Deutsches Elektronen-Synchrotron DESY
in der Helmholtz-Gemeinschaft

European XFEL Project Team

Hamburg

Prof. Maria Orlowska
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Dear Professor Orlowska,

I am writing to express my support for the project of a Free-Electron Laser to be realized by the Soltan Institute for Nuclear Studies in Swierk (POLFEL). This facility would create highly intense beams of coherent ultraviolet and softer x-ray radiation, and allow a scientific program at the frontiers of basic and applied research on the structure of materials, including biological materials, and matter under extreme conditions, to be presently found and investigated only in astrophysical environments.

As the leader of the European Project Team for the realization of the European X-ray Free-Electron Laser in Hamburg (a facility based on the same principles but aiming at producing much shorter wavelengths, in the region of hard x-rays, with complementary fields of application), I am very familiar with the activities in this domain of accelerator physics and optical science which are carried out in Poland. A consortium of Polish laboratories, coordinated by the Soltan Institute, is actively involved on the development of some of the crucial components of the linear accelerator which lies at the heart of a free-electron laser. There is therefore significant expertise in Poland for the realization of such a large instrument. I would also like to add that Polish scientists are frequent visitors to Hamburg, as users of the existing FLASH Free-Electron Laser, and form the core of a future user community of the new facility.

It is important to underline that significant synergies are possible between the European project in Hamburg and the Polish project in Swierk. On the one hand, in view of the existing collaboration, the know-how and the direct knowledge on the latest developments in the frame of the European project would be immediately and directly available to the Polish project. On the other, we look with great interest to the development of the instrumentation necessary to operate the free-electron laser in the continuous-wave mode, which could in the future become possible also at the shorter wavelengths of interest for our European project.

I should also point out that my experience after twenty years of work in accelerator- based light sources indicates that the countries which have their own national source are those that best profit from the participation in international facilities. This I have observed at the European Synchrotron Radiation Facility (ESRF) in Grenoble, and later at the Elettra source in Trieste. I therefore think that training and experience gained on the Polish source will have a multiplicative effect on the benefits for Poland of participation in the European XFEL.

It is also important to mention the impact of the creation of such large research facilities on the high-technology industry. This is especially visible if the laboratories are located inside or in the immediate proximity of a Technology Park, where start-up firms can grow by delivering to the research facility, or by commercializing in the world market the technology developed for the realisation of the advanced light sources.

I hope you will find these few considerations of some use, and would be honoured and glad to provide more detailed information should you request it.

Sincerely yours,

Massimo Altarelli
European XFEL Project Team Leader