



IV International Scientific Conference “Condensed Matter and Low Temperature Physics 2024” (CM<P 2024) Part II of the Special Issue (FNT/LTP No. 1, 2025)

Part II of the Special Issue (Fizyka Nyzkykh Temperature/Low Temperature Physics, Vol. 51, No. 1, 2025) dedicated to the IV International Scientific Conference “Condensed Matter and Low Temperature Physics 2024” (CM<P 2024) presents papers that could not be included in the first part due to their volume and number. These papers were sent by the conference participants in such areas as low-temperature physics of plasticity and strength: V. D. Natsik *et al.* “Dislocation mechanisms of acoustic relaxation and plastic deformation of a high-entropy alloy $\text{Al}_{0.5}\text{CoCrCuFeNi}$ under conditions of moderate and deep cooling: Experiment and theory” (ILTPE, Kharkiv, Ukraine); low-temperature magnetism: V. A. L’vov and O. Salyuk “Thermodynamic model of quasi-first-order paramagnetic–ferromagnetic phase transition and giant magnetocaloric effect” (Institute of Magnetism, Kyiv, Ukraine), A. Sokolovsky and S. Lyagushyn “Ferromagnetism methods in the theory of superradiance” (Oles Honchar Dnipro National University, Dnipro, Ukraine), and A. F. Bukhanko “Magneto-optical properties of magnetic–ENZ–magnetic multilayer

with noncollinear orientation of magnetizations of layers”; features of high-energy influence on the properties of substances: A. General and E. Svitlichnyi, “Study of gas-discharge plasma properties in mixtures of helium and argon with sulfur vapor” (Institute of Electron Physics, Uzhhorod, Ukraine) and O. M. Pop *et al.* “Radiation coloring of undoped lithium fluoride crystals” (Institute of Electron Physics, Uzhhorod, Ukraine); electronic properties of conducting systems: M. Kovalenko *et al.* “Electronic structure of Sr-doped CsPbCl_3 crystal: First-principles investigation” (Ivan Franko National University, Lviv, Ukraine), as well as quantum effects in the thermal expansion of nanostructures — N. A. Vinnikov *et al.* “Quantum effects in the kinetics of thermal expansion of C_{60} fullerite doped with ^4He ” (ILTPE, Kharkiv, Ukraine).

The Organizing and Program committees of the conference are grateful to the authors for their creative contribution to the dissemination of the materials of the reports and the original works sent to this Special Issue.

D. Hurova,
O. Dolbin

Dear colleagues,

The Organizing Committee of the V International Conference “Condensed Matter & Low Temperature Physics” is glad to invite you to participate in the event “CM<P 2025”, which will be held on June 2–6, 2025 (online format). This event is traditionally held at B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine (ILTPE), Kharkiv, Ukraine. Taking into account unpredictable conditions due to continual Russian attacks, we plan to hold the conference ONLINE.

With great pleasure, we invite the participants among distinguished leading experts, researchers, PhD students, engineers, and students to take part in “CM<P 2025”, to share their knowledge, exchange new information and ideas, and find collaborators and co-projects even in spite of tough times like right now.

That’s why we encourage the condensed matter and low temperature physicists community to support the Ukrainian way of the thirst for new knowledge, despite any obstacles!

Main Topics:

1. Electronic Properties of Conducting and Superconducting Systems;
2. Magnetism and Magnetic Materials;
3. Optics, Photonics and Optical Spectroscopy;
4. Quantum Liquids and Quantum Crystals, Cryocrystals;
5. Nanophysics and Nanotechnologies;
6. Biophysics and Physics of Macromolecules;
7. Materials Science;
8. Theory of Condensed Matter Physics;
9. Technologies and Instrumentation for Physical Experiments.

Looking forward to seeing you soon at CM<P 2025!

Be brave like Ukraine!

*Organizing Committee of the V International Conference
“Condensed Matter & Low Temperature Physics”*