



Wrocław
University
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and Technology



ELI - WrUST collaboration

Afterthoughts, feedback and summary

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HR EXCELLENCE IN RESEARCH

Summary of collaboration

- 2 excursions – presentation of ELI-Beamlines
- 2 PhD schools – ELI-Beamlines and ELI-NP.
- 23 summer internships
- 2 BSc thesis'
- 1 MSc thesis
- 1 indexed publication

Agenda

1. Excursions
2. Internships
3. Schools
4. WrUST student profile
5. Possible Improvements of collaboration

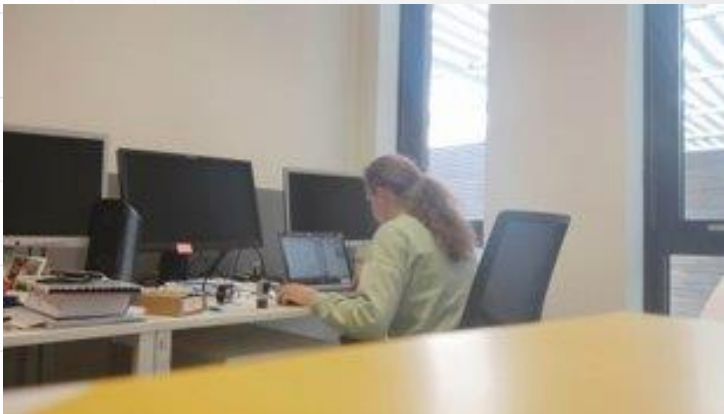
Excursions

- Present ELI-Beamlines to students
- Facility tour
- Short lectures
- Internship program



Internships

- 2 summer months in Prague
- Junior and Senior students
- Variety of topics:
 - Control system design
 - Backend programming
 - Simulations
 - Network management
 - PCB design
 - Optical element design
 - Machine Learning
 - Cybersecurity



Internships' topics

- Topics:
 - Development of temperature and pump control software
 - 2 factor authentication research and case study
 - Development of infrared light measurement system – hardware and software
 - Development of high-voltage power supply control software
 - Development of embedded audio/video/signal PC communication device
 - Development of Large Modular Wavefront Sensor
 - Development of Machine Learning algorithm for optimization of laser beamshaping

Students

- Control Systems:
 - Aleksander Kubeczek
 - Sergiusz Warga
 - Amadeusz Świerk
 - Sebastian Niekrasz
 - Kamil Mężyński
 - Mateusz Wieczorek
 - Piotr Grobelny
 - Jakub Sychniak
- MAC:
 - Artur Łajdecki
- LOUIS:
 - Miłosz Lepak
 - Maciej Stalmach
 - Michał Porębski
- Bio and material applications:
 - Katarzyna Kunio
- MAIA:
 - Alicja Kwaśny
 - Mikołaj Krakowski
- X-Ray:
 - Grzegorz Machura



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ELI – WrUST Collaboration

Work... and more





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ELI – WrUST Collaboration

PhD Schools

- ELI-NP Autumn School 2022
- 5 days of lectures
- Poster session
- Lab tours



eli
nuclear physics

ELI-NP Autumn School

3 - 7 October, 2022
ELINP Training and Conference Center
Magurele, Romania

TOPICS

- Laser technologies and facilities
- Laser metrology
- High energy density physics and Inertial Confinement Fusion
- Laboratory astrophysics
- Laser driven ions
- Electron acceleration
- Strong field quantum electrodynamics
- Particle in cell simulations for laser-driven experiments
- Radiotherapy, FLASH effect and irradiated biomolecules

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Accomplishments

- 2 excellently defended BSc thesis
 - Control System Development for Ultra-High Voltage Power Supply in High Energy Ion Spectrometer
 - Development of Software Controlling the Laser Dispersion Control System Using Machine Learning Mechanisms
- 1 MSc thesis followed by a publication in MDPI Photonics

