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Special Issue: AIE-active Polymer

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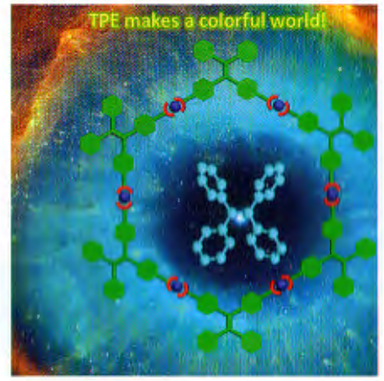
Cover Image

AIE-active Metal-organic Coordination Complexes Based on Tetraphenylethylene Unit and Their Applications

Bo Jiang, Chang-Wei Zhang, Xue-Liang Shi, and Hai-Bo Yang

AIE-active metal-organic coordination complexes including metallacycles, metallacages, and metal-organic frameworks (MOFs) have recently been successfully constructed by the self-assembly of TPE-cored ligands with metal salts. Moreover, they show potential applications in the fields of fluorescence sensors, cell imaging, and light-emitting materials.



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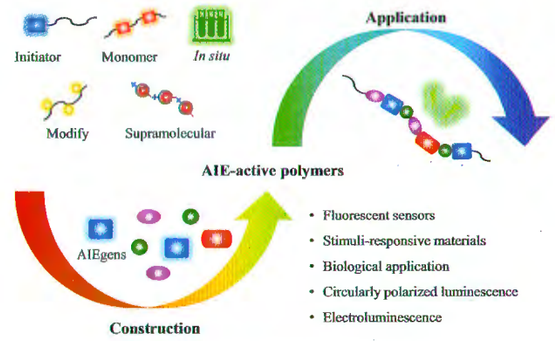
Contents

Reviews

Recent Progress in AIE-active Polymers

Yu Bing Hu, Jackey W. Y. Lam, and Ben Zhong Tang

Recent progress in the field of AIE-active polymers was summarized in two aspects: the construction of AIE-active polymers was classified into five types according to the roles of AIEgens in polymerization; advanced applications including fluorescent sensors, stimuli-responsive materials, biological applications, circularly polarized luminescence, and electroluminescence were introduced.



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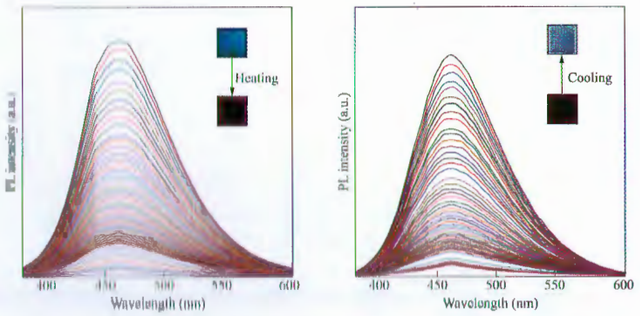
Articles

Thermoresponsive Fluorescent Semicrystalline Polymers Decorated with Aggregation Induced Emission Luminogens

Jia-Long Wu, Chi Zhang, Wei Qin, Da-Ping Quan, Ming-Liang Ge, and Guo-Dong Liang

An efficient blue-emissive polymer, abbreviated as PCB-TPE, was synthesized using tetraphenylethene (TPE) as the main building block. PCB-TPE was thermally stable with a novel property of aggregation-induced emission (AIE). Its emission showed temperature-dependent features and revealed fine details in the thermal transitions from −10 °C to 60 °C.



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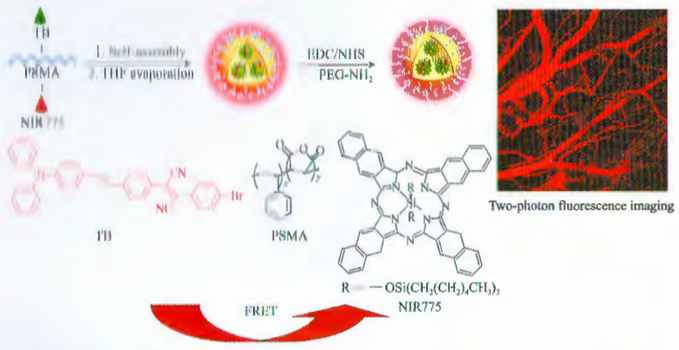
NIR Emission Nanoparticles Based on FRET Composed of AIE Luminogens and NIR Dyes for Two-photon Fluorescence Imaging

Lei-Jing Liu, Wen Liu, Guang Ji, Zhi-Yuan Wu, Bin Xu, Jun Qian, and Wen-Jing Tian

Near-infrared (NIR) narrow emission nanoparticles (NPs) based on fluorescence resonance energy transfer (FRET) were prepared by co-encapsulation of a red aggregation-induced emission molecule TB and a commercial NIR fluorescence dye NIR775 with an amphiphilic polymer PSMA. The PSMA@TB/NIR775 NPs were utilized for two-photon excited NIR microscopic imaging, and good NIR imaging effect of mouse brain vasculature was obtained.



