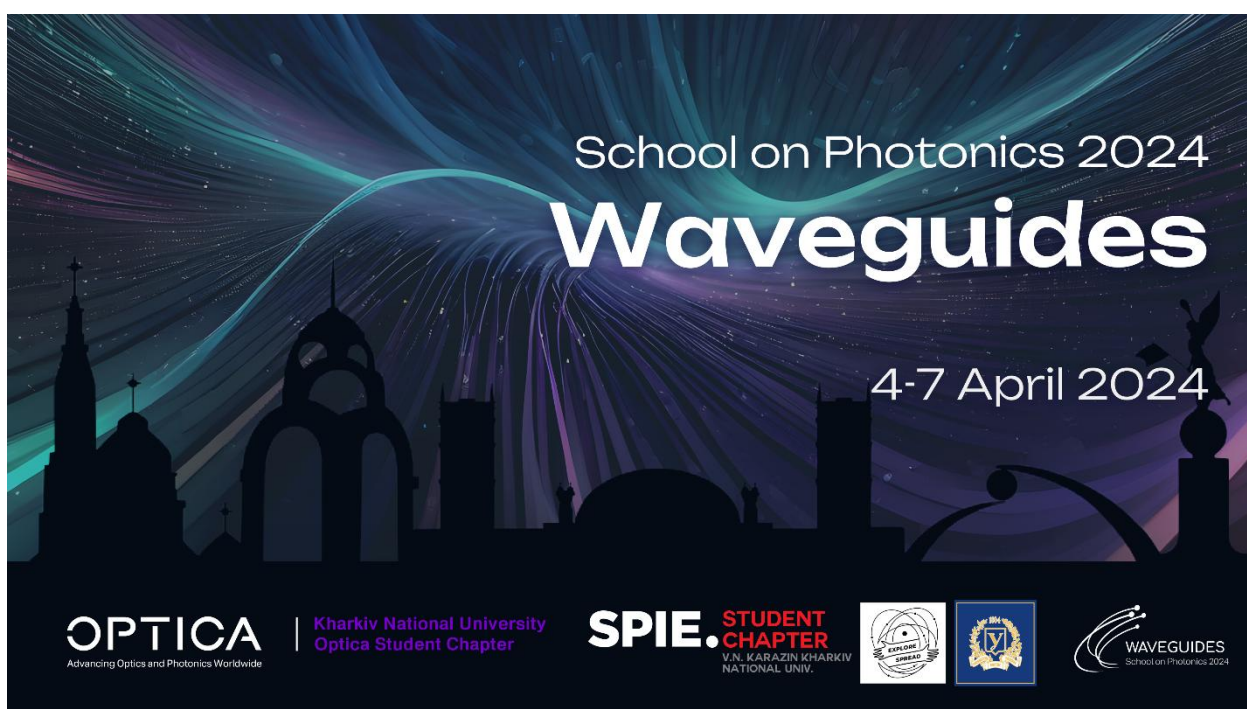


School on Photonics 2024

“Waveguides”



4-7 April 2024

Kharkiv, Ukraine

April 8, 2024

The School on Photonics 2024 “Waveguides” was held from 4 to 7 April 2024 at V. N. Karazin Kharkiv National University in Kharkiv, Ukraine.

Unfortunately, the School passed during the active bombardment of Kharkiv by the Russian armed forces. For the period from 3 to 8 April 2024, more than 100 drones, 20 guided aviabombs and 20 missiles were launched on Kharkiv and Kharkiv region, which resulted in tragic consequences for the civilian population: destruction and damage of buildings and death of several people.

Moreover, the energy infrastructure was severely damaged, resulting in constant power outages in Kharkiv. Electricity, Internet and mobile phone connections were provided only for a few hours per day in a random format, including the work of generators.

The first goal of our School was to ensure the full security of the participants and lecturers. The most of the lectures and activities were conducted in the safe spaces.

The second goal was to overcome the black-outs. Two lectures had to be held without electricity and Internet connection, using only the whiteboard. This was totally unexpected for the lecturers, but at the same time it highlights their high level of qualification.

The third goal, the initial one, was to give the intensive course on the important and relevant topic of photonics moving from the historical milestones and basic principles to the modern scientific problems and practical applications. As part of the School, the participants were divided into several groups to work on the special scientific projects.

To the best of my knowledge, we conducted **the School on Optics without light** for the first time. Not everything was good, but it was a lively and unforgettable experience with successful overcoming of challenges by participants, lecturers and organizers. Glory to Ukraine!

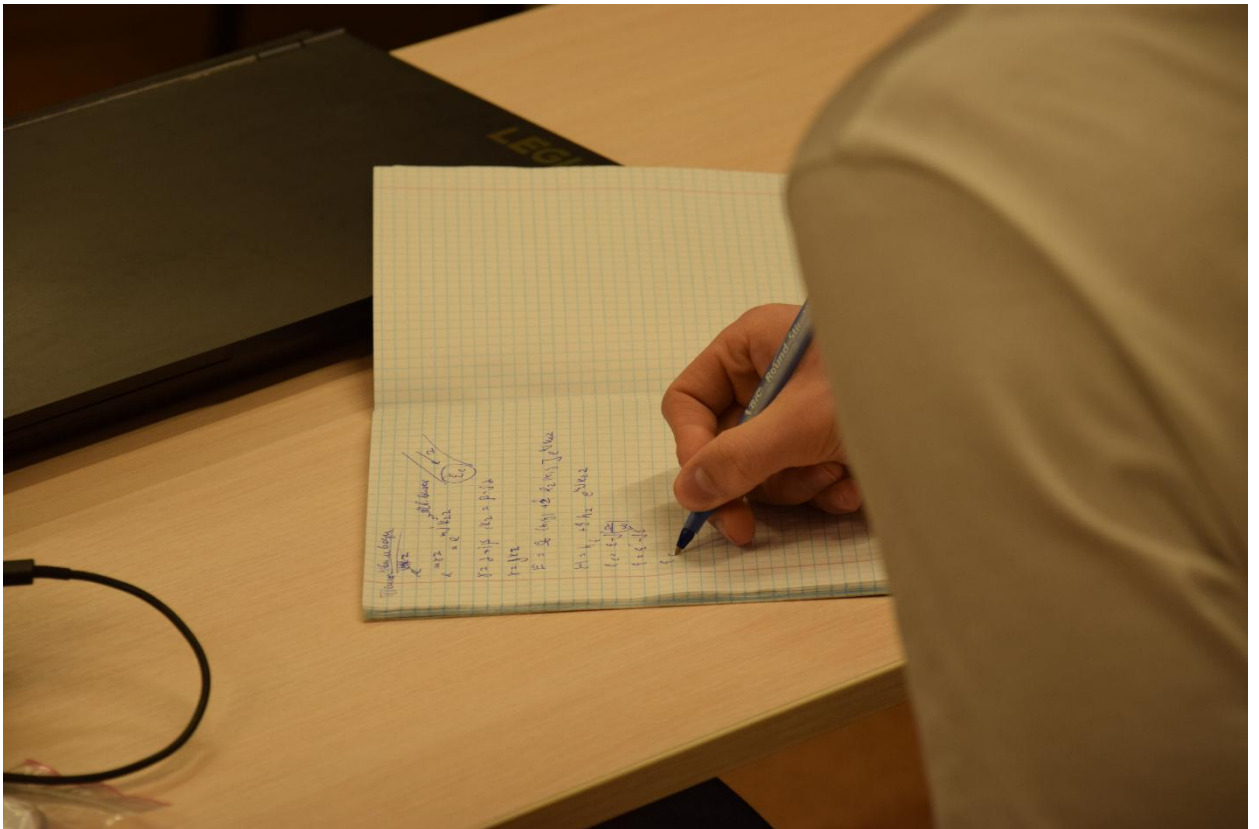
Chair of Program and Organizational Committee,
Oleh Yermakov

