

## **Carbon nanotubes and their role in ultra-low power sensing**

Cosmin Roman, Kiran Chikkadi, Wei Liu, Tobias Süss,  
Valentin Döring, Miroslav Haluska, and Christofer Hierold

First devices based on Single-Walled Carbon Nanotubes (SWNTs) appeared about 2 decades ago. Those demonstrators have soon captured the attention of the research community by exhibiting significant performance improvements over competing technologies. In this talk, we will review progress made in pushing the limits of devices based on carbon nanotubes. The focus will be on physical and chemical sensors incorporating individual SWNTs. An emphasis will be placed on their sensitivity, resolution, small footprint and especially low power consumption as key selling features. The presented performance numbers should motivate colleagues from industry to join our efforts and overcome the few last hurdles in the path of successful commercialization of products based on carbon nanotube sensors. An example of an opportunity in which industry may still get involved and play a role is large scale manufacturability.