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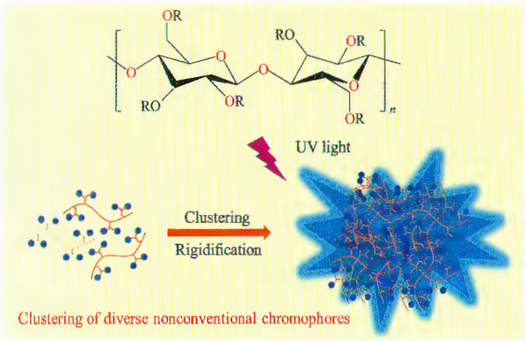
https://doi.org/10.1007/s10118-019-2206-3

Clustering-triggered Emission of Cellulose and Its Derivatives

Lin-Lin Du, Bing-Li Jiang, Xiao-Hong Chen, Yun-Zhong Wang, Lin-Min Zou, Yuan-Li Liu, Yong-Yang Gong, Chun Wei, and Wang-Zhang Yuan

Clustering-triggered emission (CTE) was observed in natural microcrystalline cellulose (MCC) and its derivatives of 2-hydroxyethyl cellulose (HEC), hydroxypropyl cellulose (HPC), and cellulose acetate (CA). Compared to CA, the other three solids showed much brighter emissions alongside distinct RTP, on account of their more intensive hydrogen bonds and higher crystallinities.



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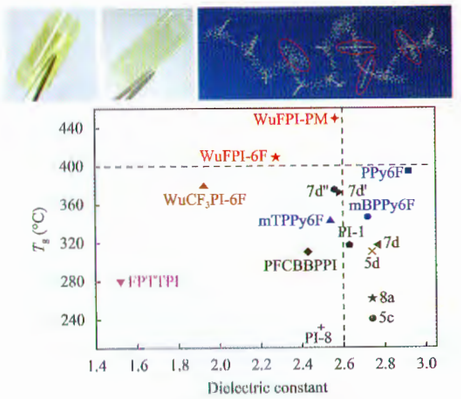
Synthesis and Properties of High Performance Functional Polyimides Containing Rigid Nonplanar Conjugated Fluorene Moieties

Yi-Wu Liu, Li-Shuang Tang, Lun-Jun Qu, Si-Wei Liu, Zhen-Guo Chi, Yi Zhang, and Jia-Rui Xu

High performance functional polyimides containing vertical rigid non-planar conjugated fluorene moiety and low polarizability group (C−F) were designed and synthesized, which exhibited low dielectric constant, excellent thermal stability, outstanding solubility, good film-forming property, and outstanding mechanical properties.



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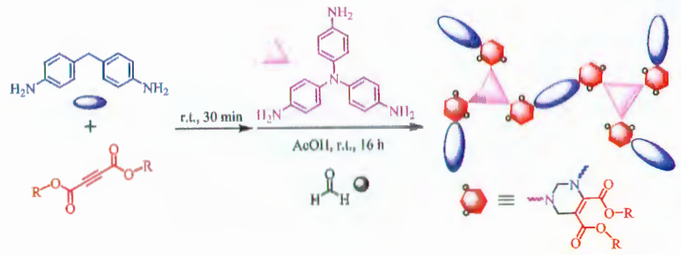
Aggregation-induced Emission-active Hyperbranched Poly(tetrahydropyrimidine)s Synthesized from Multicomponent Tandem Polymerization

Yuzhang Huang, Ping Chen, Bo Wei, Rongrong Hu, and Ben Zhong Tang

A multicomponent tandem polymerization of activated alkyne, aromatic amines, and formaldehyde was utilized to construct a series of hyperbranched poly(tetrahydropyrimidine)s with different topological structures. Through proper monomer design, hyperbranched polymer with neither traditional luminogen nor large conjugated structure was found to possess aggregation-induced emission property.



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