

To the 50th anniversary of the journal “Low Temperature Physics”

The journal “Fizyka Nyzkykh Temperatur” (FNT) or “Low Temperature Physics” (LTP) celebrates its 50th anniversary in 2025. The first issue of FNT was published in January 1975.

The initiator and founder of the journal FNT was Professor B. I. Verkin, Director of the Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine (ILTPE). He organized and managed all of the journal’s publishing activities and remained its Editor-in-Chief until his last days. B. I. Verkin considered the publication of the FNT to be his second life’s work, of course, after the establishment of the Institute [*B. I. Verkin, as we remember him*, Naukova Dumka, Kyiv (2007)]. The task was not an easy one, as he had to organize and prepare for publication a monthly scientific journal with more than a hundred articles per year. As Editor-in-Chief, B. I. Verkin united the efforts of a large number of people — authors, referees, technical workers and also ensured and maintained a high level of published articles. The Editorial Board of the new issue included prominent national scientists, leading experts in the field of low-temperature physics.

From the beginning, the Editorial Board of FNT aimed to publish original articles and reviews containing essential results in such areas as quantum liquids, superconductivity, low-temperature magnetism, properties of normal metals, and crystal lattice dynamics. Later, the journal’s scope was noticeably expanded by the publication of topical articles on high-temperature superconductivity, disordered systems, quantum effects in semiconductors and dielectrics, cryocrystals and quantum crystals, low-temperature physics of plasticity and strength, nanophysics, ultra-low temperature techniques, and new methods of low-temperature experimentation.

Along with the founding of the *Fizyka Nyzkykh Temperatur*, B. I. Verkin solved the problem of translation, publication, and distribution of the journal in English by the American Institute of Physics (AIP) leading to the rapid growth of the journal’s popularity. In English, the journal was published under the title *Soviet Journal of Low Temperature Physics* and since 1992 as *Low Temperature Physics*.

In 1991, Professor V. V. Eremenko became the Editor-in-Chief of the journal. In the period of formation of independent Ukraine, the journal was registered as a Ukrainian periodical. The founders were the National Academy of Sciences of Ukraine and ILTPE. To ensure a full-fledged publishing activity, a scientific and publishing department was created, which later became the department of scientific journals “*Fizyka Nyzkykh Temperatur*” and “*Journal of Mathematical Physics, Analysis, Geometry*”. The journal FNT switched to computer typesetting, changed its format, and improved its appearance. New sections were added to expand the journal’s scope, contributing to an increase in the

number of articles for publication. The renewed Editorial Board was complemented by a newly created Advisory Board of scientists from around the world, which contributed to the promotion of the journal among the international scientific community. In the 90s, an informative electronic version of the FNT was created, which gave an additional impetus to the international popularization of the journal. Together with the American Institute of Physics, the problem of the simultaneous publication of the journal FNT and the translated journal “*Low Temperature Physics*” was largely solved. Information about the journal was included in Current Contents, Current Physics Index, ISPEC, PASCAL, Physics Abstract, SPIN, Science Citation Index, SciSearch, and Research Alert.

Since 2014, Professor S. L. Gnatchenko has been the Editor-in-Chief of the journal. It was during these years that the list of Advisory Board members was expanded. Since that time, the journal has been consistently ranked among the most cited scientific journals in Ukraine.

In 2021, Professor Y. G. Naidyuk was appointed Editor-in-Chief of the *Fizyka Nyzkykh Temperatur*. He had to head the journal at a difficult time of the covid pandemic and the beginning of russian aggression against Ukraine. Nevertheless, the journal FNT did not stop publishing despite the incessant shelling of Kharkiv, where the Editorial office is located. We had to work in the face of an air threat, periodic power outages, problems with communication between authors and Editorial staff, difficulties in procuring printing materials and printing the journal within the walls of the institute.

Looking back at the fifty-year history of the journal, it is worth noting the activities of the assistant Editors-in-Chief, whose selfless service to the cause contributed to the growth of the journal's popularity and increase in its scientific rating. These are the Associates Editor-in-Chief V. G. Manzhelii (1975–1982, 1992–2013), A. M. Kosevych (1975–1991), I. V. Svechkariov (1982–1995), I. O. Kulik (1992), V. G. Pischansky (1993–1995), V. D. Natsik (1996–2007), M. F. Kharchenko (1996–2008), O. S. Kovalev (2009–present), Yu. O. Kolesnichenko (2008–present), S. S. Sokolov (2017–present), and Secretaries of the Editorial Board M. O. Strzemechny (1975–1991), Yu. O. Freiman (1992–1996), O. V. Savchenko (1997), Ye. S. Syrkin (1998–2001), E. I. Tarasova (2002–2007), V. V. Slavin (2008–2010), S. S. Sokolov (2011–2016), and O. V. Dolbin (2017–present). We also note a large cohort of national guest editors of special issues who have participated in the preparation of a whole collection of unique issues. To name just a few of the foreign Guest Editors of recent years: V. E. Bondybej, P. Feulner, Claudine Crépin-Gilbert, A. I. Popov, A. Jeżowski, A. Pikul, B. A. Bernevig, F. Bartolomé and A. Arauzo, T. Momose and others.

