PROCEEDINGS OF SPIE

[SPIDigitalLibrary.org/conference-proceedings-of-spie](https://spiedigitallibrary.org/conference-proceedings-of-spie)

Front Matter: Volume 7508

, "Front Matter: Volume 7508," Proc. SPIE 7508, 2009 International Conference on Optical Instruments and Technology: Advanced Sensor Technologies and Applications, 750801 (4 December 2009); doi: 10.1117/12.851224

SPIE.

Event: International Conference on Optical Instrumentation and Technology, 2009, Shanghai, China

PROCEEDINGS OF SPIE

*2009 International Conference on Optical
Instruments and Technology*

Advanced Sensor Technologies and Applications

**YanBiao Liao
Anbo Wang
Tingyun Wang
Yukihiro Ishii**
Editors

**19–21 October 2009
Shanghai, China**

Sponsored by
CIS—China Instrument and Control Society
COS—The Chinese Optical Society
SPIE

Cooperating Organizations
Optoelectronic-Mechanic Technology and System Integration Chapter, CIS (China) • Beijing Institute of Technology (China) • University of Shanghai for Science and Technology (China) • Instrument Society of America (United States) • Institute of Measurement and Control (United Kingdom) • Hong Kong Institution of Engineers (Hong Kong, China) • The Society of Instrument and Control Engineers (Japan) Capital Normal University (China) • Optical Instrument Chapter, CIS (China) • Hamamatsu Photonics K.K. (Japan) Chongqing University (China) • Tsinghua University (China) • Tianjin University (China) • Zhejiang University (China) • Nanjing University (China)

Published by
SPIE

Volume 7508

Proceedings of SPIE, 0277-786X, v. 7508

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

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 *2009 International Conference on Optical Instruments and Technology: Advanced Sensor Technologies and Applications*, edited by YanBiao Liao, Anbo Wang, Tingyun Wang, Yukihiko Ishii, Proceedings of SPIE Vol. 7508 (SPIE, Bellingham, WA, 2009) Article CID Number.

ISSN 0277-786X
ISBN 9780819478948

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.

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

SPIE
Digital Library

SPIDigitalLibrary.org

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

ix	<i>Symposium Committees</i>
xi	<i>Conference Committee</i>
xiii	<i>Introduction</i>

SESSION 1

7508 02	Recent progress of multi-core fiber based integrated interferometers (Invited Paper) [7508-36] L. Yuan, Harbin Engineering Univ. (China)
7508 03	Mechanisms of cavitation erosion by single laser-induced bubble collapsing near solid boundary [7508-08] R. Zhao, R. Xu, Z. Liang, Nanjing Univ. of Posts and Telecommunications (China); J. Lu, X. Ni, Nanjing Univ. of Science and Technology (China)
7508 04	Low contrast double slot structure based optomechanical sensor [7508-09] M. Iqbal, National Univ. of Science & Technology (Pakistan) and Beihang Univ. (China); Z. Zheng, J. Liu, Beihang Univ. (China)
7508 05	Low refractive index contrast double slot structure based cantilever type sensor [7508-10] M. Iqbal, National Univ. of Science & Technology (Pakistan) and Beihang Univ. (China); Z. Zheng, J. Liu, Beihang Univ. (China)
7508 06	Highly sensitive liquid level sensor based on fiber core-offset attenuation [7508-22] T. Wang, Nanjing Normal Univ. (China) and Nanjing Univ. of Information Science & Technology (China); M. Wang, Nanjing Normal Univ. (China)
7508 07	Fabrication and characterization of doubly cladding fiber optical temperature sensors [7508-24] X.-K. Zhang, D. Yan, S. Mo, Z. Nong, Z. Chen, South China Univ. of Technology (China)
7508 08	Theoretical and experimental study on performance degeneration of fiber bragg grating [7508-27] J. Wu, W. Chen, P. Zhang, L. Liu, Chongqing Univ. (China)
7508 09	Simulation of the computer-generated holographic modal wave front sensor [7508-31] C. Liu, Z. Jiang, F. Xi, S. Huang, National Univ. of Defense Technology (China)
7508 0A	Water vapor detecting using high-Q microcavity [7508-33] Y. Yan, S. Yan, Z. Ji, B. Wang, G. Jiang, J. Xiong, North Univ. Of China (China); X. Ye, Z. Zhou, Tsinghua Univ. (China); W. Zhang, North Univ. Of China (China)

