

PROCEEDINGS OF SPIE

2012 International Workshop on Information Storage and Ninth International Symposium on Optical Storage

Fuxi Gan
Zhitang Song
Editors

21–24 October 2012
Shanghai, China

Organized and Sponsored by
Shanghai Institute of Microsystem and Information Technology (China)
Shanghai Institute of Optics and Fine Mechanics (China)

Cosponsored by
National Natural Science Foundation of China
Chinese Academy of Sciences
Science and Technology Commission of Shanghai Municipality (China)
Jiading District Government, Shanghai (China)
State Key Laboratory of Functional Material for Informatics (China)

Published by
SPIE

Volume 8782

Proceedings of SPIE 0277-786-786X, V.8782

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

2012 International Workshop on Information Storage and Ninth International
Symposium on Optical Storage, edited by Fuxi Gan, Zhitang Song, Proc. of SPIE
Vol. 8782, 878201 · © 2013 SPIE · CCC code: 0277-786/13/\$18 · doi: 10.1117/12.2021582

Proc. of SPIE Vol. 8782 878201-1

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 *2012 International Workshop on Information Storage and Ninth International Symposium on Optical Storage*, edited by Fuxi Gan, Zhitang Song, Proceedings of SPIE Vol. 8782 (SPIE, Bellingham, WA, 2013) Article CID Number.

ISSN: 0277-786X

ISBN: 9780819495853

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 © 2013, 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/13/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the 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 as 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>Conference Committees</i>
xiii	<i>Introduction</i>

SESSION 1 HIGH DENSITY OPTICAL STORAGE

- 8782 02 **Characteristics optimization of organic photopolymer materials for holographic data storage (Invited Paper)** [8782-27]
X. Sun, J. Wang, Harbin Institute of Technology (China)
- 8782 03 **Multi-level recordable disc using signal waveform modulation recording method (Invited Paper)** [8782-16]
J. Pei, L. Pan, B. Yang, J. Hu, Tsinghua Univ. (China)
- 8782 04 **Study of holographic storage characteristics of nanoparticle-doped photopolymers (Invited Paper)** [8782-67]
M. Huang, R. li, Henan Univ. (China)
- 8782 05 **Dependence of the readout resolving on the thickness of nonlinear super-resolution thin films** [8782-13]
R. Wang, Shanghai Institute of Optics and Fine Mechanics (China) and Univ. of Chinese Academy of Sciences (China); J. Wei, Shanghai Institute of Optics and Fine Mechanics (China)
- 8782 06 **Optimized design of four-zone phase pupil filter for nanoscale phase transition optical lithography** [8782-14]
Y. Zha, Shanghai Institute of Optics and Fine Mechanics (China) and Univ. of Chinese Academy of Sciences (China); J. Wei, F. Gan, Shanghai Institute of Optics and Fine Mechanics (China)
- 8782 07 **FDTD analysis of silver-nanoparticles-embedded phase change recording pits** [8782-26]
J. Lin, H. Huang, Y. Wang, Y. Wu, Shanghai Institute of Optics and Fine Mechanics (China)
- 8782 08 **Influence of film thickness on optical constants of antimony-based bismuth-doped super-resolution mask layer** [8782-30]
X. Lu, Shanghai Institute of Optics and Fine Mechanics (China); Y. Wu, Shanghai Institute of Optics and Fine Mechanics (China) and Heilongjiang Univ. (China); Y. Wang, J. Wei, Shanghai Institute of Optics and Fine Mechanics (China)
- 8782 09 **Preparation of nickel(II)-azo dye films and their optical properties for write-once blu-ray recording** [8782-19]
Z. Chen, Y. Wu, Heilongjiang Univ. (China) and Shanghai Institute of Optics and Fine Mechanics (China); C. He, B. Wang, S. Miao, W. Duan, Heilongjiang Univ. (China); D. Gu, F. Gan, Shanghai Institute of Optics and Fine Mechanics (China)

