SURFACE CHEMISTRY

Sustainable, robust, reproducible and suitable for industry process
**FUNCTIONAL CHEMICAL INTERFACE**

**FOLLOWING YOUR NEEDS**

**SERVICE OFFER**

Leti surface chemistry service offers processes on semi-conductors and metals, glass and oxides, polymers and plastics from single component to wafer scale.

**SURFACE FUNCTIONALIZATION**

- Liquid, vapor, CO₂, supercritical deposition of:
  - Organic layers (silanes, phosphonates, thiol)
  - Polymers
  - Silica
  - Patterned (> 1μm)

**LOADING**

- Biological (DNA, PCR fragments, proteins, enzymes, antibodies) or chemical (saccharides, peptides, synthetic molecules) loading
- Spotting
- Freeze drying

**SURFACE CHARACTERIZATION**

- Contact angle
- Thickness (from 1nm)
- Roughness Porosity
- Specific surface
- Zeta potential
- Fluorescence

**MAIN EQUIPMENTS:**

- Molecular Vapor Deposition, MVD-100E from Applied MST
- Supercritical fluid deposition, SFD-200 from 31deg
- Spin-coaters, from Laurell
- Electrografting cells in glove box
- Mask aligner, SET MA750 from Karl Suss
- Microwave reaction system, Multiwave Pro from Anton Paar

**SERVICE OFFER**

Identification of the customer’s needs

Choice, adaptation or development of the surface functionalization

Process optimization for short runs

Feasibility test

Industrial transfer

**SUCCESS STORIES**

**ENVIRONMENT**

TOXIN DETECTION IN DRINKING WATER

MATISS project with CNES

- 3 functionalized plaques: a fluorinated thin layer, an organic silica and a biocompatible polymer
- 6 months experimentation aboard the International Space Station

**HEALTHCARE**

LAB-ON-CHIP FOR FAST DIAGNOSTIC

ULTRA European project

- Roll-to-roll biofunctionalization of PMMA sheets
- Biological probe grafting by non-contact printing with controlled size and form
- Reproducible process on large area and low cost

**MICROELECTRONIC**

ORGANIC MEMORY

INAC

- Redox molecules grafting
- Direct grafting on silicon
- 2 different grafting: via heating and electrochemistry

**GREEN CHEMISTRY**

SUPPORTED CATALYSTS

ARCANE labex

- Synthesis and grafting of organic catalysts on nanoporous silica beads
- Supercritical CO₂ deposition (without solvent)

**UNIQUE EXPERTISE**

Integration of the resulting chemical processes taking into account fabrication constraints and application requirements:

- Low temperature processes
- Fast processes
- Biocompatible processes
- Green processes

**KEY FIGURES**

- Facilities: 170 m² of clean room dedicated to surface chemistry
- Quality: ISO 9001 and ISO13485
- 20 projects per year

Leti surface chemistry service offers processes on semi-conductors and metals, glass and oxides, polymers and plastics from single component to wafer scale.
ABOUT LETI

Leti is a technology research institute at CEA Tech and a recognized global leader in miniaturization technologies enabling smart, energy-efficient and secure solutions. Committed to innovation, its teams create differentiating solutions for Leti’s industrial partners.

By pioneering new technologies, Leti enables innovative applicative solutions that ensure competitiveness in a wide range of markets. Leti tackles critical, current global issues such as the future of industry, clean and safe energies, health and wellness, safety & security…

Leti’s multidisciplinary teams deliver solid micro and nano technologies expertise, leveraging world-class pre-industrialization facilities.

For 50 years, the institute has been building long-term relationships with its industrial partners providing tailor-made solutions and a clear intellectual property policy.

INTERESTED IN THIS TECHNOLOGY?

Contact:
Guillaume Nonglaton
guillaume.nonglaton@cea.fr
+33 438 789 129

© Leti - Photo credits : P.Avian - 2017/07

Leti, technology research institute
Commissariat à l’énergie atomique et aux énergies alternatives
Minatec Campus | 17 rue des Martyrs | 38054 Grenoble Cedex 9 | France
www.leti-cea.com