nanoSeminar Series 2021

Institute for Materials Science

Prof. Dr. Neus Sabaté

Institut de Microelectrònica de Barcelona IMB-CNM-CSIC

“Designing Single Use Sensors in a More Sustainable Approach”

Thursday, July 1st 2021
13:00 – 14:00

Normal: Seminar Room 115, Hallwachsstr. 3 (HAL)
Pandemic version: https://tinyurl.com/nanoSeminar-GA

Since the beginning of our century, we have got used to throwing away our electronic devices and replace them with much modern and updated versions every couple of years. This has a tremendous environmental impact that is often disregarded. One of the components that is incorrectly discarded is also one the most hazardous: the battery. The most alarming factor is that batteries use and consumption is expected to rise significantly in the following years due to the growth of small-sized portable appliances in the internet-of-things scenario. In view of this perspective, tightened environmental laws and increased provisions for recycling infrastructures (primary battery collection and processing) are urgently needed. However, this scenario is not conducive in the short-term in developing economies due to the high cost and complexity of implementation. Indeed, this may not be environmentally sustainable even for developed economies either; building-up costly and energy-consuming recycling plants to take care of the batteries generated along the linear “take-make-dispose” path followed traditionally since the early days of industrialization entails a huge waste of natural resources, energy and labour. The talk will address the solutions proposed by Sabate to supply sustainable energy to small-sized electronic products and to develop digital sensing devices with minimal electronic content as an example of the new generation of sustainable devices to come.

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Neus Sabaté obtained her PhD in Physics in 2003. She is an ICREA Research Professor and leader of the Self-Powered Engineered Devices Group at the Microelectronics Institute of Barcelona (IMB-CNM). She has co-authored more than 100 papers in journals and conferences and submitted 15 patents. In 2006 she started a research line in silicon microfabricated fuel cells that evolved to the biodegradable electrochemical power sources she develops today. In 2015 she obtained an ERC-Consolidator Grant to develop single-use paper fuel cells as key components of a new generation of affordable and efficient point-of-care devices. She also co-founded Fuelium SL, a company that commercializes paper batteries for single use applications.

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