



LPL

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At LPL (*"Laboratoire de Physique des Lasers"*), scientific activity is essentially experimental in the fields of Physics and Optics.

> **Research works** at LPL study the physical interactions between matter and waves, either in fundamental Physics (atomic and molecular physics, spectroscopy...) or in more applied domains (organic light-emitting diodes, biomedical optics...), and often at the border of other areas of science such as solid-state Physics, Chemistry, Biology or Nanosciences. These studies range from isolated atoms to living media, including simple or complex molecules, molecular clusters and materials.

> **Waves** are either a coherent light (laser) that is used as a tool for obtaining information about the medium studied, or a matter wave to be studied for itself.



LPMTM (LSPM)

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LPMTM (*"Laboratoire des Propriétés Mécaniques et Thermodynamiques des Matériaux"*), a CNRS unit (INSIS), gathers scientists in Mechanics, Metallurgy, Chemistry and Physics for investigating the relations between the microstructure of materials and their mechanical and physical properties and behaviour under various loadings.

> **The combined disciplinary fields and the available equipments** provide the LPMTM with skills along the chain elaboration – characterization – modelling – simulations regarding its domains of excellence in :

- 1°) crystalline plasticity, recrystallization, forming,
- 2°) damage and fracture,
- 3°) high pressures and phase transitions,
- 4°) magnetism and magneto-mechanical coupling.



L2TI

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L2TI (*"Laboratoire de Traitement et Transport de l'Information"*) was founded at the university Paris 13 in 1998, and was recognized as *"Equipe d'Accueil"* (EA3043) by the French Ministry of Education and Research in 1999. The L2TI main research focus is on the development of applied and theoretical research on Data Processing and Transmission. More specifically, the topics addressed by the L2TI are related to multimedia content processing and analysis, and computer networking. The L2TI is structured into 2 teams, working on these two fields of research.

> **At L2TI** there are 19 permanent senior researchers, 25 PhD students, 2 teaching / research assistants, 2 post-docs, 2 research engineers, 1 technical staff and 1 administration officer.



Research laboratories at Institut Galilée

Faculty of Science at University Paris 13



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LBPS-CSPBAT



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www-galilee.univ-paris13.fr



L'Université Paris 13 fait partie du PRES Sorbonne Paris Cité et du Campus Condorcet



Presentation

Jean-Pierre Astruc and the direction board

At University Paris 13, Institut Galilée is a center of excellence in science that brings together laboratories for scientific research in the fields of biomaterials and polymers (BPC, LBPS / CSPBAT), mathematics (LAGA), computing and information processing (LIPN, L2TI), physics of lasers (LPL), as well as materials and high pressure (LSPM : LIMHP, LPMTM).

The students follow curricula in mathematics, informatics, physics, and chemistry, either in the framework of Bachelor + Master + Doctorate, or in the framework of "Grande Ecole" Sup Galilée (with specials in Applied Mathematics, Informatics, Telecommunications, Energy). The masters are devoted to mathematics and informatics, informatics, image and networks, physics and applications, chemistry-health engineering biomaterials.



BPC

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BPC ("Bioingénierie des Polymères Cardiovasculaires") of Inserm U698 is a multidisciplinary team with doctors, engineers and scientists in biology, chemistry and physico-chemistry of polymers working together on common programs.

> **The themes of the laboratory** are mainly on Chemistry-Biology interfaces, Bio-engineering and Biotherapies for cardiovascular applications.

> **The scientific programs** concern the cardiovascular engineering (cellular, genic and pharmacological therapies ; biomaterials), the diagnosis and the medical imaging.

> **Combining technology** and health, the R&D projects are important (industrial partnerships, PhD with industry (CIFRE), patents, contracts) associated to activities of training and an important achievement of high quality publications.



LAGA

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LAGA ("Laboratoire Analyse, Géométrie et Applications") gathers approximately 70 permanent researchers, 50 PhD students and an administrative and support staff of six people. At LAGA, seven research teams cover a broad spectrum in pure and applied mathematics. In pure mathematics, it extends from arithmetics and algebraic geometry to partial differential equations and mathematical physics, encompassing algebraic topology and dynamical systems. In applied mathematics, LAGA researchers are involved in modelization and numerical computation as well as probability theory and statistics. They apply such tools to aeronautics, information and image processing, biosciences and environment, economics.

> **The laboratory publishes numerous papers in top academic journals**, is involved in cooperative research contracts and is active in industry consulting.



LBPS / CSPBAT

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CSPBAT ("Chimie, Structures, Propriétés de Biomatériaux et d'Agents Thérapeutiques") or "Chemistry, Structure and Properties of Biomaterials and Therapeutic Agents" is a CNRS research unit (FRE 3043) created on January 1st, 2009 that comprises 3 (4 in January 2011) research teams. It is headed by Véronique Migonney (Professor at University Paris 13).

The **LBPS ("Laboratoire de Biomatériaux et and Polymères de Spécialité")** team is part of Institut Galilée. The main competency of LBPS is the macromolecular chemistry for biomedical applications and principally for biomaterials and tissue engineering in joint prostheses applications.

> **Research topics are :**

- macromolecular synthesis of bioactive polymers
- grafting of bioactive polymers on polymers and / or metals
- elaboration of bioactive scaffolds
- evaluation of the biological response in vitro and in vivo in collaboration with clinicians.

> **LBPS / CSPBAT** is the laboratory of reference for the Master degree "Chimie, Ingénierie de la santé, Biomatériaux" (dir V. Migonney)



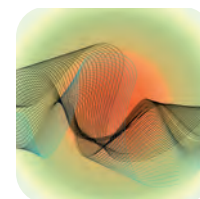
LIMHP (LSPM)

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At **CNRS-LIMHP ("Laboratoire d'Ingénierie des Matériaux et des Hautes Pressions")** the scientists and engineers conduct fundamental and applied scientific research following two main objectives :

> **The development** of novel processes for the elaboration, processing and shaping of ceramic, carbon and metallic materials.

> **The integration** of materials in novel processes, systems, and devices, that show potential interest in many application fields such as energy, environment, transportation, etc. More specifically, the research teams at CNRS-LIMHP possess a strong expertise in the fields of thin film deposition, surface treatment, ceramic materials for photonic and photovoltaic applications, powder processing (compacting and shaping), as well as elaboration of catalytic materials and their integration in novel catalytic systems.



LIPN

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LIPN ("Laboratoire d'Informatique de Paris Nord") has been partnered with the CNRS (UMR 7030) since 1992. Its researches deal with reasoning automation around the strong axes of Combinatorial Optimization, Fundamental Computer Science and Artificial Intelligence. These works are especially based on competences in Algorithmics, Logic, Natural Language, and Machine Learning.

> **LIPN develops fundamental researches** and leads a cooperation policy with large organisms and industrials. The effect of this policy is the participation to European projects, ANR (national research funds) actions and contracts with the CNET (Telecommunications) and different ministries, but also the collaboration with corporations in the scope of either European projects or industry PhD fellowships (CIFRE).