

# Project UID/04540/2025 – IST-ID

**Title:** Centre of Physics and Engineering of Advanced materials

**DOI:** [10.54499/UID/PRR/04540/2025](https://doi.org/10.54499/UID/PRR/04540/2025)

Call \* Program \* Area: UID 2023/2024 \* 6817 - DCRRNI ID \* Physics

## Promoting Entity: IST-ID

Research Unit: CeFEMA, Centre of Physics and Engineering of Advanced Materials

## Implementation Period

01/01/2025 – 31/12/2029

## Project Coordinator:

CeFEMA President: João Carlos de Sá Seixas

## Objective:

To consolidate the national and international role of CeFEMA in the development of fundamental and applied research in the fields of the following thematic lines: Structure and Phases of Matter, Quantum Technologies, Materials for Medicine & Health, and Materials for Energy & Sustainability.

## Project Description:

The Structure and Phases of Matter thematic line aims at studying the behaviour of condensed matter, from the quantum level at the scale of atoms and molecules to nanostructured self-organized systems.

The line of Quantum Technologies (QT) aims at developing theoretical and experimental research in three main directions: Quantum Computation & Simulation, Quantum Networks, Energetics of Quantum Computing, development of a Quantum Technologies lab based on Rydberg atoms.

The Materials for Medicine and Health line aims at optimizing the effectiveness of extracorporeal blood circulation devices, artificial organs, and drug delivery vehicles through hemo/biocompatible materials through a combination of nano-design and manufacturing combined with an understanding and control of the Chemistry, Physics, and Biology of blood-material interfaces.

The Materials for Energy and Sustainability line develops low-cost materials for efficient devices (electrodes and membranes) in view of energy storage and conversion. In addition, it develops methods based on additive manufacturing and surface engineering based on advanced laser processing techniques, which are at the heart of sustainable manufacturing.

## Funding

Funding Agency

FCT – Fundação para a Ciência e a Tecnologia, Portugal

Eligible Cost  
646.650,78 €

National Funding  
646.650,78 €

This project is funded by FCT through national funds