

Challenges and resilience: The state of physics research in Ukraine during times of instability

The state of science in Ukraine has been quite tumultuous in recent years. Despite a strong scientific tradition and a highly educated population, political instability, economic challenges and the ongoing hostilities have made it difficult for Ukrainian scientists to thrive. Physics research has the potential to address some of the world's most pressing challenges, such as climate change, energy production and healthcare. And the field of physics in Ukraine has been hit particularly hard.

The war has caused a significant disruption to many institutions, especially in the East of Ukraine, with many researchers forced to flee or relocate to safer areas. Many universities were forced to shut down, and others have experienced significant disruptions to their operations, including interruptions to research programs, shortages of equipment and supplies, and the loss of faculty and staff. The war has made it difficult for universities to attract and retain top talent. Many highly skilled researchers and professors were forced to leave the country in search of better opportunities elsewhere, leaving a gap in the academic community. This brain drain has had a particularly severe impact on the field of physics, which relies on the expertise and creativity of highly trained professionals. Additionally, research infrastructure has been damaged or destroyed, making it difficult for researchers to continue their work.

Despite these challenges, Ukrainian physicists remain committed to advancing their field. Many are working to rebuild damaged facilities and reestablish collaborations with international partners. Some are also exploring new areas of research, such as materials science and nanotechnology, which offer opportunities for growth. They also continue to attract bright and talented students, many of whom are eager to contribute to the scientific community and make a difference in the world.

There are several universities in Ukraine that continue to focus on physics research and education. These include Taras Shevchenko National University of Kyiv, National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute' and V.N. Karazin Kharkiv National University, among others. In recent years, these universities have faced significant obstacles in maintaining their research programs and academic standards. The war made it more difficult to purchase new equipment or conduct cutting-edge experiments, and to collaborate with international partners or attend scientific conferences, further isolating Ukrainians from the broader scientific community.

By sharing knowledge and resources, scientists from different countries can work together to advance science and address important global challenges. In this regard, Ukrainian scientists are infinitely grateful to the world scientific community for their support. International universities offer internships to Ukrainian students and teachers. International organizations finance Ukrainian research. Scientific books and journals highlight the current problems of Ukrainian science and help spread the research of Ukrainians worldwide. This issue of the *Lithuanian Journal of Physics* is devoted to new studies of Ukrainians conducted during the war and completed despite all obstacles. It is thanks to such issues that we feel that our work is important and we should continue it.

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