- 8782 0A **Two-photon absorption three-dimensional optical data storage with novel anthracene derivative** [8782-32]
L. Li, Shanghai Institute of Optics and Fine Mechanics (China); Y.-L. Hu, Univ. of Science and Technology of China (China); Y.-Q. Wu, Shanghai Institute of Optics and Fine Mechanics (China) and Heilongjiang Univ. (China); W.-H. Huang, Univ. of Science and Technology of China (China)
- 8782 0B **Preparation, one- and two-photon properties of carbazole derivatives containing nitrogen heterocyclic ring** [8782-35]
Y. Zhang, P. Wang, Heilongjiang Univ. (China); L. Li, Shanghai Institutes of Optics and Fine Mechanics (China); Z. Chen, C. He, Heilongjiang Univ. (China); Y. Wu, Heilongjiang Univ. (China) and Shanghai Institute of Optics and Fine Mechanics (China)
- 8782 0C **Multi-wavelength holographic storage in PMMA film containing spirooxazines** [8782-72]
S. Fu, Changchun Univ. of Science and Technology (China) and Northeast Normal Univ. (China); S. Sun, X. Zhang, Y. Liu, Northeast Normal Univ. (China)
- 8782 0D **Holographic characteristics of citrate ion modified gold nano-particles dispersed photopolymer** [8782-24]
X.-Y. Xue, F.-S. Hai, L.-Z. Gao, F. He, C.-L. Li, Y.-X. Li, M.-J. Huang, Henan Univ. (China)

SESSION 2 NON-VOLATILE MEMORY AND PHASE CHANGE MATERIALS

- 8782 0E **Electrode-dependent resistive switching characteristics of Sr(Ti,Sn)O₃ thin films (Invited Paper)** [8782-55]
Q. Zhou, Tongji Univ. (China) and Leshan Normal Univ. (China); J. Zhai, Tongji Univ. (China)
- 8782 0F **Optimal design of phase change random access memory based on 130nm CMOS technology** [8782-50]
D. Cai, Shanghai Institute of Microsystem and Information Technology (China) and Univ. of Electronic Sciences and Technology of China (China); H. Chen, Q. Wang, X. Hong, Y. Chen, L. Xu, X. Li, Z. Wang, Y. Zhang, Z. Song, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 0G **16-Kbit SPI phase change memory chip with ECC scheme** [8782-63]
Y. Zhang, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); H. Chen, Z. Song, Shanghai Institute of Microsystem and Information Technology (China); X. Li, X. Hong, Q. Wang, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); R. Jin, Z. Wang, D. Cai, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 0H **Investigation of Sb-rich Sb-Te binary films used as phase change material** [8782-25]
Y. Cheng, Y. Gu, Z. Song, S. Song, F. Rao, L. Wu, B. Liu, S. Feng, Shanghai Institute of Microsystem and Information Technology (China)

- 8782 0I **Phase change materials for multi-level storage phase change memory** [8782-49]
K. Ren, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); F. Rao, Z. Song, M. Zhu, Shanghai Institute of Microsystem and Information Technology (China); Y. Gong, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); L. Wu, B. Liu, S. Feng, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 0J **A comparison of the Ge-Sb-Te and Si-Sb-Te film oxidization at atmosphere** [8782-53]
W. Ren, Shanghai Institute of Microsystem and Information Technology (China), Semiconductor Manufacturing International Corp. (China), and Graduate Univ. of Chinese Academy of Sciences (China); B. Liu, Z. Song, Shanghai Institute of Microsystem and Information Technology (China); X. Jing, Y. Xiang, H. Xiao, Z. Wang, B. Zhang, J. Xu, G. Wu, R. Qi, C. Fan, S. Duan, Q. Yu, Semiconductor Manufacturing International Corp. (China); S. Feng, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 0K **Crystallization behavior of Ge₂Te₃-TiO₂ film for phase-change random access memory application** [8782-62]
Y. Lu, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); S. Song, Shanghai Institute of Microsystem and Information Technology (China) and Shanghai Institute of Technical Physics (China); Z. Song, Y. Cheng, L. Wu, B. Liu, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 0L **Optical emission spectroscopy analysis for Ge₂Sb₂Te₅ etching endpoint detection in HBr/He plasma** [8782-64]
J. Li, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); B. Liu, Z. Song, Shanghai Institute of Microsystem and Information Technology (China); G. Feng, G. Wu, Semiconductor Manufacturing International Corp. (China); A. He, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); Z. Yang, N. Zhu, J. Xu, J. Ren, Semiconductor Manufacturing International Corp. (China); S. Feng, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 0M **Real-time measurement of electrical and optical transients of as-deposited amorphous AgInSbTe thin films during crystallization induced by single-shot picosecond laser pulses** [8782-21]
G. F. Liang, Shanghai Institute of Optics and Fine Mechanics (China); S. M. Li, Sun Yat-Sen Univ. (China); H. Huang, F. X. Zhai, Y. Wang, T. S. Lai, Y. Q. Wu, Shanghai Institute of Optics and Fine Mechanics (China)
- 8782 0N **XPS study on the selective wet etching mechanism of GeSbTe phase change thin films with tetramethylammonium hydroxide** [8782-31]
C. Deng, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of Chinese Academy of Sciences (China); Y. Geng, Shanghai Institute of Optics and Fine Mechanics (China); Y. Wu, Shanghai Institute of Optics and Fine Mechanics (China) and Heilongjiang Univ. (China)
- 8782 0O **Thermal properties of Te-based phase-change materials** [8782-29]
X. Cai, Shanghai Institute of Optics and Fine Mechanics (China) and Univ. of Chinese Academy of Sciences (China); J. Wei, Shanghai Institute of Optics and Fine Mechanics (China)

