

## Overview of the PolFEL facility and current progress

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For the first stage of the PolFEL facility, a low emittance electron bunches will be generated in an SRF injector and then accelerated with the TESLA superconducting accelerating structures. The linear accelerator (linac) driving the facility will have two beam lines, a THz/IR-beamline and VUV-beamline. Maximal electron energy for the continuous wave (CW) operation will be 79 MeV and 157 MeV for the THz/IR-beamline and VUV-beamline respectively. For the long pulse (LP) operation the maximal energy of 187 MeV will be achievable in the VUV-beamline at duty factor of 65%. The electron bunches will be compressed by three bunch compressors, two in the VUV-beamline and one in the THz/IR-beamline. Three undulators will be installed in the PolFEL tunnel to generate THz-radiation, IR-radiation and VUV-radiation. Additionally, the VUV-beamline electron beam after it passed the undulator will be directed to the Inverse Compton Scattering process to generate high energy photons for the experiments in dedicated station.

The CW and LP operation modes and the energy reach will make the PolFEL facility complementary to other FELs in Europe offering new experimental opportunities to the photon researcher's Community.