SESSION 2

- 7508 0B **Analysis of optical transmission characteristics in the waveguide of side polished fiber (Invited Paper)** [7508-40]
Z. Chen, Z. He, F. Cui, Y. Xiao, J. Zhang, Jinan Univ. (China)
- 7508 0C **Research and design of resonant mass sensor based on tapered oscillating element** [7508-38]
Q. Ding, J. Liu, Y. Lu, Y. Wang, F. Lu, J. Chen, Anhui Institute of Optics and Fine Mechanics (China)
- 7508 0D **Obstacle negotiation control for a mobile robot suspended on overhead ground wires by optoelectronic sensors** [7508-43]
L. Zheng, Univ. of Shanghai for Science and Technology (China) and Shanghai Univ. (China); R. Yi, Shanghai Univ. (China)
- 7508 0E **Theoretical model and calibration experiment for BioCD** [7508-44]
W. An, F. Ying, C. Han, National Univ. of Defense Technology (China)
- 7508 0F **Online PH measurement technique in seawater desalination** [7508-54]
H. Wang, K. Wu, S. Hu, Hangzhou Dianzi Univ. (China)
- 7508 0G **Design and modeling of a novel micro-displacement sensor based optical frequency comb** [7508-57]
S. Yan, North Univ. of China (China) and Tsinghua Univ. (China); Z. Ji, Y. Yan, North Univ. of China (China); X. Ye, Z. Zhou, Tsinghua Univ. (China); W. Zhang, North Univ. of China (China)
- 7508 0H **Finite element stress analysis of optical fiber induced by seepages in an earth dam model** [7508-68]
P. Zhu, G. Jiang, H. Zeng, Hunan Univ. of Science and Technology (China)
- 7508 0I **The finite element study of optical cable under transverse loading** [7508-69]
P. Zhu, G. Jiang, H. Zeng, Hunan Univ. of Science and Technology (China)
- 7508 0J **A new fiber optic sensor for inner surface roughness measurement** [7508-70]
X. Xu, S. Liu, H. Hu, Harbin Institute of Technology Shenzhen Graduate School (China)

SESSION 3

- 7508 0K **Compact liquid crystal waveguide based fourier transform spectrometer for in-situ and remote gas and chemical sensing (Invited Paper)** [7508-73]
T.-H. Chao, Jet Propulsion Lab. (United States); S. R. Davis, S. D. Rommel, G. Farca, B. Luey, A. Martin, M. H. Anderson, Vescent Photonics Inc. (United States)
- 7508 0L **Fibre optic oxygen sensor based an unsymmetrical fibre coupler** [7508-75]
H. Zhao, Beijing Glass Research Institute (China); R. Chen, Oxford Univ. (United Kingdom); X. Zang, Beijing Glass Research Institute (China); A. Farmery, C. Hahn, Oxford Univ. (United Kingdom)

- 7508 OM **Data processing in safety monitoring for earth embankment dams using fully distributed sensing along optical fibers** [7508-84]
A. H. Chen, H. Y. Zeng, P. Y. Zhu, Hunan Univ. of Science and Technology (China); Y. B. Leng, Research Ctr. on Levee Safety & Disaster Prevention (China)
- 7508 ON **A novel microbending optical fiber temperature sensor** [7508-126]
X. Li, Y. Chen, Y. Deng, X. Li, J. Li, Shenzhen Univ. (China)

