



Saratov State University
Research-Educational
Institute of Optics
& Biophotonics
Science Medical Center

Saratov Fall Meeting **SFM'22**

XXVI International School for **Junior Scientists and Students on** **Optics, Laser Physics &** **Biophotonics**

September 26–30, 2022
Saratov, Russia

School Chair

Valery V. Tuchin, Saratov State University;
Institute of Precision Mechanics and Control, FRC
“Saratov Scientific Centre of the RAS”; Tomsk
State University (Russia)

School Secretary

Irina Yu. Yanina, Saratov State University;
Tomsk State University (Russia)

Workshops:

- **Modern Optics XXI (Georgy V. Simonenko)**
- **English as a Communicative Tool in the Scientific Community XXI (Alexander B. Pravdin, Svetlana V. Eremina)**
- **Workshop on Management of High Technologies Commercialization and Regional Innovation Systems XVI (Julia S. Skibina, Andrey Shuvalov, LLC SPE “Nanostructured Glass Technology”, Sergey Sokolov, LLC SPE “INJEKT”)**
- **History, Methodology and Philosophy of the Optical Education XV (Alexander A. Skaptsov, Boris A. Medvedev)**

Co-located with:

International Symposium on Optics and Biophotonics–X (Saratov Fall Meeting SFM'22 – Symposium, September 27 - 30, 2022)

Workshop:

Modern Optics XXI

Lectures on Optics for University Students, Postgraduate Students and High School Students

Chair

Georgy V. Simonenko, Saratov State University

Secretary

Ekaterina N. Lazareva, Saratov State University;
Tomsk State University

Program Committee:

Anton A. Dyachenko, Lyceum Boarding School
64

Ivan V. Fedosov, Saratov State University

Sergey I. Kireev, Saratov State University

Boris A. Medvedev, Saratov State University

Alexander B. Pravdin, Saratov State University

Lyudmila V. Pravdina, Saratov Physics and
Technical Lyceum

Alexander V. Priezhev, Moscow State University

Vladimir P. Ryabukho, Saratov State University

Mikhail A. Starshov, Saratov State University

Valery V. Tuchin, Saratov State University

Sergey B. Venig, Saratov State University

The main goal of the Workshop is promotion of school and high school youth achievements in optics - a thriving direction in physics.

One of the leading scientific schools of optics in Russia, which is a recognized authority in other countries formed in Saratov to date. Conferences, seminars and scientific schools are one of the effective ways to attract talented young people to scientific work, particularly in the area of optical research. Widening the circle of young people, the inclusion of students in high schools and colleges, including the physical, technical and other natural sciences field are one of the main tasks of scientific-methodical workshop on "Modern Optics".

Organized in cooperation with

Saratov Physics and Technical Lyceum

Lyceums No. 2, 4 and 15

Lyceum boarding school 64

Secondary schools No. 45, 51, 54, 67 and 77

Gymnasium No. 5

Ministry of Education of the Saratov Region

Workshop program

The program of the seminar "Modern Optics" consists of poster session "Science incubator for school children and students on Photonics", lectures and demonstration parts and seminars on selected topics. One lecture day with thematic sections supposed to hold the afternoon. Section sessions supposed to hold for 3-4 favorites, the most interesting topics for teachers, which posts students and pupils on the results of independent work is supposed to hear and discuss also.

Workshop

English as a Communicative Tool in the Scientific Community XXI

Chairs:

Alexander B. Pravdin, Svetlana V. Eremina,
Saratov State University

Secretary:

Ksenia O. Merkulova, Saratov State University

International Program Committee

Vladimir L. Derbov, Saratov State University

Kirill V. Larin, University of Houston, USA

Alexander V. Priezzhev, M.V. Lomonosov
Moscow State University

Dmitry A. Zimnyakov, Saratov State Technical
University

The main goal of the Workshop is to introduce young researchers and students to the international community of scientists dealing with development and application of laser and optical technologies in medicine and biology. Joining this fast-developing field of research is impossible without active English, the language that has become an international communicative tool of modern science. The communicative problem that most of the beginner scientists face is well expressed in the maxim "If you want your voice to be heard in the present-day world, it should sound in English"

Most of the modern publications necessary

for the work of a graduate student, postgraduate or young scientists is in English. Therefore, the skill of scanning large amounts of English text with selecting informationally valuable fragments will be one of the leading topics of the sessions and round-table discussions. The level of discussions will be intended for graduate students.

