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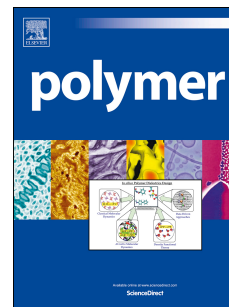
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Distyrylbenzene-based segmented conjugated polymers: Synthesis, thin film morphology and chemosensing of hydrophobic and hydrophilic nitroaromatics in aqueous media

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## Abstract

Two new segmented conjugated polymers bearing distyrylbenzene chromophoric units and their model compounds were synthesized. The tendency of the model compounds to form H- and J-type aggregates in the amorphous matrix was greatly diminished by the twisted polymeric architecture. Fluorescence anisotropy measurements indicated good exciton mobilities in condensed phase. Fluorescence quenching by nitroaromatic aqueous solutions was fast, complete, selective and reversible pointing to a rapid diffusion of analytes into the films. The quenching response to nitrophenols was superior to that against nitrotoluenes. The increase of the electron-donating capabilities by diethoxy-substitution was detrimental to the amorphous morphology and it did not increase sensitivity to NACs. Quenching efficiencies of polymers were not modified when MeOH was used instead of water. The solubility parameter distances,  $R_a$ , indicate that the sensing materials show higher responses when their affinity with the analytes is lower. This observation could help in the designing of fluorescent sensors.

## Keywords

Segmented conjugated polymer

Fluorescence quenching

Film sensor

Nitroaromatics

Aqueous phase

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