POSTER SESSION

- 7508 OO **Real-time monitoring system of seawater COD** [7508-01]
G. Wu, W. Bi, J. Lv, Yanshan Univ. (China)
- 7508 OP **bFGF immunochemical detection based on surface plasmon resonance** [7508-04]
Y. Li, J. Zhong, Y. Zhang, Y. Tang, Jinan Univ. (China)
- 7508 OR **Describing the depolarization characteristic of rough surface by M11/M00 of Mueller matrix** [7508-06]
J. Shu, J. Lai, C. Wang, B. Bian, J. Lu, Z. Li, Nanjing Univ. of Science & Technology (China)
- 7508 OS **Image fusion for ALOS imagery with wavelet transformation** [7508-12]
J. Pan, Chongqing Jiaotong Univ. (China)
- 7508 OT **Application of CMOS image sensor OV9620 in number recognition system** [7508-13]
Y. Li, F. Liang, R. Xue, Shenyang Institute of Aeronautical Engineering (China)
- 7508 OU **Battery monitoring** [7508-14]
Y. Li, J. Wen, Y. Ma, Shijiazhuang Univ. of Economics (China)
- 7508 OV **Uncollimated light beam illumination during the ocular aberration detection and its impact on the measurement accuracy by using Hartmann-Shack wavefront sensor** [7508-15]
J. Wu, J. Chen, A. Xu, X. Gao, Univ. of Shanghai for Science and Technology (China)
- 7508 OW **Analysis of curvature signal of wavefront curvature sensing by comparison for uniform wave and Gaussian wave** [7508-17]
H. Shen, G. Li, H. Zhang, J. Liu, Y. Wang, Mechanical Engineering College (China)
- 7508 OX **Quasi-distribution optic fiber on-line system** [7508-19]
Y.-H. Zhu, Hebei Province Key Lab. of Optoelectronic Information and Geo-detection Technology (China) and Shijiazhuang Univ. of Economics (China); H. Qi, Hebei Univ. of Science & Technology (China); J. Wen, Hebei Province Key Lab. of Optoelectronic Information and Geo-detection Technology (China); M. Li, China Univ. of Mining & Technology (China) and Hebei Province Key Lab. of Optoelectronic Information and Geo-detection Technology (China)
- 7508 OY **A kind of wavefront curvature sensor with diffraction grating and application** [7508-20]
H. Shen, G. Li, F. Huang, J. Liu, Y. Wang, Mechanical Engineering College (China)

