

Editorial

Organic electronic devices (OEDs) are considered the next scientific and technological revolution that it is predicted to evolve our way of life in an even larger extent than the revolution of Microelectronics back in the 1960's, which changed our world. The development of low-cost organic electronic devices onto light-weight, transparent, flexible polymeric sheets by high-throughput processes, will radically advance existing applications that are currently based on Si technology, and it will also result to novel applications, such as for energy generation (organic photovoltaics – OPVs), visualization of information and lighting (organic light emitting devices – OLEDs), electronics and communications (e.g. organic thin film transistors – OTFTs), smart information systems (e.g. radio frequency identification-RFID tags, e-paper), batteries, sensors, and biosensors. In addition, the capability for fabrication of high quality and efficiency devices by solution-based processes to large-areas (e.g. by roll-to-roll process) will increase the volume and throughput and will reduce the production costs and consequently the market price of OEDs.

During the last years, there have been significant progresses in organic materials and their synthesis methods, targeting to the improvement of their efficiency, performance, stability and lifetime, and to the advancement of the material component fabrication, device manufacturing methods and device function. The upscaling of the active and passive materials synthesis from low throughput, lab-scale and batch methods to low-cost and large-scale processes is the ultimate goal that will enable the wide market implementation of OEDs. Market predictions for OEDs are foreseeing to be more than 300 billion €, in 2025, whereas the required amount of investments per venture in organic electronics is order of magnitude lower than in the case of Si-based Microelectronics. This provides several technological and business opportunities for small countries to invest in OED production. Also, the 6th (FP6) and 7th framework programs (FP7) of European Commission together with national programs from Germany and UK have supported research entities and industries mostly from central and northern Europe to deal with the organic electronics, and the constitution of many European research centers has acted as an indicator for high innovation potential.

Naturally, a thorough comprehension of all properties of organic insulators, semiconductors, and conductors is the goal of many research groups around the world. However, in order to overcome the scientific and technical challenges that have arise during the evolution of materials and processes for the production of OEDs, a strong multidisciplinary approach is needed in the field of organic electronics, which will bring together experts in Chemistry, Physics and Material Science, and Engineering, and will soften or even overcome the traditional boundaries between them.

The 1st **International Symposium on Flexible Organic Electronics (IS-FOE)** that took place during 9–11 July 2008 in Halkidiki, Greece, represents one of the efforts to address the above needs and to stimulate the strong scientific interaction between scientists, researchers, and engineers towards the comprehensive understanding of the nature of organic and hybrid materials that will contribute to the improvement of the rational design of highly functional organic electronic devices. Besides the scientific presentations, representatives from European Union R&D Projects from both FP6 and FP7 and from European Commission as well as from Germany, presented the Strategy of Europe in Organic Electronics, open and upcoming calls, platforms, results from meetings, policies and priorities. The next IS-FOE Symposium at 8–10 July 2009 will also involve presentations and policies from other geographical areas such as USA and Asia as well.

The present issue of *European Physical Journal – Applied Physics* comprises a selection of papers presented in specific subjects with the aim to give an overview of the amount and the quality of the more than a 100 presented works during IS-FOE. All delegates renewed their appointment to meet again at 8–10 July 2009 in IS-FOE09.

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