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研究论文

V形咔唑衍生物的合成及荧光性质

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摘要 以*N*-烷基咔唑作为电子给体和共轭桥中心, 二米基硼作为端基电子受体, 合成了两个V形A-π-D-π-A型新化合物: 3,6-二{[(*E*)-2-(5-二米基硼)噻吩]乙烯基}-*N*-丁基-咔唑 {*N*-butyl-3,6-bis{(*E*)-2-[5-(dimesitylboryl) thiophen-2-yl]-vinyl}-carbazole, BBTC}和3,6-二[(*E*)-(4-二米基硼)苯乙烯基]-*N*-己基-咔唑, {*N*-hexyl-3,6-bis[(*E*)-4-(dimesitylboryl)-styryl]-carbazole, BBSC}. 这两个化合物在蓝绿光波段都有较强的荧光发射. 光谱数据表明, 扩大共轭体系并在端基引入含硼基团导致吸收谱和发射谱显著红移, 并增大分子内电荷转移.

关键词 咔唑衍生物 有机硼化合物 V形分子 荧光

分类号

Synthesis and Fluorescence of Two V-shaped Carbazole Derivatives

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Abstract Two new V-shaped A-π-D-π-A type compounds, *N*-butyl-3,6-bis{(*E*)-2-[5-(dimesitylboryl)thiophen-2-yl] vinyl}carbazole (BBTC) and *N*-hexyl-3,6-bis[(*E*)-4-(dimesitylboryl)styryl]-carbazole (BBSC), with trivalent boron and carbazole as electron acceptor and the core of π-conjugated bridge respectively, were synthesized. All these carbazole derivatives can emit strong blue-green fluorescence either in solution or in solid state. Both the absorption and emission band have been greatly red-shifted when trivalent boron was introduced at the terminal as electron acceptor or the phenyls in π-conjugated bridge were replaced by thienyls.

Key words carbazole derivative organoboron compound V-shaped molecule fluorescence

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