

Project number: FV40398
Provider: Ministry of Industry and Trade
Program: 4th public call of the TRIO program
Realization period: 1st August 2019 – 31st December 2022

Project name:

Innovative Technology for Replicated X-Ray Optics (ITRO)

The main objective of the project is to innovate the replication technology for the production of replicated X-ray optics, which will enable the development of two Functional Samples (exact replicated Wolter I X-ray and precise replicated X-ray optics from non-magnetic material) with world-class features: shape accuracy better than 100 nm (RMS) on the length of 50 mm and microroughness better than 1 nm (RMS) over an area of 10x10 μm . The production of Functional Samples will be possible thanks to new knowledge in the field of X-ray technology acquired during the implementation of the presented project.

The ITRO project is realized in an effective cooperation between partners in both the private sector (Rigaku Innovative Technologies Europe s.r.o. and TTS, s.r.o. company) and the public sector (TOPTEC – the Research Center for Special Optics and Optoelectronic Systems).



The project realization involves solving a series of tasks, which are elaborated on in detail in individual stages; namely:

- research of individual steps of replication technology and improvement of their existing parameters,
- design of innovated replication technology,
- validation of innovated replication technology.

The main anticipated result of the project is Verified Technology for the production of replicated X-ray optics, while another expected outcome is the creation of Functional Samples of Wolter I-type X-ray optics and non-magnetic material X-ray optics. The project will thus contribute to the growth of the potential of key technologies in the areas of photonics and nanotechnologies.