

Proceedings of the XXVI Annual International Conference - Saratov Fall Meeting 2022 (September 26–30, 2022, Saratov, Russia) (Chairman: associate with the RAS, Dr. Phys.-Math.Sci. V.V. Tuchin; editors of the issue: D.K. Tuchina, Cand. Phys.-Math.Sci. N.V. Chernomyrdin, Cand. Phys.-Math.Sci. G.M. Katyba, Cand. Phys.-Math.Sci. E.V. Yakovlev, Cand. Phys.-Math.Sci.)

This special section of the „Optics and Spectroscopy“ magazine presents studies in a number of research lines of modern optics and biophotonics. The section includes 22 reports devoted to the following fundamental and applied research lines in biophotonics: Raman scattering spectroscopy (E.V. Timchenko et al.), fluorescent spectroscopy (A.A. Zhiltsova et al.; Yu.G. Sokolovskaya et al.), studies of molecular modification methods and mechanisms for targeted delivery of drugs (I.L. Plastun et al.), numerical modeling of absorption properties of media (M.M. Slepchenkov et al.), study of temperature dependence of luminescence of rare earth elements (A.A. Bozhko et al.), laser interferometry (S.Yu. Dobdin et al.), spectroscopic methods and algorithms of machine learning (K.A. Laptinsky et al.), structural organization of nucleic acids (E.B. Moroshkina et al.), spectroscopy in onychomycosis treatment (A.V. Belikov et al.), laser Doppler fluorometry (E.B. Popykhova et al.), study of dynamics of platelet aggregation activity (O.V. Zlobina et al.), development of THz endoscope (A.S. Kucheryavenko et al.) and fiber bundles for subwavelength imaging (D.G. Melikyants et al.) and biotissue monitoring in the process of cryodestruction (I.N. Dolganova), study of the effect of medium pH on properties of carbon dots (M.Yu. Khmeleva et al.), IR spectroscopy of blood serum in patients with multiple myeloma (A.M. Polyanichko et al.), machine learning for diagnostics of disorders with the use of IR spectroscopy (I.S. Golyak et al.), development of biotissue structure imaging system in spatially modulated radiation (A.V. Kolpakov et al.)

The studies presented in the special section have been discussed at conferences and workshops of the 10-th Symposium on Optics and Biophotonics held in Saratov from 26 to 30 September 2022 within the framework of the Annual International Conference - Saratov Fall Meeting 2022 (<https://sfmconference.org/>), which also included a research school for students and young researchers in optics, laser physics, and biophysics, and a Chinese-Russian workshop on biophotonics and biomedical optics. All activities were dedicated to the 300 anniversary of the Russian Academy of Sciences.

One of the purposes of the symposium was to discuss the latest scientific and technical achievements in the field of development of optical and laser technologies for healthcare, biology and environmental protection. The symposium was participated by leading researchers as plenary and invited speakers, including Dan Zhu, Huazhong University of Science and Technology (China), Zeev Zalevsky, Bar-Ilan University (Israel), Vanderlei Bagnato, University of Suelo Paulo (Brazil), Ronald Sroka, University of Munich (Germany), Albert Nasibulin, Skolkovo Institute of Science and Technology (Russia) and Aalto University (Finland), Kirill Larin, University of Houston (USA), Santhosh Chidangil, Manipal Academy of Higher Education (India), Luis Oliveira, Polytechnic of Porto — School of Engineering, (Portugal), Heidi Abrahamse, University of Johannesburg (SAR), Alexander Priezhev, Lomonosov Moscow State University, Andrey Dunaev, Turgenev Orel State University, Yury Kistenev, National Research Tomsk State University, Vladimir Zaitsev, Institute of Applied Physics of the Russian Academy of Sciences, and many more. Also, experts of leading international companies in the field of medical instruments have delivered their reports as invited speakers.

A short course of lectures of Anna Yaroslavskaya, a professor with the University of Massachusetts (USA), „Optical Polarization Imaging for Biomedical Applications“, has been arranged with the support of the OPTICA international society for students, post-graduate students, and young researchers. Andrey Dunaev, a professor with the Orel State University, has delivered a public lecture for school and university students: „Wearable Devices of Multimodal Optical Diagnostics Microcirculatory-Tissue Systems: Experience of Application in the Clinic and in Space“.

Studies have been reported by researchers from BRICS countries: Brazil, Russia, India, China and SAR, as well as researchers from USA, Taiwan, Switzerland, Germany, France, Portugal, Finland, Hungary, Israel, Iran, Iraq and other countries.

Attendees of lectures and active participants in oral and poster sessions were young researchers, post-graduates and students of Saratov State University, National Dong Hwa University (Taiwan), University of Oulu (Finland), Manipal Academy of Higher Education (India), Institute for Solid State Physics and Optics of Budapest (Hungary), as well as universities and research centers of Moscow and Moscow Region, St.-Petersburg, Samara, N.-Novgorod, Saratov, Orel, Volgograd, Tomsk, Perm, and other cities of Russia.

Editors of the special section express deep gratitude to all authors and employees of the „Optics and Spectroscopy“ magazine for their assistance in the preparation of materials and hope that the reports presented in this section will be interesting for a wide community of readers of the magazine.



The participants of the symposium had opportunities to talk in informal settings after the end of the meetings.

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associate with the RAS, Dr. Phys.-Math.Sci. V.V. Tuchin
Chernyshevsky Saratov State University, Saratov, Russia

Cand. Phys.-Math.Sci. D.K. Tuchina
Chernyshevsky Saratov State University, Saratov, Russia
Tomsk State University, Tomsk, Russia

Bach Institute of Biochemistry, FRC of Biotechnology, RAS, Moscow, Russia

Cand. Phys.-Math.Sci. N.V. Chernomyrdin
Prokhorov Institute of General Physics, RAS, Moscow, Russia

Cand. Phys.-Math.Sci. G.M. Katyba
Institute of Solid State Physics, RAS, Chernogolovka, Russia

Cand. Phys.-Math.Sci. E.V. Yakovlev
Bauman Moscow State Technical University, Moscow, Russia