156 15	3D image correction for time of flight (ToF) cameras [7156-132] D. Falie, Politehnica Univ. of Bucharest (Romania)
7156 16	The simulated remote sensing image acquisition and restoration based on optical sparse aperture system [7156-130] Z. Wang, Surveying and Mapping Institute (China); Y. Zhang, 72515 Troops (China); Z. Geng Surveying and Mapping Institute (China); X. Sui, 61512 Troops (China); B. Li, 72946 Troops (China)
7156 17	Optimization of the exposure time of aerospace camera through its signal-to-noise ratio [7156-16] Y. Chen, Y. Ji, J. Zhou, X. Chen, W. Shen, Soochow Univ. (China)
	SESSION 12
7156 18	AFS controlling algorithm [7156-19] H. Liu, L. Jiang, G. Wang, L. Wang, Zhejiang Univ. of Technology (China)

- 7156 19 Numerical analysis of acoustical field on AOTFs with weighted coupling [7156-57] Y. Zhu, Shijiazhuang Univ. of Economics (China); H. Qi, Hebei Univ. of Science and Technology (China); J. Kang, Shijiazhuang Univ. of Economics (China)
- 7156 1A Study on color identification for monitoring and controlling fermentation process of branched chain amino acid [7156-112]

L. Ma, Y. Wang, N. Chen, Tianjin Univ. of Science and Technology (China); T. Liu, Tianjin Univ. (China); Q. Xu, F. Kong, Tianjin Univ. of Science and Technology (China)

POSTER SESSION

7156 1B Architecture design of a FPGA-based wavefront processor for correlating a Shack-Hartmann sensor [7156-04]

X. Peng, Institute of Optics and Electronics (China) and Graduate Univ. of Chinese Academy of Sciences (China); M. Li, C. Rao, Institute of Optics and Electronics (China)

- 7156 1C A fusion algorithm of digital neutron radiation image and digital x-ray image with contourlet transform [7156-05]
 - P. Feng, B. Wei, ChongQing Univ. (China); W. Jin, Ningbo Univ. (China); D. Mi, ChongQing Univ. (China)
- 7156 1D Quantitative analysis for lumen and media-adventitia border detection in intravascular ultrasound images [7156-12]

L. Wang, Tianjin Univ (China) and Changchun Univ. of Science and Technology (China); D. Yu, X. Chen, Tianjin Univ. (China); Z. An, Changchun Univ. of Science and Technology (China)

- 7156 1E Study on a fiber optic gradient hydrophone based on interferometer [7156-13] W. Lv, Harbin Engineering Univ. (China); M. Pang, Hong Kong Polytechnic Univ. (Hong Kong, China); Q. Shi, M. Zhang, Y. Liao, Tsinghua Univ. (China); L. Yuan, C. Kang, Harbin Engineering Univ. (China)
- 7156 1F **Motion classification for image stabilization with moving objects** [7156-14] Y. Zhou, Shanghai Univ. of Engineering Science (China)
- 7156 1H Improvement of up-converting phosphor-technology-based biosensor [7156-18]
 C. Xie, L. Huang, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of Chinese Academy of Sciences (China); Y. Zhang, Shanghai Institute of Optics and Fine Mechanics (China); X. Guo, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of Chinese Academy of Sciences (China); J. Qu, H. Huang, Shanghai Institute of Optics and Fine Mechanics (China)
- 7156 11 A novel method of image Gaussian noise filtering based on series connected PCNN model [7156-22]
 J. He, K. Gao, G. Ni, Beijing Institute of Technology (China)
- 7156 1J Recognition and tracking of target based on three-dimensional joint transform correlation
- [7156-27]
 H. Zhang, Z. Xu, S. Zhang, Hubei Univ. of Technology (China) and Key Lab. of Modern
 Manufacturing Quantity Engineering of Hubei Province (China)

- 7156 1K

 Research of optical coherence tomography microscope based on CCD detector [7156-29]
 H. Zhang, Z. Xu, S. Zhang, Hubei Univ. of Technology (China) and Key Lab. of Modern
 Manufacturing Quantity Engineering of Hubei Province (China)
- 7156 1L A conceptual midwave infrared remote sensor based on an uncooled focal plane array [7156-31]
 L. Liu, W. Shen, Y. Chen, Soochow Univ. (China)
- 7156 1M Design of an off-axis three-mirror system with high speed for hyperspectral imagers [7156-39]
 G. Gong, Y. Ji, S. Zhu, R. Zhang, W. Shen, Soochow Univ. (China)
- 7156 1N

