



CHAIR of EXCELLENCE - ENERGY

Development of environmental energy harvesting micro-devices based on advanced materials/systems and associated micro(nano)fabrication technologies *- Integration strategy of such devices to operate autonomous sensor networks -*

The Σ -lim LabEx "Laboratory of Excellence" groups two of the best French research institutes in their respective fields: SPCTS (<http://www.unilim.fr/spcts> - formulation, elaboration and optimization of ceramic materials, improved manufacturing processes and architecture design) and XLIM (<http://www.xlim.fr> - mathematics and computer science, cryptography, electronic and photonic devices). With more than 600 investigators, the Σ -lim LabEx is a dynamic academic environment, in close relationship with industry and exploiting state-of-the-art facilities.

Σ -lim addresses all the value chain from "specific ceramic-based materials and components up to integrated, secured and smart communications systems". One key topic is the development of autonomous sensor networks. Σ -lim thus focuses on strategic issues in the value chain through the implementation of "4 years Chairs of Excellence". The operating budget associated to one chair allows recruiting the chair leader plus Postdoctoral and PhD research associates. Chairs are attributed to talented scientists, with an expertise recognized at the international level and willing to boost up their career in a motivating and multidisciplinary environment.

The position we offer here is that of the leader of the "Energy" Chair of Excellence. The objectives of the chair include the development of advanced materials and associated micro(nano)fabrication technologies to produce micro-devices for energy harvesting (collection/transduction, storage) by exploiting the energy available around the sensor, as well as the integration of such devices to operate the sensors autonomously. The research routes to be followed in this aim are not restricted. A key driver will be to get the maximum energy efficiency. Transduction using piezoelectric, thermoelectric, magneto-electric or photoelectric effects, devices like MEMS/NEMS, fabrication processes like bottom-up ones (self-assembly, additive manufacturing), materials like ceramics, hybrids, composites...are all eligible in principle and will depend on the applicant overall skills.

The applicant must be a senior scientist in energy sources, storage and system integration. She or He should have a significant knowledge in experimental physico-chemistry of advanced materials, especially hybrid materials, applied to device fabrication. Skills in the design and modeling of components and systems would be appreciated but are not mandatory. In addition, at least 10 years of experience in the management of national and international projects are required. The chair leader will be responsible for the management of his/her own research team and he/she will be encouraged to consolidate her/his action through an active policy of establishment of strong and wide partnerships through industrial and academic grants at national and international levels. After the 4 years tenure, research achievements of the team managed by the chair leader will be peer-reviewed by a Σ -lim committee and assessed based on the number and quality of papers, grants obtained, as well as valorization of the research through patenting, licensing, etc. The involvement in the creation or consolidation of start-up companies will also be strongly encouraged.

Candidates are invited to submit a comprehensive CV and a copy of their most significant papers to sigma-lim@unilim.fr by the 1st of January 2014.

Location: Limoges (in France at 3 hours away southward from Paris by train/car) – The Limoges metropolis is a 2000 years old historical city with 200,000 inhabitants and it is well known for its very good French life standard.

Duration: 4 years

Salary: from 4000 € net / month

Keywords: energy harvesting and storage, system integration, autonomous sensors

