

**INTERNATIONAL RESEARCH
AND PRACTICE CONFERENCE
“NANOTECHNOLOGY
AND NANOMATERIALS”**

20-23 of August 2025

Bukovel, UKRAINE

Abstract book

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This book contains the abstracts of contributions presented at the International research and practice conference “Nanotechnology and Nanomaterials” (NANO-2025).

The NANO-2025 Conference was organized by the Institute of Physics of NAS of Ukraine with the participation of the University of Tartu (Estonia), the Uzhhorod National University, University of Turin (Italy) and Pierre and Marie Curie University – Paris 6 (France).

NANO-2025 is the 13th conference in the series of NANO-conferences initiated by the Institute of Physics of NAS of Ukraine in 2012 in the framework of FP7 Nanotwinning project. From year to year, they attract more attention and participants. In 2012, the first meeting was held in the format of International Summer School for young scientists «Nanotechnology: from fundamental research to innovations». The 2013 and 2014 conferences were organized in conjunction with the International Summer Schools for young scientists under the same title. In 2013, this event was attended by more than 300 scientists, in 2014-2017, 450 scientists took part and in 2018 it gathered above 650 participants. In 2021 conference was attended by more than 700 scientists from Ukraine, Poland, Italy, Estonia, France, Austria, Germany, Greece, Turkey, USA, Romania, Moldova, Czech Republic, Taiwan, Lithuania, Egypt, India, Algeria, Indonesia and other countries. In 2021 - 2024 the Organizer Committee has received more than 800 application forms from about 25 countries of the world each years.

The NANO-2025 conference brought together leading scientists and young researchers from many countries of the world. This year its topics were as follows: Nanobiotechnology for health-care; Nanochemistry and biotechnology; Nanocomposites and nanomaterials; Nanooptics and photonics; Nanoplasmonics and surface enhanced spectroscopy; Nanoscale physics; Nanostructured surfaces; Physico-chemical nanomaterials science.

This year, the conference is organized with the support of the project “Knowhow Communities for Accelerating RTI Transfer in the Danube Region” (RTIT>>), DRP0200330.

Website of the Nano-2025 conference: <http://nano-conference.iop.kiev.ua>

Welcome to International Conference «NANOTECHNOLOGY AND NANOMATERIALS»!

It is my great pleasure to welcome all participants of the International Conference “Nanotechnology and Nanomaterials” (NANO-2025), which will take place in Bukovel, in the Ukrainian Carpathians, from August 20 to 23, 2025. This event is designed to foster scientific dialogue and collaboration among researchers from diverse fields working at the forefront of nanoscience and nanotechnology.

Since its inception in 2012, the NANO Conference series has become a prominent platform in Ukraine and beyond for sharing cutting-edge research and applications in nanotechnology. Each year, it brings together experienced and early-career scientists alike, offering unique opportunities to learn from internationally renowned experts and to engage in discussions on emerging scientific topics in the field.

Our previous International Conferences and Summer Schools received positive feedback from international experts and from the media. Now we are holding the 13th such Conference, for which we are deeply grateful to its indefatigable initiator and organizer, Dr. Olena Fesenko and all members of her team, as well as to the universities and institutes that are co-organizing this event.

This year, the conference will be held in a hybrid format, welcoming participants both in person and online. We are pleased to have received over 600 registrations from researchers representing more than 30 countries. The thematic program covers a broad spectrum of topics including physico-chemical nanomaterials science, nanobiotechnology for health care, nanoscale physics, nanoplasmonics and nanooptics and photonics, nanostructured surfaces, nanocomposites, and microscopy of nano-objects.

In today’s world, international scientific cooperation holds special significance. Beyond advancing research, it helps build bridges across borders and contributes to overcoming global challenges, fostering peace and understanding. This is of particular importance now for Ukraine and for many other nations.

I wish all participants a productive and inspiring conference—one that expands knowledge, strengthens collaboration between academia and research institutions, and lays the groundwork for impactful innovations in nanoscience and nanotechnology.

May peace accompany us all, and may our scientific research continue!



**President of the National Academy
of Sciences of Ukraine**

Anatoly Zagorodny

Wear resistance of nanostructured layer alloyed with boron and nitrogen on steel 45 surface

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One of the methods for improving the quality and reliability of modern machinery is surface nanostucturization of the components to enhance their wear resistance. It could be achieved, among others, by mechanical-pulse treatment (MPT) of the surface due to its severe plastic deformation [1].

The influence of alloying with boron and nitrogen of the surface nanostructured layer on steel 45 during MPT on its wear resistance was investigated in this paper and compared with the unalloyed one. The nanocrystalline layers with ferrite-austenite structures of different depths and microhardness (150 μm and 9.2 GPa alloyed layer; 200 μm and 9.6 GPa unalloyed layer) were formed on the steel 45 surface. The grain sizes of ferrite and austenite on the steel top surface were as follows: 22.5 and 31.5 nm with alloying and 28.5 and 75.5 nm without alloying. It was also detected that the wear resistance of the specimen owing nanocrystalline layer alloyed with boron and nitrogen rises by 1.6–1.7 times compared with it without alloying. This was explained by the change the electrode potential of the surface, and its susceptibility to the formation of secondary structures on the friction faces such as FeO , Fe_2O_3 , and Fe_3O_4 , besides high microhardness of the strengthened layer. Therefore, the formation of the strengthened layer on steel surface during MPT with its simultaneous alloying is an important factor for enhancing the wear resistance of the surface layer and substantially affects its tribological characteristics.

1. Kyryliv V, Maksymiv O., Gurey V, et al. The mode deformation effect on surface nanocrystalline structure formation and wear resistance of steel 41Cr4 // *Coatings*.-2023.-13, N 2.-Article No. 249.

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Structural, electronic and optical properties of CdLiF_3 and CdLiCl_3 halide perovskites using first-principles calculation

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The structural, electronic, and optical characteristics of CdLiF_3 and CdLiCl_3 halide perovskites were calculated using first-principles calculations based on density functional theory (DFT) employing the generalized gradient approximation (GGA) approach [1,2]. The structural parameters, comprising the lattice constants (a), bulk modulus (B), and its pressure derivative (B'), were computed for the examined compounds. The optimal lattice parameters were $a=b=c= 3.699 \text{ \AA}$ for CdLiF_3 and $a=b=c= 4.607 \text{ \AA}$ for CdLiCl_3 . The electronic band structures and their associated total and partial density of states diagrams were also estimated. The compound CdLiF_3 is a semiconductor with a bandgap of 1.96 eV, whereas CdLiCl_3 is a semimetal conductor. The spectra of the frequency-dependent complex dielectric function, absorption coefficient, refractive index, extinction coefficient, reflectivity, and electron energy loss function were computed and analyzed.

Keywords: halide perovskites; First-principles calculation; Structural parameters; Electronic structure; Optical functions.

1. Clark S. J., Segall M. D., Pickard C. J., Hasnip P. J., Probert M. J., Refson K., Payne M. C. *First principles methods using CASTEP// Zeitschrift fuer Kristallographie.* -2005.-**220**.-P. 567-570

2. Gómez-Peralta J.I., Bokhimi X., Ternary halide perovskites for possible optoelectronic applications revealed by Artificial Intelligence and DFT calculations// *Materials Chemistry and Physics* -2021- 267-P. 124710.