Opening ceremony



Lecture №1. "General theory of waveguides" by Dr. Anton Hlushchenko







**Lecture №2. “Hollow and dielectric waveguides”
by Dr. Anton Hlushchenko
during black-out**

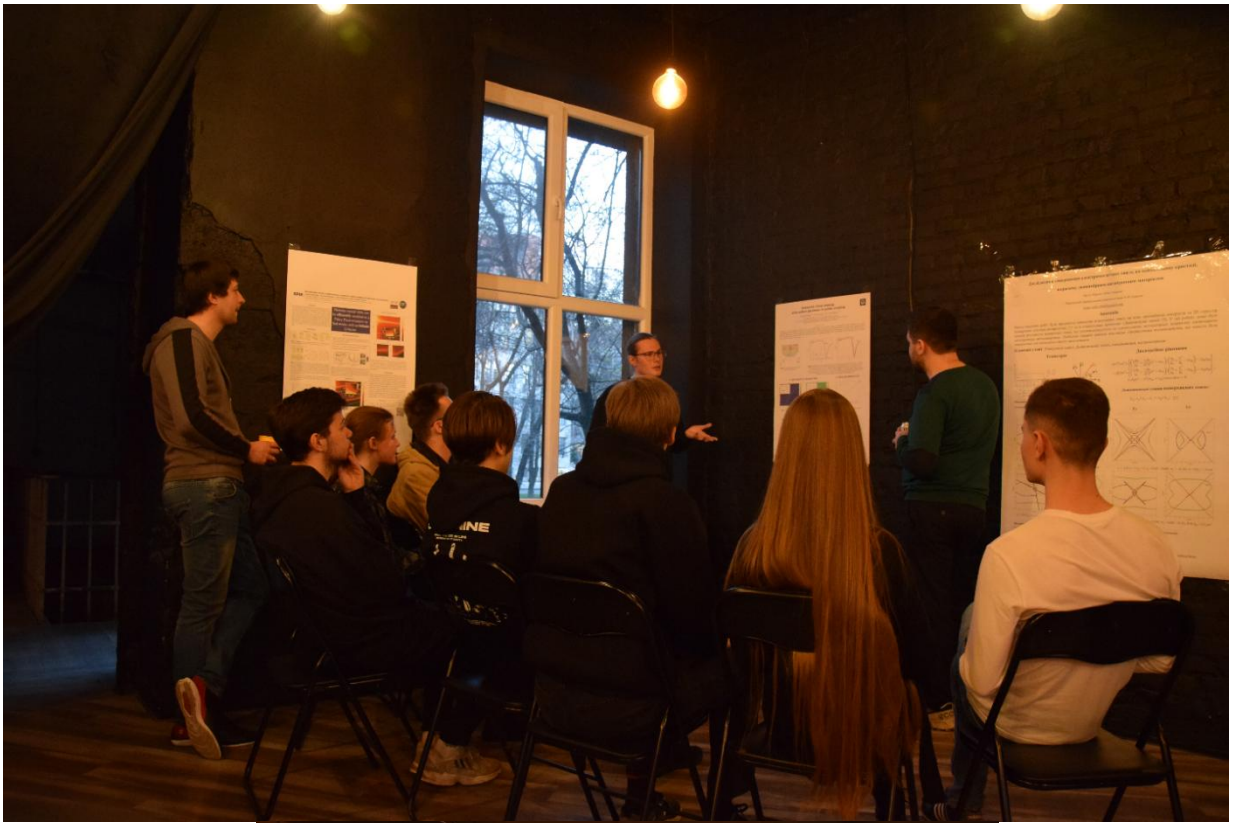




Poster-session and scientific discussions



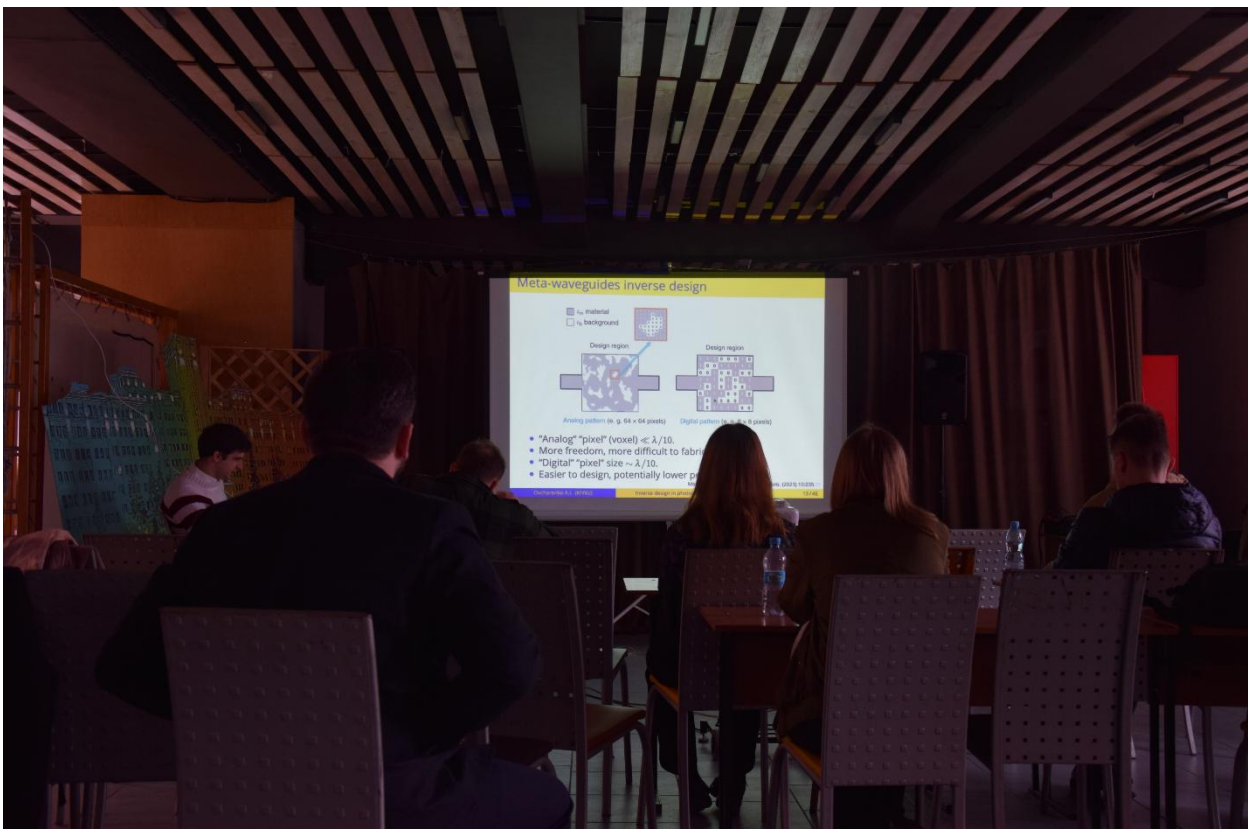






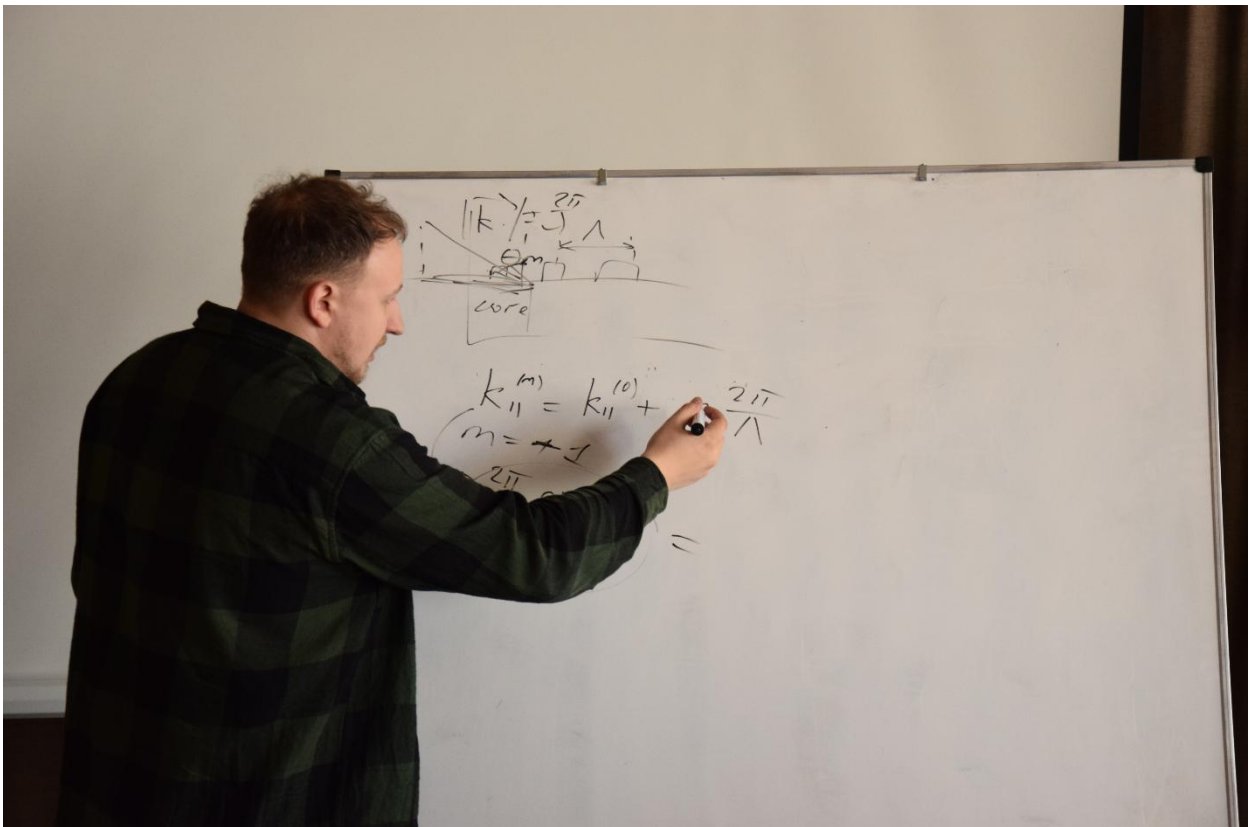


Lecture №3. “Inverse design methods for waveguides engineering” by Dr. Anton Ovcharenko





**Lecture №4. “Optical fibers: applications and perspectives”
by Dr. Oleh Yermakov
partially during black-out**





