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论文

氧芴三苯胺多枝分子的双光子吸收与电化学行为

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摘要:

研究了3个氧芴/三苯胺衍生物: *E*-2,8-双(4-二苯胺基苯乙烯基)氧芴(简称OT-G1)、*E*-2,8-双[4-(二苯基氨基-二苯乙烯基)(4'-溴苯基)氨基-苯乙烯基]氧芴(简称OT-G1.5)和*E*-2,8-双-[4',4″-二-(二苯胺基苯乙烯基)-4-二苯胺基苯乙烯基]氧芴(简称OT-G2)的双光子吸收和电化学行为. 研究结果表明, 分子"代数"从1→1.5→2增高, 氧芴三苯胺多枝分子的HOMO能级升高、双光子荧光强度和双光子吸收截面明显增大. 由于HOMO能级的升高有利于分子的电荷转移, 因而分子表现出强的双光子吸收能力, 这表明可通过电化学行为来推断出分子的双光子吸收性能.

关键词: 氧芴三苯胺多枝分子 双光子吸收 双光子荧光 HOMO能级

Strong Two-photon Absorption and Electrochemical Behavior of Dibenzofuran-triphenylamine Dentritic Chromophores

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Abstract:

The motivation for the strong two-photon absorbing chromophore is based on the significantly potential applications such as three-dimensional fluorescence imaging, two-photon photodynamic therapy, optical data storage and TPE fluorescence microscopy. Thus, the relationship between molecular structure and strong TPA property is greatly valuable. Here, two-photon absorption(TPA) and electro-chemistry properties of three new dibenzofuran-based chromophores(named as OT-G1, OT-G1.5 and OT-G2) were investigated. Stronger two-photon fluorescence(TPF) and larger TPA cross-section were observed with the generation number increasing. It is interesting to find that the increasing of the HOMO energy level shows the contribution to enhancement of TPA cross-section.

Keywords: Dibenzofuran-triphenylamine dentritic chromophore Two-photon absorption Two-photon fluorescence HOMO energy level

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本刊中的类似文章

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