IS-FOE 1 (International Symposium on Flexible Organic Electronics): July 10-11, 2008, Halkidiki, Greece

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The 1st International Symposium on Flexible Organic Electronics (IS-FOE) that took place at the Pallini Hotel in Halkidiki, Greece, on July 10-11, 2008 is the first international scientific event in the area of flexible organic electronics. The IS-FOE has been organized by the Lab for Thin films Nanosystems & Nanometrology (LTFN) of Aristotle University of Thessaloniki, Greece and co-organized by the Plastic Electronics Foundation. Also, it has been supported by the EC funded R&D Projects: Flexonics (FP6 STREP), OLAtronics (FP7 STREP), PolyNet (FP7 NoE), OPERA (FP7 CSA). The purpose of IS-FOE was to bring together scientists and engineers actively engaged in the research, development, and manufacturing of Flexible Organic Electronics including organic/inorganic materials, flexible substrates, manufacturing processes, circuit designs, flexible devices, system integrations and product applications, and to discuss current progresses in this emerging field.

The IS-FOE covered the most advanced topics and subjects in the field of Organic Electronics, such as:

- Organic electronic materials (small molecule and polymers).
- Organic/inorganic and hybrid materials and systems.
- Flexible substrates & encapsulation methods & materials.
- Molecular electronics and photonics.
- Self organized molecules and systems.
- Theory & modelling (materials, components and devices).
- Manufacturing processes (printing, vacuum, chemical).
- Flexible displays & lighting.
- Flexible solar cells.
- Flexible circuits and sensors.

The IS-FOE started with the Welcome Opening Event on July 9th, with the title: "Strategy of Europe & EC in Organic Electronics", in which EC officials presented the next steps of EC's Strategy in Organic Electronics whereas selected presentations from Co-ordinators of leading FP6 and FP7 R&D EU & German Projects have shown details about their breakthroughs, future activities and prospects

- Dr. Marc Boukerche, European Commission, Belgium
  "The EC contribution to Flexible, Organic & Large Area Electronics".
- Prof. Stergios Logothetidis, Aristotle University of Thessaloniki, Greece
  FP7 ICT STREP "OLAtronics" & FP6 NMP STREP "Flexonics".
- Dr. Ewa Dobruchowska Technical University of Lodz, Poland
  FP7 Network of Excellence "PolyNet".
- Dr. Mary Killitziraki, TNO-Holst Centre, The Netherlands
  FP7 ICT IP Project "Fast2Light".
- Dr. Konstantin Fostiropoulos, Hahn-Meitner-Institute, Germany
  "The German Initiative on OLEDs & OPVs" & "German Project: Self-assemply in Organic Hybrid solar cells".
- Dr. Bertrand Fillon CEA LITEN, France
  FP7 Project "Greenbat", and FP7 Project "FACCESS".
- Mr. Ed van den Kieboom, Plastic Electronics Foundation, The Netherlands
  FP7 Project "OPERA".

The number of the contributed presentations was 97 (invited, oral & poster), from 22 countries. More specific there was 18 invited, 33 oral and 46 poster presentations. It is important to mention that the fields of expertise from the participants covered the organic electronic materials chemical synthesis, physical and chemical properties of materials, theoretical calculations, device design-manufacturing & testing, encapsulation, large area printing systems. Some of the contributed presentations will be published as peer review papers in the European Physical Journal - Applied Physics

(http://www.epjap.org/).

Highlights

All the presentations were outstanding and to the point of the scopes of IS-FOE. Some of the most highlighted presentations of the IS-FOE are being summarized below.

- Dr. K. Fostiropoulos, from Hahn-Meitner-Institute of Berlin, presented the current status of the research on OLEDs and OPVs in Germany with the presentations entitled: "The German Initiative on OLEDs & OPVs" & "German Project: Self-assembly in Organic Hybrid solar cells". After mentioning the funding of the Germany on these ICT technologies he presented the scientific-industrial network in the frame of the OPV-Initiative 2007 called "SOHyb" Self-assembly in organic hybrid solar cells. The research goals of this particular network are a) Develop self-assembled organic nanostructures from absorber molecules, Generate sequentially deposited donor-acceptor nanocomposite layers in order to reduce transport paths for excitons and charge carriers. We anticipate that this will contribute remarkably to improve solar cell parameters, Develop novel cell concepts by merging small molecules, polymers and meso-structured TCOs to novel hybrid layer systems, Demonstrate the fabrication of layer systems applying simple methods feasible for industrial production (up-scaling, high through-put)
- Dr. N. Meyer from AIXTRON AG, presented the activities of the company on Organic Vapour Physical Deposition (OVPD). More specifically he explained the principles of the OVPD process and he showed various OVPD systems from lab to industrial scale. The potentiality of OVPD is high enough to be applied in large area manufacturing of flexible organic electronic devices.
- In the field of applications, Prof. G. Malliaras from Cornell, presented the use of flexible transistors as biosensors in the presentation entitled "Conducting Polymer Transistors for Sensor Applications". The biosensing properties are based on change in electrical current of conductive polymers after the interaction with biological molecules.
- In the field of large area manufacturing, Dr. A. Campbell, from Imperial College London, with his presentation entitled "Gravure printing of polymer thin film transistors on flexible substrates" gave a picture of the use of gravure printing in manufacturing OTFTs with P3HT top gates.
- Finally, concerning the passive components of the flexible organic electronic devices, like the transparent barrier layer on flexible substrates for device encapsulation, Dr. S. Amberg-Schwab from Fraunhofer Institut für Silicatforschung with presentation entitled "Nanoscale transparent barrier layers for technical applications". The presentation covered all the latest results about the technologies being used for the encapsulation with organic-inorganic hybrid layers. In the same frame Dr. A. Laskarakis from Aristotle University of Thessaloniki with his presentation "Real time optical monitoring of inorganic layer growth onto flexible polymeric substrates" explained a non-destructive method for evaluation of the barrier layer properties on a roll-to-roll processes.

Awards

In the frames of the ISFOE, PhDs participants were encouraged to apply to be awarded for their work on Organic Electronics field. There were 5 candidates for the 2 awards (1 for oral and 1 for poster presentations). The winners of the two awards were Dr. E. Umana from Dipartimento di Ingegneria Elettrica Elettronica e dei Sistemi, Università degli studi di Catania (CT), Italy (Oral Presentation Award) with the work entitled "Demonstrators and multifunctional testbeds for organic semiconductor characterization" and Dr. D. Georgiadou from Institute of Microelectronics, NCSR Demokritos, Greece, (Poster Presentation Award) with the work with title:"Air Stable Solution-Processed Polymer Optocouplers".