

# Mines Saint-Etienne

## Provence Microelectronics Center (CMP)

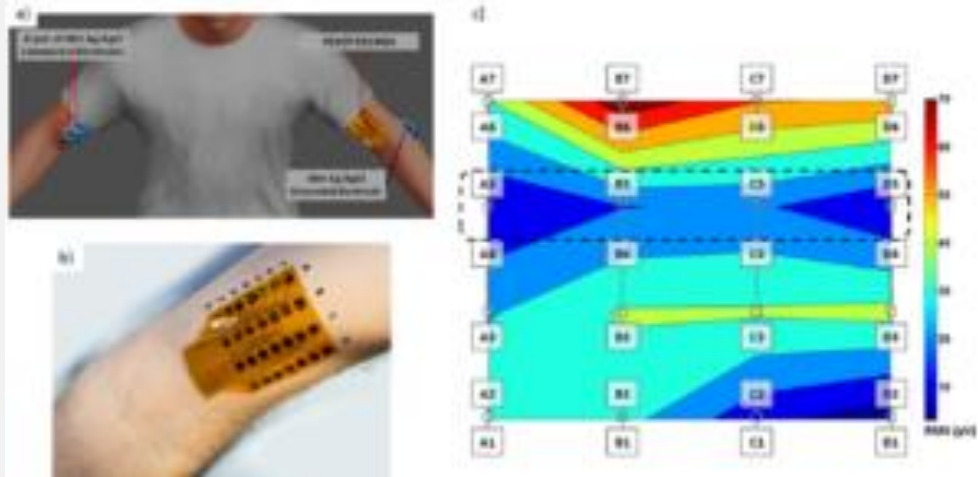


Provence Microelectronics Center (Mines Saint-Etienne)  
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13120 Gardanne (FRA)

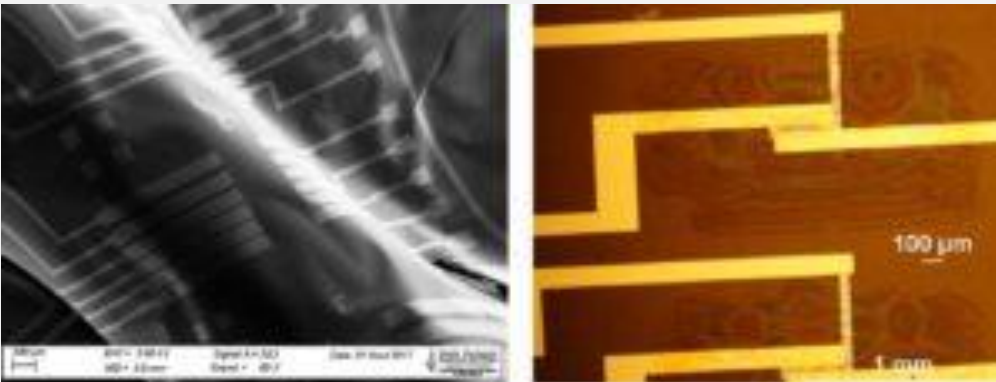
*« Exploring New Microelectronics Technology and Devices  
for Innovative Applications »*

The CMP was created in 2003 at the heart of a major French microelectronics cluster (known as the cradle of smart card industry) which gathers leading manufacturers and designers of microelectronic devices and systems. From the beginning, the CMP has adopted a policy of strong partnerships with the smartcard industry, including large companies such as STMicroelectronics and Thalès, as well as several innovative SMEs. Research is organized in four departments (including a joint team with CEA-Leti) covering domains of semiconductor manufacturing and logistics, digital security, flexible electronics, as well as emerging fields of bioelectronics and printed electronics.