Lecture №5 (online). “Design, fabrication, and application of fully fiber-system integrated liquid-core optical fibers” by Prof. Mario Chemnitz



LEIBNIZ INSTITUTE of PHOTONIC TECHNOLOGY

Chemnitz, Junaïd, Schmidt
Laser & Photonics Reviews
17 (9), 2300126, 2023.

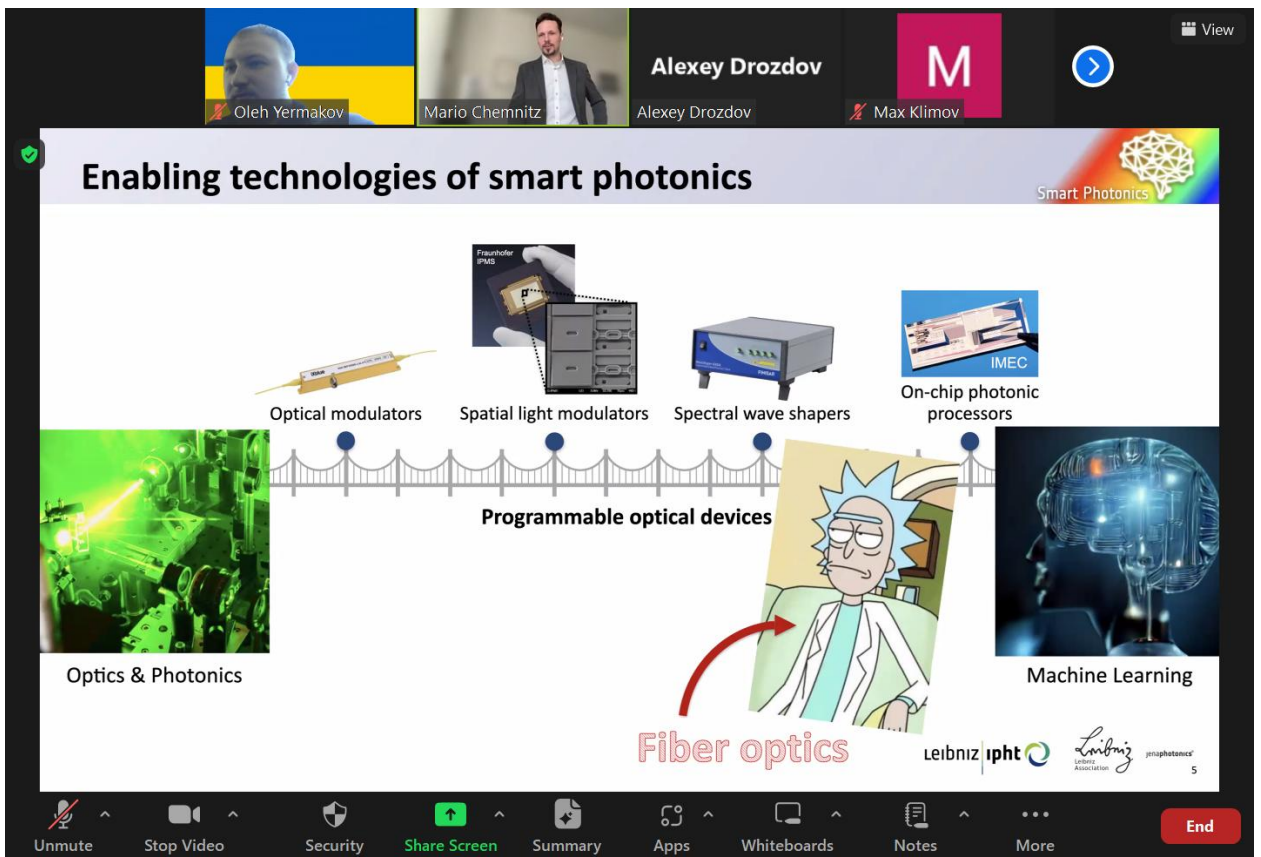


Design, Farbrication, and Application of Fully Fiber-system Integrated Liquid-core Optical Fibers

Mario Chemnitz^{1,2}

¹ Leibniz-Institute of Photonic Technology, Jena, Germany
² Institute of Applied Optics and Biophysics, Abbe School of Photonics, Friedrich-Schiller-University Jena, Germany

