

POLYMERIC DEVICES: BASIC ISSUES, FABRICATION AND APPLICATIONS

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This presentation includes an introduction containing general aspects of organic materials that allow their use in electronic devices. We review basic types of polymeric devices, such as PLEDs and PTFTs, as well as different fabrication procedures that have been used up to now.

We present details of new results concerning the fabrication of top gate PTFTs with Polymethyl Metacrylate (PMMA) as dielectric and Poly (3, hexylthiophene) (P3HT) as semiconductor, using photolithographic techniques. Photolithography was up to now not compatible with polymeric device fabrication. A study of the interface properties of this MDS structure, where a density of surface states $N_{ss} < 1.5 \times 10^{11} \text{ cm}^{-2}$ is observed are discussed, as well as the electric characteristics of the devices. We also show aspects regarding modeling of these devices.

We will also show characteristics of PLEDs fabricated with copolymer (BEHP - PPV) - co - (MEH - PPV), which present some advantages with respect to previous one, as for example, (MEH - PPV).

Finally we will talk on some applications of these devices and future trends.

Biography of Magali Estrada del Cueto

Dr. Magali Estrada del Cueto got her MSc. from Moscow State University in 1966 and her PhD. from NW Polytechnic Institute in Saint Petersburg in 1977. She is Titular Professor at the Section of Solid State Electronics at the Department of Electrical Engineering at CINVESTAV-IPN.

Since 1967 Dr. Magali Estrada del Cueto has been working in different aspects of microelectronics and solid state devices. She is author of more than 80 papers and conference presentations, 2 patents and 2 books. During the last years, she started working in the application of polymeric materials to OTFTs and OLEDs, as well as in the characterization, modeling and simulation of these devices.

She is senior IEEE member, served as EDS Adcom member for two periods, until December 2007 and at present, is R9 (Latin America) chair and Distinguished Lecturer (DL) of the EDS.