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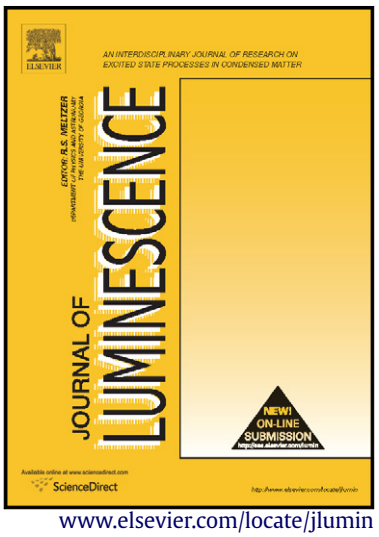

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Synthesis, Photophysical and Electroluminescence Properties of Anthracene-Based Green-Emitting Conjugated Polymers

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ABSTRACT

Anthracene-based conjugated polymers, which include carbazole and fluorene groups as host materials, are synthesized via Suzuki coupling reaction. Monomer feed ratios are varied in order to determine the effect of anthracene concentration on polymer properties. It is found that anthracene content plays a crucial role both in photoluminescence and electroluminescence properties of the polymers. All polymers exhibit efficient energy transfer from host groups to anthracene moieties in solid state. Excimer emission is observed for all polymers in devices, leading to green emission around 530-545 nm. A device structure of ITO/PEDOT:PSS/Polymer/Alq_3/LiF/Al based on a polymer with 5% anthracene-containing monomer produces a luminance efficiency of 1.9 cd/A.

Keywords: Conjugated polymer, Fluorescence, Anthracene, Excimer, Energy transfer, OLED