

研究论文

含芳胺和1,3,4-噁二唑的星型有机分子合成及光电性质

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摘要 通过分子设计, 采用多步反应合成了2种新型的具有“双极”(Bipolar)性质和发光性能的以N原子为中心的星型有机分子. 用¹H NMR, MS和元素分析进行了表征, 研究了化合物的热稳定性和固体粉末的光致发光性质, 并用循环伏安法测定了其电化学性能. 结果表明, 这种同时具备空穴传导和电子输入双重功能基团的星型有机小分子的光致发光性能优良(量子效率达到82%—95%), 热稳定性好, 可以作为有机电致发光器件材料.

关键词 [有机小分子](#) [空穴传导](#) [电子传导](#) [发光](#)

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Syntheses and Photo-electricity Properties of Star-shaped Organic Molecules Containing 1,3,4-Oxadiazole and Arylamine Materials

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Abstract Two fluorescent star-shaped molecules, based on a N core, containing an hole-transporting arylamine and an electron-transporting 1,3,4-oxadiazole units were synthesized *via* a facile multi-steps procedure with a high yield. The star-shaped compounds TTPAOPA and TpMOKPAOPA emit blue light with high fluorescence quantum yields in the 0.82—0.95 range which indicate that they are high efficient light-emitting materials. The HOMO values are -5.28 eV and 5.46 eV, respectively. Reversible anodic oxidation results suggest that the compounds are predominantly hole-transporting. All the results indicate that the synthesized compounds are potentially good candidates as bipolar(hole-transporting/electron-transporting) and emitting materials for fabrication of organic light-emitting diodes.

Key words [Organic small molecule](#) [Hole-transporting](#) [Electronic-transporting](#) [Luminescence](#)

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