SESSION 3 MAGNETIC RECORDING AND NETWORK STORAGE

- 8782 0P **The structure and magnetic properties of FePt based perpendicular exchange coupled composite films (Invited Paper)** [8782-33]
H. H. Guo, J. L. Liao, B. Ma, Z. Z. Zhang, Fudan Univ. (China); Q. Y. Jin, Fudan Univ. (China) and East China Normal Univ. (China)
- 8782 0Q **Ultrafast dynamics of spin waves and coercivity of a FePt/FeNi exchange coupling film studied by femtosecond laser Kerr spectroscopy (Invited Paper)** [8782-46]
S. Li, Z. Chen, C. Cheng, J. Li, Sun Yat-Sen Univ. (China); S. Zhou, Tongji Univ. (China); T. Lai, Sun Yat-Sen Univ. (China)
- 8782 0R **NAFFS: network attached flash file system for cloud storage on portable consumer electronics** [8782-18]
L. Han, H. Huang, C. Xie, Huazhong Univ. of Science and Technology (China)
- 8782 0S **Research on the active cloud computing algorithm model** [8782-73]
D. Wang, H. Huang, C. Xie, Huazhong Univ. of Science and Technology (China)
- 8782 0T **A sensitive data extraction algorithm based on the content associated encryption technology for ICS** [8782-75]
W. Wang, H. Huang, C. Xie, Huazhong Univ. of Science and Technology (China)

SESSION 4 CODING, MANUFACTURING AND TESTING TECHNIQUES

- 8782 0U **Design of Viterbi detector of NVD system based on specific partial-response channels (Invited Paper)** [8782-42]
H. Ruan, Shanghai Institute of Optics and Fine Mechanics (China); J. Wang, C. Bu, H. Wang, Z. Xia, Shanghai Institute of Optics and Fine Mechanics (China) and Graduate Univ. of Chinese Academy of Sciences (China)
- 8782 0V **Adaptive signal quality evaluation for signal waveform modulation multi-level disc** [8782-10]
H. Wang, J. Pei, L. Pan, J. Hu, Tsinghua Univ. (China)
- 8782 0W **Micro lens actuator and polymer objective lens for optical pickup** [8782-11]
P. Li, L. F. Pan, Tsinghua Univ. (China); H. Zappe, Albert-Ludwigs-Univ. Freiburg (Germany)
- 8782 0X **Jitter measurement method for multi-level disc based on quadratic interpolation algorithm** [8782-12]
J. Hu, J. Pei, L. Pan, Tsinghua Univ. (China)
- 8782 0Y **Chemical mechanical planarization of amorphous Ge₂Sb₂Te₅ using KClO₄ as oxidizer in acidic slurry** [8782-38]
A. He, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); Z. Song, B. Liu, M. Zhong, W. Liu, L. Wang, W. Yan, Shanghai Institute of Microsystem and Information Technology (China); Y. Lei, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); G. Wu, Semiconductor Manufacturing International Corp. (China)

