

European Social Fund Plus 2021/2027

FSE+

PPO 2023 S.P. 22/23

Support for higher education within the regional university

With Decree No. 17895/GRFVG of April 19, 2023, the Friuli Venezia Giulia Region published the Notice regarding the submission of operations for Specific Program No. 22/23, which aims to support higher education within the regional university system.

Line A – PhD Programmes

Specific Programme 22/23, through the funding of doctoral scholarships, contributes to the achievement of the objectives of the Sustainable Smart Specialisation Strategy (S4). It supports the development or strengthening of integration with the regional production system and/or research organisations, through coordination and collaboration mechanisms with regional enterprises or research bodies, or by leveraging the potential for technology transfer of processes, products, applications, or, more broadly, research outcomes.

- Notice 2024
- 40th cycle
- Unique Project Code (CUP) J93C23001490008
- Project 2024/1543/3

Doctoral Programme in **Industrial and Information Engineering**

“Advancements in X-ray Virtual Histology: Imaging, Analysis, and Diagnostic Applications”

This PhD research project aims to explore the developments and applications of virtual histology through advanced X-ray imaging technologies.

The main objective of the research is to investigate emerging X-ray imaging technologies and advanced analytical methodologies for virtual histology, focusing on a comparison of the hardware systems available within the scientific institutions of the Trieste research ecosystem, and on the development of tailored image processing and analysis solutions using state-of-the-art methods (machine learning). Furthermore, the PhD will assess the clinical effectiveness and practicality of selected diagnostic applications in collaboration with the Complex Structure of Pathological Anatomy and Histology of the Giuliano Isontina University Health Authority (ASUGI), which has agreed to provide suitable use cases for evaluating the effectiveness of virtual histology.

This PhD will actively contribute to the integration of research bodies through close collaboration between the University of Trieste, Elettra, and INFN. Equally significant is the strengthening of collaboration and partnerships between academic research and regional healthcare institutions, particularly ASUGI. Among the potential impacts of this PhD is the enhancement of regional competitiveness in the biomedical sector through the training of highly qualified researchers and the promotion of technological innovation.

The project is closely aligned with the objectives of the Sustainable Smart Specialisation Strategy (S4), as it promotes innovation in the biomedical sector through the development and application of advanced imaging and data analysis technologies. The project aims to contribute to the creation of innovative diagnostic solutions, thereby reinforcing the Specialisation Area "Health, Quality of Life, Agri-food, and Bioeconomy" and, specifically, "Trajectory 2: Innovative biomedical solutions and systems." The project supports the development of highly specialised skills with a view to potential technology transfer within the regional context.