IPREM
INSTITUTE OF ANALYTICAL SCIENCES AND PHYSICO-CHEMISTRY FOR ENVIRONMENT AND MATERIALS

IPREM / UMR 5254

Fields of application
The environment
Energy storage and conversion
Health, cosmetics
Transportation (aeronautics, automobile)
Biomass valorization
Management of the subsurface and carbonate resources

Research hubs and know-how

HUB 1: ANALYTICAL, PHYSICAL AND THEORETICAL CHEMISTRY

Physical chemistry, quantum chemistry, molecular dynamics, speciation, experiment-theory coupling, electrochemistry, optical and photoelectron spectroscopy, mass spectrometry, laser, analytical strategies, metrology.

HUB 2: PHYSICAL CHEMISTRY OF POLYMER SURFACES AND MATERIALS

Chemistry of materials, chemistry of polymers, synthesis, functionalization, self-assembly, elaboration, physico-chemical characterizations (spectroscopy, microscopy, radiative diffusion, etc.), physical chemistry of surfaces, interface reactivity, surface treatments, polymer physics.

HUB 3: ENVIRONMENTAL CHEMISTRY AND MICROBIOLOGY

Biogeochemistry, (eco)toxicology, microbial ecology, microbiology, bio-inorganic chemistry, molecular biology, physico-chemical speciation, isotopy, elementary imaging, biochemistry.

Investments for the future

MARSS (Equipex): Mass spectrometry center, specialized in chemical speciation and reactivity
XYLOFOREST (Equipex): Wood transformation and forest management
STORE-EX (Labex): Electrochemical storage of energy
AMORAD: Radionuclide prediction and dispersion

Joint laboratories

C2MC: Molecular characterization of complex matrices (oil/polymers). Universities of PAU & ROUEN / TOTAL
LERAM: Laboratory for the study of rheology and adhesion of adhesives intended for medical applications IPREM/URGO RID

Main equipment

Elementary mass spectrometry (ICP MS, high-resolution ICP MS, laser ablation and coupled techniques)

Isotope-ratio mass spectrometry (multicollector ICP MS, high-resolution multicollector ICP MS)

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Organic mass spectrometry (Exactive Orbitrap LC, Lumos Orbitrap LC, LC-IMS)

Imaging and surface mass spectrometry (Nano-SIMS, ToF – SIMS)

Photoelectron spectroscopy (UPS, XPS)

Electron spectroscopy (SEM-AES)

UV-vis, IR, Raman spectroscopy

High-performance computation cluster

Scanning electron microscope (SEM), near-field (STM-AFM), fluorescence

NMR

200-m² polymer synthesis lab

NGS sequencer, DNA sequencer, qPCR

Partnerships

Industrial partnerships: AGILENT, AIRBUS, ALLTECH, ARKEMA, BELECTRIC OPV, EMAC, MERCK, PVDSA, SAFT, STMicroelectronics, STORENGY, Teréga[1], TORE, TOTAL, TOYAL, Safran Helicopter Engines

Institutional partnerships: ADEME, CEA, IFP, IFREMER, IRSN, LNE

Spearheaded by

IPREM in figures

115 permanent staff members (ITA, researchers, BIATSS, lecturers-researchers)

120 temporary staff members (PhD students, post-doctoral researchers, fixed-term contracts, professors emeritus)

Contact:
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[1] formerly TIGF (Transport Infrastructures Gaz France)