

December 2014

**ADVENT Technologies at the 10th Hellenic Polymer Society Conference.
Patras, Greece. 4 – 6 December 2014.**

On behalf of ADVENT Technologies, Mrs Benedetta Squeo was participated in the 10th Hellenic Polymer Society Conference (<http://10th-hellenic-polymer-conference.iceht.forth.gr/>) with an oral presentation entitled "***New Near Infrared (NIR) Organic and Polymeric Materials During the OSNIRO European Project***".

Enormous research efforts into organic light-emitting diodes and organic photovoltaics during the last 5 years have created a broad base of ***organic optoelectronic materials***. Organic electronics is now on the way to the first commercially successful applications. While emission in the NIR can also be efficiently attained by the exploitation of colloidal, inorganic quantum dots, these are usually based on elements (Pb, Se, Cd etc.) that are much more toxic than organic compounds, which are therefore better suited, both from a general "sustainability" point of view, and, specifically, for applications in the biomedical area. In this presentation, the design concepts to new NIR organic semiconducting materials were presented as well as the objectives of the OSNIRO European project. Within **OSNIRO** the following ***key applications*** are primarily important:

(a) Organic NIR sensitive absorbers have the great potential for the development of ***a new generation of printable photodetectors*** with tuneable sensitivity windows that may be integrated into multifunctional devices for chemical/biological sensing. The novel devices should be cheaper than currently available ones, and suitable for construction of large, flexible sensors (arrays).

(b) ***NIR sensitive organic solar cells*** are expected to afford a better match of the solar cell response to the solar emission spectrum thus leading to *improved device performance*. *The availability of suitable NIR absorbing organic materials will be of primary importance towards tandem solar cells with different absorption windows of the two subcells.*

(c) ***NIR emitting OLEDs*** also command growing attention because of potential applications in *information processing and night-vision readable displays (displays invisible for the naked eye)*. The project aims to train young research fellows in this highly multidisciplinary field (involving chemistry, physics, engineering, and materials science) in a close and fruitful collaboration between well-known academic groups/institutions and established industry groups.

Advent Technologies is a world leader in the development of new materials and systems for energy applications. Advent Technologies is headquartered in Cambridge, MA, USA. The company also occupies research and development space in Patras, Greece where pilot manufacturing is taking place.

Advent Technologies Inc
Advent Technologies SA
Research Laboratories

One Mifflin Place, Suite 400, Cambridge, MA
L. Kifissias 44, Marousi Athens, GR15125
Patras Science Park, Rio Patras GR 26504

T: +1 857 264 7035
T: +30 210 637 8820
T: +30 2610 911 583

F: +30 210 637 8888
F: +30 2610 911 585