 Study on power law along meridian line for progressive addition lenses [7156-43]
 Q. Wu, Suzhou Univ. of Science and Technology (China), Soochow Univ. (China), and Wenzhou Medical College (China); L. Qian, Soochow Univ. (China); J. Yu, Soochow Univ. (China), Wenzhou Medical College (China), and Ministry of Health (China); H. Chen, Y. Wang, Wenzhou Medical College (China) and Ministry of Health (China)
- 7156 10 Scattering performance analysis of reflectance photometer for quantifying gold labeled test strips [7156-46]
 L. Huang, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of

the Chinese Academy of Sciences (China); Y. Zhang, Shanghai Institute of Optics and Fine Mechanics (China); C. Xie, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of the Chinese Academy of Sciences (China); J. Qu, Shanghai Institute of Optics and Fine Mechanics (China); H. Huang, X. Wang, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of the Chinese Academy of Sciences (China)

- 7156 1P A new method of remote sensing image recovery based on WWC [7156-47]
 X. Zhu, Changzhou Institute of Technology (China) and Nanjing Univ. of Science and Technology (China); F. Wu, Changzhou Institute of Technology (China); C. Tao, Nanjing Univ. of Science and Technology (China)
- Fquivalent lenses of supersonic seeker's outflow refractive index field obtained by simulation and experiment [7156-48]

 Q. Wei, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate Univ. of Chinese Academy of Sciences (China); H. Jia, M. Xuan, Changchun Institute of Optics, Fine Mechanics and Physics (China)
- 7156 1R The application of image processing in the measurement for three-light-axis parallelity of laser ranger [7156-52]
 Y. Wang, Q. Wang, Beijing Institute of Technology (China)
- 7156 1S **Design and simulation of a novel APS star tracker** [7156-62] F. Wu, Soochow Univ. (China) and Changzhou Institute of Technology (China); W. Shen, J. Zhou, X. Chen, Soochow Univ. (China)

Part Two

7156 IT	Optimization design for the supporting system of 2m telescope primary mirror [7156-63] F. Zhao, Beijing Technology and Business Univ. (China); P. Wang, Beijing Institute of Technology (China); Y. Gong, L. Zhang, J. Lin, Beijing Technology and Business Univ. (China)
7156 1U	A front-end ASIC design for non-uniformity correction [7156-66] X. Shen, R. J. Ding, J. M. Lin, F. Liu, Shanghai Institute of Technical Physics (China)
7156 IV	A novel edge-parameter analysis approach of blur identification for image de-blurring application [7156-67] J. He, K. Gao, G. Ni, Beijing Institute of Technology (China)
7156 1W	Design optimization of phase-shifting point diffraction interferometer [7156-68] K. Liu, Institute of Electrical Engineering (China) and Graduate Univ. of the Chinese Academy of Sciences (China); Y. Li, Institute of Electrical Engineering (China) and Beijing Institute of Technology (China)
7156 1X	Global motion estimation for digital image stabilization based on a novel matching algorithm [7156-69] F. Yu, M. Hui, Q. Song, Y. Zhao, Beijing Institute of Technology (China)
7156 1Y	Analysis and design of stereoscopic display in stereo television endoscope system [7156-75] D. Feng, Changchun Univ. of Science and Technology (China)
7156 1Z	Development of the circuit system in high frequency satellite laser ranging equipment based on FPGA [7156-77] C. Chen, National Astronomical Observatories (China) and Graduate Univ. of Chinese Academy of Sciences (China); C. Fan, Z. Li, Y. Zhao, National Astronomical Observatories (China)
7156 20	A portable industrial electronic borescope based on a CMOS image sensor [7156-78] W. Tian, M. Pan, F. Luo, J. Xin, D. Chen, National Univ. of Defense Technology (China)
7156 21	Research on the phase unwrapping theory of the surface roughness measurement system based on LabVIEW [7156-85] L. Zhong, X. Li, Z. Huang, Univ. of Shanghai for Science and Technology (China)
7156 22	Density detection system of woven fabric with complex patterns [7156-86] Z. Huang, X. Li, L. Zhong, Univ. of Shanghai for Science and Technology (China)
7156 23	Design of a dynamic pattern generator based on the linear motion system [7156-87] X. Bai, Z. An, W. Cao, Changchun Univ. of Science and Technology (China)
7156 24	Research on implementing blind lossless watermarking scheme in SPIHT compression coding domain [7156-89] C. Xie, L. Xu, X. He, Y. Tian, Beihua Univ. (China)
7156 25	Research on lossless compression of true color RGB image with low time and space complexity [7156-90] S. Pan, C. Xie, L. Xu, Beihua Univ. (China)

