



Characterization and investigation of NLO properties of electrodeposited polythiophenes

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Résumé en anglais

In this work we study the electronic properties of ClO₄⁻ doped polythiophenes and discuss the nonlinear optical properties of these organic compounds galvanostatically electrodeposited on ITO glasses. The investigation on the electronic properties (band gap, flat band potential) was performed by means of a non-destructive optical technique, photocurrent spectroscopy (PCS). The investigation on the nonlinear optical response was carried out by means of second and third harmonic generation measurements. In particular, the effect of the oxidation state of the polymeric films was studied by comparing the NLO response of oxidized and reduced polythiophenes. Reduced polymeric films show higher values of the second ($\chi^{(2)}$) and third ($\chi^{(3)}$) order nonlinear susceptibilities.

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