Open Access Article

Generation of Uniform X-ray Illumination and Its Application to X-ray Diffraction Microscopy

by  Katarzyna Kunio ¹ ,  Shirly Espinoza ²  and  Krishna P. Khakurel ^{2,*} 

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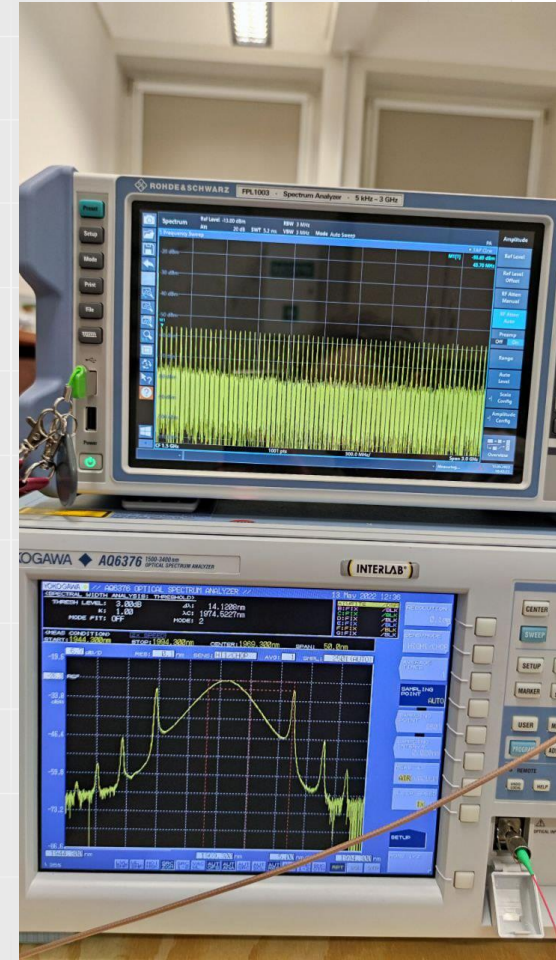
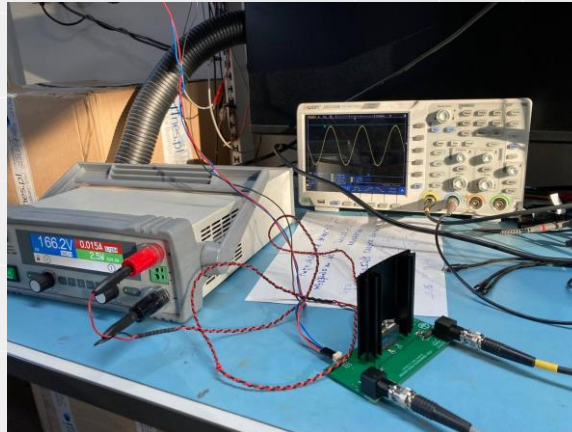
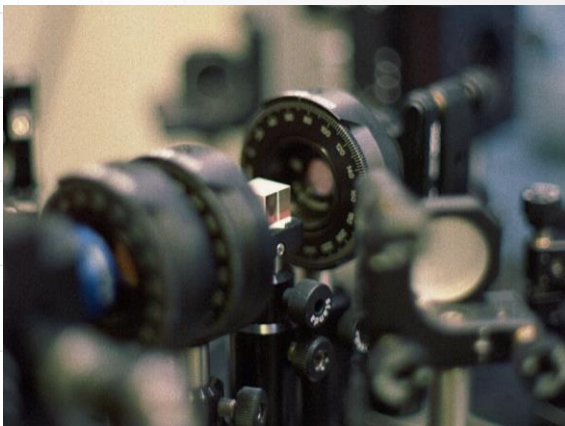
* Author to whom correspondence should be addressed.

Photonics **2022**, *9*(12), 934; <https://doi.org/10.3390/photonics9120934>

WrUST students' profile

Most students specialize in:

- Electronic systems design
- Analog and digital technique
- Embedded systems
- Computer science
- Signal processing
- Fiber optics and optoelectronics



How can We improve the collaboration?

- Deepen entry theoretical knowledge of students
 - Lectures - introduce students to the research conducted
 - Simple workshops, together with excursions
- Easier internship enrollment
 - Through university representative
 - Ability to assign internship based on student skills
 - Internal selection
 - More opportunities for BSc/MSc projects
- Quality of living
 - Accommodation
 - Public transport refund

Thank you for your attention!

And thank you ELI for the years of collaboration!

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