

Large area, flexible electrochromic displays based on novel electroactive polymers

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Abstract

Electrochromic devices based on electroactive polymers are known to have a very low power consumption during operation due to low potential requirements for oxidation/reduction and an optical memory, whereby devices remain in a given redox state for an extended period of time when taken to open circuit. These characteristics make them ideal for systems that require long-term autonomy or even completely autonomous systems that can be powered by solar cells.

Despite of an intensive academic research in electrochromic materials, from inorganic metal oxides to organic small molecules and polymers, few electrochromic devices are commercially available, being most of them monochromic, being used in applications such as auto-dimming rearview mirrors and smart windows.

The aim of the presented work is to develop large and flexible displays based on novel multi-colored organic electrochromic polymers soluble in organic solvents as an environmentally-friendly alternative to traditional displays, with significantly lower weight and power consumption and with the possibility of being operated remotely.

In this communication we will describe the structure and fabrication of flexible ECDs matrices, being particularly focused on three key steps: 1-Electrochromic film deposition by spray techniques (including aerograph and ultrasonic piezoelectric nozzles); 2-Photocurable electrolyte deposition and cure; 3- Device assembling.

References

[1] Authors, Journal, **Issue** (Year) page.

Figures