

FMF

◆ Innovative Walloon Coatings ◆



CONTEXT

The ERDF “Multi-Functional Films” (FMF) portfolio of projects pools expertise and cutting-edge scientific equipment in the field of coatings to improve conventional materials and to boost the development of business sectors with high growth potential in the Walloon Region.

In practice, the 11 projects cover 5 areas of application: mechanical engineering, energy, environment, medical equipment, and pilot tools. The projects aim to develop intelligent and sophisticated functional systems by associating technological companies, component manufacturers, contractors and subcontractors under the auspices of the MECATECH Competitiveness Cluster.

11 PROJECTS

BIODEC

BIODEC develops innovative eco-friendly and sustainable coatings capable of degrading indoor air pollutants through the use of natural molecules. The coatings are applied in aqueous phase to existing structural elements of enclosed living areas.

Partners: ULiège, UMONS, Materia Nova, UCL

Contact: christophe.detrembleur@uliege.be

CLEANAIR

CLEANAIR aims to develop hybrid surfaces with nano-domains active in air decontamination by catalytic reaction at room temperature. These dry synthesised coatings (plasma) are integrated into ventilation systems and break down VOCs from modern building materials, thereby limiting their concentration in habitats.

Partners: Materia Nova, UMONS, ULB, UNamur

Contact: rony.snyders@umons.ac.be

INOXYPEM

The goal of INOXYPEM is to establish a prototyping platform for bipolar plates of coated stainless-steel PEM fuel cells through the development of appropriate manufacturing tools, design tools (modelling) and physical, chemical and electrochemical characterisation.

Partners: ULiège, CRM Group, UNamur, Cenaero

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LoCoTED

LoCoTED aims to identify the best performing compounds from a new class of thermoelectric materials and integrate them as a coating in a new type of low-cost thermoelectric converter to convert rejected thermal energy from the cold source of industrial installations into electricity.

Partners: UCL, ULiège, CRIBC, CRM Group, Materia Nova

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SOLIDYE

SOLIDYE aims to develop a new generation of photovoltaic cells (perovskite cells and dye cells). It is based on the development of new materials (dyes, solid electrolytes, perovskite) and new architectures in order to optimise cell efficiency (>15%) based on transferable processes on an industrial scale.

Partners: ULiège, UMONS, ULB

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AMORPHO

This project aims to develop corrosion-resistant "metal-glass" layers. These materials have exceptional properties because they combine those of metals and polymers, making it possible to modify the properties of the treated parts without changing the bulk material.

Partners: Materia Nova, ULB

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DIAG&GROWTH

The aim of this project is to help manufacturers using cold plasmas to transfer their functional coating synthesis processes from one preparation chamber to another. The project is also designed to predict, through simulation, the microstructure of coatings deposited in a specific plasma condition.

Partners: UMONS, UNamur

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PROSTEM

The use of adult stem cells to produce replacement tissue or to repair existing tissue is a rapidly expanding medical approach. PROSTEM aims to produce materials for large scale ex vivo production and in vivo integration of these cells to develop new therapeutic treatments.

Partners: UCL, ULiège, Materia Nova, UMONS

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HYCARNIT

This project aims to develop nano-hybrid «ceramic» films, particularly carbides, with modular tribological and mechanical properties. This modularity, offered by plasma technology, makes it possible to respond to different industrial applications with a single material.

Partners: Materia Nova

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HYBRITIMESURF

This project proposes an innovative way of protecting light metals and alloys, combining electrochemical oxidation of a substrate and wet application of a hybrid organic/inorganic thin-film coating, in order to obtain increased barrier protection, enhanced mechanical strength, and excellent adhesion between the coating and the substrate.

Partners: UMONS, Materia Nova, CRM Group, ULiège, ULB

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3DCOATER

Platform of surface treatment equipments and coatings of 3D objects of different geometries and dimensions (ranging from μm^3 (powders) to m^3), using different processes, including wet and dry ones, under vacuum or atmospheric pressure (application of paints, sol-gels, PVD [sputtering and evaporation], PECVD, thermal projection, plasma torch, etc.).

Partners: CRM Group, Materia Nova, Cenaero, UNamur, ULB

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Partners



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