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Tunable and White Light Emitting Diodes of Single Component Fluorinated Benzoxazole Graft Copolymers SHIH JUNG BAI, CHIEN-CHANG WU, Institute of Materials Science and Engineering, National Sun Yat-sen University — Coil-like graft copolymers of poly(A_m-*co*-$B_{(1-m)}$) containing identical heterocyclic aromatic benzoxazole with trifluoromethyl-ethyl as the backbone and pendants of *mono*-hydroxl (A_m) and/or *bi*-decyloxyl ($B_{(1-m)}$) on their phenylene ring were studied for luminescence properties. The copolymers were synthesized with molar fraction m ranging from 0, 0.25, 0.5, 0.75 to 1, and then dissolved and spun onto Spectrosil® quartz slide or indium-tin-oxide (ITO) substrate. The fluorescence properties of copolymers were investigated by ultraviolet-visible absorption covering 185 nm to 800 nm and photoluminescence (PL) emission excited at 363 nm. The PL results exhibited an excellent chromatic tuning range from green to white emission as m decreased. Aluminum electron injectors were evaporated onto the copolymer/ITO unit making it into *mono*-layer light emitting diodes for current-voltage and electroluminescence (EL) responses. An emission threshold voltage of 6 V was achieved for all the *mono*-layer copolymer devices. The Commission Internationale de l'Eclairage chromaticities of the EL emission were from (0.25, 0.53) to (0.24, 0.31) covering a wide visible range including white light emission.

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