The Institute of Analytical Sciences and Physico-Chemistry for Environment and Materials (IPREM) is a Joint Research Unit CNRS / UPPA (UMR 5254).

**Research Themes**

- New characterisation, analytical tools and methods and modelling concepts: computation codes and strategies
- Structure – property relations: from molecule to material (synthesis, characterisation and modelling)
- Surfaces and interfaces: reactivity, mechanisms at interfaces, nanostructures, functionalisation of polymer surfaces
- Ecodynamics of contaminants, micro-organisms and tracers: biogeochemical cycles, fate of pollutants, biological, chemical and photochemical reactivities
- Molecular responses of living organisms: toxicity and bioavailability of metals, cold plasma effects

**Application Sectors**

- Environment
- Energy conversion and storage
- Health and Cosmetic products
- Transport (Aeronautical, Automobile)
- Biomass conversion
- Management of the subsoil and carbon-based resources

**Instrumentation**

- Elementary (ICP-MS), Isotope (Multicollector ICP-MS), Molecular (Electrospray, MS/MS, FT-MS) mass spectrometry
- Photoelectronic (UPS, XPS), electronic (AES) spectroscopy
- UV-Vis, IR, Raman spectroscopy
- High performance computation cluster
- Scanning electron (SEM), Near field (STM-AFM), Fluorescence microscopy
- NMR
* 200 m² polymer synthesis laboratories
* NG Sequencer, DNA Sequencer, qPCR
* Laser Ablation

**Excellence programmes**

* **MARSS** (Equipex): Mass spectrometry centre, for the speciation, chemical reactivity and imaging for environmental and material sciences
* **XYLOFOREST** (Equipex): Transformation of wood and forest management
* **STORE-EX** (Labex): Electrochemical storage of energy
* **TOURS 2015**: Development of a Numerical Economy: energy integrated micro-sources
* **AMORAD**: Forecasting dispersion of radionuclides

**Associated Technological Centres**

* **UT2A**: Ultra Trace Analyses Aquitaine - Technological centre for analytical chemistry
* **CANOE**: Technology transfer platform in the field of composites based on nanoreinforcements and bioreinforcements

**Partnerships**

**Industrial**

AGILENT, AIRBUS, ALLTECH, ARKEMA, BELECTRIC OPV, EMAC, EXON, MERCK, PVDSA, SAFT, ST-Microelectronics, STORENGY, TIGF, TORE, TOTAL, TOYAL, TURBOMECA

**Institutional**

ADEME, CEA, IFP, IFREMER, IRSN, LNE

**European and International Projects**

* **BIOCHROME**: Foncicyt
* **BIOSOURCE-COMP**: Interreg - Poctefa
* **EUROLIS-HELIS**: Nanotechnologies Materials Production (NMP)
* **ELENA**: Interreg - Poctefa
* **ESTABLIS**: FP7 People - ITN
* **METMIC**: Europe CTP Espagne
* **METRA**: The European Metrology Research Programme (EMRP)
* **MOTAUR**: FP7 People - IEF
Staff

* 42 Full Professors
* 46 Assistant/Associate Professors
* 26 Post-Docs
* 61 PhD students
* 55 Research & Technical Staff
* 10 Administrative Staff

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