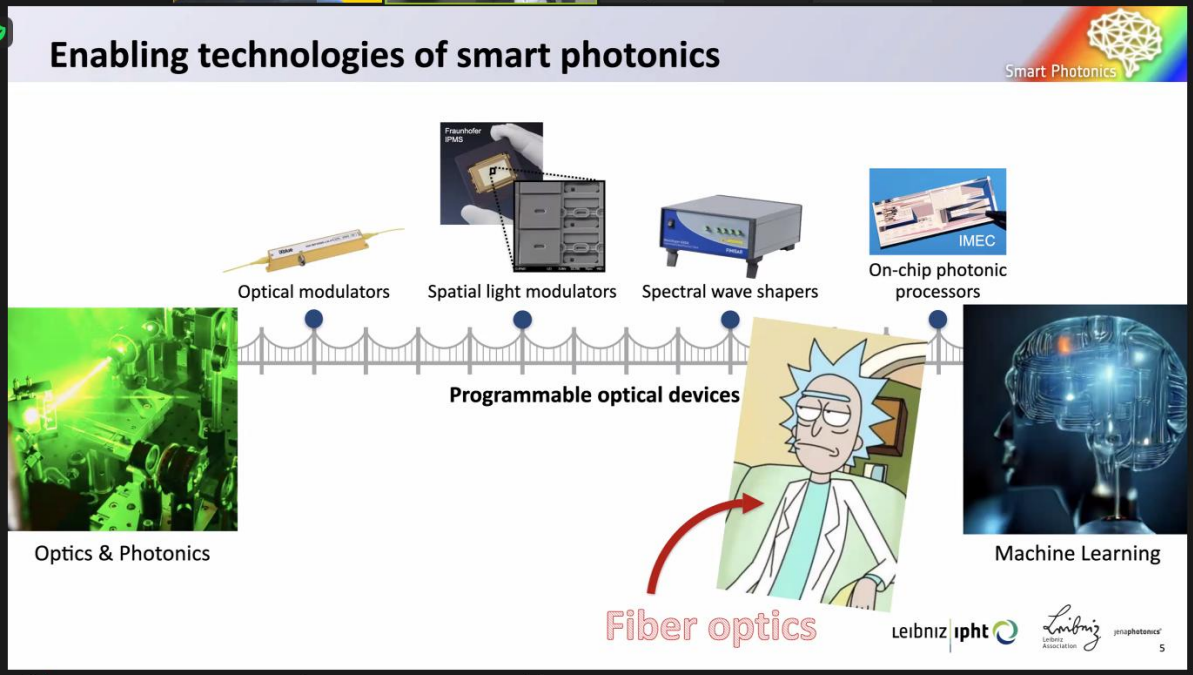
School on Photonics, Ukraine, 2024



Oleh Yermakov Mario Chemnitz Alexey Drozdov Max Klimov

Enabling technologies of smart photonics

Smart Photonics



Optical modulators Spatial light modulators Spectral wave shapers On-chip photonic processors

Optics & Photonics

Programmable optical devices

Fiber optics

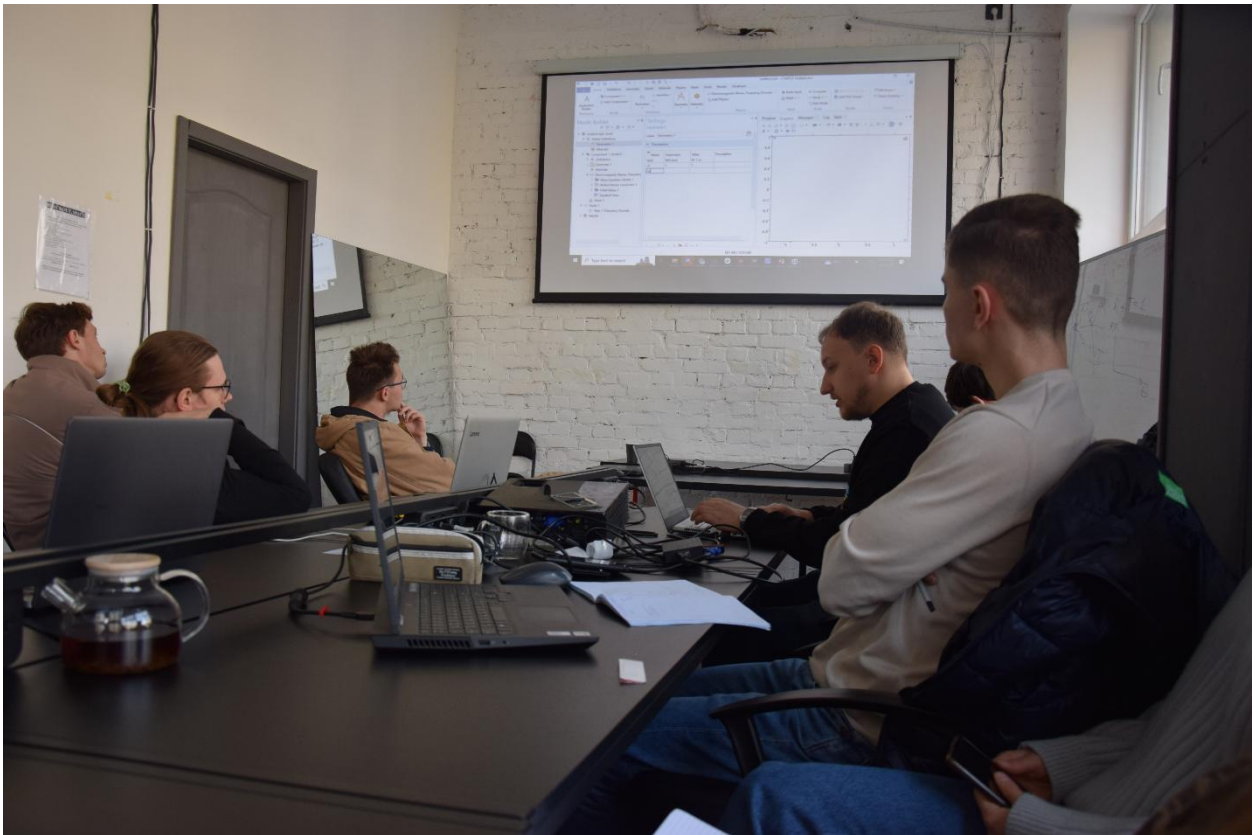
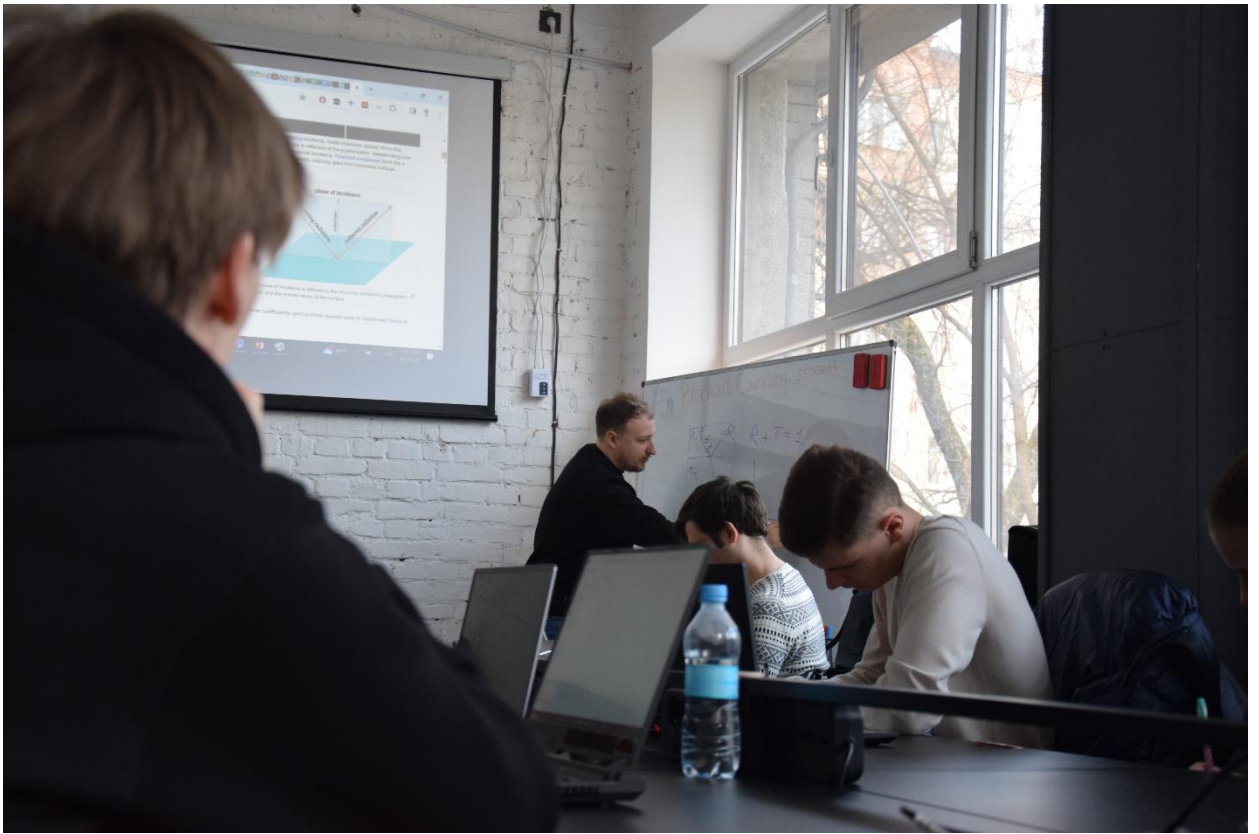
Machine Learning