- 7508 02 **Simulation of the fast steering mirror control system based on gyro velocity feedback** [7508-21]
J. Kuang, The Key Lab. of Beam Control (China) and Institute of Optics and Electrics (China) and Graduate School of Chinese Academy of Sciences (China); T. Tang, C. Fu, The Key Lab. of Beam Control (China) and Institute of Optics and Electrics (China); K. Ding, The Key Lab. of Beam Control (China) and Institute of Optics and Electrics (China) and Graduate School of Chinese Academy of Sciences (China); W. Yu, The Key Lab. of Beam Control (China) and Institute of Optics and Electrics (China) and Graduate School of Chinese Academy of Sciences (China) and Xuzhou Air Force College (China)
- 7508 10 **Analysis of packaging material impacting on FBG temperature sensors** [7508-25]
W. Wang, Y. Feng, W. Shi, Z. Xiong, S. Li, W. Wu, Guangdong Ocean Univ. (China); J. Lin, Dalian Univ. of Technology (China)
- 7508 11 **Magnetic field sensor based on D-shaped long period fiber gratings** [7508-28]
C.-L. Tien, Feng Chia Univ. (Taiwan, China); T.-W. Lin, Chung Hua Univ. (Taiwan, China); C.-C. Hwang, W.-F. Liu, Feng Chia Univ. (Taiwan, China)
- 7508 12 **Fiber-capacitive drop sensor for application in liquid identification** [7508-32]
Q. Song, J. Huang, C. Zhang, J. Liu, D. Wu, Beijing Univ. of Posts and Telecommunications (China)
- 7508 13 **Poly(3-hexylthiophene) based organic field-effect transistor as NO₂ gas sensor** [7508-35]
B. Liu, G. Xie, X. Du, X. Li, Univ. of Electronic Science and Technology of China (China); P. Sun, Univ. of Electronic Science and Technology of China (China) and Sichuan Agricultural Univ. (China)
- 7508 14 **Control of diameter and morphology of poly(vinylidene fluoride) nanofibers fabricated by electrospinning** [7508-37]
H. Jing, X. Du, Y. Jiang, Univ. of Electronic Science and Technology of China (China)
- 7508 15 **Experimental investigation on vibration monitoring with FBG sensor and resistance strain gauge** [7508-41]
J. Chen, H. Gong, S. Li, China Jiliang Univ. (China)
- 7508 16 **Multi-type gas concentration measurement with cavity ring-down** [7508-42]
Z. Wu, Tianjin Univ. (China) and Northeast Univ. at Qinhuangdao (China); A. Song, Northeast Univ. at Qinhuangdao (China); T. Liu, Tianjin Univ. (China); Z. Li, Yanshan Univ. (China)
- 7508 17 **Accurate positioning based on acoustic and optical sensors** [7508-45]
K. Cai, J. Deng, H. Guo, Beijing Institute of Technology (China)
- 7508 18 **The theory precision analyse of RFM localization of satellite remote sensing imagery** [7508-47]
J. Zhang, B. Xv, Wuhan Univ. (China)
- 7508 19 **A new fiber-optic microphone based on waveguide modulator** [7508-48]
C. Zhang, S. Zhen, B. Zhang, F. Ai, S. Zhang, C. Jiang, B. Yu, Anhui Univ. (China)

- 7508 1A **Vibration measurement system of dual-path detection based on Michelson interferometer** [7508-52]
J. Liang, J. Zhu, C. Jiang, F. Ai, M. Shi, B. Zhang, B. Yu, Anhui Univ. (China)
- 7508 1B **A gas sensor based on polyhexylthiophene-carbon black for NO₂ detection** [7508-55]
C. Zhou, G. Xie, X. Du, Univ. of Electronic Science and Technology of China (China), P. Sun, Univ. of Electronic Science and Technology of China (China) and Sichuan Agricultural Univ. (China)
- 7508 1C **Analysis of daylight performance of solar light pipes influenced by size and shape of sunlight captures** [7508-56]
Y. Wu, R. Jin, W. Zhang, L. Liu, D. Zou, Univ. of Science and Technology Beijing (China)
- 7508 1D **Chemical sensor based on poly (2-vinylpyridine)-carbon black sensitive film for organic vapor and humidity detection** [7508-60]
C. Zhou, G. Xie, X. Du, Univ. of Electronic Science and Technology of China (China); P. Sun, Univ. of Electronic Science and Technology of China (China) and Sichuan Agricultural Univ. (China)
- 7508 1E **Preparing and internal friction of VO_x/TiO_x/Ti multilayer thin films** [7508-61]
H. Q. Li, X. X. He, G. Z. Fang, L. F. Shao, Hefei Univ. of Technology (China)
- 7508 1F **Localized surface plasmon resonance sensing based on nanoparticles arrays** [7508-62]
J. Liu, Institute of Optics and Electronics (China) and Southwest Jiaotong Univ. (China); H. Yang, X. Luo, W. Ma, F. Li, Institute of Optics and Electronics (China); Y. Liu, Southwest Jiaotong Univ. (China)
- 7508 1G **Fluorescence spectrometry of N-doped ZnO films** [7508-63]
X. X. He, H. Q. Li, H. X. Shen, Hefei Univ. of Technology (China)
- 7508 1H **Simultaneous measurement of bending curvature and axial stress using D-shaped fiber Bragg gratings** [7508-65]
C.-L. Tien, T.-C. Cheng, L.-C. Chen, G.-R. Lin, W.-F. Liu, Feng-Chia Univ. (Taiwan, China)
- 7508 1I **Poly(3,4-dihydroxythiophene) as sorbent coatings for nerve agents detection** [7508-66]
L. Xia, X. Du, J. Huang, Y. Jiang, Univ. of Electronic Science and Technology of China (China)
- 7508 1J **Fiber Bragg grating sensors for strain monitoring of steelwork** [7508-72]
T. Wang, D. He, F. Yang, Y. Wang, Beijing Jiaotong Univ. (China)
- 7508 1K **Anti aliasing technique in small object surface measurement** [7508-74]
S. Wei, N. Liu, X. Liu, Y. Wei, X. Ai, X. Hu, Nanchang Univ. (China)
- 7508 1L **Position detection with high precision using novel compound-eye sensor** [7508-77]
H. Zhang, K. Wang, Z. Cao, Q. Wu, Univ. of Science and Technology of China (China)
- 7508 1M **The stability and consistency analysis of optical seismometer system using phase generated carrier in field application** [7508-78]
Q. Shi, L. Wang, H. Zhang, C. Tian, M. Zhang, Q. Tian, Y. Liao, Tsinghua Univ. (China); H. Wang, X. Zeng, L. Huang, China Oilfield Services Ltd. (China)