For all the years of existence, the journal FNT has published almost 10 thousand papers, including more than five hundred reviews, thousands of short communications and letters to the editor, reports on new devices and interesting developments. Dozens of articles have made an outstanding contribution to the development of low temperature physics. Many authors have been honored with government and academic awards and have received personalized prizes. While it is not possible to mention all of them, we will cite at least some of the most famous national authors, academicians and corresponding members of the NASU who have published the articles in the journal FNT, such as A. I. Akhieser, A. S. Bakai, V. G. Baryakhtar, Yu. P. Blagoi, A. A. Galkin, I. M. Dmitrenko, E. I. Kaner, A. M. Kosevich, B. G. Lazarev, V. M. Loktev, A. N. Omelyanchuk, L. A. Pastur, A. F. Prykhotko, S. M. Ryabchenko, V. P. Seminozhenko, M. O. Strzemechny, M. F. Kharchenko, V. G. Khotkevych, and I. K. Yanson [50 years of *ILTPE*, Naukova Dumka, Kyiv (2010)]. The works of Nobel laureate (1996) David Morris Lee has been published in the journal.

Today, the journal FNT has the following scientometric indicators. According to the Web of Science resource Clarivate, the impact factor increased from 0.325 in 1993 to a maximum of 0.955 in 2007. The value of the five-year impact factor in recent years has been 0.8, and the annual number of citations has exceeded two thousand and is the highest among Ukrainian scientific journals. According to Scopus, the CiteScore is 1.2–1.7 and the journal is in the Q3 quartile. According to Google Scholar, the journal's so-called Hirsch factor $i_{10} = 970$, and the Hirsch factor itself h -index = 61. This makes the journal one of the best known low-temperature physics journals in the world scientific community, and in Ukraine FNT is at the top of scientific journals in the natural sciences. Today, the journal receives about 200 articles per year, from which regular and special issues are formed, and articles based on the materials of international conferences are published annually. The editorial portfolio is formed by articles by scientists from all continents, which emphasizes the international nature of the journal and its scientific significance. Articles are usually published in the shortest possible time (4–5 months), and their electronic version appears on the website of the FNT journal two months before the printed version. The journal's activities aimed at publishing special issues are also should be noted. We would like to list some attractive thematic special issues (the full list exceeds 150 titles): "To the 70th anniversary of the discovery of antiferromagnetism" (2005), "To the 20th anniversary of the discovery of high temperature superconductivity" (2006), "To the 100th anniversary of the production of liquid helium" (2008), "Nanostructures and impurity centers in cryogenic environment" (2010), "To the 75th anniversary of the discovery of superfluidity" (2013), "New achievements

of fermiology" (2014), "Physics of nanostructures at low temperatures" (2016), "Electronic properties of low-dimensional systems" (2018), "To the 100th anniversary of the birth of B. I. Verkin" (2019), "Magnetism: new objects, non-standard environments, modeling" (2020), "To the 90th birthday of Mark Yakovlevich Azbel" (2022), "New trends in low temperature physics" dedicated to Poland and Ukraine: in scientific solidarity (2023), "Advances in quantum materials" (2023), "Physics and chemistry of low temperature atoms and molecules" (2024), etc. It should be noted that the journal annually publishes special issues dedicated to the anniversaries of famous scientists, and well-known experts in the field of low temperature physics. Starting with the International Conference on Quantum Crystals (Tbilisi, 1975), the *Fizyka Nyzkykh Temperatur* regularly publishes the proceedings of international low-temperature conferences, among which the annual international conference "Condensed Matter & Low Temperature Physics", organized by B. Verkin *ILTPE* of NASU, occupies a prominent place.

Since its foundation in 1975, the journal has been cooperating with the American Institute of Physics. The AIP is the institution, which is well known to physicists around the world. Its publishing house publishes a total of 30 scientific journals, such as "Physics Today", "Applied Physics Review", and others. Throughout the half-century history of its relationship with the *Fizyka Nyzkykh Temperatur*, AIP has been translating, publishing, and distributing the *Low Temperature Physics*. The partnership with AIP has provided invaluable assistance in popularizing journals in the world and bringing it to a high international level. The journal *LTP* is published simultaneously with the printed version of the journal FNT, and its website is currently visited by almost 90 thousand users a year. AIP Publishing carries out effective promotion and marketing campaigns for the journal everywhere. To mark the anniversary of the journal FNT, AIP Publishing undertook to digitize the entire archive of the journal for 1975–1996. The Editorial Board of the *Fizyka Nyzkykh Temperatur* would like to thank the members of the AIP Publishing team Jessica Hoy, Jake DePaola, and the publishing director Bridget D'Amelio for their support during the most difficult periods for the journal related to Russian aggression, fruitful cooperation and all kinds of assistance. The success and achievements of the journal would not have been possible without the constant and effective assistance of American partners.

In the anniversary year 2025, the journal FNT plans to publish a number of special issues dedicated to the anniversaries of members of the Editorial Board, renowned physicists. This is our tribute to their contribution to both science and the rich history and development of the journal.

Editorial Board