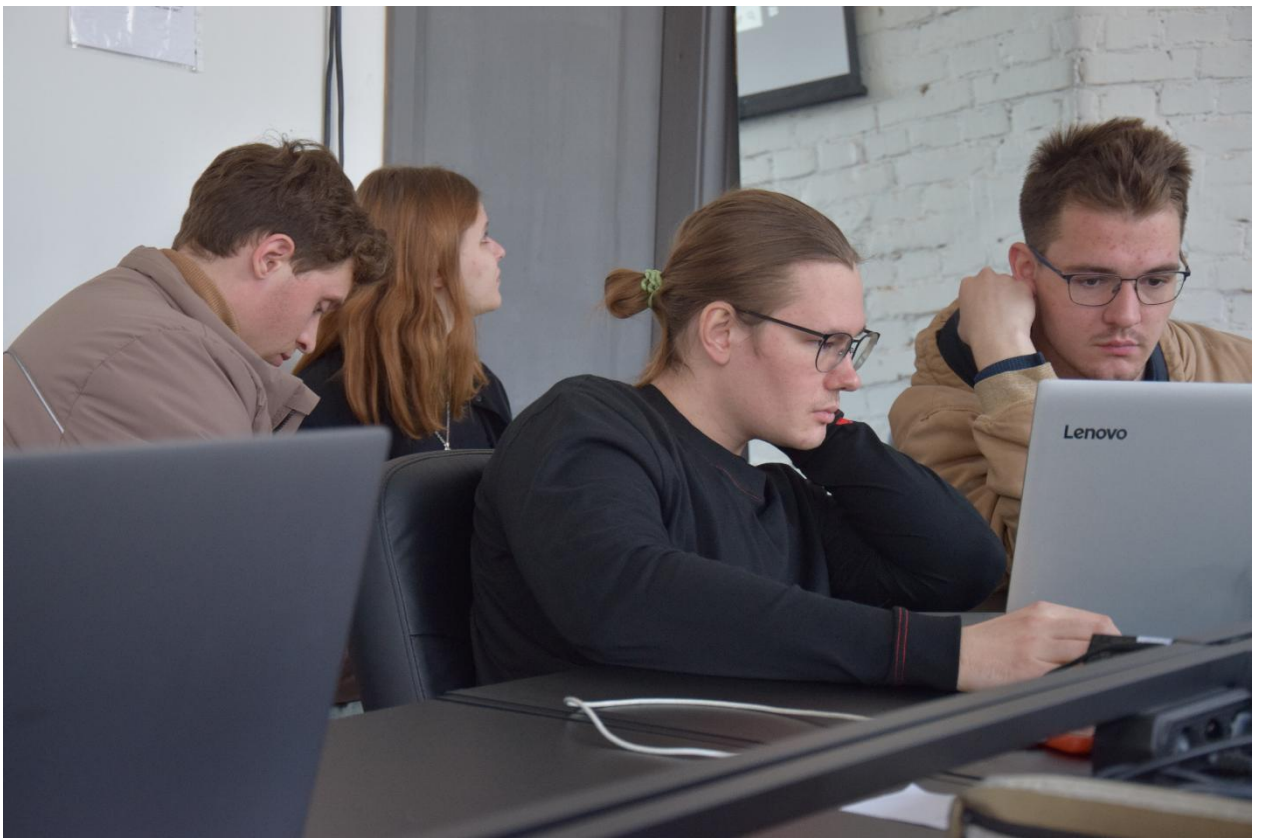
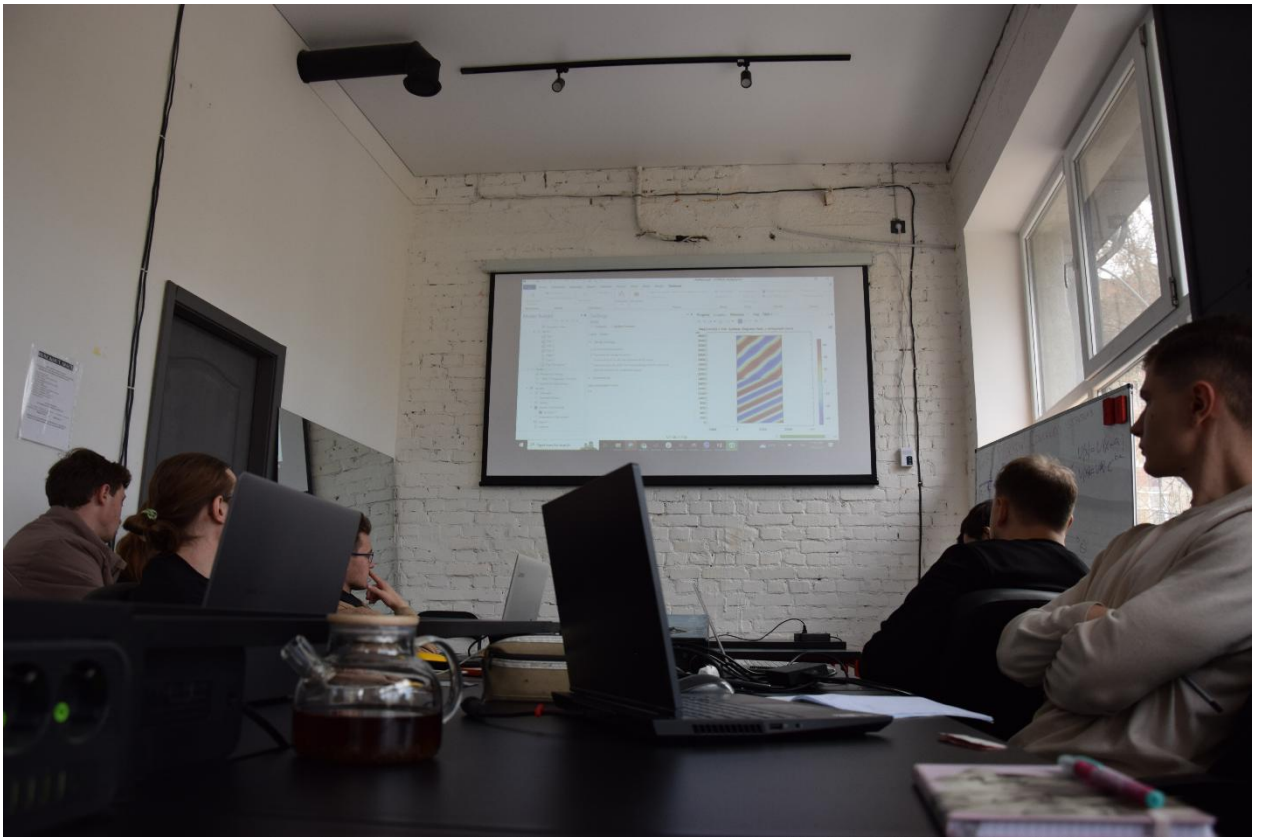
leibniz ipht Leibniz Association iphotonics 5