7156 26	Scene classification of infrared images based on texture feature [7156-93] X. Zhang, T. Bai, Beijing Institute of Technology (China); F. Shang, Jilin Univ. (China)
7156 27	Trace H ₂ S monitoring based on off-axis integrated cavity output spectroscopy [7156-97] D. Yu, Hangzhou Dianzi Univ. (China) and Focused Photonics Inc. (China); X. Li, Focused Photonics Inc. (China); H. Gu, Hangzhou Dianzi Univ. (China) and Dublin City Univ. (Ireland); X. Gao, Hangzhou Dianzi Univ. (China); W. Huang, Y. Zhang, H. Ma, Z. Ma, P. Gao, W. Zhen, Y. Li, Y. Qi, L. Wen, Focused Photonics Inc. (China); J. Wang, Hangzhou Dianzi Univ. (China)
7156 28	Design of FUV imaging spectrometer based on crossed Czerny-Turner structure [7156-98] Y. Wu, Y. Tang, G. Ni, Beijing Institute of Technology (China)
7156 29	The noise measurement and analysis system of optoelectronic coupled devices based on virtual instrument [7156-99] Y. Li, Shenyang Institute of Aeronautical Engineering (China); Q. Zhou, Jilin Univ. (China)
7156 2A	The influence of atmospheric scattered channel on optical pulse [7156-103] Z. Yuan, Guizhou Univ. for Nationalities (China) and Guilin Univ. of Electronic Technology (China); J. Zhang, W. Zhang, B. Zhu, Guilin Univ. of Electronic Technology (China)
7156 2B	Two-dimensional minimum discontinuity phase unwrapping using pretreatment and edge detection [7156-108] Y. Lu, T. Zhang, X. Zhang, Nanjing Univ. (China)
7156 2C	Hyperbolic-cosine-Gaussian beam focusing with a non-spiral vortex and a spiral vortex [7156-109] X. Gao, Hangzhou Dianzi Univ. (China) and Univ. of Shanghai for Science and Technology (China); J. Wang, L. Sun, Hangzhou Dianzi Univ. (China); S. Zhuang, Univ. of Shanghai for Science and Technology (China)
7156 2D	A novel image denoising method based on force field transform [7156-110] Y. Zhang, K. Gao, G. Ni, T. Bai, Beijing Institute of Technology (China)
7156 2E	Transceiving protocol design for a free space optical communication system [7156-111] H. Wang, Changchun Institute of Optics, Fine Mechanics and Physics (China) and Graduate School of the Chinese Academy of Sciences (China); W. Su, Z. Xing, Changchun Institute of Optics, Fine Mechanics and Physics (China)
7156 2F	Thermal effect of Nd:YVO ₄ by laser diode end-pumped [7156-114] Y. Zheng, L. Zhang, L. Jia, J. Kang, Shijiazhuang Univ. of Economics (China)
7156 2G	The stereo imaging technology of the three-dimensional video laparoscopic system [7156-115] D. Yang, X. Zhang, Changchun Univ. of Science and Technology (China)
7156 2H	Increasing average power in medical ultrasonic endoscope imaging system by coded excitation [7156-117] X. Chen, H. Zhou, S. Wen, D. Yu, Tianjin Univ. (China)

