

## 3rd International Conference and Exhibition on Lasers, Optics & Photonics September 01-03, 2015 Valencia, Spain

## Unconventional thiophene materials for optoelectronics

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During the past few decades, processable organic semiconductors have been intensively studied due to their potential for a broad range of application in optoelectronics including e.g. organic light emitting diodes (OLEDs), organic photovoltaics (OPVs) and organic field effect transistors (FETs). Although remarkable progress has been made, the development of highly efficient and long-term stable optical and electrical devices is still a challenge. The milestones which stimulated the development of organic optoelectronics will be presented. After a brief introduction concerns the kinds of organic semiconductors together with their advantages and disadvantages, typical thiophene based materials will be discussed. The second part of this talk will be focused on unconventional compounds containing thiophene structures. Special emphasis will be put on compounds bearing imine linkages and/or aromatic imide rings. Thus, (poly)azomethines, (di)imides, azomethinenaphthaldiimides, azines and others selected bithiophene derivatives reported in the literature also by our research group will be presented. The selected, mainly luminescence, electrochemical and photovoltaic properties of mentioned compounds making them an attractive for optoelectronics will be reported.

## Biography

Ewa Schab-Balcerzak is a Professor at the University of Silesia in Katowice, Poland, and head of the department of Polymer Chemistry. She is also a Professor at the Polish Academy of Sciences in the Centre of Polymer and Carbon Materials in Zabrze. She received her PhD in 1999 and DSc in 2010 from Silesian University of Technology in Gliwice and from Warsaw University of Technology, respectively. In 1999, she was a visiting researcher at LEMP/MAO at the University of Montpellier, France. From 2010 to 2002 she was a Post-Doctoral Research assistant in the Department of Organic and Polymeric Materials in Tokyo Institute of Technology in Japan. In 2003, she worked at Fraunhofer Institute of Applied Polymer Research in Golm, Germany. Her experience and main research interests are in the design, synthesis, and characterization of new processable polymers and low molecular weight compounds for optoelectronic and photonic applications. Her scientific achievements contain over 110 papers in refereed journals, a few book chapters and contributed to over 100 communications in conferences. She is a reviewer for prestigious journals and Editorial Board Member of a few journals.

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