Unmute Stop Video Security Share Screen Summary Apps Whiteboards Notes More End

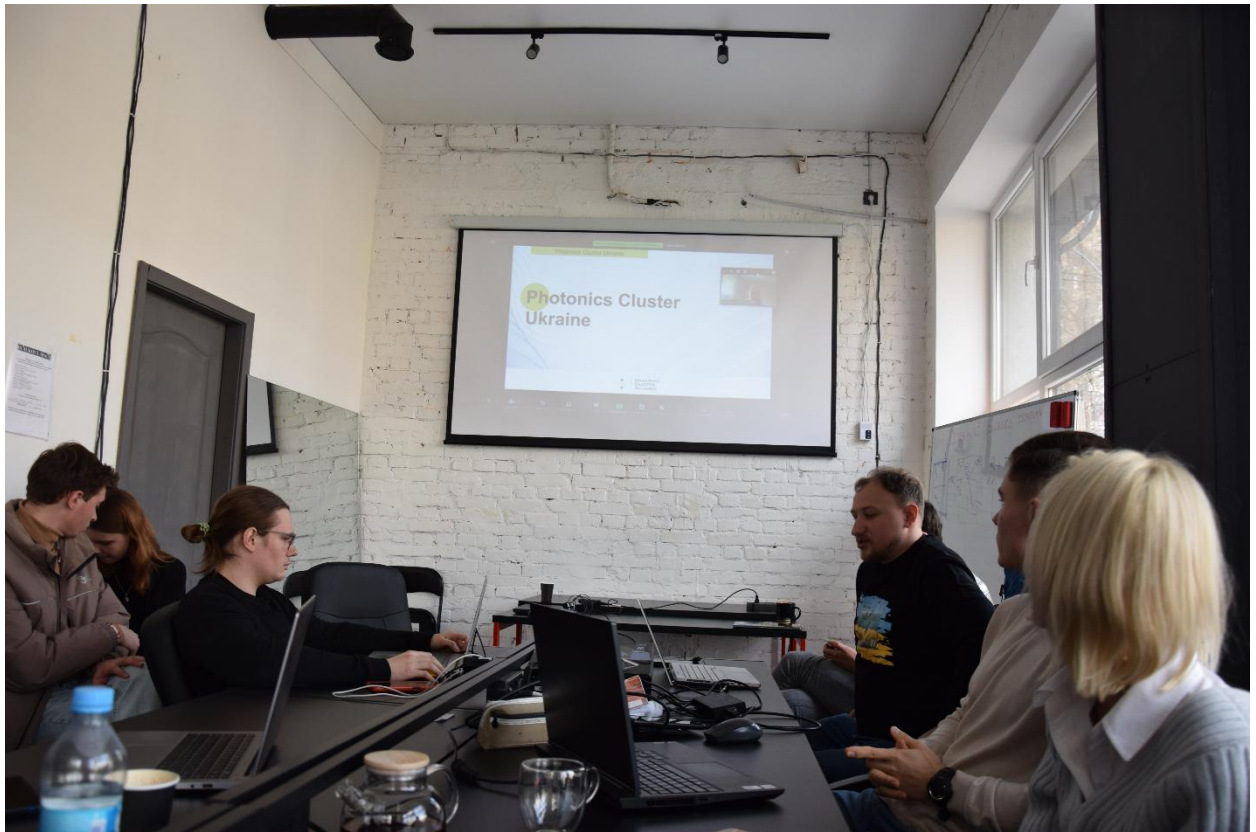
**Practical lesson №1. “Photonic-crystal and metamaterial waveguides”
by Dr. Oleh Yermakov**



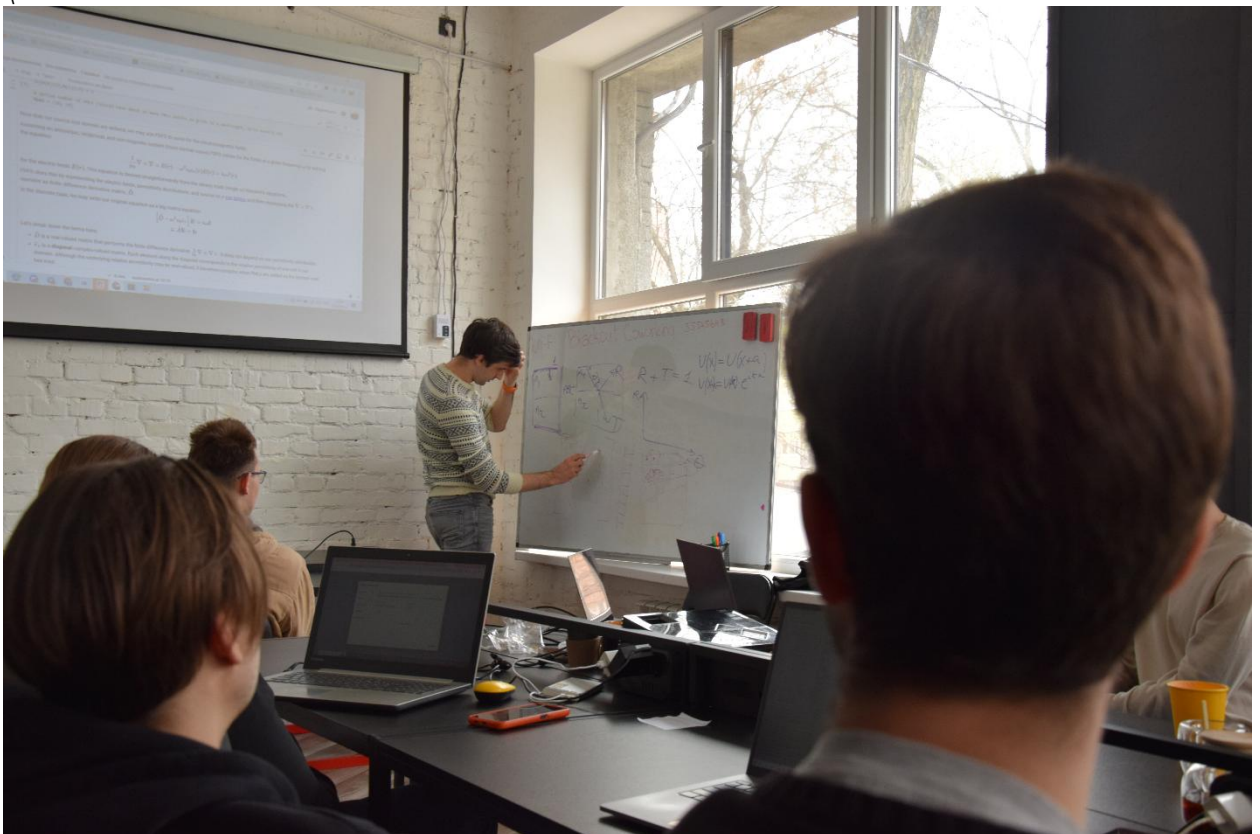
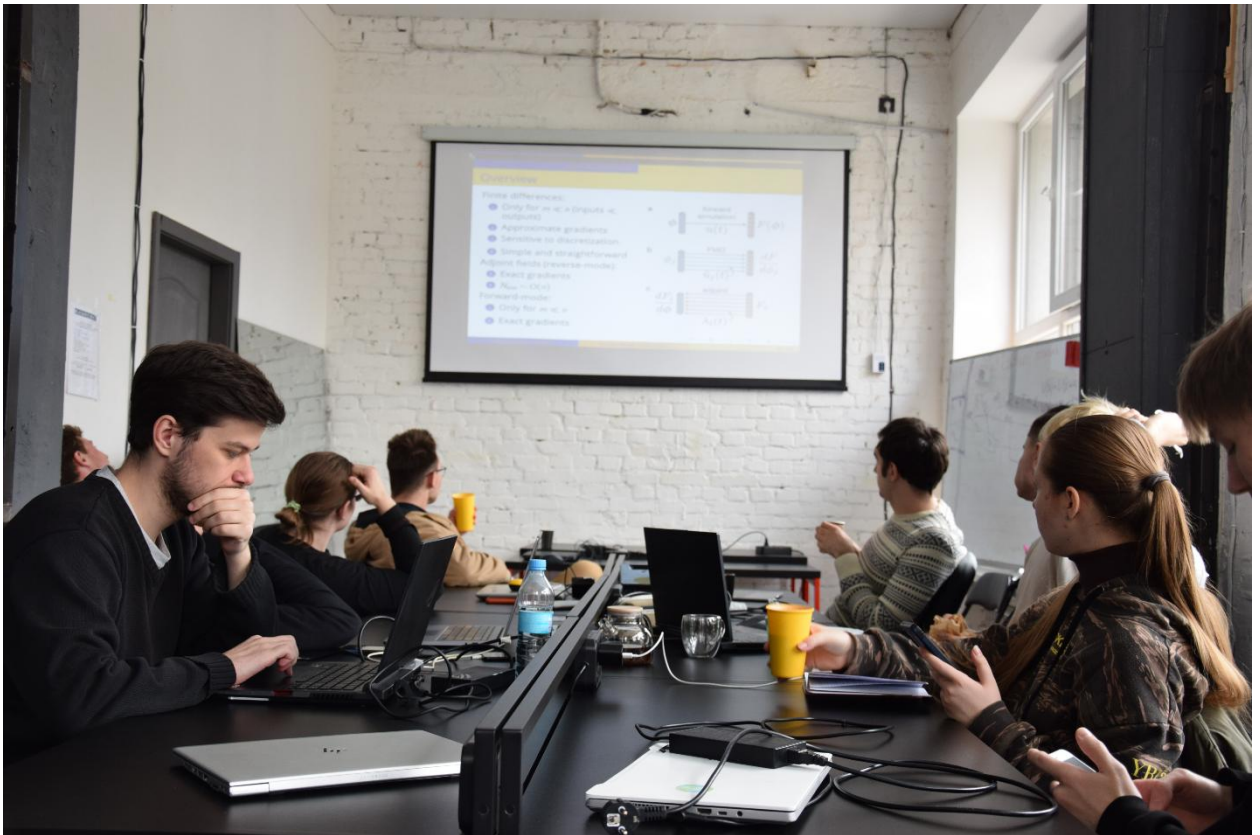