- 8782 0Z **Reactive etching of a novel phase change material $\text{Si}_2\text{Sb}_2\text{Te}_3$** [8782-48]
M. Xia, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); F. Rao, Z. Song, K. Ren, L. Wu, B. Liu, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 10 **Power on reset circuit of 915MHz RFID tags** [8782-43]
Z. Wang, Univ. of Science and Technology of China (China) and Shanghai Institute of Microsystem and Information Technology (China); D. Cai, Shanghai Institute of Microsystem and Information Technology (China) and Univ. of Electronic Science and Technology of China (China); Z. Fu, Univ. of Science and Technology of China (China); H. Chen, Z. Song, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 11 **Optimization of write operation in phase change memory** [8782-51]
X. Hong, Z. Song, H. Chen, Y. Chen, C. Fu, X. Li, Y. Zhang, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 12 **Analysis of anomalous cells within RESET distribution for phase change memory** [8782-54]
L. Xu, X. Chen, Z. Song, Y. Chen, B. Liu, H. Chen, Z. Yang, Shanghai Institute of Microsystem and Information Technology (China); G. Wu, Semiconductor Manufacturing International Corp. (China); D. Cai, Shanghai Institute of Microsystem and Information Technology (China); G. Feng, Y. Li, Semiconductor Manufacturing International Corp. (China)
- 8782 13 **Schottky-barrier diode array fabrication with self-aligned Ni silicidation for low power phase-change memory application** [8782-56]
Y. Liu, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); Z. Song, B. Liu, H. Chen, Shanghai Institute of Microsystem and Information Technology (China); G. Wu, C. Zhang, L. Wang, L. Wang, Semiconductor Manufacturing International Corp. (China); S. Feng, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 14 **Test system of current pulse in phase change memory devices** [8782-57]
Y. Wang, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); X. Chen, S. Li, Y. Chen, Shanghai Institute of Microsystem and Information Technology (China); L. Xu, Y. Wang, M. Zhou, G. Li, Shanghai Institute of Microsystem and Information Technology (China) and Graduate Univ. of Chinese Academy of Sciences (China); Z. Song, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 15 **A write driver for phase change memory based on programming current/voltage** [8782-58]
X. Fan, H. Chen, W. Xu, Q. Wang, D. Cai, R. Jin, X. Hong, X. Li, Y. Chen, Z. Song, Shanghai Institute of Microsystem and Information Technology (China)
- 8782 16 **Design of a novel pulse current source chip used in phase change memory testing system** [8782-65]
Q. Wang, H. Chen, W. Xu, X. Hong, D. Cai, R. Jin, Z. Song, Shanghai Institute of Microsystem and Information Technology (China)

Author Index

Conference Committees

Conference Honorary Chair

Fuxi Gan, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China)

Conference Chair

Zhitang Song, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (China)

International Advisory Committee

Songlin Feng, Shanghai Advanced Research Institute, Chinese Academy of Sciences (China)

Fuxi Gan, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China)

Lisong Hou, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China)

Hongsik Jeong, Samsung Electronics Company, Ltd. (Korea)

A. V. Kolobov, National Institute of Advanced Industrial Science and Technology (Japan)

Xuwu Li, Semiconductor Manufacturing International Corporation (China)

Masud Mansuripur, University of Arizona (United States)

Takeo Ohta, Ovonic Phase Change Laboratory (Japan)

Young-Pil Park, Yonsei University (Korea)

Luping Shi, Data Storage Institute (Singapore)

Junji Tominaga, National Institute of Advanced Industrial Science and Technology (Japan)

Din Ping Tsai, National Taiwan University, Taipei (China)

Matthias Wuttig, RWTH Aachen (Germany)

Duanyi Xu, Tsinghua University (China)

Sishen Xie, Institute of Physics, Chinese Academy of Sciences (China)

Xing Zhang, Peking University (China)

Ze Zhang, Zhejiang University (China)

Local Organizing Committee

Yuehui Yu, Co-Chair, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (China)

Jianda Shao, Co-Chair, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences (China)