- 7508 1N **Characteristics analysis of cascaded long-period gratings with nm-thick film coating** [7508-79]
X. Yu, Tsinghua Univ. (China) and Heilongjiang Univ. (China); M. Zhang, P. Childs, L. Wang, S. Lai, Y. Liao, Tsinghua Univ. (China)
- 7508 1O **A modified cross-correlation method for white-light optical fiber extrinsic Fabry-Perot interferometric hydrogen sensors** [7508-82]
Z. Yang, M. Zhang, Y. Liao, S. Lai, Q. Tian, Tsinghua Univ. (China); Q. Li, Y. Zhang, Z. Zhuang, Institute of Systems Engineering (China)
- 7508 1P **Algorithm of geometry correction for airborne 3D scanning laser radar** [7508-83]
Y. Liu, S. Chen, Y. Zhang, G. Ni, Beijing Institute of Technology (China)
- 7508 1Q **Design and implementation of nodes for detecting rescue worker's vital signs based on the WSN and some research on it** [7508-86]
M. Zhao, H. Wu, L. Ji, Beijing Institute of Technology (China)
- 7508 1R **ZigBee wireless sensor network for environmental monitoring system** [7508-87]
S. Chai, L. Ji, H. Wu, Beijing Institute of Technology (China)
- 7508 1S **Photo-induced forces on AFM cantilever by externally modulated laser** [7508-88]
S. Kadri, H. Fujiwara, K. Sasaki, Hokkaido Univ. (Japan)
- 7508 1T **Optimal design of flat-gain and flat-noise wide-band fiber Raman amplifiers** [7508-89]
L. Yu, Naval Aeronautical Engineering Univ. (China) and Tsinghua Univ. (China); Y. Liao, M. Zhang, S. Lai, Tsinghua Univ. (China)

ADDITIONAL PAPER

- 7508 1U **Organic vapor adsorption behavior of poly(3-hexylthiophene) films on quartz crystal microbalance** [7508-39]
L. Lu, G. Xie, Y. Jiang, X. Du, Univ. of Electronic Science and Technology of China (China); P. Sun, Univ. of Electronic Science and Technology of China (China) and Sichuan Agricultural Univ. (China)

Author Index

Symposium Committees

General Chair

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

General Cochairs

Yuri Chugui, New Siberia Academy of Sciences (Russian Federation)
Arthur E. T. Chiou, National Yan-Ming University (Taiwan, China)

Honorary Chairs

Daheng Wang, Chinese Academy of Sciences (China)
Teruo 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)
Sien Chi, National Chiao Tung University (Taiwan, 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)
Zhengji Ni, Shanghai University of Science and Technology (China)
Jinxue Wang, SPIE (United States)

