Funded by the European Union
NextGenerationEU

National Recovery and Resilience Plan

Project announcement

„NRRP: Funding for a modern and reformed Romania!“

"Petru Poni" Institute of Macromolecular Chemistry (PPIMC), located in Iasi, 41A Grigore Ghica Voda Alley, Romania, is implementing the project **„Multifunctional hybrid 3D architectures based on hollow GaN nano-micro-tetrapods for advanced applications (MultiPodGaN)”**, under contract no. 760285/27.23.2024, CF 161/31.07.2023. The project is funded through Romania’s National Recovery and Resilience Plan (NRRP), Component C9 – Support for the private sector, research, development, and innovation, under Investment I8 – *Development of a program to attract highly specialised human resources from abroad in research, development and innovation activities*. Financing is provided by the European Union through the NextGenerationEU initiative.

The **MultiPodGaN** project aims at the creation of an interdisciplinary research group at “P. Poni” Institute of Macromolecular Chemistry under the supervision of Prof. Acad. Ion Tiginyanu in the exciting field of 3D Gallium nitride (GaN) nano-micro-architectures. The established research team will be involved in fundamental research in the bio-micro-fluidics of liquid marbles and self-assembled membranes. The advanced multifunctional liquid marbles will be built on the basis of aerogalnite with a view of using them in exploring fundamental bio- and/or chemical processes as well as the interaction of living cells in specific conditions of spatial confinement. Tunable shell material properties will be reached by diminishing the sizes of aero-GaN hollow tetrapods fabricated by direct epitaxial growth of GaN on sacrificial templates consisting of ZnO micro- or nano-tetrapods. Thus, the obtained aero-GaN hollow tetrapods will be subsequently functionalized with macromolecules (synthetic amphiphilic polymers) or biomacromolecules (DNA, proteins or peptides) and investigated for controlled formation of programmed assemblies. Polymer-guided decoration of functionalized GaN units with nanomaterials (metal nanoparticles or carbon nanomaterials) will be examined to produce hybrid materials suitable for the preparation of sensing elements in smart sensors (e.g. self-assembled membranes based on a piezoelectric compound with a 3D microarchitecture consisting of interconnected microtubes with nanometer-thin walls). The project foresees testing of a series of applications for the proposed biocompatible functional 3D GaN nano- and microsystems, including applications as cell supports in supramolecular matrices or design and demonstration of GaN electrochemical or Raman-based sensors.

Implementation period: 28 months (27.03.2024 – 30.06.2026)
Total project budget: 6.042.038,00 RON
Non-refundable financing from the NRRP: 5.600.000,00 RON
VAT value related to the value financed through NRRP: 442.038,80 RON.

Contact

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