

International Conference PhysicA.SPb/2024

The international Conference PhysicA.SPb was held in St. Petersburg on 21–25 October 2024. The conference continues the tradition of St. Petersburg seminars on physics and astronomy, which dates back as far as the mid 90s. This year it attracted about 400 participants from various parts of Russia, as well as from the USA, UK, France, Italy, Kazakhstan, Japan and China. Scientists from higher educational institutions and scientific institutions, as well as undergraduate and postgraduate students conducting research in various fields of physics and astronomy took part in the conference. The Program Committee of the Conference pays great attention not only to the fundamental, but also to the applied significance of the presented reports, which allows for bringing together a wide range of physical sciences, such as astrophysics, plasma physics, solid-state physics, semiconductor physics, and biophysics within the framework of a single conference. Combining different scientific topics in one conference gives a strong boost to shaping new directions and developing the existing ones. Thanks to this, PhysicA.SPb inspires vivid interest among Russian and foreign scientists.

Traditionally, the International School Laser Physics.SPb, supported by the Russian Science Foundation (project No. 21-72-30020) and devoted to the physics of lasers, laser spectroscopy, physics and technology of semiconductors used to create sources and receivers of laser radiation, was held jointly with the conference. As part of the School, lectures were given on modern achievements in photonics and on the technologies of creation and research of semiconductor heterostructures. Special attention was paid to biomedical applications of infrared and terahertz radiation. Lectures at the School were delivered by top scientists representing domestic and foreign research centres, who are the leaders in the development and research of sources and receivers of infrared and terahertz radiation.

This issue of the Journal presents extended abstracts presentations delivered at PhysicA.SPb/2024. The review of manuscripts was organized by the Chairs of the Conference Organizing and Program Committees and was carried out through the efforts of the Sectional and Technical Editors: A. V. Ivanchik (Corresponding Member of the Russian Academy of Sciences, Ioffe Institute), S. A. Ponyaev (Ioffe Institute), P. A. Ryabochkina (Ogarev Mordovia State University), S. V. Morozov (IPM RAS), Yu. G. Kusraev (Ioffe Institute), I. A. Sokolov (Ioffe Institute), N. A. Pikhlin (Ioffe Institute), A. Yu. Azbel (Ioffe Institute), A. F. Tsatsulnikov (Ioffe Institute), S. O. Slipchenko (Ioffe Institute), K. Yu. Golenitsky (Ioffe Institute), N. V. Teplova (Ioffe Institute), S. V. Nekrasov (Ioffe Institute), G. M. Savchenko (Ioffe Institute), P. A. Alekseev (Ioffe Institute), M. S. Dunaevskiy (Ioffe Institute), M. O. Nestoklon (Ioffe Institute), A. V. Dunaev (Orel State University), A. B. Ustinov (ETU LETI), A. M. Kalashnikova (Ioffe Institute), E. D. Cherotchenko (Ioffe Institute), E. A. Kognovitskaya (Ioffe Institute), N. Yu. Gordeev (Ioffe Institute) and D. R. Khokhlov (Corresponding Member of the Russian Academy of Sciences, Lomonosov Moscow State University).

Chair of the Program Committee *N. S. Averkiev*

Chair of the Organizing Committee *G. S. Sokolovskii*