Jingshi Fu, Dalian Hualu Optical Technology Company, Ltd. (China)
Donghong Gu, Shanghai Institute of Optics and Fine Mechanics,
Chinese Academy of Sciences (China)
Jie He, National Natural Science Foundation of China
Tiewei Luo, Amethystum Optoelectronics Company, Ltd. (China)
Xiangshui Miao, Wuhan National Laboratory for Optoelectronics
(China)
Longfa Pan, Optical Memory National Engineering Research Center
(China)
Koukou Suu, ULVAC (Japan)
Dawei Wu, SiliconGo Microelectronics Company, Ltd. (China)
Zhifeng Xie, Shanghai Institute of Microsystem and Information
Technology, Chinese Academy of Sciences (China)
Yuanfan Zhou, Zhanjiang Hualijin Video Plate Company, Ltd. (China)

Local Technical Committee

Zhitang Song, Co-Chair, Shanghai Institute of Microsystem and
Information Technology, Chinese Academy of Sciences (China)
Yiqun Wu, Co-Chair, Shanghai Institute of Optics and Fine Mechanics,
Chinese Academy of Sciences (China)
Dan Feng, Huazhong University of Science and Technology (China)
Xiaodong Han, Beijing University of Technology (China)
Xiufeng Han, Institute of Physics, Chinese Academy of Sciences
(China)
Jinfeng Kang, Peking University (China)
Yinyin Lin, Fudan University (China)
Bo Liu, Shanghai Institute of Microsystem and Information Technology,
Chinese Academy of Sciences (China)
Ming Liu, Institute of Microelectronics, Chinese Academy of Sciences
(China)
Qian Liu, National Center of Nano Science and Technology (China)
Zhiguo Liu, Nanjing University (China)
Xiudong Sun, Harbin Institute of Technology (China)
Yang Wang, Shanghai Institute of Optics and Fine Mechanics,
Chinese Academy of Sciences (China)
Fuhua Yang, Institute of Semiconductors, Chinese Academy of
Sciences (China)
Changsheng Xie, Wuhan National Laboratory for Optoelectronics
(China)

Secretary

Bo Liu, *Secretary-General*, Shanghai Institute of Microsystem and
Information Technology, Chinese Academy of Sciences (China)
Yan Cheng, Shanghai Institute of Microsystem and Information
Technology, Chinese Academy of Sciences (China)

Wanfang Liao, Shanghai Institute of Microsystem and Information
Technology, Chinese Academy of Sciences (China)
Liangyong Wang, Shanghai Institute of Microsystem and Information
Technology, Chinese Academy of Sciences (China)
Kui Zhang, Shanghai Institute of Optics and Fine Mechanics, Chinese
Academy of Sciences (China)

Introduction

The 2012 International Workshop on Information Storage and Ninth International Symposium on Optical Storage (IWIS/ISOS 2012) was held October 21–24, 2012 in Shanghai, China, under the auspices of the National Natural Science Foundation of China, Chinese Academy of Sciences (CAS), Science and Technology Commission of Shanghai Municipality, and Jiading District Government, Shanghai. The workshop/symposium was organized by Shanghai Institute of Microsystem and Information Technology (SIMIT), CAS and Shanghai Institute of Optics and Fine Mechanics (SIOM), CAS. More than 100 scientists, technologists, and experts from universities, research institutes, and industries of 9 countries and regions participated in the workshop/symposium, which provided a forum for reviewing recent progress and exchanging information in a wide range of topics including materials, physics, devices, measurement and manufacturing technologies in information storage. 91 papers were presented at the workshop/symposium, including 42 as oral presentations and 49 as posters.

As predecessor of this workshop/symposium, the previous eight symposia of ISOS series were successfully held in Shanghai 1988, Chongqing 1990, Kunming 1992, Shenzhen 1996, Shanghai 2000, Wuhan 2002, Zhanjiang 2005 and Wuhan 2008 respectively. From the 8th symposium, the ISOS meeting extended its topics and a workshop on information storage was added due to the merging of data storage technologies in recent years. The workshop/symposium promoted discussions on both the theoretical aspects and practical applications of information storage and strengthened cooperation and friendship in the semiconductor, optical and magnetic memory communities.

We are very grateful to the members of the International Advisory Committee, the Local Organizing and Technical Committee, as well as the Secretariat for their fruitful work in the preparation and operation of the workshop/symposium. Thanks are also extended to our invited speakers and all of the contributing authors for their elaborate preparation of the presentations or manuscripts. Finally, we gratefully acknowledge the sponsors and cosponsors, without whose support we could not have held such a successful workshop/symposium.

Fuxi Gan
Zhitang Song