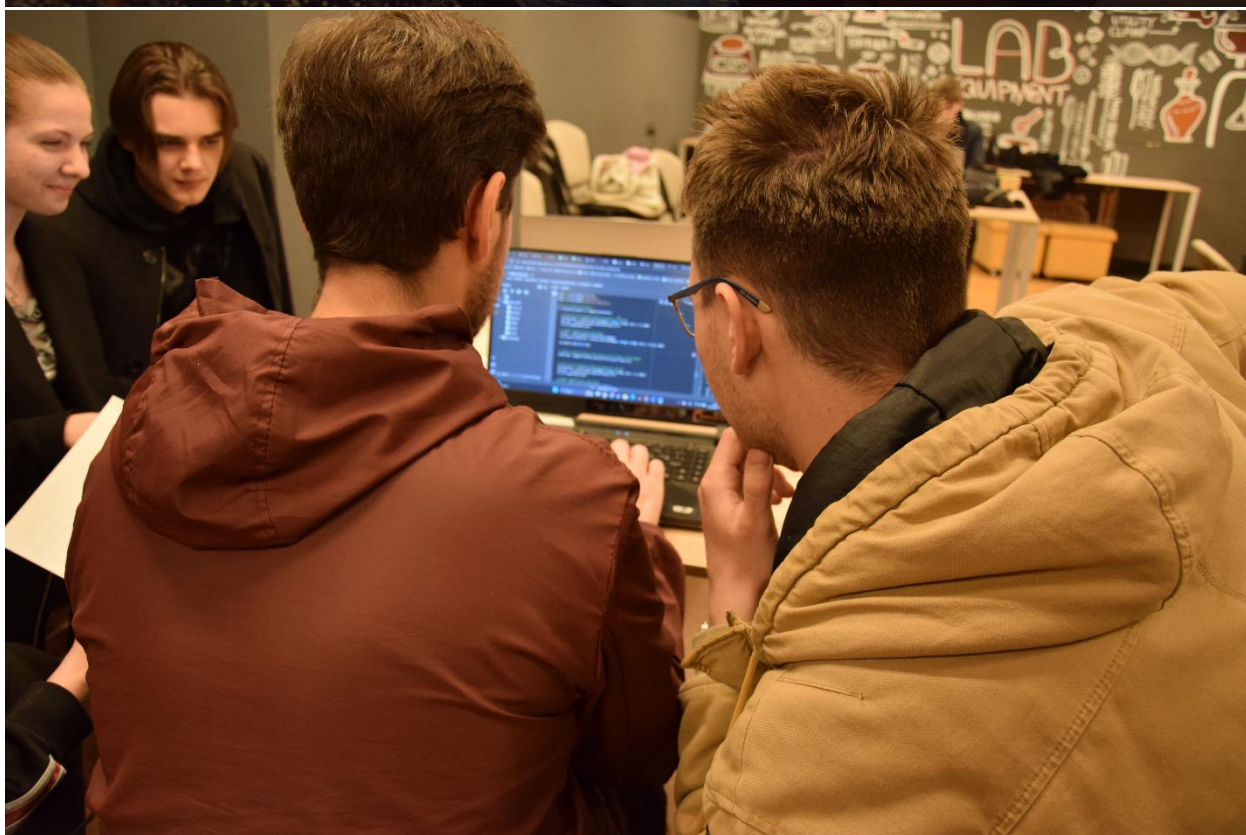
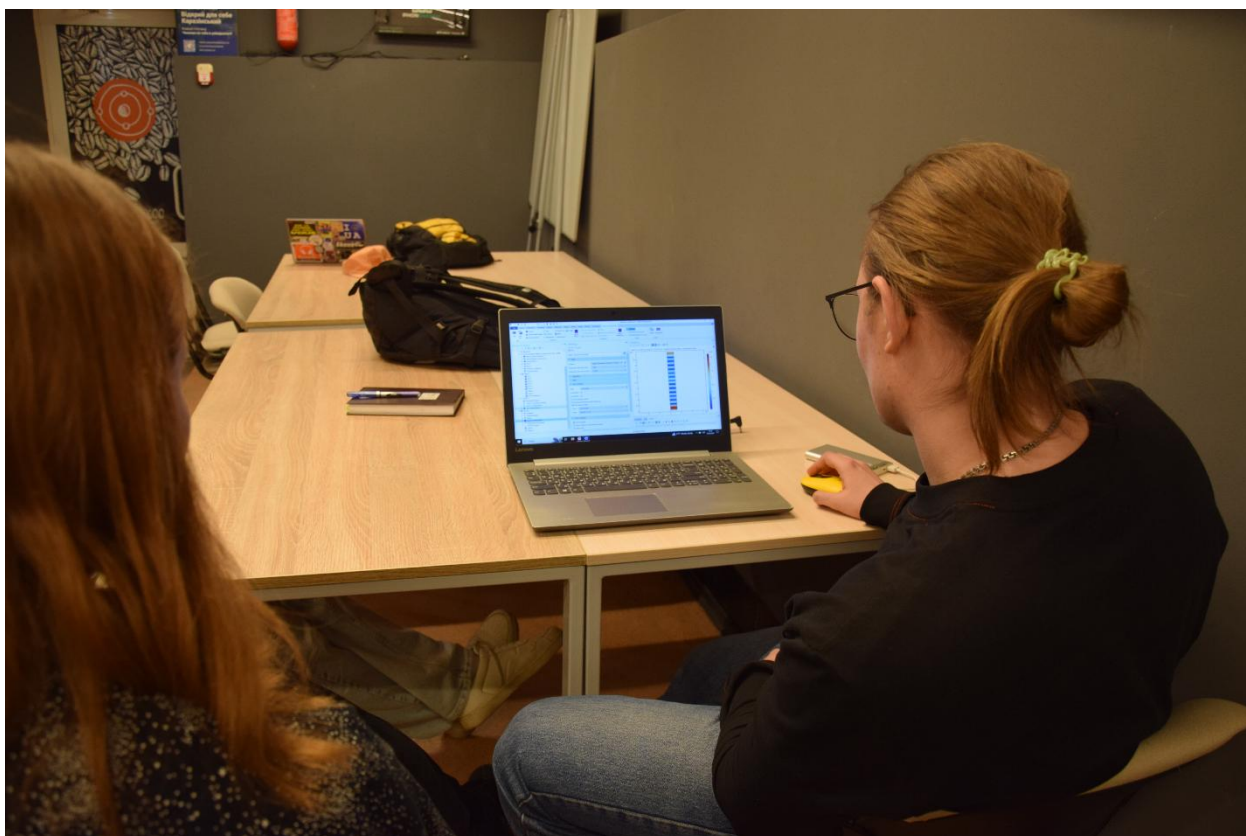
Invited talk by Kyrylo Gorokhovskiy, Photonics Cluster Ukraine



