



Electronic devices based on thin films of conjugated polymers and carbon nanostructures

Lucimara Stolz Roman¹

¹Departamento de Física, Universidade Federal do Paraná, Curitiba, Brazil

lsroman@fisica.ufpr.br

Abstract

Organic electronics based on thin films as electrodes or active layers offer some processing advantages and new possibilities in the manufacture of these devices, such as flexibility and large areas. Interest in this area of research has grown significantly in last decade, presenting many innovations, whether in the synthesis of new materials, in the understanding of optoelectronic properties or in new device geometries allowing the increase of their efficiencies. The combination of conjugated polymers and carbon nanostructures can be an interesting way of organizing the nanostructure of thin film. In this work some examples of this property will be presented in the fabrication of electronic devices based on thin films obtained by: simple mixture in a common solvent; generated by interfacial synthesis; and by miniemulsion technique. The solution processed devices can take the advantage of nanostructured inks to allow their fabrication using spin coating or slot die coating in flexible substrates. Examples of gas sensors, active layers of solar cells, COVID optical sensors and electrodes obtained with this approach will be presented and discussed.