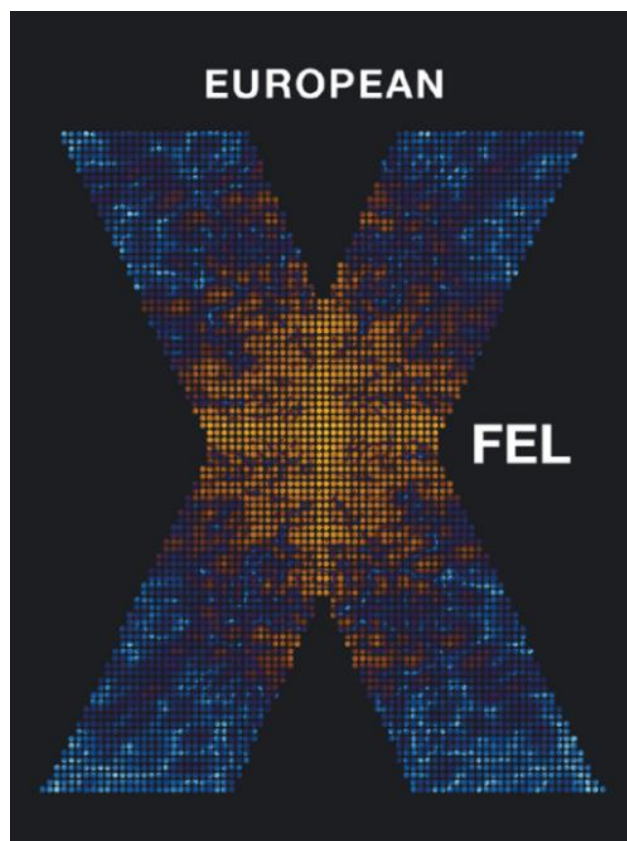


"Science with X-ray Free Electron Lasers"

The "Science with X-ray Free Electron Lasers" course begins on **October 14, 2024** as part of the Warsaw PhD School in Natural and BioMedical Sciences (WSD) lecture program. This course will explore interdisciplinary research exploiting X-ray free electron lasers across various fields, including physics, materials sciences, chemistry and biology. During the lecture, students will learn about:

- the principles of operation and properties of radiation produced by XFELs,
 - the instrumentation used in XFEL facilities
 - basic x-ray research techniques
 - applications in fields such as protein crystallography, photochemistry, studies of atomic and electronic structure dynamics, magnetism, matter under extreme pressure and temperature conditions, non-linear x-ray optics
- Interested students will have the opportunity, under guidance of experts, to prepare XFEL research projects related to their field of research or another selected topic.



It will be the 4th edition of the course. It is organized within the Ministry of Science and Higher Education (MNiSW) project supporting the development of the Polish XFEL scientific community. The lecture is primarily intended for PhD students and is open to external students from outside the WSD. Master's degree students may attend with the approval of the organizers. The course will be taught by specialists in various fields related to the applications of x-ray free electron laser radiation: Prof. Ryszard Sobierajski (Institute of Physics Polish Academy of Sciences), Prof. Jerzy Antonowicz (Warsaw University of Technology), Dr. Wojciech Błachucki (Institute of Nuclear Physics Polish Academy of Sciences), Prof. Wojciech Gawelda (Adam Mickiewicz University), Prof. Katarzyna Jarzemska, (Warsaw University), Prof. Marcin Sikora (Jagiellonian University).

The course will be conducted **in English** and delivered remotely via the **ZOOM platform**. During the winter semester, it will take place **every Monday from 9:15 am until 11:00 am**. Each participant will have the opportunity for interactive consultations with the lecturers. The course will conclude with a test on the lecture material, which is required to pass and will earn **2 ECTS credits**. An **additional 1 ECTS** credit will be awarded for a successfully completed project.

Students interested to participate are asked to contact at the email address:

cd-xfel@ifpan.edu.pl.

Further information will be available at the webpage:

<https://www.ifpan.edu.pl/cd-xfel/dzialania/kurs-dla-studentow-i-doktorantow/>

I cordially invite you to participate,
Ryszard Sobierajski, Institute of Physics PAN