Practical lesson №2. “Automatic waveguide design” by Dr. Anton Ovcharenko



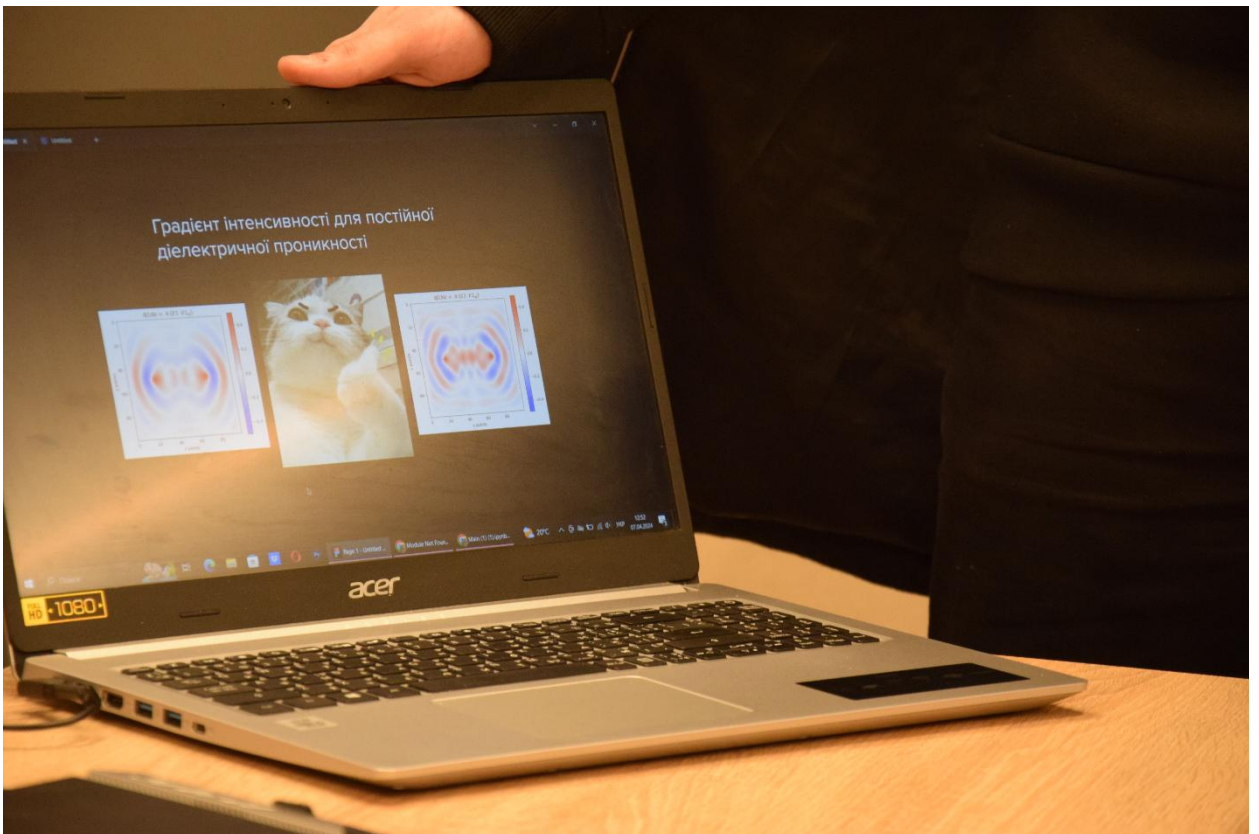
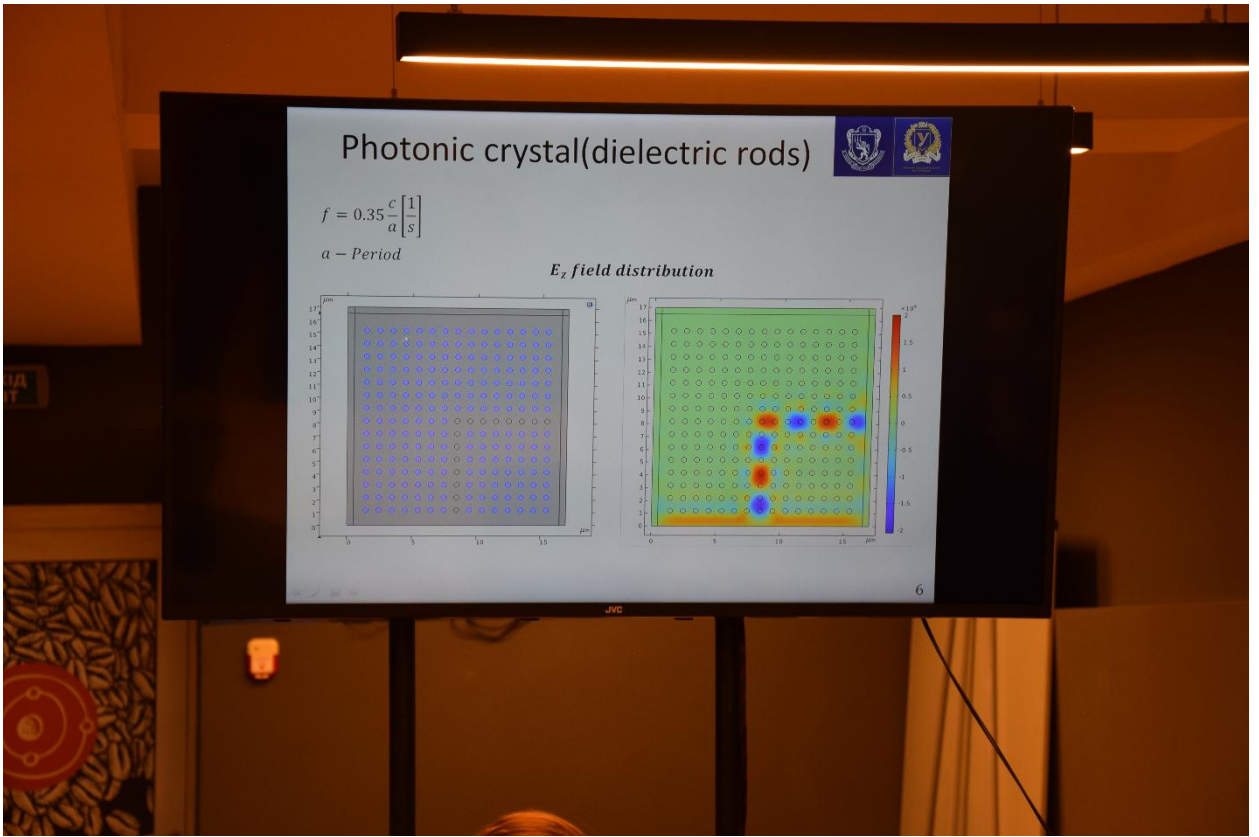
Work on scientific projects, their presentation and discussion











Closing ceremony





Oleh Demianyk from V. N. Karazin Kharkiv National University was awarded the Best Poster Award.

