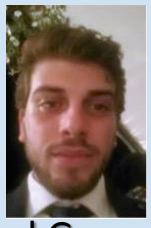
Two-dimensional and three-dimensional multifunctional electrospun systems



Michel Gammino

Removal of pollutants from water

Michele.gammino@unipa.it

Concept (max 1000 characters)

Electrospinning is a promising processing method to obtain 2D or 3D structures, characterized by specific tailored properties, with the possibility to combine different polymers each other or with (nano)fillers or additives. However, this process has shown that the choice of different parameters such as solvents or operating variables, is crucial to obtain working and efficient structures.

Scientific approach (max 1000 characters)

Starting from a careful assessment of the processing conditions and their correlation between structure and properties, the electrospun structures will be assembled in 2D or 3D structures as evaluation material. The work will be organized in the development of a sequence of objectives or work packages (WP), in which the entire evolution of the project will be described, from the state of the art, up to the final validation of the applications.

WP1. State of the art update;
WP2. Selection of polymer based systems and preliminary assessments;
WP3. Setting and optimization of electrospinning parameters
WP4. Characterization of 2D and 3D electrospun systems;
WP5. Optimization and prototyping of devices
WP6. Final application assessment

Research objectives (max 500 characters)

The aim of this project is the fabrication of either 2D or 3D electrospun mats feasible for application in fields that encompass sensors, energy material, bioremediation, tissue engineering. The development and the expansion of the process to obtain 3d structures.