7156 21	Instrumentation design and precision analysis of the external diameter measurement system based on CCD parallel light projection method [7156-118] Q. Song, D. Wu, J. Liu, C. Zhang, J. Huang, Beijing Univ. of Posts and Telecommunications (China)
7156 2J	Laser generation of acoustic waves in liquids using a Helmholtz resonance photoacoustic cell [7156-119] Q. Li, H. Luo, Z. Wang, Y. Hu, National Univ. of Defense Technology (China)
7156 2K	Design of embedded endoscopic ultrasonic imaging system [7156-122] M. Li, H. Zhou, S. Wen, X. Chen, D. Yu, Tianjin Univ. (China)
7156 2L	Magnetotransmission measurement of ferromagnetism origin in Mn-doped ZnO films [7156-124]
	L. Zhang, W. Yu, S. Wu, Hebei Univ. (China); J. Zhang, Hebei Univ. (China) and Lanzhou Univ. of Technology (China); L. Yang, G. Fu, Hebei Univ. (China)
7156 2M	Design and implementation of non-standard video acquisition system [7156-126] Q. Qin, T. Xu, G. Ni, Beijing Institute of Technology (China)
7156 2N	Theoretical and experimental study on the figuration of a flexible membrane mirror [7156-128] P. Gao, M. Tang, G. Zhang, X. Chen, W. Shen, J. Yu, Soochow Univ. (China)
7156 20	Focusing by a single lens based on an optically thinner medium [7156-133] Z. Li, Univ. of Shanghai for Science and Technology (China) and Henan Univ. (China); Q. Hu, X. Gao, S. Zhuang, Univ. of Shanghai for Science and Technology (China)
7156 2P	Image fusion and its real-time processing in dual-band infrared night vision system [7156-139] Q. Qin, K. Gao, G. Ni, Beijing Institute of Technology (China)
7156 2Q	Oil contamination level measurement based on microscopic digital image processing [7156-141] C. Li, X. Zhang, Y. Dong, G. Liu, J. Chen, Chongqing Technology and Business Univ. (China)
7156 2R	Mie theory and its application in probe of cloud droplet [7156-147] L. Bu, K. Shan, X. Huang, L. Guan, Nanjing Univ. of Information Science and Technology (China)
7156 2S	A novel collinear optical system with annulus mirrors for holographic disc driver [7156-153] Y. Wang, Communication Univ. of China (China)
7156 2T	576×6 infrared detector multi-channel data acquisition system [7156-156] J. Yu, Beijing Institute of Technology (China) and North Univ. of China (China); J. Yan, Beijing Institute of Technology (China) and North China System Engineering Institute (China)
7156 2U	Analysis and design of the high-power laser diode drive circuit based on MAX797 [7156-157] M. Li, H. Xu, Xiamen Univ. (China)

7156 2V	Nonlinear edge: preserving smoothing by PDEs [7156-158] Y. Ha, Hebei Univ. (China); J. Liu, Heng Shui Univ. (China)
7156 2W	The design of perfect lenses using the coordinate transformation technique [7156-159] Y. Zhou, J. Di, Minjiang Univ. (China); B. Yang, Sixteenth Middle School (China); M. Cheng, Minjiang Univ. (China)
7156 2X	Enhancement of dynamic range of FPA detector by using digital micro-mirror device [7156-164] W. Zhou, W. Shen, Soochow Univ. (China)
7156 2Y	Vision detection of weld pool shape parameters and numerical simulation [7156-165] Y. Yuan, N. Liu, Y. Wang, W. Luo, X. Liu, Nanchang Univ. (China)
7156 2Z	Edge detection based on wavelet analysis [7156-170] Y. Ha, X. Wang, Hebei Univ. (China)
7156 30	New kind of optical system for vein detector system [7156-171] C. Huang, Henan Polytechnic Institute (China); J. Chang, Y. Fan, Beijing Institute of Technology (China)
7156 31	Switching noise insensitive power module for infrared imaging system [7156-172] Y. An, Beihang Univ. (China) and North Univ. of China (China); Y. Zhao, Beihang Univ. (China)
7156 32	Research on aberration theory of star track systems [7156-175] J. Chang, Beijing Institute of Technology (China); Y. Hao, Beijing Institute of Controller (China); J. Liu, Beijing Institute of Technology (China)
7156 33	Adaptive enhancement method of infrared image based on scene feature [7156-176] X. Zhang, T. Bai, Beijing Institute of Technology (China); F. Shang, Jilin Univ. (China)
7156 34	A new five degree-of-freedom measurement method and system [7156-185] F. You, Q. Feng, B. Zhang, Beijing Jiaotong Univ. (China)
7156 35	Thermal test of a space camera [7156-186] X. Chen, J. Zhou, Y. Chen, W. Zhou, W. Shen, Soochow Univ. (China)
7156 36	Automatic road extraction based on improved radon transform [7156-187] Q. Hao, X. Chen, G. Ni, Y. Tang, Beijing Institute of Technology (China)
7156 37	Frame transfer CCD driving platform using flexible integral time and pixel binning [7156-188] J. Zhou, X. Chen, W. Zhou, W. Shen, Soochow Univ. (China)
7156 38	A color image database for realistic image rendition [7156-189] M. Xiao, S. Chen, G. Ni, Y. Wen, Beijing Institute of Technology (China)
7156 39	An automatic detection system for flatness of integrated circuit pins [7156-191] S. Deng, T. Liu, Tianjin Univ. (China); Z. Xiao, Guilin Univ. of Electronic Technology (China); X. Li, Tianjin Univ. (China)

