

PolFEL project: towards the construction of the Polish THz/IR/VUV Free Electron Laser

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The idea of building a 4th generation accelerator based light source at NCBJ has been developed for almost 20 years. The concept came to reality in 2018 after receiving the funding for the construction of the Polish Free Electron Laser – PolFEL (or formally, its first stage). The PolFEL device will be driven with an RF continuous-wave superconducting linac, including a superconducting injector furnished with an in house developed lead film superconducting photocathode. The linac will be split into three branches feeding the undulator chains dedicated to THz, IR and UV/VUV coherent electromagnetic radiation emission, respectively. In effect, PolFEL will provide a wide range of light with wavelengths from 0.6 mm down to 60 nm. In addition, the facility will be furnished with a station generating short X-ray pulses in the inverse Compton scattering process. In the presentation, we will describe the PolFEL facility and its research capabilities in more details. The current status of the project and its timetable will be also presented. Finally, we will indicate the plans for further extension of the facility in the second stage the preparation for which should start right after the completion of the current stage.

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