



INSTITUT DES MOLÉCULES ET MATÉRIAUX DU MANS (IMMM) - UMR CNRS 6283
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The research activities of the institute are based on well-established know-how and recognised expertise of chemists, physico-chemists and physicists in the domain of materials. From the synthesis of organic molecules to the study of the physics of ultra-short phenomena, including the design, characterisation and modelling of new materials, the IMMM covers all of the subject areas in the physico-chemistry of matter. The areas of application are wide-ranging and can involve bioactive compounds, functional materials for the fields of energy, environment and sustainable development, healthcare, food industry, plastics, soft matter and optics.



180 people including
76 researchers and teachers-researchers
60 doctoral students and postdoctoral fellows
30 administrative and technical staff



Partnerships

The laboratory collaborates with many other sites in France and internationally: Japan, Poland, Thailand, Ukraine, Mexico, Tunisia, Lebanon, Morocco, Vietnam & USTH Franco-Vietnamese University, Australia. The IMMM has also developed particularly dynamic relations with the socio-economic world: AREVA, ARKEMA, Bel, Danone, Hutchinson, Nestlé, Saft, Schlumberger, Solvay, STM, L'Oreal, Total, Unilever,...



State-of-the-art equipments in synthesis and formulation, microscopy, diffraction, local spectroscopies, radiation scattering, rheology, plasma, combined with innovative techniques constitute a unique and attractive instrumental platform at regional, national and international levels. All of this equipment is complemented by a platform for high performance computing (HPC).

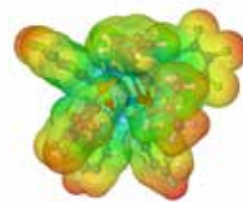
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4 priority scientific fields

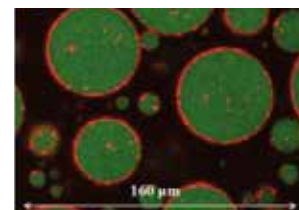
Organic Synthesis

The work in relation to Organic Synthesis focuses on the discovery and development of new reactions in organic chemistry, particularly in the area of cycloadditions, polar organo-metallics, diazo compounds and the promotion and valuing of bioresources. The fundamental research developed has applications in the field of healthcare, in particular for the synthesis of molecules for therapeutic purposes, and in molecular engineering.



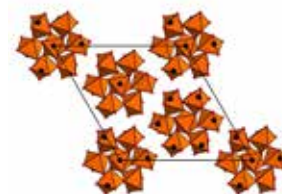
Polymers

The axes for research in relation to the Polymers theme are focused on the elaboration and study of the properties of polymer materials with offering functionalities of interest in bulk or for interfaces. These axes are founded on a set of complementary skills (chemists, physico-chemists and physicists) and a consequent range of instruments which enable the research theme, via a close association between basic research and applied research, to meet expressed needs in the fields of healthcare, energy, transportation and the environment.



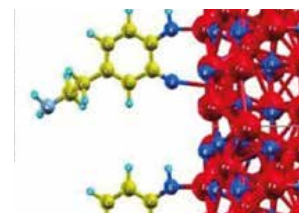
Inorganic materials

The materials, inorganic oxides and fluorides or hybrids, are elaborated in the form of micro or nano-sized powders, single-crystals, glasses, glass-ceramics or thin films. By determining the intimate arrangements of these materials at the atomic scale, a better understanding of their properties is obtained. The applications targeted include the fields of energy, environment and healthcare.



Physics of confined systems

The research conducted in relation to PCS, at the interface of the science of materials, condensed matter physics and soft and ultra-divided matter, aims to understand the phenomena which occur at the small scales of space and time. In particular, the main axis of this research, is the study of relations between the confinement, the structural organisation and the dynamics in materials for better knowledge of magnetic, electrical and molecular orders.



Research areas