7156 3A	The blocking probability analysis of light path calls in wavelength routing WDM networks [7156-192] J. Li, Z. Jia, Xinjiang Univ. (China)
7156 3B	A method of automatic road extraction based on directional statistical characteristics [7156-193] Q. Hao, X. Chen, G. Ni, Y. Tang, Beijing Institute of Technology (China)
7156 3C	Simulation and analysis of stochastic parallel gradient descent control algorithm for coherent combining [7156-199] Y. Zheng, Institute of Optics and Electronics (China) and Graduate Univ. of the Chinese Academy of Sciences (China); F. Shen, Institute of Optics and Electronics (China)
7156 3D	A static and divided mirror Michelson interferometer for measuring atmospheric winds [7156-202] Z. Bu, C. Zhang, Xi'an Jiaotong Univ. (China); B. Zhao, Xi'an Institute of Optics and Precision Mechanics (China)
7156 3E	Nonuniformly illuminated image enhancement based on range-gated underwater imaging system [7156-204] H. Li, X. Wang, T. Bai, W. Jin, Y. Huang, K. Ding, Beijing Institute of Technology (China)
7156 3F	Applications of combined acousto-optic and electro-optic effects in LiNbO ₃ modulator [7156-206] Z. Pang, Hebei Normal Univ. (China); G. You, Hebei Youth Administrative Cadres College (China)
7156 3G	A target recognition algorithm based on a support vector machine [7156-207] Y. Ding, W. Jin, Y. Yu, H. Wang, Beijing Institute of Technology (China)
7156 3H	A study on the disparity of an advanced multi-sparkle camera system [7156-211] F. Yang, J. Li, Q. Wu, L. Tan, X. Lu, Shenzhen Univ. (China)
7156 31	A method for improving the resolution of reconstruction in multi-frame digital holography [7156-212] X. Lu, J. Li, Q. Wu, F. Yang, L. Tan, Shenzhen Univ. (China)
7156 3M	Grating geophone signal processing based on wavelet transform [7156-08] S. Li, Tianjin Univ. (China); H. Zhang, Tianjin Univ. of Science and Technology (China); Z. Tao, Eastern Geophysical Exploration Co. (China)
7156 4D	Wavelet threshold denoising with four families of mother wavelets for hyperspectral data [7156-169] L. Jiang, X. Chen, G. Ni, Beijing Institute of Technology (China)
	Author Index

Symposium Committees

General Chairs

Songlin Zhuang, Shanghai University of Science and Technology (China)

Kevin Harding, GE Global Research (United States)

General Cochairs

Yuri Chugu, New Siberia Academy of Sciences (Russian Federation) **Pochi Yeh**, University of California, Santa Barbara (United States)

Honorary Chairs

Daheng Wang, Chinese Academy of Sciences (China)
T. Hiruma, Hamamatsu Photonics K. K. (Japan)
Guoguang Mu, Nankai University (China)
Bingkun Zhou, Tsinghua University (China)

Technical Program Chair

Guofan Jin, Tsinghua University (China)

