

Postdoctoral Position in Stretchable Electronics devices

Department of Flexible Electronics, CMP - Mines Saint-Etienne, Gardanne, France, 2015

Study Subject: Fabrication and characterization of stretchable interconnections and devices.

Host Research Center: EMSE - The Department of Flexible Electronics is one of four research departments at the Microelectronics Center of Provence (Centre Microélectronique de Provence - CMP). The CMP is one of six research and education Centers of the "Ecole Nationale Supérieure des Mines de Saint Etienne" (EMSE). EMSE-CMP is one of the French "Grandes Ecoles" dedicated to training highly qualified engineers. The school's expertise is based on teaching that is both academic and directly related to the real world of the companies, and is supported by innovative pedagogy. The school's pioneering spirit is seen in its exploration of new scientific themes or international partnerships which make it a unique player among the top 10 French engineering schools.

The flexible electronics department (FEL) as research department of CMP develops technological and scientific knowledge in the field of printed electronics. The department has a strong knowledge in the field of material and interface electrical and mechanical characterization. The activities of the department are regrouped in the 660m²-area platform. This technological platform regroups facilities and technological equipment for R&D activities in Micropackaging, micro and nano-electronics, in a clean room of 220m² 1000-class and 400m² 10000-class. The department is well-equipped for thin film processing by i) vacuum sublimation, and ii) solution and inkjet printing deposition techniques. Electrical characterizations are realized thanks to an automatic probe station and multiple testers. SEM, AFM, EBSD, X-rays, Nanoindentation, Raman spectroscopy and acoustic scanning microscopy associated with complete the analysis and device characterization.

Description of the position: Would you like to take part in the development of revolutionary electronic devices and systems to shape a soft and rubbery future for electronics?

Electronics of the future are expected to be foldable, twistable, and stretchable into curvilinear shapes to enable applications that would be impossible to achieve using today's rigid, hard electronics. As a revolutionary technology, stretchable electronics has been changing our concept of electronics and brought us amazing features in numerous applications. Generally, such features are designed with soft materials as the interface between electronics and the human body or complex surfaces, e.g. epidermal electronic system.

Stretchable electronics can also be used for the fabrication of plastic pieces which integrated the electronic components. As a matter of fact, thermoforming of plastic generates large strains and thus its embedded electronics has to absorb the mechanical deformation. This is the goal of the project ELIPPSE which includes two academic schools and multiple industrial partners. Within this project, our work will focus on the fabrication and characterization of stretchable connections and devices as well as fabrication and integration techniques within plastic pieces.

During this postdoctoral position, the steps will be:

1. Development and optimization of the experimental setup for characterization of stretchable electronics devices.
2. Characterization of new materials (provided by our partners) adapted to stretchable electronic applications.
3. Fabrication and characterization of stretchable connections and devices.

Hands-on lab work is essential, and will be mainly performed in our state-of-the-art clean room facility. Demonstrations of radically new devices, possessing features and functions that cannot be achieved with existing electronics would be the exciting outcome. Good interactions with the academic and industrial partners involved in the project are highly important.

Candidate Background: The successful candidate should have a PhD of Science in physics, chemistry, material science, engineering sciences, or equivalent. Strong collaboration spirit and good communication skills in oral and written English is mandatory, as publications in peer-reviewed journals and presentation in international conferences are needed. Good experimental skills will also be required.

The postdoctoral position is for 1 year (extendable to 2 years) and start as soon as possible.

Gross salary is around 30 K€; Health insurance benefits are largely included.

Working location is in Gardanne, in South of France.

Application:

Deadline for application: as soon as a suitable candidate is hired

The application must consist of the following documents:

- Full curriculum vitae including all relevant academic degrees, professional experience, achievements, skills, knowledge, academic ranking, project work and so on.
- Motivation letter / Statement of purpose: What are your technical interests? How can this postdoctoral position be related to your previous studies and future career goals? - Maximum 2 pages long.
- Contact information of two reference persons.

Applications via e-mail (PDF-files) are to be sent to ramuz@emse.fr

We also accept applications via ordinary post sent to:

CMP, EMSE
Marc Ramuz
880, route de Mimet
13541, Gardanne, France

For more information about the position, please contact

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