

Cooperation Project
Duration: Dec 2010 - Dec 2013
Partners: 5
Budget: 782292 Euros

Info

The development of innovative smart textile products having multiple functionalities and their interaction with environment have attracted a great scientific and technological interest in the last few years. The possibility which provides this rapid developing technology of flexible organic & printed electronics (e.g. organic photovoltaics-OPVs, sensors, RFIDs, OLEDs, etc. in almost every substrate, even on textile, with textile's similar production processes is expected to lead to the development of new smart textile products.

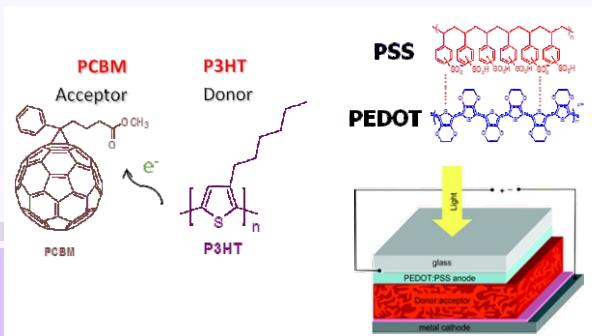
The main idea of YFATRONIC is the technology development for the integration of flexible organic photovoltaic devices onto textile products (e.g. textiles for tents, clothing etc.) and the design of the appropriate electronic circuits which will support OPVs for the charging of external portable electronic devices. The know-how acquired from this project will be the base for the integration of other kind flexible electronic devices onto textile products, like sensors, displays, antennas, etc.

For the achievement of the above goals YFATRONIC combines all the Greek excellence and know-how in this field.

Objectives

- Development of organic photovoltaic devices (OPVs) onto flexible substrates (polyester films, polyester textiles) by printing techniques which will be characterized by significant operational stability, lifetime (>2 years), efficiency (4%) and their flexible use on textile products.
- Development of electronic circuits which will drive the OPV devices for energy production to charge external portable electronic devices.
- Integration of OPVs and electrical circuits onto textile products (e.g. clothes, jackets, tents) for the production of electric energy from the functional textile for charging portable electronic devices (mobile phones, MP3 players, electronic book, etc.)
- Exploitation and transfer of the research results in order for the integration of other flexible electronic devices (such as sensors, biosensors, flexible displays, antennas, etc.) onto textiles.

Materials & Device Architecture



Lab Scale Fabrication



Flexible OPVs on clothes

