



**Saratov State  
University (National  
Research)**

**Research-Educational  
Institute of Optics  
&Biophotonics, SSU**

**Science Medical  
Center, SSU**

## **Saratov Fall Meeting SFM'21**

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

**September 27–October 1, 2021  
Saratov, Russia**

#### **School Chair**

**Valery V. Tuchin**, Saratov State  
University; Institute of Precision  
Mechanics and Control RAS; National  
Research Tomsk State University  
(Russia)

#### **School Secretaries**

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

**Ekaterina N. Lazareva**, Saratov  
State University; NR Tomsk State  
University (Russia)

#### **Workshops:**

- Modern Optics XX (*Georgy V. Simonenko*)
- English as a Communicative Tool in the Scientific CommunityXX (*Alexander B. Pravdin, Svetlana V. Eremina*)
- Workshop on Management of High Technologies Commercialization and Regional Innovation Systems XV(*Julia S. Skibina, Andrey Shuvalov, Sergey N. Sokolov*)
- History, Methodology and Philosophy of the Optical Education XIV (*Boris A. Medvedev, Vladimir P. Ryabukho*)

#### **Co-located with:**

International Symposium on Optics and Biophotonics–IX(Saratov Fall Meeting SFM'21 – Symposium, September 27 - October

1, 2021)

**Workshop:**  
**Modern Optics XX**  
**Lectures on Optics for**  
**University Students,**  
**Postgraduate Students and**  
**High School Students**

**Chair**

**Georgy V. Simonenko**, *Saratov State University*

**Secretaries**

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

**Program Committee:**

**Vladimir L. Derbov**, *Saratov State University*

**Sergey B. Venig**, *Saratov State University*

**Anton Dyachenko**, *boarding school 64*

**Ivan V. Fedosov**, *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. Priezzhev**, *Moscow State University*

**Vladimir P. Ryabukho**, *Saratov State University*

**Mikhail A. Starshov**, *Saratov State University*

**Valery V. Tuchin**, *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

Secondary schools No. 45, 51, 54, 67 and 77  
Gymnasium No. 5  
Boarding school 64  
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 XX

### *Chairs:*

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

### *Secretary:*

**Natalia I. Kazadaeva**, *Saratov State University*

### *International Program Committee*

**Vladimir L. Derbov**, *Saratov State University*

**Kirill V. Larin**, *University of Houston, USA*

**Martin Leahy**, *National University of Ireland, Galway, Ireland*

**Alexander V. Priezzhev**, *Moscow State University*

**Valery V. Tuchin**, *Saratov 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 XV**

### ***Chairs***

**Julia S. Skibina**, LLC SPE  
"Nanostructured Glass Technology"

**Andrey Shuvalov**, LLC SPE  
"NanostructuredGlassTechnology"

**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

**StoyanTanev**,  
University of Southern Denmark,  
Denmark

**Andreas Thoss**, THOSS Media  
GmbH, Berlin, Germany

**Valery V. Tuchin**, *Saratov State  
University*

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 EducationXIV**

### ***Co-chairs:***

**Boris A. Medvedev, Vladimir P. Ryabukho**, Saratov State University

### ***Secretary:***

**Alexander A. Skaptsov**, 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