The main attention will be paid to training the active English as an international communicative tool without which it is impossible to present one's own research results to the scientific community. Traditionally in Russia the language education of specialists in natural sciences was oriented at passive English. We believe that introducing the students and young researchers to the technology of scientific presentations and Internet sites, to the style and grammar peculiarities of a scientific article, etc., will stimulate the progress in their language education and help to overcome the psychological barrier impeding the active use of English.

The Workshop will include lecture sessions with oral presentations. The subjects touched upon during these sessions will be extended and developed in round-table discussions.

We expect active participation of the leading English instructors of Saratov National Research State University, including those working within the framework of REC006 Project, the School professors that have considerable experience in English scientific presentations, the members of Editorial Boards and referees of international journals. At least 3-4 foreign scientists including those from

English-speaking countries are supposed to take part in the Workshop.

In the framework of the Workshop an Internet session will be organized in which the participants will be introduced to the facilities of remote language acquisition and consult with instructors.

Topics

The education program will include but is not restricted to the following topic areas:

- The style of a modern scientific publication
- Cursory reading as a means to extract maximal information basing on minimal vocabulary
- Submitting a paper to an International Journal: language requirements
- Russian-English terminology system in biomedical optics

Workshop:

Management of High Technologies Commercialization and Regional Innovation Systems XVI

Chairs

Julia S. Skibina, LLC SPE
“Nanostructured Glass Technology”

Andrey Shuvalov, LLC SPE
“Nanostructured Glass Technology”

Sergey N. Sokolov,
RME “INJECT” LLC, Saratov, Russia

Secretary

Anastasiya A. Zanishevskaya,
LLC SPE “Nanostructured Glass Technology”

International Program Committee

Gregory B. Altshuler,
IPG Inc., USA

Robert Breault,
Breault Research Organization, Arizona Optics
Industry Association, USA

Leonid E. Dolotov, *Saratov State University*

Yury V. Kistenev, Tomsk State University,
Russian Technology Platform “The Medicine of
the Future”

Boris Reznik, BioRASI, Inc., USA

Natalya V. Romanova, Saratov State University

Stoyan Tanev,
University of Southern Denmark, Denmark

Andreas Thoss, THOSS Media GmbH, Berlin,
Germany and Laser Focus World Magazine

The workshop program will include the
following **topics**:

- High technology commercialization, innovation management, high technologies and business, technologies of opening of the innovative companies, innovative business, transfer of technologies, financing of innovative activity, management of innovation risks, venture financing, education in the field of management in biophotonics and biotechnologies
- Development and monitoring of branch "road maps" as the basis for planning of regional branch clusters and innovation zones
- Actual priorities of the regional innovation policy
- Experience of IP commercialization and actual problems of Academy of Sciences, high schools, chambers of commerce and regional industrial company interaction

Workshop: History, Methodology and Philosophy of the Optical EducationXV

Co-chairs:

Alexander A. Skaptsov, Saratov State University

Boris A. Medvedev, Saratov State University

Secretary:

Alexey V. Markin, Saratov State University

International Program Committee

Vladimir L. Derbov, Saratov State University

Boris A. Medvedev, Saratov State University

Vladimir P. Ryabukho, Saratov State University

Alexander V. Priezhev, M.V. Lomonosov
Moscow State University

Alexander V. Gorokhov, Samara State University

Valery V. Tuchin, Saratov State University

Alex Vitkin, University of Toronto, Canada

The goals of the Workshop are the development of the optical education, the actualization of the interdisciplinary investigation using optical conceptions and tools, the expansion of European educational field of optical physics and biophysics

and the increase of creative resources and potential of bachelor, master's degree, post-graduate training in Optics and Biophotonics.

Topics

There are three main discussing topics.

History of discoveries in optics:

- Founders of optical physics
- History of optical scientific schools
- Optical discoveries on chronicles of the world culture
- Historical aspects of optical investigations for life science

Methodology problems of the optical education:

- Lecture demonstrations of optics
- University optical training
- Methodology of teaching optics in the general course of physics at a natural-science department
- Principles of optical mathematical simulation

Teaching optics in the light of the interdisciplinary education and scientific knowledge integration:

- Problems of teaching optics at medical colleges and universities
- Optical physics in the course “The modern natural scientific conception” at humanitarian departments
- Minimum program of biology, biophysics, biochemistry, and

biomedicine for student specialized in optics