

# ***Optics in Health Care and Biomedical Optics III***

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**Qingming Luo**  
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*Editors*

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**Zhihua Ding**, Zhejiang University (China)
- 3    Photoacoustic Imaging  
**Qingming Luo**, Huazhong University of Science and Technology  
(China)
- 4    Optical Transducer and Treatment  
**Shusen Xie**, Fujian Normal University (China)
- 5    Light-tissue/cell Interaction  
**Ling Fu**, Huazhong University of Science and Technology (China)
- 6    Light-tissue Interaction and Modeling  
**Wei R. Chen**, University of Central Oklahoma (USA)
- 7    Multi-photon Microscopy  
**Xunbin Wei**, Fudan University (China)
- 8    Raman Spectroscopy and CARS Microscopy  
**Guiying Wang**, Shanghai Institute of Optics and Fine Mechanics  
(China)
- 9    Fluorescence Spectroscopy and Imaging  
**Jianan Y. Qu**, Hong Kong University of Science and Technology  
(Hong Kong China)
- 10    Advanced Biomedical and Clinical Diagnosis Systems  
**Xing Da**, South China Normal University (China)
- 11    Fiber-based Devices for Manipulation and Imaging  
**Shaoqun Zeng**, Huazhong University of Science and Technology  
(China)
- 12    Nanomedicine  
**Kexin Xu**, Tianjin University (China)

- 13 Photodynamic Therapy and Optical Techniques in Clinic I  
**Haishan Zeng**, The British Columbia Cancer Research Center  
(Canada)
- 14 Photodynamic Therapy and Optical Techniques in Clinic II  
**Ying Gu**, Chinese PLA General Hospital (China)



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## Introduction

Photonics Asia is a must-attend event for those in the global photonics community who wish to keep up with what is happening in the Asia optics community. With the right combination of research, academic, and industrial attendees, this symposium promotes interaction, information exchange, and discussion, thus enhancing mutual understanding and learning of the needs, state-of-the-art development, and challenges in photonics. Photonics is a major growth area in modern optics and is beginning to play an increasingly significant role in medicine. It may provide a roadmap to develop both innovative and non-invasive diagnostic methods as well as new methods of treatment for a variety of diseases at the tissue and molecular levels.

This year, the Optics in Health Care and Biomedical Optics conference attracted hundreds of distinguished researchers, physicians, and entrepreneurs in the areas of optics and biomedicine from all over the globe, particularly the Pacific Rim region. It opened up a unique channel for communications among the biophotonics research, industry, and medical communities to become more aware of the unmet clinical needs and emerging biophotonics technologies. The conference had 14 oral presentation sessions covering 12 interesting and diverse topics in biomedical optics, from optical imaging at the biological tissue, cell, and molecule levels, to advanced clinical diagnosis and treatment systems. In addition, there were more than 40 posters presented during the discussion.

The papers collected here were chosen by the program committee based on new ideas on development, optimization, implementation, and application of the cutting-edge biophotonic technologies. More than 80 papers are included in this volume, with the majority of papers contributed by authors from China and many other papers from other countries or regions. These papers contain significant new materials, reporting on implementations, and new applications of optical technology in health care and biomedical research. It is hoped that this volume will be a valuable contribution to the development of this area.

The conference chairs would like to express their deepest appreciation to the program committee, organization committees, and session chairs who have been so generous in devoting their time and advice to make this conference possible. We would also like to thank the participating authors and secretariat for their hard work during the preparation of this conference and in the production of the proceedings. We are grateful to all of our cosponsors for their generous support and sincere cooperation. The conference would not be possible without the contribution of our dedicated participants, program committee, and organization committee members.

**Xingde Li  
Qingming Luo  
Ying Gu**