Technical Program Cochairs

Yimo Zhang, Tianjin University (China) Shanglian Huang, Chongqing University (China)

Local Organizing Committee Chair

Youhua Wu, China Instrument and Control Society (China)

Local Organizing Committee Cochairs

Guoqiang Ni, Beijing Institute of Technology (China) **Daoyin Yu**, Tianjin University (China) **Yulin Xi**, Beijing Hamamatsu Photon Techniques Inc. (China)

General Secretary

Youhua Wu, China Instrument and Control Society (China)

Administrative Vice General Secretary

Boyu Ding, Beijing Institute of Technology (China)

Vice General Secretaries

Xiongwen Qin, China Instrument and Control Society (China)
Yuejin Zhao, Beijing Institute of Technology (China)
Tiegen Liu, Tianjin University (China)
Qionghui Feng, Shanghai University of Science and Technology (China)
Cunlin Zhang, Capital Normal University (China)

Local Organizing Committee

Weimin Chen, Chongaing University (China)
Hongda Chen, Institute of Semiconductors, CAS (China)
Yan Zhang, Capital Normal University (China)
Shangzhong Jin, Chinese Jiliang University (China)

Conference Committee

Conference Chairs

Yunlong Sheng, Université Laval (Canada) Yongtian Wang, Beijing Institute of Technology (China) Lijiang Zeng, Tsinghua University (China)

Program Committee

Andy Y.-G. Fuh, National Cheng Kung University (Taiwan, China)

Yanmei Han, Oxford University (United Kingdom)

Qun Hao, Beijing Institute of Technology (China)

Hai Huan, Niigata University (Japan)

Tomohito Kuwagatio, Tokyo University of Agriculture and Technology (Japan)

Tiegen Liu, Tianjing University (China)

Kaoru Minoshima, National Institute of Advanced Industrial Science and Technology (Japan)

Kazuhiko Oka, Hokkaido University (Japan)

Yukitoshi Otani, Tokyo University of Agriculture and Technology (Japan)

Xiang Peng, Shenzhen University (China)

Han-Ping D. Shieh, National Chiao Tung University (Taiwan, China)

Ching-Cherng Sun, National Central University (Taiwan, China)

Introduction

Collected over five volumes are the accepted papers from the International Conference on Optical Instruments and Technology 2008 (OIT'08). It is truly a great pleasure for me that the most recent progress in optical instrumentation technology is involved in the OIT'08 proceedings. I firmly believe that the papers included in these OIT'08 proceedings volumes will provide reference information in up-to-date techniques of optical instrumentation technology.

The International Conference on Optical Instruments and Technology 2008 (OIT'08) was sponsored by China Instrument and Control Society (CIS) and was cosponsored by SPIE. The academic and engineering activities of CIS included the fields of optical instruments, control and measurement, automatic sensor, device and instruments, MEMS/NEMS technology, auto-inspection engineering, and scientific instrumentation. CIS has experienced its developments for more than 20 years. Now CIS has more than 30 branches to cover the related instrument domain and the MICONEX international exhibition has its excellent reputation in high quality. SPIE has given great support to organize this international conference by collaborating with us in the whole organizing process from paper collection to the proceedings publication.

The OIT'08 conference collected over 500 papers from different countries or areas of the world. Over 900 authors came from more than 10 countries, including Canada, Japan, India, Romania, Russia, Singapore, Taiwan (China), USA, Pakistan, Spain and China. Published in these five volumes of the Proceedings of SPIE are close to 400 papers. The technical field of the presented papers at the conference covers a lot of current advanced technologies. The cutting-edge technologies and applications of optical instruments were discussed. Quite a few invited papers gave exciting achievements in the fields of optical instrument technology. It is evident that the OIT'08 conference has provided an excellent platform for participants and colleagues in research and development to share the technical progress and to develop new partnerships or broaden new markets.

Finally, on behalf of CIS and conference general chairs, I'd like to heartily thank our supporters and committee members for all they have done for this meeting. Thanks also go to all authors for their contributions; to all of the participants and friends for their interest, especially those who have traveled great distances and taken their time from their busy schedules to attend the meeting. I am also grateful to the staff of SPIE for their support and collaboration in publishing these volumes.

Zhuang Songlin

Chairman, China Instrument and Control Society