

International Conference PhysicA.SPb/2025

PhysikA.SPb International Conference is held in Saint Petersburg on 20–24 October, 2025, to continue the tradition of workshops on physics and astronomy that originated about thirty years ago in the mid 1990s. This year, the conference gathers about 400 participants from various regions of Russia, as well as from the UK, France, Italy, Kazakhstan, South Africa and China. Researchers from universities and research organizations, as well as students and postgraduate students conducting research in various fields of physics and astronomy take part in the conference. The Program Committee of the Conference traditionally pays great attention not only to the fundamental, but also to the applied significance of the presented reports, 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. Combination of various scientific topics gives a strong boost to shaping new areas of focus and developing the existing ones. Thus, PhysicA.SPb inspires vivid interest of Russian and foreign scientists.

Laser Physics.SPb International School, supported by the Russian Science Foundation (project No. 21-72-30020-P) and devoted to the physics of lasers, laser spectroscopy, physics and technology of semiconductors used to create laser sources and detectors is traditionally held together with the conference. The School program includes lectures on current achievements in photonics and on semiconductor heterostructure fabrication and study technologies. Special focus is made on biomedical applications of infrared and terahertz radiation. Lectures at the School were delivered by top scientists representing Russian and foreign research centers taking the lead in the development and research of infrared and terahertz radiation sources and detectors.

This issue of the Journal contains extended abstracts provided by the participants of PhysicA.SPb/2025. The review of manuscripts was organized by the chairs of the Conference Organizing and Program Committees, who appreciate the efforts of the sectional and technical editors: A.V. Ivanchik (Ioffe Institute), P.A. Ryabochkina (Ogarev Moscow State University), S.V. Morozov (Institute of Physics and Mathematics, RAS), I.A. Sokolov (Ioffe Institute), N.A. Pikhtin (Ioffe Institute), A.Yu. Azbel (Ioffe Institute), A.F. Tsatsulnikov (Ioffe Institute), S.O. Slipchenko (Ioffe Institute), K.Yu. Golenitsky (Ioffe Institute), N.V. Teplov (Ioffe Institute), G.M. Savchenko (Ioffe Institute), P.A. Alekseev (Ioffe Institute), M.S. Dunaevsky (Ioffe Institute), M.O. Nestoklon (Ioffe Institute), A.V. Dunaev (Orel State University named after I.S. Turgenev), A.B. Ustinov (Saint Petersburg Electrotechnical University „LETI“), A.M. Kalashnikova (Ioffe Institute), A.A. Shimidt (Ioffe Institute), M.V. Tchernyshov (Baltic State Technical University „VOENMEKH“), E.D. Tcherotchenko (Ioffe Institute), E.A. Kognovitskaya (Ioffe Institute), N.Yu. Gordeev (Ioffe Institute) and D.R. Khokhlov (Associate Member of RAS, Lomonosov Moscow State University).

N.S. Averkiev, Chairman of the Program Committee

G.S. Sokolovsky, Chairman of the Organizing Committee