General Secretary

Youhua Wu, China Instrument and Control Society (China)

Administrative Vice General Secretary

Boyu Ding, Beijing Institute of Technology (China)

Vice General Secretaries

Hanquan Zhang, China Instrument and Control Society (China)

Yuejin Zhao, Beijing Institute of Technology (China)

Xiongwen Qin, China Instrument and Control Society (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, Chongqing University (China)

Hongda Chen, Institute of Semiconductors, CAS (China)

Yan Zhang, Capital Normal University (China)

Shangzhong Jin, Chinese Jiliang University (China)

Boshun Hu, Modern Scientific Instruments (China)

Libo Yuan, Harbin Engineering University (China)

Tian Lan, Beijing Institute of Technology (China)

Conference Committee

Conference Chairs

YanBiao Liao, Tsinghua University (China)
Anbo Wang, Virginia Polytechnic Institute and State University
(United States)
Tingyun Wang, Shanghai University (China)
Yukihiro Ishii, Tokyo University of Science (Japan)

Program Committee

Weihong Bi, Yanshan University (China)
Rongshen Chen, The University of Birmingham (United Kingdom)
Weimin Chen, Chongqing University (China)
Zhe Chen, Jinan University (China)
Kin Seng Chiang, City University of Hong Kong (Hong Kong, China)
Fajie Duan, Tianjin University (China)
Claire Gu, University of California at Santa Cruz (United States)
Shibin Jiang, NP Photonics, Inc. (United States)
Wei Jin, Hong Kong Polytechnic University (Hong Kong, China)
Gan-Ding Peng, University of New South Wales (Australia)
Yunjian Rao, University of Electronic Science and Technology of China
(China)
Aiguo Song, Southeast University (China)
Hai Xiao, University of Missouri (United States)
Libo Yuan, Harbin Engineering University (China)

Introduction

These proceedings result from the 2009 International Conference on Optical Instrument and Technology (OIT'09), held in Shanghai, China, 19–21 October 2009. The conference was the second event following the success of OIT'08 and it was sponsored and supported by SPIE, China Instrument and Control Society (CIS), and the Chinese Optical Society (COS).

OIT'09 was a professional conference which was combined with the exhibition of The 20th Fair for Measurement Instrumentation and Automation (MICONEX).

OIT'09 focused on instrument science and related technology involved in many technical aspects such as detection; observation; information collection, transfer and storage; communication; economization on energy; environmental protection; inspection and prevention of food security, traffic safety and mine safety; measure and control for aviation and space engineering, etc.

These proceedings, a collection of eight volumes, contain the accepted oral and poster papers presented at OIT'09. It is truly a great pleasure for me that the most recent progress in optical instrumentation technology is reported in the OIT'09 proceedings. I firmly believe that the papers included in these volumes will provide reference information in up-to-date techniques of optical instrumentation technology.

The OIT'09 conference collected over 630 papers from different countries or regions of the world. Over 400 authors came from more than 14 countries, including Canada, Iran, Japan, Russia, Singapore, USA, Sweden, Switzerland, Pakistan, the Netherlands, Republic of Korea, Slovenia, Germany and China. Published in these eight volumes of the Proceedings of SPIE are close to 455 papers. The technical fields of the presented papers at the conference cover a lot of current advanced technologies. The cutting-edge technologies and applications of optical instruments are discussed. Quite a few invited papers describe exciting achievements in the fields of optical instrument technology. It is evident that the OIT'09 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.

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. COS has provided enough support and assistance.

Finally, on behalf of CIS and conference general chairs, I would like to heartily thank our supporters and committee members for all they have done for this conference. 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 time from their busy schedules to attend the conference. Thanks also go to the staff of COS for their support. I am also grateful to the SPIE staff for their support and collaboration in publishing these eight volumes.

Songlin Zhuang

Chairman, China Instrument and Control Society (CIS)