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Front Matter: Volume 9917

, "Front Matter: Volume 9917," Proc. SPIE 9917, Saratov Fall Meeting 2015: Third International Symposium on Optics and Biophotonics and Seventh Finnish-Russian Photonics and Laser Symposium (PALS), 991701 (3 May 2016); doi: 10.1117/12.2242333

SPIE.

Event: Saratov Fall Meeting 2015, 2015, Saratov, Russian Federation

Saratov Fall Meeting 2015

Third International Symposium on Optics and Biophotonics; and Seventh Finnish-Russian Photonics and Laser Symposium (PALS)

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22–25 September 2015
Saratov, Russian Federation

Sponsored by

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SPIE

Part One of Two Parts

Volume 9917

Proceedings of SPIE, 1605-7422, V. 9917

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

Saratov Fall Meeting 2015: Third Annual Symposium Optics and Biophotonics; Seventh Finnish-Russian Photonics and Laser Symposium (PALS), edited by E. A. Genina, V. L. Derbov, D. E. Postnov, A. B. Pravdin, K. V. Larin, I. V. Meglinski, V. V. Tuchin, Proc. of SPIE Vol. 9917, 991701 · © 2016 SPIE · CCC code: 1605-7422/16/\$18 · doi: 10.1117/12.2242333

Proc. of SPIE Vol. 9917 991701-1

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Author(s), "Title of Paper," in *Saratov Fall Meeting 2015: Third International Symposium on Optics and Biophotonics and Seventh Finnish-Russian Photonics and Laser Symposium (PALS)*, edited by E. A. Genina, V. L. Derbov, D. E. Postnov, A. B. Pravdin, K. V. Larin, I. V. Meglinski, V. V. Tuchin Proceedings of SPIE Vol. 9917 (SPIE, Bellingham, WA, 2016) Six-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510602267

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

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Ivan V. Fedosov, N.G. Chernyshevsky Saratov State University
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Introduction

The Third International Symposium on Optics and Biophotonics (Saratov Fall Meeting, or SFM15) and Seventh Finnish-Russian Photonics and Laser Symposium (PALS15) was held in Saratov, Russian Federation, 22-25 September 2015 with over 500 participants from the Russian Federation, United States, Canada, Europe, as well as Asian and Pacific Ocean countries. It covered a wide range of modern problems of fundamental and applied optics, laser physics, photonics, and biomedical optics.

In the framework of the Symposium, the Conferences and Workshops were organized as followed:

Optical Technologies in Biophysics & Medicine XVII

Elina A. Genina, Igor Meglinski, and Valery V. Tuchin, *Chairs*

Laser Physics and Photonics XVII

Vladimir L. Derbov, *Chair*

Spectroscopy and Molecular Modeling XVI

Lev M. Babkov and Kirill V. Berezin, *Chairs*

Nanobiophotonics XI

Nikolai G. Khlebtsov, *Chair*

Microscopic and Low-Coherence Methods in Biomedical and Non-Biomedical Applications VIII

Kirill Larin, *Chair*

Internet Biophotonics VIII

Alexey N. Bashkatov, Ivan V. Fedosov, and Valery V. Tuchin, *Chairs*

Nonlinear Dynamics VI

Vadim S. Anishchenko, *Chair*

Low-Dimensional Structures V

Olga Glukhova, *Chair*

Biomedical Spectroscopy II

Vyacheslav I. Kochubey and Alexander B. Pravdin, *Chairs*

Advanced Polarization Technologies in Biomedicine and Material Science II

Igor V. Meglinski and Dmitry A. Zimnyakov, *Chairs*

Computational Biophysics and Analysis of Biomedical Data II

Dmitry E. Postnov, *Chair*

PALS15 was an important event that attracted leading researchers in the field of photonics and laser physics from Finland and the Russian Federation. The invited lectures and oral and poster presentations were distributed in six major modules:

Fundamental Aspects of the Light-Matter Interaction
Nano- and Microoptics
Biophotonics
Plasmonics
Nonlinear Optical Spectroscopy
Advanced Sensing

The main focus was the discussion of fundamentals and general approaches and descriptions of coherent, low-coherent, polarized, spatially and temporally modulated light interactions with inhomogeneous absorbing media, photonic crystals, optical biopsy, tissue phantoms, and optical properties of various tissues both *in vitro* and *in vivo*. Static and dynamic light scattering in tissues, Doppler, photo-acoustic and photo-thermal laser-tissue interactions, light induced mechanical stress, and photodynamic effects were also considered. On this basis the variety of laser and optical technologies for medical diagnostics, therapy, surgery, and light dosimetry, as well as for spectroscopy of random and ordered media were presented. New fundamental phenomena in quantum optics together with novel laser and fiber-optical technologies were discussed, as well as photonics of micro- and nanostructures. Since the use of almost every measurement method or imaging technique present computational issues, the relevant state-of-the-art approaches were discussed in the framework of a newly introduced conference on computational biophysics and data analysis.

SFM15 and PALS15 were organized in the following manner: morning plenary sessions, afternoon lectures and oral sessions, and then evening poster presentations and internet discussion. Attendees listened with great interest to the plenary lectures delivered by leading experts in urgent fields of optical and laser science, and then they engaged in discussions afterwards.

Plenary and invited lectures, oral, and poster presentations covered a wide area of tissue optics, spectroscopy and imaging, controlling of optical properties of tissues, and the biophysical and photo-chemical aspects of photo- and laser therapy.

The special features traditional of Saratov Fall Meetings are the Internet Sessions and one-day online discussions. In 2015, this Internet session included 2 plenary lectures, 24 invited lectures and 24 reports.

The papers by the participants from the United States, Russian Federation, Denmark, Germany, Netherland, Ireland, Italy, Finland, Poland, Israel, China, etc. (located at the meeting website: <http://sfm.eventry.org/symposium2015/internet>) were available during the meeting and will be available for a whole year until the next meeting.

It is a great pleasure and privilege for the editors to thank all of the authors for their contributions to the symposiums, especially to the Internet lecturers for their exciting presentations.

The organizers of SFM15 are grateful to all the sponsoring organizations and programs that efficiently supported this meeting, especially to:

SPIE
Optical Society of America (OSA)
Russian Foundation for Basic Research
SPE "Nanostructured Glass Technology" Ltd. (Russian Federation)
RME "INJECT" LLC (Russian Federation)
Grant №14.Z50.31.0004 of Government of the Russian Federation
Russian Technology Platforms "The Medicine of the Future"
and "Photonics"

PALS15 was organized by the International Laser Center of Lomonosov Moscow State University (Russian Federation), Saratov State University (Russian Federation), University of Oulu (Finland), University of Eastern Finland (Finland), and the Russian Academy of Sciences' Institute of Biochemistry and Physiology of Plants and Microorganisms (Russian Federation), with the support of the European Optical Society.

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