### Wearables/ Organic bioelectronics



### Ultraflexible organic transistors & circuits



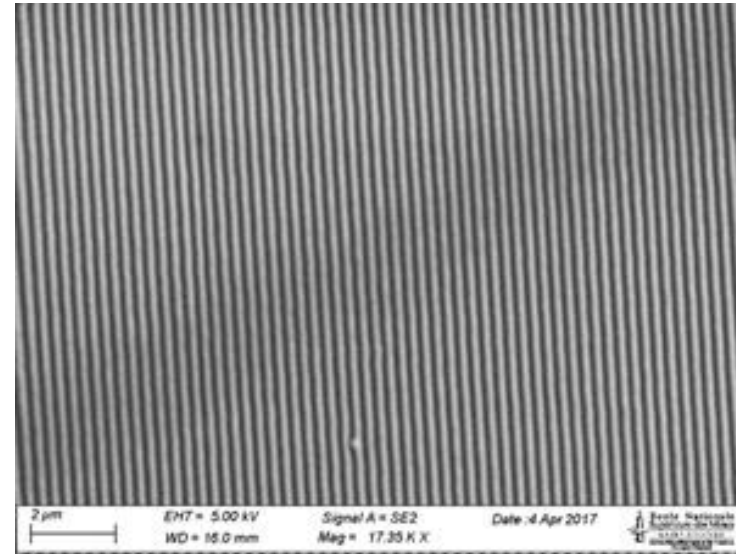
The objectives of the Flexible Electronics (FEL) Department are in the development of technological bricks required for the realization of electronic components that are complex, flexible and/or stretchable.

Manufacture of autonomous, ultra-thin, flexible and conformable devices have spread the research from nanomaterials, energy management to heterogeneous integration on flexible / stretchable substrates. We are very active in applications such as: smart interfaces (human-machine interface), IoT, smart sensing, biorobotics/mimetics.

## We are active in the field of:

### Organic & Printed Electronics (more info: [here](#))

- Printed & Flexible Electronics
- (Semi)Conducting polymers engineering
- Micro-Nanotechnologies
  
- OFETs/ OECTs
- OLEDs, OPDs
- Wearables/ Smart textiles
- Deposition and solution-processing techniques
- Machine development
- Hybrid systems
- Flexible Electronics
- Vacuum techniques



*Nanostructured PEDOT: PSS*



*UltraFlexible Electronics*



*Electrochemical gradient for cell migration*



## We support

- Internships (Master Degree,...)
- Bachelor/Master Thesis
- Trainee programs (PhD, Graduate engineering school,...)

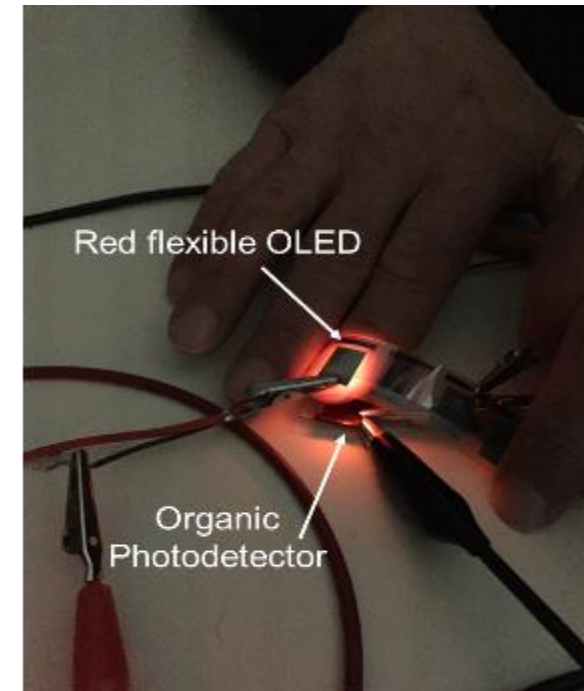
## Postdoctoral fellowship: Structure-property relationships of Polymeric Mixed Ion-to-Electron Conductors.

Ultra-flexible, conformable and implantable organic electronic devices incorporating artificial intelligence promise to revolutionize real-time monitoring and treatment of chronic diseases. Such devices could be based on organic electrochemical transistors (OECTs) exploiting polymeric mixed ion-electron conductors (PMIECs) as active layers. Indeed, PMIECs have emerged as an excellent hardware platform for interfacing biology with conventional electronics; identified as the “organic or plastic bioelectronics” field.

In such a scientific context, the postdoctoral fellow (PDF) will develop new instrumentation which will make it possible to record the ion mobility of the PMIEC by analyzing the frontal (de)doping mechanisms. In particular, as a first objective, the PDF will develop computer control to drive and synchronize (Python programming environment) several spectroscopic, optoelectronic and electrical equipments to automatically extract key physicochemical parameters from PMIECs.

**More info and how to apply: [Here](#)**

We are hiring!



*Skin-oxymetry recording*