

Fondo Sociale Europeo Plus 2021/2027

FSE+

Sportello 2025 P.S. 20/24

Sostegno alla realizzazione di dottorati di ricerca

With Decree No. 9526/GRFVG of February 28, 2025, the Friuli Venezia Giulia Region published the Notice regarding the submission of operations for Specific Program No. 20/24, which aims to support higher education through the realization of PhD programs.

Specific Programme 20/24, 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.

- Sportello 2025
- Ciclo 41
- CUP J93C25000640008
- Progetto 2025/6525/9

Dottorato in Nanotechnology

"Atomic Scale Simulations with Machine Learning Techniques for Post-Lithium Battery Materials"

Sodium-ion batteries are an emerging technology that offers significant advantages compared to established lithium batteries, in terms of stability and the availability of raw materials for manufacturing. Studies on sodium batteries are at a less advanced stage compared to those on lithium, and we can therefore expect notable improvements in their performance. Numerical simulations in this field are very useful for obtaining an atomic-scale characterization of the interfaces between the various components of the devices, as already widely demonstrated in the case of lithium batteries. The aim of the project is the characterization of the interfaces between electrode and electrolyte in these new devices, using atomic-scale numerical simulation, combining consolidated methodologies such as quantum-mechanical simulations with new developments in machine-learning techniques. The project is part of a collaboration between various Italian and Japanese partners, both theoretical and experimental. The numerous activities of the PI in this field ensure the presence of expertise, collaborations, and career prospects for the doctoral student who will work on the project.