

Layer-by-layer films for photonics devices: Analysis of birefringence creation and relaxation on azopolymer nanostructures

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Enhanced optical properties for memories and photonic applications can be focused on the molecular control that can be achieved with some fabrication techniques. One of these is the layer-by-layer technique which is based on the adsorption of oppositely charged materials which allows the development of nanostructured polymer/organic films and consequently is able to produce supramolecular architectures. The most interesting properties of the nanostructures prepared by this technique is the precise control of its thickness and composition. However, also their properties may be tuned synergistically having into account the adsorption variables during the preparation of the nanostructure's layers. Examples of these synergistic activities may be found in layer-by-layer nanostructures of azopolymers, which present their photoinduced properties altered by varying the electrostatic interactions responsible for the nanostructure formation. In this presentation will be presented

the achieved conclusions about the properties of layer-by-layer nanostructures of poly(allylamine hydrochloride) (PAH) and poly{1-(4-(3-carboxy-4-hydroxyphenylazo) benzenesulfonamido)-1,2-ethanediyl, sodium salt} (PAZO) when submitted to birefringence creation and relaxation when varying the variables of adsorption (e.g. pH, ionic strength), the number of consecutive cycles of birefringence induction and the power and wavelength of the writing laser beam.

Speaker Biography

Maria Raposo has completed her PhD in 1999 from Sao Paulo University, Brazil. She is professor of University of Lisbon, Portugal. Since 2008, she is head of the Functional Molecular Systems group which research interests include electric and optical properties of ultra-thin films of polymers and biomolecules, interfaces and nanotechnology, colloids, molecular architectures for electronics, photonics and magnetism, biomimetic membranes and radiation effect in biological systems. She has over 100 publications that have been cited over 1000 times, and her publication H-index is 18 and has been serving as an editorial board member of some Journals.

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